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Subject: Submitted Public Comment Form
Date: Thursday, June 5, 2025 3:22:15 PM

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Provide the docket's number.	24-352
Leave a comment on the docket. *	Please accept these comments on behalf of Minnesota Forest Industries.
Attach a File	mfi_comments_24352_6525.pdf 719.30 KB • PDF

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June 5, 2025

VIA E-FILING

Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: In the Matter of a Commission Investigation into a Fuel Life-Cycle Analysis Framework for Utility Compliance with Minnesota's Carbon-Free Standard under Minn. Stat. Sec. 216B.1691, Docket No. E-999/CI-24-352

Dear Mr. Seuffert:

Pursuant to the Minnesota Public Utilities Commission's ("Commission") January 22, 2025, Notice of Comment Period, Minnesota Forest Industries (MFI) respectfully submits its comments relating to the establishment of criteria and standards necessary for utilities to calculate partial compliance with the Carbon Free Standard (CFS) under Minn. Stat. Sec. 216B.1691.

Minnesota Forest Industries, Inc. (MFI) is an association representing Minnesota's primary forest product companies. MFI and its member companies encourage conservation, proper forest management, and industry development that foster sound environmental stewardship, multiple use of timber lands, and sustainable, long-term timber supply.

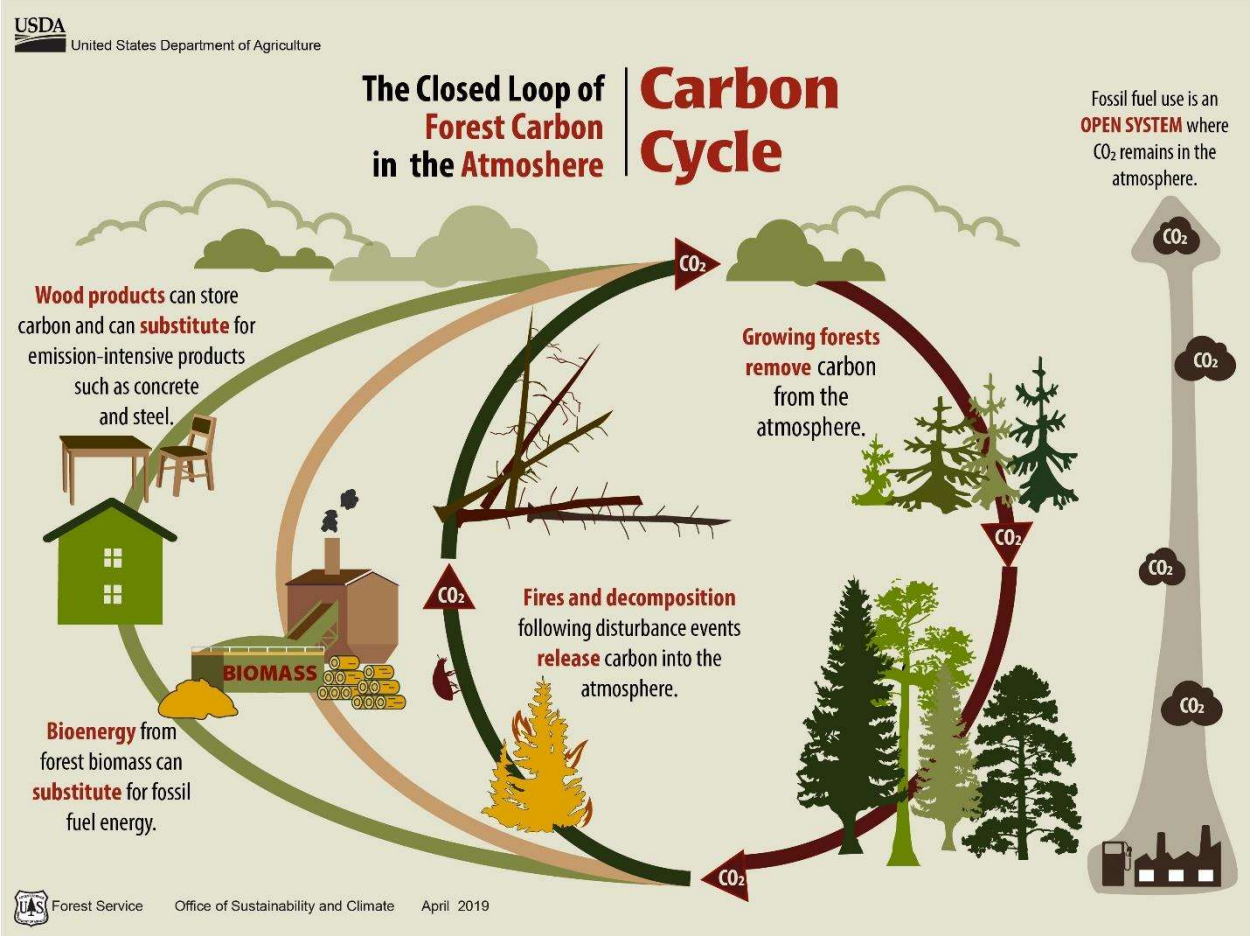
MFI appreciates the opportunity to offer input to the Commission on the CFS compliance issue. We urge the Minnesota Public Utilities Commission to include woody biomass from mill residuals, timber harvest residuals, forest salvage (e.g., fire, windstorm, snowstorm, insect and disease damage), and forest restoration used for electric energy production to be considered carbon free under Minn. Stat §216B.1691 by Minnesota Session Laws, 2023, Regular Session Chapter 7 (H.F. No. 7).

