

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.

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.**



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

REQUEST FOR SUPPORT

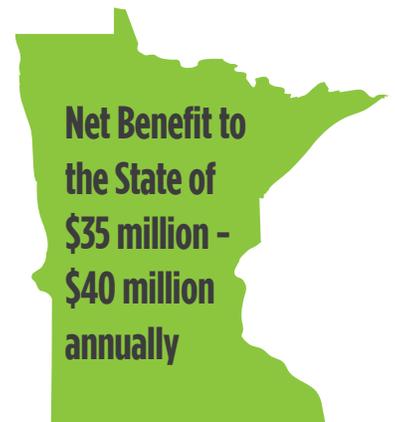
Funding will be essential to maintain this critical wood waste management infrastructure's viability. Legislative support for a disposal subsidy is needed to help mitigate the economic pressures and maintain the functioning wood waste management system. Collaborators are **seeking legislative support 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.

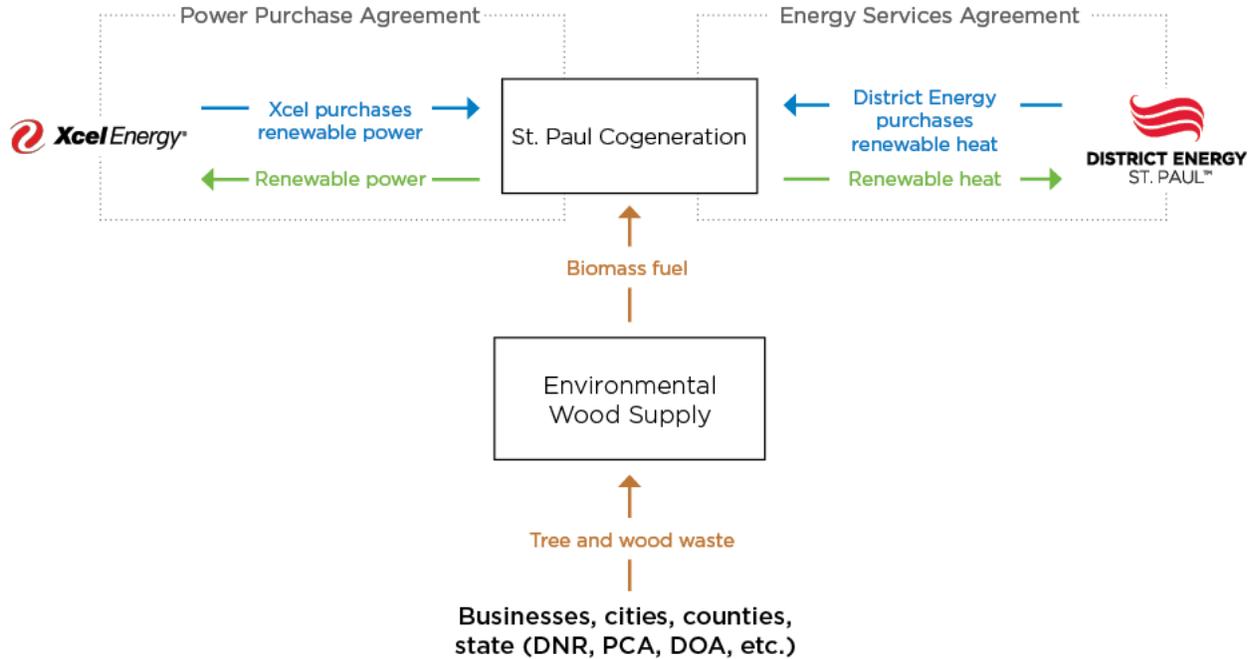
Grant-eligible facilities would include District Energy St. Paul as the owner of St. Paul Cogeneration. District Energy St. Paul would be eligible to receive up to \$35 million available over a period of 8 years to be distributed by the Department of Agriculture upon certification of the amount of processed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



Net Benefit to the State of \$35 million - \$40 million annually

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.



