A Regional Solution for Tree Waste

THE PROBLEM

As the State of Minnesota faces an increase in tree removals from of Emerald Ash Borer (EAB) infestation, the State's largest combined heat and power plant, St. Paul cogeneration, faces closure. At present, roughly two-thirds of wood waste in the Twins Cities metro area is processed biomass fuel for use at St. Paul Cogeneration.

2/3 of Twins Cities metro wood waste is used as fuel at St. Paul Cogeneration

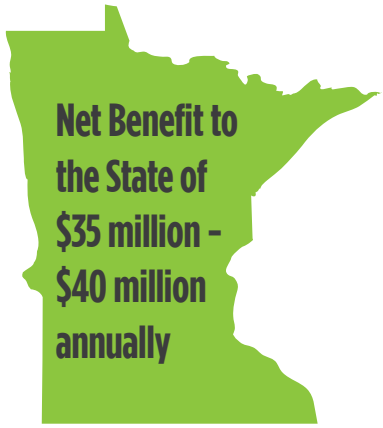
Despite the region's reliance on these facilities, economic pressures and the end of the operation's current power purchase agreement (PPA) with Xcel Energy in 2024, will render the facility at risk of closure.

Their impact has been measured through discussions led by the Minnesota Pollution Control Agency (MPCA) included representatives of various state agencies, municipalities, counties, District Energy St. Paul, the Partnership on Waste and Energy, and local tree care and wood generation businesses. The group examined potential alternatives for electricity cost reduction and gathered accounts of St. Paul Cogeneration's role in communities to understand the potential repercussions of St. Paul Cogeneration closure.

A recent net benefit test prepared by Xcel Energy with input from the MPCA and District Energy St. Paul demonstrates a **net benefit to the State of approximately $35 - $40 million annually**.

REQUEST FOR SUPPORT

Funding will be essential to maintain this critical wood waste management infrastructure's viability. Legislative support for a disposal subsidy is needed to help mitigate the economic pressures and maintain the functioning wood waste management system. Collaborators are **seeking legislative support for a subsidy of up to $35 million over 8 years to process biomass fuel containing wood waste from ash trees**.



To achieve a lower energy price to Xcel customers and retain St. Paul Cogeneration as a viable solution, the current method for tree waste disposal requires subsidization. Continuing the operation at St. Paul Cogeneration is important because a viable waste disposal alternative does not exist.

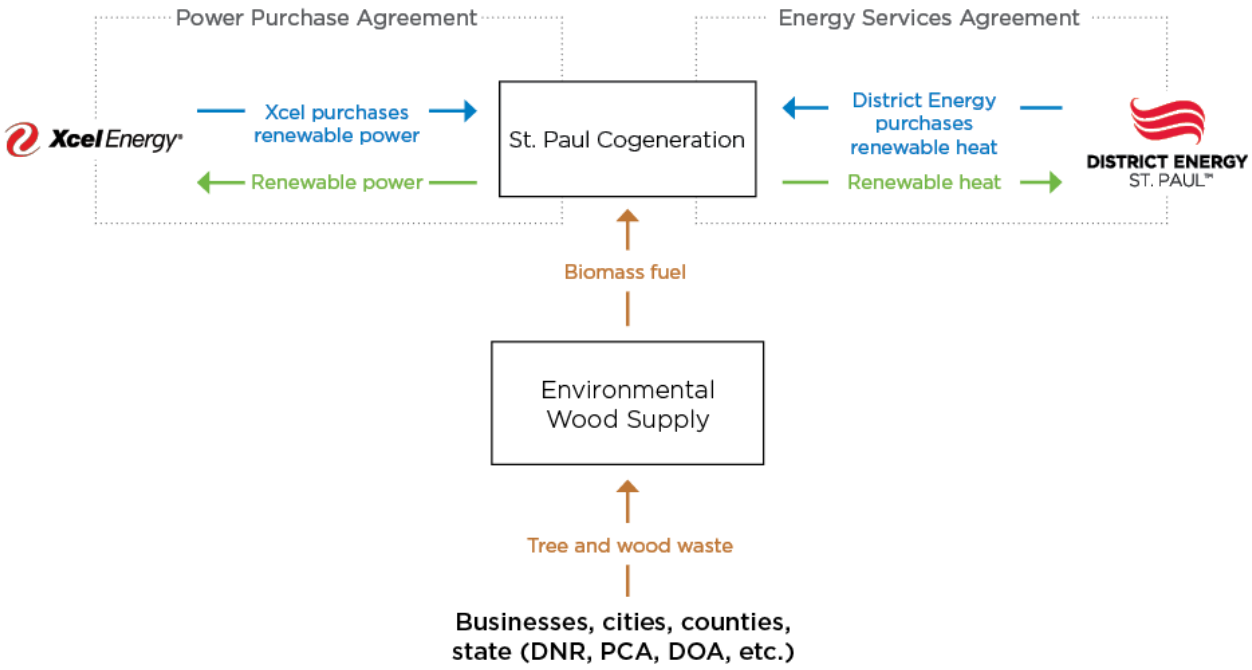
The proposed program, to be administered by the Minnesota Department of Agriculture, would provide state matching grants to assist communities with disposing of wood waste containing the remains of ash trees removed in response to the EAB epidemic and designate existing biomass energy facilities as critical infrastructure for local and regional emerald ash borer response programs.