The State of Minnesota has established a goal to reduce statewide greenhouse gas emissions (GHGs) across all sectors. The CFS defines carbon free as "technology that generates electricity without emitting carbon dioxide." MFI believes that this definition should include electricity produced from sustainably sourced woody biomass.

The ultimate goal of the legislation is to reduce the amount of carbon in the atmosphere, thereby reducing greenhouse gases and presumably slowing or reversing climate change. But we contend that not all carbon is created equal:

- Fossil carbon refers to the carbon that was once part of living organisms, but has been transformed into fossil fuels over millions of years due to geological processes. These fossil fuels, like coal, oil, and natural gas, are rich in stored carbon. When burned, this stored carbon is released into the atmosphere as carbon dioxide, a greenhouse gas.
- Biogenic carbon refers to carbon stored within or released by living organisms and their organic remains. It's the carbon that is part of the natural carbon cycle, cycling through photosynthesis, decomposition, and other biological processes. Bio-based products can contribute to reducing the levels of carbon dioxide in the atmosphere and help mitigate the challenge of climate change.

Figure 1. from the USDA Forest Service demonstrates the concept:



Any release of fossil carbon from its place of long-term storage increases global atmospheric carbon. However, the biogenic cycle goes on, regardless of human activities. Plants absorb carbon, grow, die and release carbon in an endless cycle. Humans can divert that carbon for our purposes for varying lengths of time, but eventually it goes back into the atmosphere to be absorbed again.

Sustainably produced and managed, bioenergy can provide a substantial contribution to climate change mitigation through increasing carbon stocks in the biosphere (e.g., in degraded lands), reducing carbon emissions from unsustainable forest use and replacing fossil fuel-based systems in the generation of heat, power and modern fuels. Additionally, bioenergy may provide opportunities for regional economic development (Chum, et al. 2011).

MFI asks the Commission to consider the entire scope of greenhouse gas emissions when conducting GHG accounting, rather than simply considering CO2 emissions only at the moment of electricity generation. Two key concepts are important to consider when determining if energy from forest biomass is carbon free: landscapes and timeframes. At the individual tree scale, cutting it down and burning it removes stored carbon and puts that carbon in the air. But at the landscape scale we realize that sustainably managed forests are net carbon sinks – absorbing and storing more carbon than they are emitting. Figure 2 from Minnesota DNR shows Forest Inventory and Analysis data from 2022. Our forests add 11.43 million cords of wood annually. Of that, 3.92 million cords dies naturally (thus releasing its carbon), leaving annual net growth of 7.51 million cords. The forest products industry and firewood producers harvested 2.56 million cords. Therefore, we store an additional 4.95 million cords of wood each year. Since a cord of wood on average weighs 2.25 tons, and wood is 50% carbon, we can say that each year our forests store an additional 5.57 million tons of carbon. That more than offsets the emissions from cutting and hauling harvested wood.