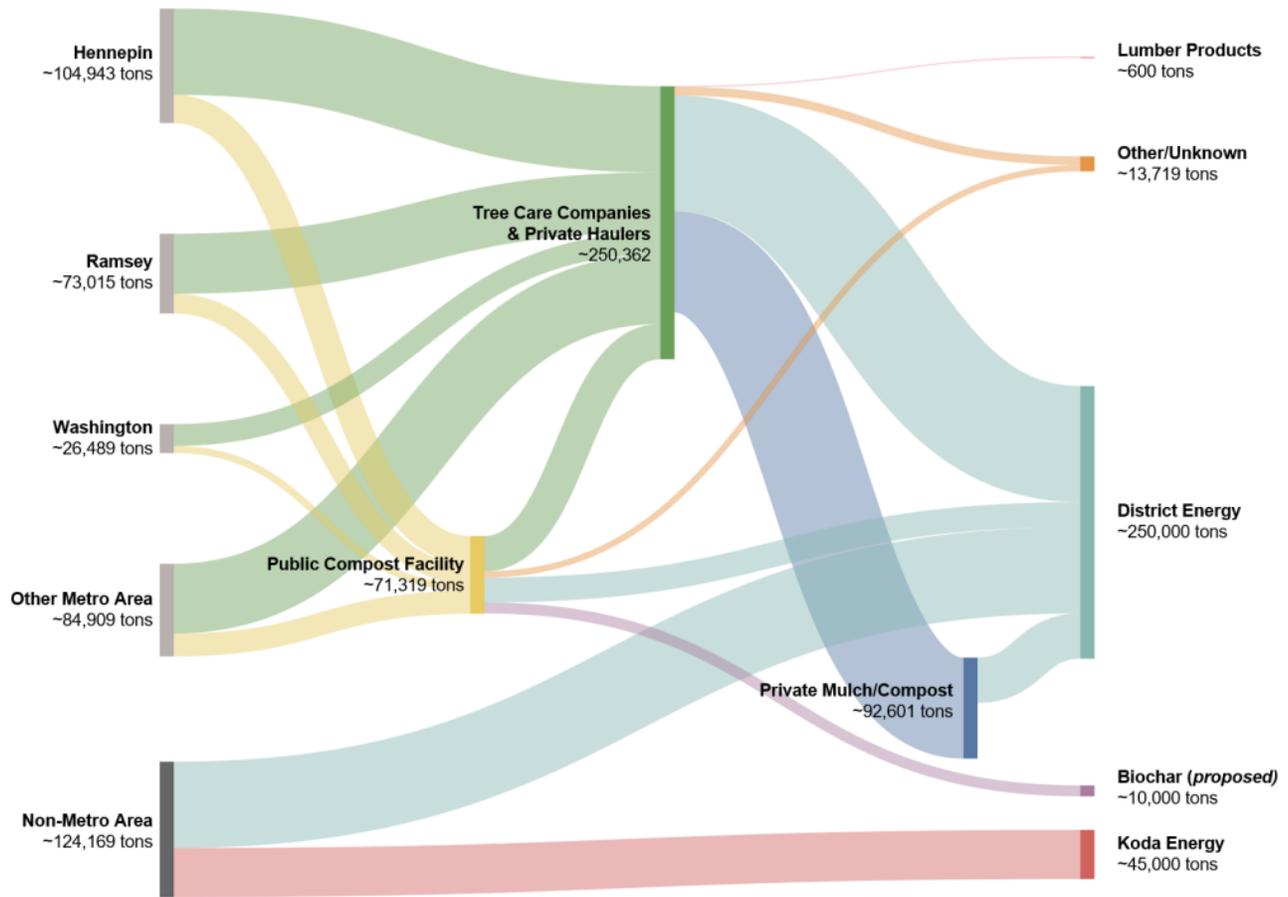
Wood waste projections suggest that **by 2028, a peak in ash tree removals will see more than 500,000 tons of wood waste within the Twin Cities metro area annually** according to the *Twin Cities Metro Area Emerald Ash Borer Wood Waste Study*.