This framework is similar to that which provided the State with the means to manage tree waste related to Dutch Elm Disease during the late 1970's and early 1980's.

Grant-eligible facilities would include District Energy St. Paul as the owner of St. Paul Cogeneration. District Energy St. Paul would be eligible to receive up to $35 million available over a period of 8 years to be distributed by the Department of Agriculture upon certification of the amount of processed biomass fuel containing wood waste from ash trees.

BACKGROUND

St. Paul Cogeneration is a combined heat and power facility that has used renewable biomass fuel to provide both renewable heating to downtown Saint Paul through District Energy St. Paul and renewable electricity to Xcel Energy for more than twenty years.

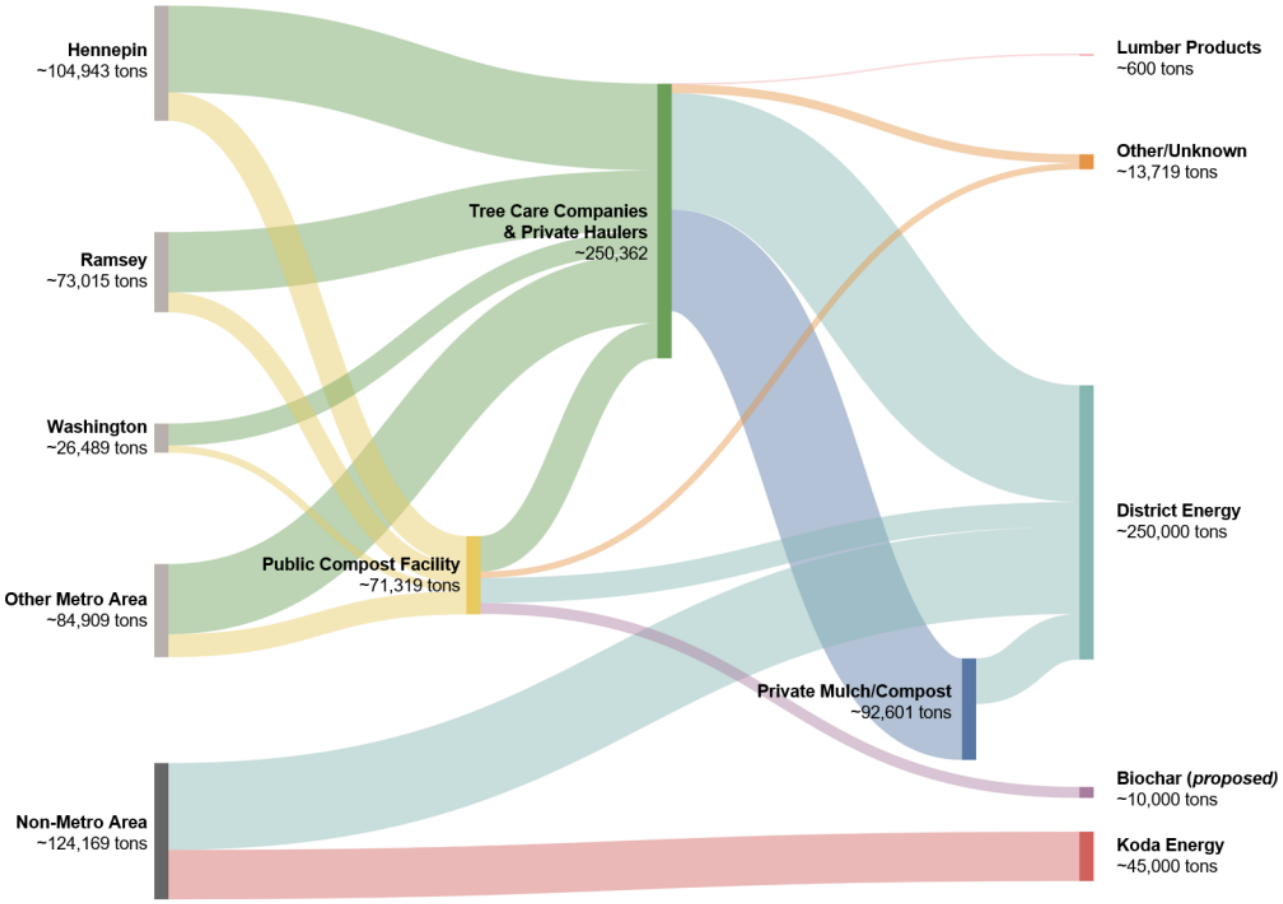


Wood waste projections suggest that **by 2028, a peak in ash tree removals will see more than 500,000 tons of wood waste within the Twin Cities metro area annually** according to the *Twin Cities Metro Area Emerald Ash Borer Wood Waste Study*.

St. Paul Cogeneration was designed for the purpose of managing the region's wood waste by generating renewable energy from it. During efforts to respond to Dutch Elm Disease, much of the resulting wood waste was open burned in order to dispose of it.

If St. Paul Cogeneration ceased operations, District Energy St. Paul customers can continue to be served by replacing the biomass fuel with by natural gas. However, many customers value the renewable heating attributes of biomass, and they would not welcome the increase in carbon emissions from switching to natural gas. Additionally, the State of Minnesota will be left to manage a growing surplus of waste wood in an already saturated market and without an alternative disposal option.

The wood waste flow diagram produced by Cambium Carbon illustrates the volume of wood waste flowing into the waste stream from several metro-area counties on the left side of the graph. The right side of the graph illustrates the uses for the wood waste streams including lumber, mulch, and biomass, with District Energy St. Paul (St. Paul Cogeneration) accepting the largest volume of wood waste at approximately 250,000 tons per year.