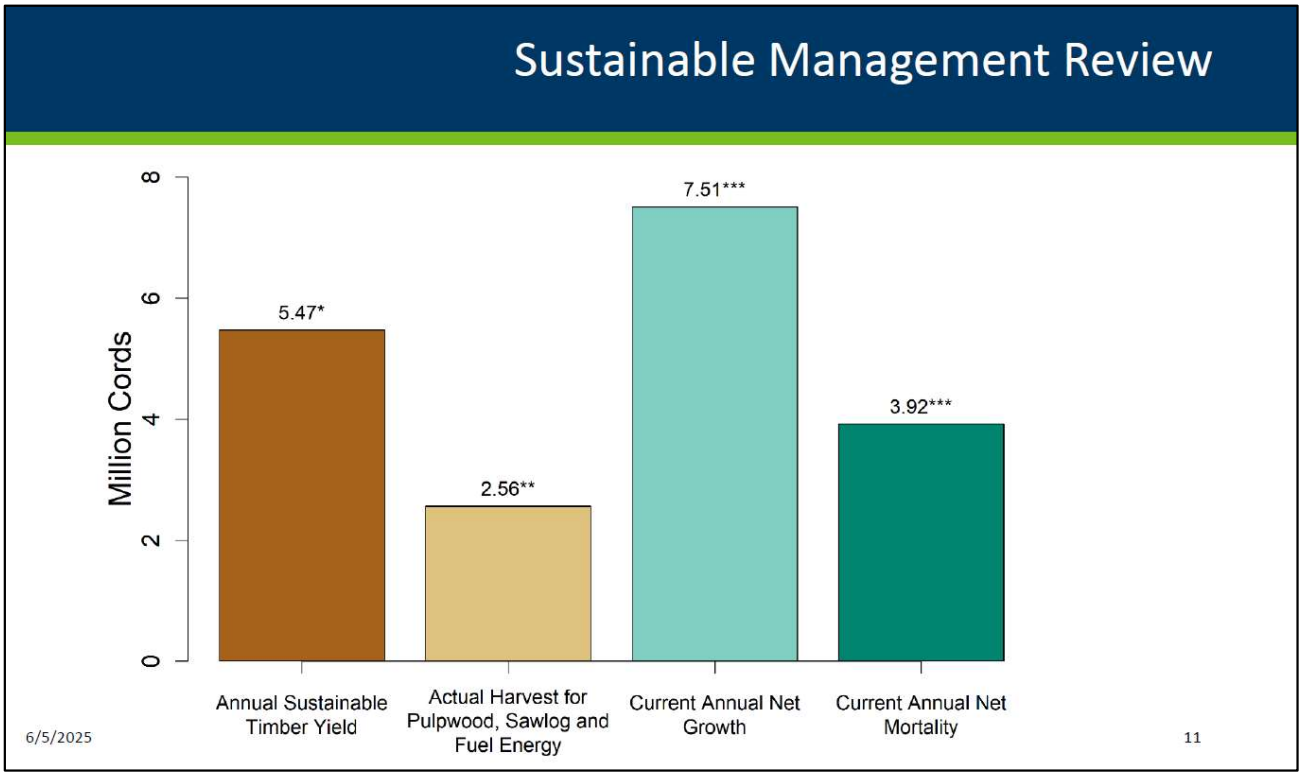


Figure 2.

Timeframes matter as well. At the moment of harvest carbon stored in the tree is gone. But so long as we practice sustainable forestry and plant trees after harvest, the tree will be replaced. Young trees have full light and nutrients, and therefore grow at three times the rate of mature trees. Over the life of a stand we see rapid growth, which slows as the canopy closes, followed by a gradual increase in mortality as the stand reaches and exceeds its lifespan. All of the original cohort die eventually either through insects, fire, wind or other disturbance. Any Life Cycle Assessment must account for all of those changes over the life of a stand, and typically encompass a 100 year planning period.

MFI also asks that the Commission consider the level of CO2 emissions from this material if is NOT used to generate electricity. It will still participate in the biogenic cycle, decomposing or burning and releasing CO2. But we will derive no human benefit from it.

Please consider the following responses to the Commission's Issue Topics.

1. Definitions of the sources of and requirements for a life-cycle analysis when interpreting the statutory definition of "carbon free" for combusted fuel generation resources without carbon capture that are considered carbon free or receiving partial credit consistent with the November 7, 2024 Order.