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

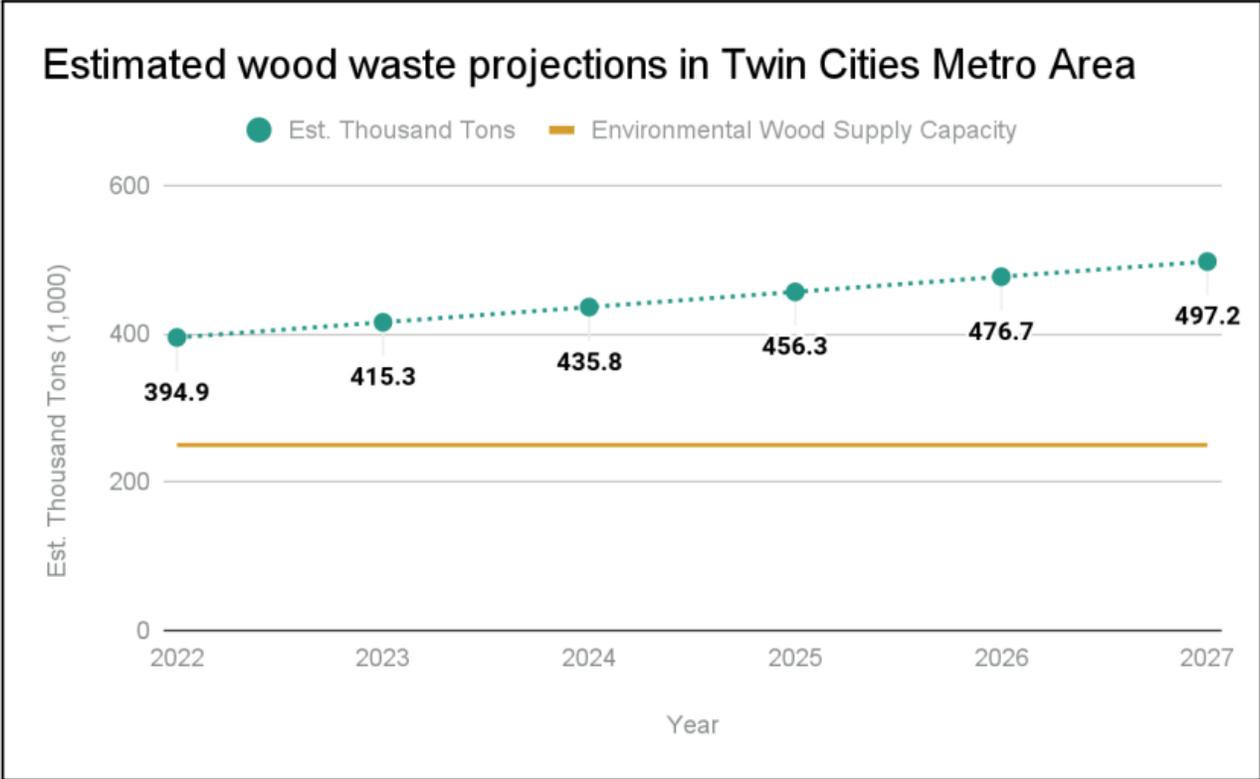
“Without Environmental Wood Supply’s processing capacity, it is impossible to absorb current material volumes through other existing offtake channels.”

- 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.

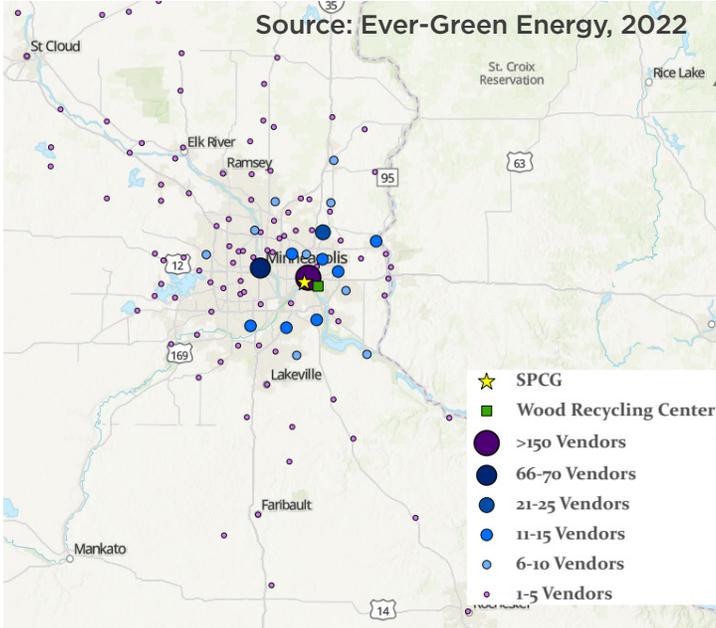
Environmental Wood Supply processed biomass from