Source: Twin Cities Metro Area Emerald Ash Borer Wood Waste Study, Cambium Carbon, 2022

ALTERNATIVES FOR WOOD WASTE DISPOSAL

Environmental Wood Supply is a last stop for wood waste that has no higher-value use.

The alternatives for tree waste at end-of-life have limitations

- Landscaping applications → ⃠ Metro counties indicate this is at capacity
- Natural decomposition → ⃠ Risk of accidental, spontaneous combustion & off-gassing
- Open burning → ⃠ Has significant environmental, safety & human health impacts
- Landfilling → ⃠ Not allowed by state law

In the event that St. Paul Cogeneration is no longer operational, 250,000 tons of wood waste would need alternative disposal.

2021 LEGISLATIVE ACTION

In 2021, the State Legislature passed and the Governor signed a bill into law that provided the path for an extended or new PPA that provided the State with a continued outlet for EAB infected ash trees. A new PPA extensions was reached between District Energy St. Paul and Xcel Energy. The new PPA was approved by the Public Utilities Commission in December 2021 and provided a two-year term from January 1, 2023 to December 31, 2024.

Other requirements of the law include:

- Transportation of waste wood from ash trees in compliance with the Department of Agriculture's rules and regulations
- Contract price for electricity could be no greater than $98/megawatt hour
- Proposal must also include one or more electrification projects at District Energy St. Paul and any future extension is conditioned on approval of an electrification project
- Future extension will have to meet net benefit test for customers of Xcel, District Energy St. Paul, and the State
- District Energy St. Paul must attempt to obtain funding to reduce biomass fuel costs to enable the facility to continue to operate beyond the initial two year PPA to address the removal of ash tree.