Sources of Life Cycle Analysis: The Argonne Labs GREET (Greenhouse gases, Regulated Emissions, and Energy use in Technologies) model has become the universally accepted source for life-cycle analysis, but there are others available at the federal level.

The National Renewable Energy Laboratory (NREL) "bridges research with real-world applications to advance energy technologies that lower costs, boost the economy, strengthen security, and ensure abundant energy" (https://www.nrel.gov/).

Life-cycle analyses, particularly those on woody biomass, have a very broad array of outcomes. They are highly sensitive to assumptions, system boundaries, and context-specific factors. Different modelers use different geographic and temporal system boundaries, different feedstocks, and different forest management practices. NREL reviewed and harmonized life cycle assessments (LCAs) of electricity generation technologies to reduce uncertainty around estimates for environmental impacts and increase the value of these assessments to the policymaking and research communities (https://www.nrel.gov/analysis/life-cycle-assessment). Emissions estimates for biopower vary widely (Figure 3), but the harmonized mean and quartiles clearly show significant improvement over fossil fuel-based electricity generation.

NREL and its partners created the U.S. Life Cycle Inventory (USLCI) Database to help life cycle assessment practitioners answer questions about environmental impact. The USLCI database provides individual gate-to-gate, cradle-to-gate, and cradle-to-grave accounting of the energy and material flows into and out of the environment that are associated with producing a material, component, or assembly in the U.S.