& 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.



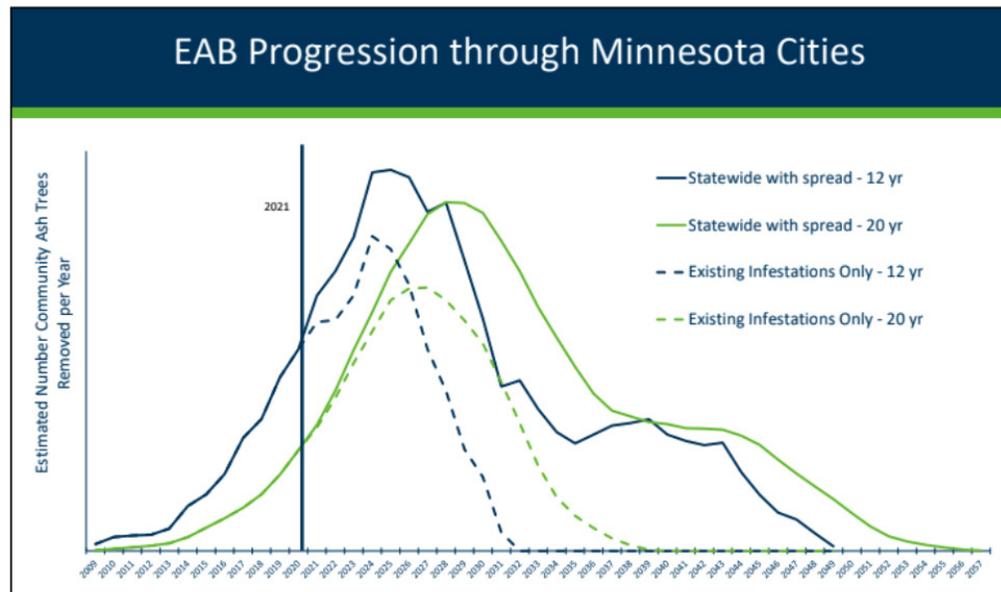
*Through Sept-2022. Jump can be attributed to the wood yard being closed to log & brush, and the requirement for EWS to still receive all EAB related activities from the City of St. Paul.

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.

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.



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

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.



March 21, 2023

RE: Emerald Ash Borer/St. Paul Cogeneration/HF 2831

Dear Chair Hansen,

I am writing in support of HF 2831 that would allow for the continued economic viability of renewable biomass power generation and therefore support the management of tree waste by the state's largest biomass-fired combined heating and power plant, Saint Paul Cogeneration (SPC).

The City of Saint Paul is dependent on Saint Paul Cogeneration, LLC (SPC) as a disposal outlet, in its management of increasing volumes of urban tree waste which continues to mount in the face of the spread of Emerald Ash Borer. Saint Paul's tree waste is utilized by SPC to produce renewable electricity and hot water for district heating. District Energy's Saint Paul Cogeneration (SPC) facility is the only practical outlet at this time to manage the quantity of tree waste generated each year in the city.

Emerald Ash Borer in the City of Saint Paul has reached a critical stage and has created a local environmental crisis. By the end of 2022, over 22,000 ash trees have been removed from city-owned boulevards alone, with additional ash trees scheduled for removal from public land in 2023 and 2024. It is estimated that tens of thousands of additional ash trees remain on private property in the city. Emerald Ash Borer infested trees pose a significant public safety hazard as they rapidly become dry and brittle and prone to failure. SPC is essential to the management of this tree waste, which will unquestionably rise as residents remove privately-owned trees and The City continues its structured removal process.