ACTIONS SINCE 2021

Following approval of the new PPA, District Energy St. Paul engaged in stakeholder meetings led by the MPCA that have included representatives of various state agencies, municipalities, counties, Xcel Energy, the Partnership on Waste and Energy, and local tree care and wood product businesses. This effort was conducted to:

- Identify the extent of St. Paul Cogeneration's impact on Minnesota's wood waste system
- Examine potential alternatives for electricity cost reduction
- Gather accounts of St. Paul Cogeneration's role in communities to understand potential repercussions in the event that St. Paul Cogeneration is no longer operational

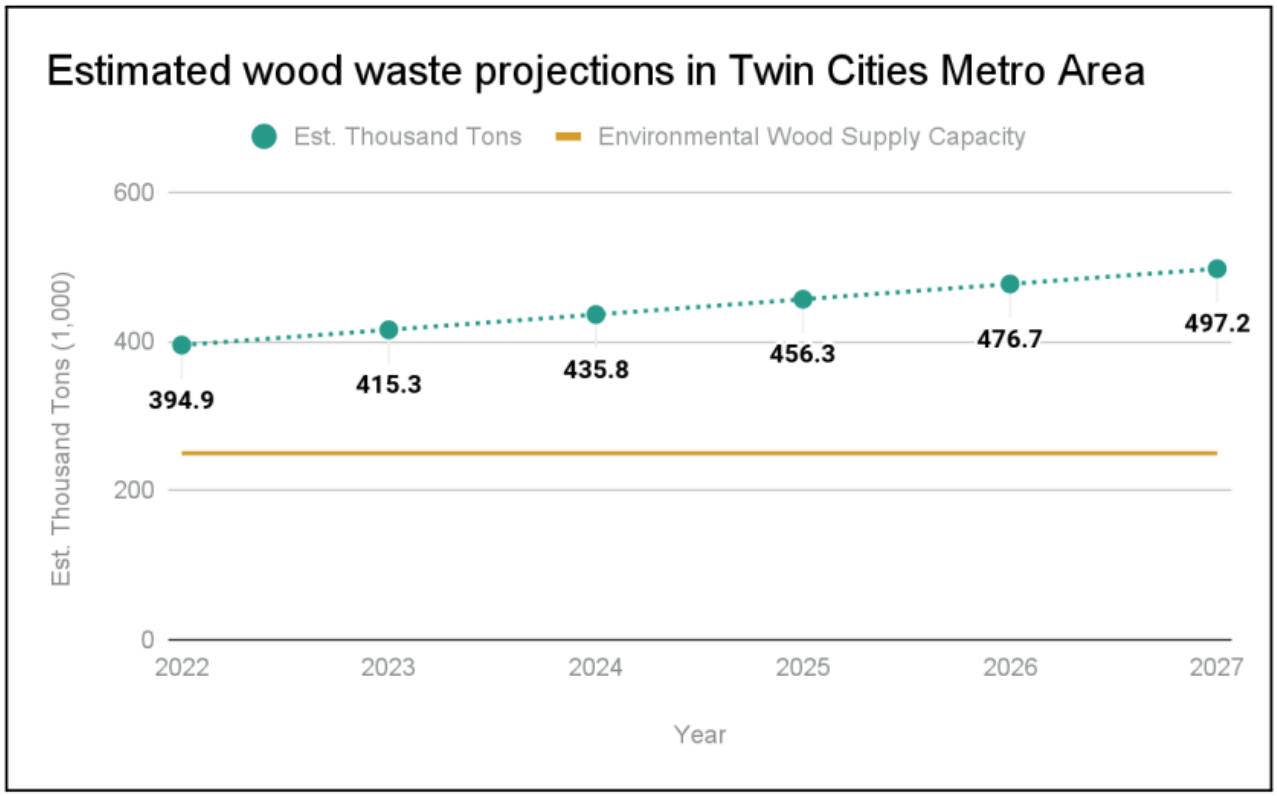
"Without Environmental Wood Supply's processing capacity, it is impossible to absorb current material volumes through other existing offtake channels."

- Emerald Ash Borer Wood Waste Study

At the direction of the Partnership on Waste and Energy, consultants from Cambium Carbon prepared the *Twin Cities Metro Area Emerald Ash Borer Wood Waste Study* to evaluate wood waste streams, particularly EAB, and determine how much material there is, where the material goes currently, and what could happen if St. Paul Cogeneration no longer used it as a fuel source. The study also examined existing policies to identify policy and funding gaps through stakeholder interviews and analysis of existing wood utilization in the Twin Cities metro area.