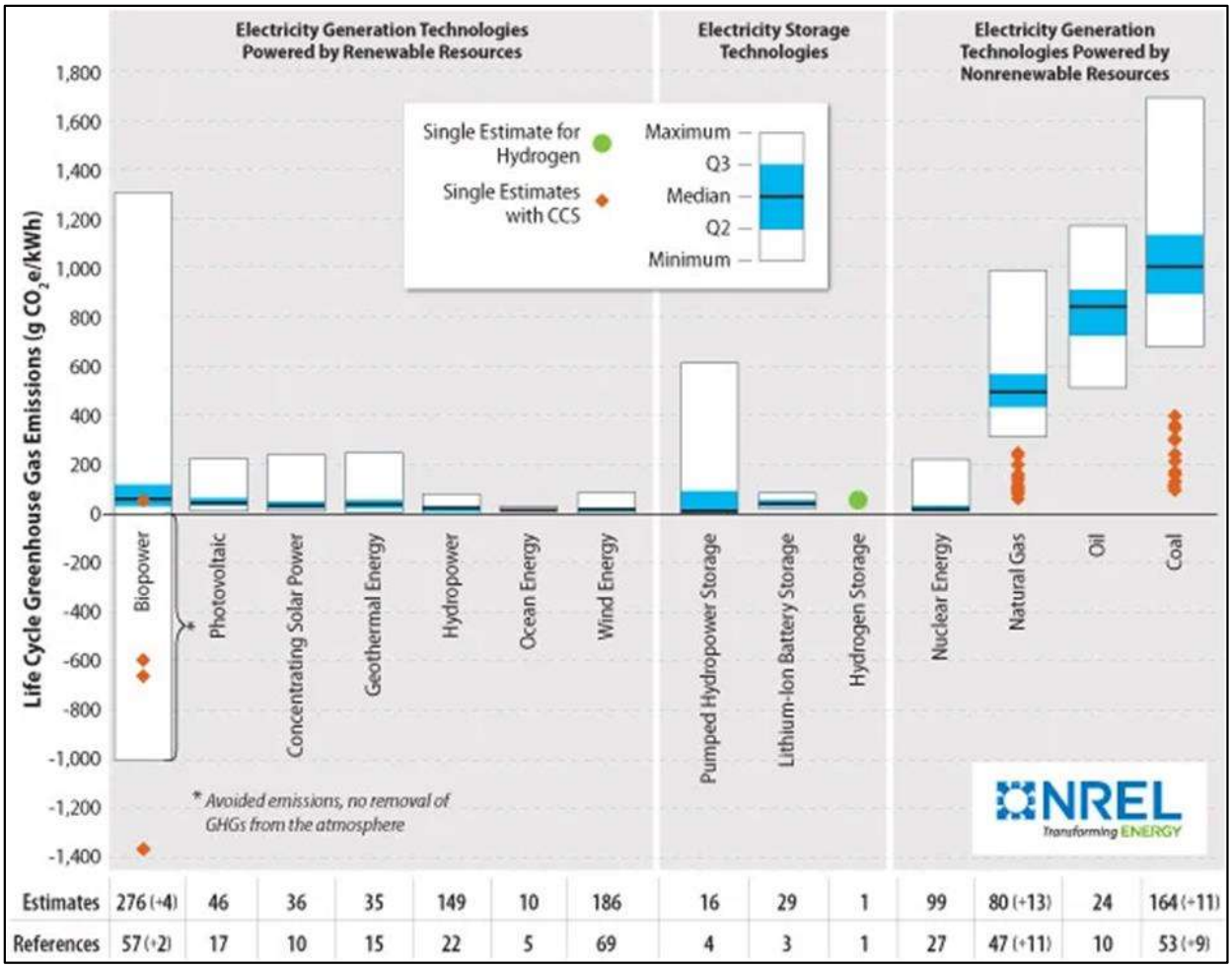


Figure 3.

NREL's sustainability analysis work also looks at the environmental, life cycle, climate, and other impacts of renewable energy technologies.

Requirements for a Life-Cycle Analysis: Due to the variability noted above, the LCA scope and system boundaries must be well-defined and meet national and international standards.

1. System Boundaries

Include forest growth and decay/fire emissions, energy combustion emissions with scrubbers; harvest, transport, processing emissions (not for mill residues). Indirect land use changes will not occur. Account for counterfactual scenarios (e.g., what would have happened to the biomass if not used for energy e.g., wildfire, landfill and decomposition).

2. Carbon Neutrality

Assume that biomass is inherently carbon neutral, based on regrowth of forests. Use the 100 year planning horizon that accounts for delayed carbon sequestration, and that emissions from combustion may take decades to be offset by regrowth.

3. Feedstock Type and Source
Woody biomass sources include forest residues (branches, tops, unmarketable material), mill residues (sawdust, bark), construction debris, and whole wildfire, wind or insect-damaged salvage trees.

4. Forest Management Practices
Assume the forest is actively managed for natural or planted regrowth and not converted to other uses (e.g., agriculture), and that it is sustainable forestry following harvesting best management practices with trained loggers.

5. Geographic and Temporal Scope
The entire forest of Minnesota, including its species and age class-specific growth, mortality, and removals and associated biogenic cycle emissions with and without it's use for electricity generation; over a 100-year timeframe.

6. Energy System Displacement
Assume biomass displaces the current use of coal

The variation in LCAs is not due to poor science, but to the complexity of the biomass carbon cycle and differing assumptions about forest dynamics, system boundaries, and the fate of the land and biomass. Comparing LCAs requires close attention to what's included, what's assumed, and what's left out.

2. **Definitions of the sources of and requirements for a fuel to qualify as sustainable and waste biomass.**

Sources: Woody biomass is defined as the by-product of forest management from routine maintenance, natural disasters, or hazardous fuel reduction including trees and woody plants (limbs, tops, needles, leaves, and other woody parts) grown in a forest, woodland, rangeland, or the urban & community environment. This includes tops, limbs, and unmarketable material from harvest operations, mill residues (bark, sawdust, chips), construction debris, and whole trees salvaged after wildfire, windstorm or insect infestation.

Sustainability requirements: Material should be sourced by trained logging professionals implementing the Minnesota Forest Resources Council Voluntary Site-Level Guidelines for Forest Management, which includes biomass harvesting guidelines. Consider that there are 7.85 million acres of third-party certified forest (SFI and/or FSC) in MN (44% of all Forestland).

3. **Calculating partial compliance based on the net annual generation defined as "carbon-free."**

MFI feels that all energy generation using woody biomass will be proven to be carbon-free under the LCA analysis. If it not, then the LCA will determine what proportion is carbon-free and that proportion should be applied to the resulting generation.

4. **Whether biomass, renewable natural gas, and solid waste should be eligible as fully or partially carbon-free generation resources based on a fuel life-cycle analysis.**

Again, MFI feels that all energy generation using woody biomass will be proven to be carbon-free under the LCA analysis. If it not, then the LCA will determine what proportion is carbon-free and that proportion should be applied to the resulting generation.