Local governments are not prepared for, nor able to bear, a dramatically higher cost of tree waste management on top of other costs to respond to EAB including removal and replacement of infested trees. Straining local resources for EAB management risks spreading EAB and encouraging poor management choices, such as stockpiling and open burning, both of which pose significant public health, safety, and environmental threats to our community.

The continued operation of SPC is also pivotal to the City of Saint Paul in reaching our climate and environmental goals. District Energy heats 32 million square feet of buildings in downtown Saint Paul. Approximately 50 percent of the thermal energy used to supply this heat is generated by SPC from renewable biomass fuel primarily derived from urban tree waste. If SPC ceases operation, this biomass load will be replaced with natural gas, significantly exacerbating the city's carbon footprint.

Accordingly, it is critical to the City of Saint Paul and the region that HF 2831 is passed so that SPC can continue operating and maintain its vital role as critical infrastructure for the disposal of tree waste.

Sincerely,

Russ Stark
Chief Resilience Officer

February 16, 2023

VIA HAND DELIVERY

Governor's Office

Governor, Tim Walz

Lieutenant Governor, Peggy Flanagan

SENT VIA ELECTRONIC COMMUNICATION

Minnesota Department of Agriculture

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Minnesota Pollution Control Agency

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Minnesota Department of Natural Resources

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Minnesota Department of Commerce

Grace Arnold, Commissioner-Commissioner.Commerce@state.mn.us

Michelle Gransee, Deputy Commissioner-Michelle.Gransee@state.mn.us

RE: Emerald Ash Borer/St. Paul Cogeneration

Dear Governor Walz, Lieutenant Governor Flanagan and members of the Cabinet,

We are writing to make you aware that the state's largest biomass-fired combined heat and power plant, St. Paul Cogeneration (SPC), is at risk of ceasing operations if funding is not secured to support the use of biomass fuel from metro-area tree waste.

After conversations with state agencies and many other stakeholders, **no credible or cost-effective alternative solution has been identified to manage the 250,000 tons of tree waste used annually by SPC.** In collaboration with other stakeholders, we propose a new grant program to support the processing of tree waste into biomass fuel for use at SPC. Funding of \$20 per ton of biomass fuel is needed to make the economics of renewable power generation viable. At 250,000 tons of processed wood waste per year, that cost comes out to approximately \$5M per year. With the power purchase agreement (PPA) between District Energy St. Paul and Xcel Energy set to expire in 2024, we are at an important crossroads and time is of the essence.

For several years, District Energy St. Paul (District Energy) and its subsidiary SPC have been engaged in conversations with the Legislature, Department of Agriculture, Minnesota Pollution Control Agency, Department of Commerce, Department of Natural Resources, and multiple units of local government concerning the critical role SPC plays in the management of tree waste in and around the Twin Cities metro. We initially did so because SPC's original 20-year power purchase agreement (PPA) with Xcel Energy was on the horizon to end in 2022. It became clear through those conversations that unless enabling legislation was passed that allowed the Public Utilities Commission (PUC) to approve a new PPA, SPC was going to shut down and no longer be a resource for the management of wood waste. Those conversations took on added urgency as awareness grew about the devastating impact the spread of the emerald ash borer (EAB) was projected by the State of Minnesota to have on the tree canopy and resulting volume of tree waste that would need to be managed.

In 2021 the Legislature passed SF1047, which enabled SPC and Xcel Energy to enter into a two-year agreement that was subsequently approved the PUC. That legislation and the resulting PPA allowed SPC to continue to operate as work continued to secure funding to reduce the cost of generating electricity as was required by the legislation,

(d) During the agreement period, the cogeneration facility must attempt to obtain funding to reduce the cost of generating electricity and enable the facility to continue to operate beyond the agreement period to address the removal of ash trees, as described in paragraph (b), clause (1), without any subsidy or contribution from any power purchase agreement after December 31, 2024. The cogeneration facility must submit periodic reports to the commission regarding the efforts made under this paragraph.