These stakeholder meetings revealed a continuing **significant reliance on St. Paul Cogeneration to address mounting tree waste resulting from the influx of EAB disease-ridden areas and underscored potential negative externalities in the event of St. Paul Cogeneration's closure, such as environmental, public health, and economic concerns, including air quality, EAB spread, safety hazards, and lack of resources to self-manage waste wood volumes.**

St. Paul Cogeneration has generated various maps to illustrate the geographic breadth of vendors and communities engaged in gathering, processing, and transporting the wood waste, ultimately relying upon Environmental Wood Supply to dispose of wood waste that is used as biomass fuel in St. Paul Cogeneration. The Partnership on Waste and Energy EAB wood waste study corroborated these findings, concluding that, "Without Environmental Wood Supply's processing capacity, it is impossible to absorb current material volumes through other existing offtake channels."



Source: Twin Cities Metro Area Emerald Ash Borer Wood Waste Study, Cambium Carbon, 2022

TREE WASTE PROCESSING IN THE METRO

Tree waste from businesses, municipalities, individuals, and agencies is managed by Environmental Wood Supply. The material is processed into wood chips and transported to the St. Paul Cogeneration plant, where it is used as biomass fuel to generate both heat and electricity.

Although over two-thirds of wood waste received comes from the seven-county metro area, the St. Paul Cogeneration plant has also become an outlet for wood waste outside the region.

Environmental Wood Supply processed biomass from

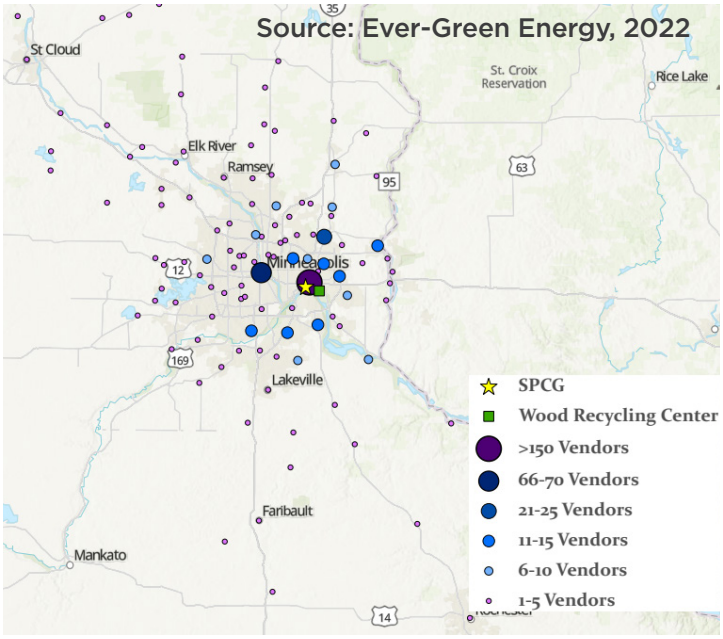
& 200+ PRIVATE VENDORS ~20 COUNTIES (2019-2021)

250,000 TONS

OF WOODY BIOMASS ANNUALLY

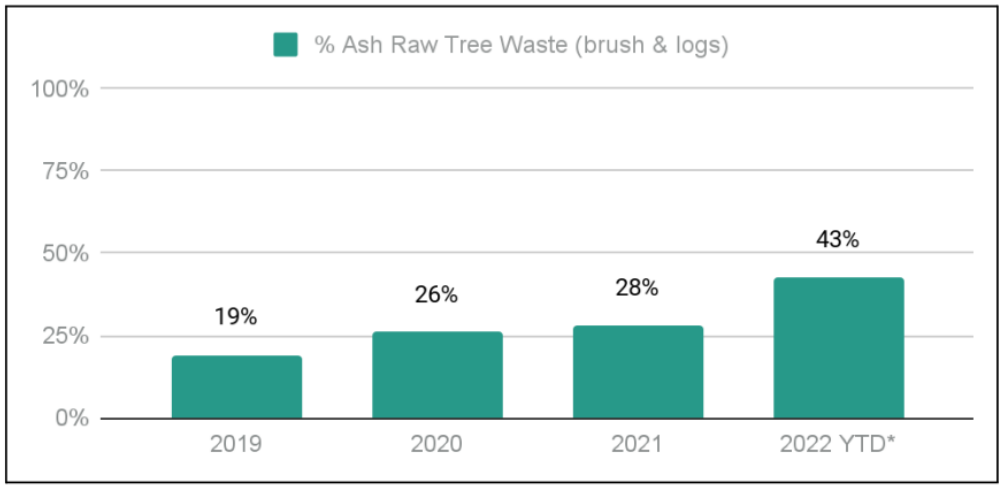
67% of the metro's wood waste

Producing:
25 megawatts of electricity and up to **55 megawatts of heat** per year