5. **Are there any other issues or concerns related to this matter?**

Some MFI member companies generate Combined Heat and Power for their mills using woody biomass. In 2029 we used 748,248 tons of wood waste that otherwise would have been landfilled to decompose Figure 4). Purchasing that power from the grid would have been prohibitively expensive, and dramatically reduced their ability to compete in a global setting. These mills need assurance that their actions will comply with Minn. Stat §216B.1691.

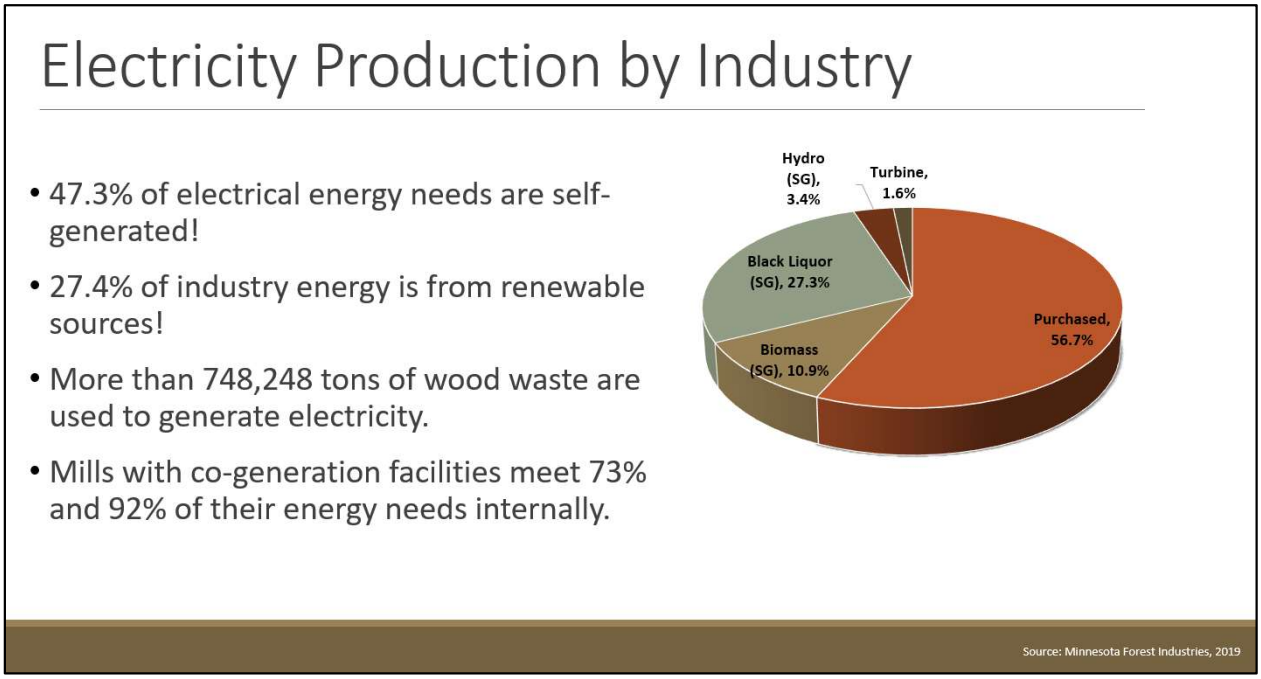


Figure 4.

MFI and its member companies rely on safe, reliable and affordable industrial electricity. It is one of the nine major components impacting the forest products industries global competitiveness (MFRC Competitiveness Report (2014)) and directly impacts mill siting and investment opportunities in Minnesota. However, industrial rates in the state have continued to increase despite a state policy that holds them 5% below the national average. Figure 5 clearly shows that rates in Minnesota eclipsed all competing forested states in 2018 and continue to climb well above the national average. The Minnesota Legislature provides energy credits for preferred new businesses like data centers, but continues to increase rates upon established sectors with high energy requirements that have a long tenure in Minnesota, like the forest products industry.