The new agreement period started January 1, 2023. SPC is now operating under the terms of that two-year PPA with Xcel Energy that caps the price paid for electricity at \$98/MWh, in accordance with the legislation. That PPA ends on December 31, 2024. Since the passage of SF1047, we have been working together with Xcel Energy, the MPCA and others to meet the requirements of the legislation and those of the PUC orders when it approved the PPA, including determining the societal benefits of continuing the operation of SPC. Those calculations have been completed.

As the state's largest biomass-fired combined heat and power plant, SPC was purposely designed and privately financed to solve a regional problem in 2003 by using tree waste to generate renewable electricity for Xcel Energy and heat in the form of hot water for District Energy. The plant annually uses approximately 250,000 tons of biomass fuel, enough tree waste to fill over 11,300 semi-truck trailers with wood chips.

Recent reports from the Environmental Quality Board (EQB) and the Partners on Waste & Energy (PWE) both highlight the vital role SPC plays in the management of tree waste. The State of Minnesota featured SPC in its *2019 Minnesota State Agency Emerald Ash Borer Report* published by the EQB. That report identified that the spread of EAB would generate significant volumes of tree waste that would need to be managed and the importance of keeping biomass facilities, such as SPC, in operation. An October 2022 study completed by Cambium Carbon for PWE estimates that SPC is currently managing approximately 2/3 of all of the tree waste generated in and around the Twin Cities metro region. When it considered the impact that closure of SPC would have on the region's ability to manage volume of tree waste used by SPC, Cambium Carbon concluded **"Without (SPC's)**

processing capacity, it is impossible to absorb current material volumes through other offtake channels.”

Without an identified alternative solution, the Metro region will be forced to return to the solution used prior to SPC: open burning.

Under current agreements some of the cost to manage regional wood waste is passed onto customers of Xcel Energy and District Energy through the sale of electricity and hot water for heating buildings. Instead of using natural gas, approximately 50 percent of the heat District Energy needs for the annual heating load of 32 million square feet of buildings in downtown Saint Paul, including the Capitol Complex, is generated by SPC. If SPC ceases operation, **the total cost for the management and disposal of 250,000 tons of tree waste annually would ultimately be paid by the public.**

This cost burden does not include the significant societal impacts that would result from open burning tree waste, nor that District Energy will need to transition to using natural gas as its primary energy source versus the current 50 percent natural gas and 50 percent from biomass fuel. Disposing of the tree waste currently used by SPC via open burning produces no tangible societal benefit. Only cost.

For the past 20 years, the region has benefited from a public-private partnership that enabled District Energy to attract private capital to develop SPC and manage regional tree waste while also generating renewable electricity for Xcel and renewable heating for District Energy. The development of SPC was enabled by State policy, which supported the economics of a regional biomass-fueled facility utilizing tree waste and made the private development and operation of SPC possible. While State policy and the economic environment for renewable energy from biomass has evolved over the past 20 years, the need for a regional solution to manage large volumes of tree waste has not. In fact, it is becoming increasingly important in the face of the devastating impact EAB will have for many years to come.

It is clear that a new public-private partnership model is needed. One that preserves the ability for SPC to be financially viable while continuing to serve as vital infrastructure for the management of regional tree waste. For SPC to continue operation, we need a new approach in policy and funding for tree waste management. Without action the solution currently in place will cease to exist, forcing state and local units of government to quickly find and fund alternative plans to manage the tree waste currently managed by SPC.

With all of this in mind, the ask is straightforward: we need a program to provide grant funding in the amount of \$20 per ton of processed biomass fuel sourced from wood waste including ash trees felled by the emerald ash borer epidemic. At 250,000 tons of processed wood waste per year, that cost comes out to approximately \$5M per year.

We are unable to solve this problem on our own. We stand ready to work together with you to find solutions to resolve this urgent matter.

Sincerely,

Ken Smith, CEO