EAB-Related Brush & Logs at Pig's Eye Wood Yard, Environmental Wood Supply, Sept. 2022
Source: Twin Cities Metro Area Emerald Ash Borer Wood Waste Study, Cambium Carbon, 2022

Environmental Wood Supply accepts varying regional wood waste, including chips, mulch, brush, and logs, from sources such as forest maintenance work, EAB compromised tree removals, storm damage, land development, and clean residues from other wood processors.

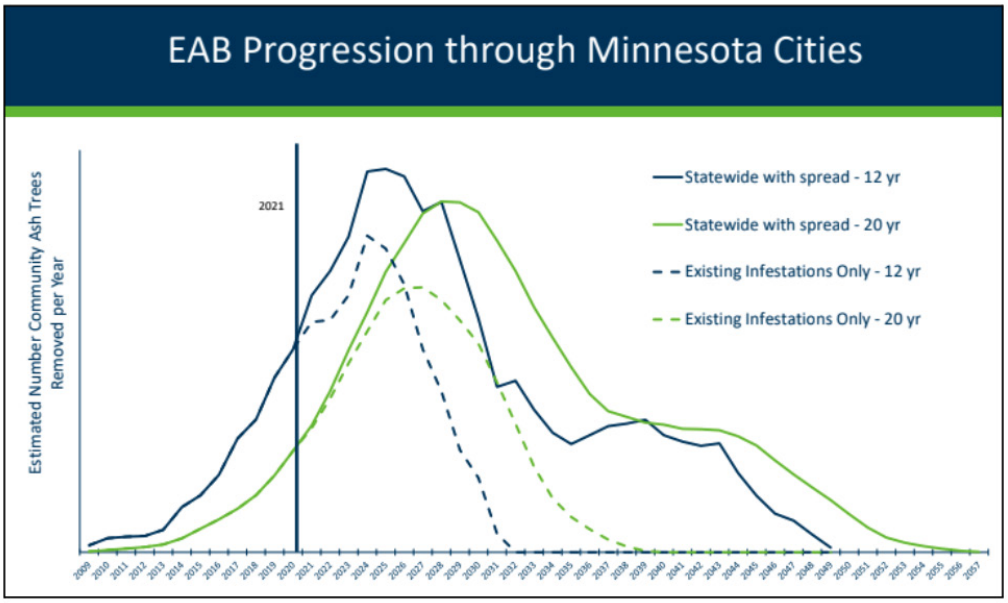


*Through Sept-2022. Jump can be attributed to the wood yard being closed to log & brush, and the requirement for EWS to still receive all EAB related activities from the City of St. Paul.

EMERALD ASH BORER (EAB)

EAB is an invasive beetle whose larva feed on the inner bark of ash trees and ensure the tree's imminent death. Infected tree removal is crucial to minimize hazards posed by dead trees and limit the pest's spread among healthy trees. Since its discovery, EAB has been found in 35 counties, threatening over 1 billion ash trees in Minnesota.

EAB is projected to reach its peak infestation levels between 2024 and 2025, with an associated over half a million-ton influx in wood waste volumes following in 2028 and 2029.



EAB Progression through Minnesota Cities
Source: Mark Abrahamson, Minnesota Department of Agriculture, April 2022

The average cost for removal of a single infected ash tree average between $2,000 to $3,000. It is estimated communities could pay an additional $3 billion due to lost tree benefits. With approximately 60 percent of Minnesotan city tree canopies made up of ash trees, the disposal of wood waste following ash removal will generate large additional costs.

Without St. Paul Cogeneration acting as a last stop for otherwise unusable tree waste, Minnesota cities will be left to contend with the influx of EAB-infested wood, leaving wood to be open burned and negatively impacting the health and economic wellbeing of communities.