A Position Statement of the Michigan Society of American Foresters

Wood-based Thermal Energy Technologies

Position:

The Michigan Society of American Foresters supports the advancement of modern wood-based thermal energy technologies. These technologies provide a range of economic, environmental, and social benefits to society and support better management of Michigan forest resources and related goods and services.

Issues and Background:

- Advanced wood thermal systems are clean, automatic, and highly efficient.
- Thermal energy is defined as that energy required to heat and cool spaces (residences, businesses, institutions, etc.) and to produce domestic hot water.
- Thermal energy is distinct from, but can be connected to, electricity production and transportation fuels.
- Wood is an abundant Michigan resource with large volumes added to the inventory each year. While there are insufficient forest stocks to totally displace fossil fuels used in thermal applications, wood and wood-based products can serve as a significant feedstock across much of the state.
- Woody feedstocks include wood chips, wood pellets, cordwood, demolition wood, and other woody municipal waste streams.
- The majority of woody fuels will be derived from low quality standing timber.
- Much of Michigan lacks markets for low quality standing timber.
- Removal (thinning) of low quality trees is an essential component in building high quality and high value forest stands, and to maintain forest health and other forest services.
- Wood is already commonly used for energy production, for both thermal and power applications, and is the largest source of renewable energy in Michigan.
- Sustainably managed forests provide more carbon sequestration and other environmental benefits than unmanaged forest landscapes.
- Capital expenditures for wood thermal systems are often higher than for traditional fossil fuel systems but operating expenditures are often lower. Feasibility assessments must be tailored to each potential project to understand the true costs.
- In some cases, for some institutions, the community, economic, and environmental benefits may be more important than financial benefits.
- Wood-based thermal systems can be installed for individual buildings or for district energy systems which serve multiple buildings.
- Fossil fuel prices are expected to rise and may be increasingly volatile. Wood prices have been historically stable and predictable. This stability is an important factor in both annual and long-range budget planning.
- Some forest types on certain soils are sensitive to high levels of repeated biomass removal. Cost-effective biomass harvesting is unlikely to remove an excessive amount of nutrients.

Recommendations:

- New construction projects and boiler replacement projects should include consideration of an advanced wood-based thermal system. Designers, engineers, architects, and installers need to be aware of various options.
- The State of Michigan should promote and encourage the development of a wood-based thermal energy economic sector.
- Financial incentives should be provided for conversions to an advanced wood-based thermal energy system.
- Financial incentives should be provided to initiate bulk pellet delivery operations.
- Outreach and education efforts about wood-based thermal energy should increase.
- Compliance with the Michigan Biomass Harvest Guidance will minimize the potential for soil nutrient depletion.
- Engage in long-term soil impact studies related to timber harvest and biomass removals.

Discussion:

The development of wood-based thermal energy can be a significant driver in regional economies and environmental health. Such technologies are sustainable, support local jobs and infrastructures, and help keep energy dollars in the state. Regional examples can be found in parts of New England and in several European countries (e.g. Austria, Sweden, Finland, United Kingdom). Advanced cordwood boilers might be best applied to residences and small buildings. Modern wood pellet devices can serve residences and small to medium sized business. Wood chip systems work best for larger applications, roughly over 50,000 square feet, including district energy systems. With Michigan's large and continuously increasing forest inventory, there exists a significant opportunity to develop a wood-based thermal energy sector that contributes to community stability.

References:

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IDEA - International District Energy Association, *http://www.districtenergy.org*
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HTNE - Heating the Northeast, *http://www.nebioheat.org*
SWET - Michigan Statewide Wood Energy Team, *michiganwoodenergy.msue.msu.edu*

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A position adopted by the Board of Directors of the Michigan Society of American Foresters on XX Month 2017 and will expire after five years unless, revised, extended, or withdrawn.

The Michigan Society of American Foresters is the scientific an educational association of professional foresters, including consultants, researchers, professors, students, and employees of public agencies and private firms. The mission of the SAF is to advance the science, technology, education, and practice of professional forestry to benefit current and future generations.