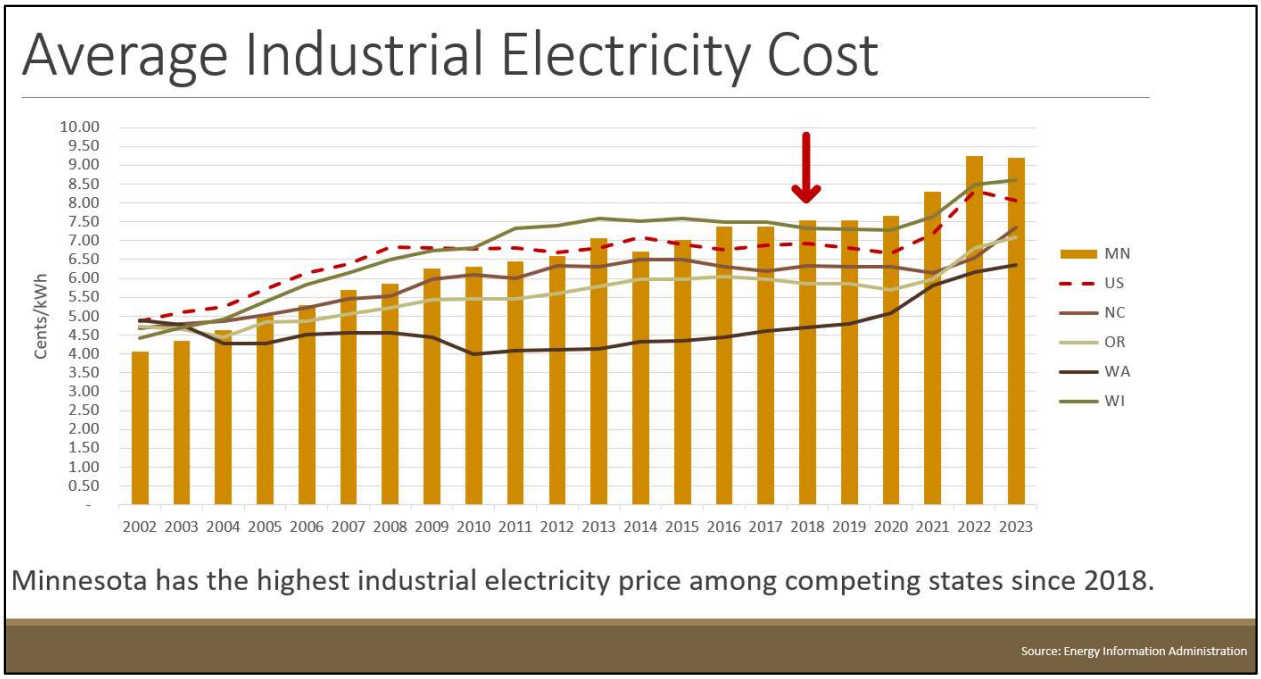


Figure 5.

Minnesota energy providers must meet the legislative requirements of Minn. Stat §216B.1691 by achieving zero carbon emissions by 2040. Doing so will require using all available options. Common renewable energy technologies like wind and solar power cannot provide safe, reliable baseload power, or scale up in times of high demand. In fact, they often generate it when it is least needed. Others, like hydro and nuclear are not socially acceptable to the public. The forest products industry cannot safely contend with variable power, brownouts or blackouts. We must have reliability.

Minnesota must transition away from fossil fuels in order to meet the carbon free goal. Converting facilities to burn woody biomass is a relatively low-cost way to meet the mandate and provide for societal power requirements. There is an abundance of waste material available for use. It can be gathered or harvested sustainably using existing methods, manpower and equipment. Safeguards are in place to protect the environment. Doing so will benefit forest health, improve wildlife habitat, reduce wildfire risk, improve industry global competitiveness, and benefit rural economies by creating good jobs and economic opportunities. One has to ask, “If not this, what?”

MFI stands by its June 10, 2024 comments on Docket Number E-999/CI-23-151, and asks that the Commission clarify that woody biomass is an eligible energy feedstock under 216B.1691, subd.1.a.(5). Further, we ask that the Commission confirm that woody biomass is a carbon free energy resource.

Sincerely,

Executive Vice President
Minnesota Forest Industries

Citations

Chum, H., A. Faaij, J. Moreira, G. Berndes, P. Dhamija, H. Dong, B. Gabrielle, A. Goss Eng, W. Lucht, M. Mapako, O. Masera Cerutti, T. McIntyre, T. Minowa, K. Pingoud, 2011: *Bioenergy. In IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation* [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. https://www.ipcc-wg3.de/report/IPCC_SRREN_Ch02.pdf