minnesota power
AN ALLETE COMPANY

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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
Docket No. E002/CI-24-352
INITIAL COMMENTS

Dear Mr. Seuffert:

Attached please find the Initial Comments of Minnesota Power (or, the "Company") pertaining to the January 22, 2025 Notice of Comment by the Minnesota Public Utilities Commission (or, "Commission") in the aforementioned matter.

The Company appreciates the opportunity to further engage with stakeholders and develop the record on this nuanced and multifaceted issue, and is hopeful that this discussion can further develop the record and facilitate the Commission's decision on the "substantial and substantive disputes" that arose during Phase 2 of Docket No. E-99/CI-23-151.

If you have any questions regarding this filing, please contact me at (218) 428-9846 or jmccullough@mnpower.com.

Sincerely,

Jess McCullough
Public Policy Advisor II

JAM:th
Attach.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of a Commission Investigation into a Fuel Life-Cycle Analysis Framework for Utility Compliance with Minnesota's Carbon-Free Standard	Docket No. E002/CI-24-352 **INITIAL COMMENTS**

I. INTRODUCTION

On November 7, 2024 the Minnesota Public Utilities Commission (or, "Commission") initiated an investigation into a Fuel Life-Cycle Analysis (or, "LCA") Framework stemming from the "substantial and substantive disputes" in the record during Phase 2 of Docket No. E-999/CI-23-151, an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691. The purpose of this new docket is to further develop the record that will aid "the Commission's consideration of the calculations, methodologies, and analyses that will aid successful implementation of the statute in a manner consistent with legislative policy goals and the public interest."[1] On January 22, 2025 the Commission issued a Notice of Comment (or, "Notice") to determine what actions, if any, should the Commission take to establish the criteria and standards necessary for utilities to calculate partial compliance with the Carbon Free Standard.

Minnesota Power (or, "the Company") has actively engaged in both dockets and participated in a series of four record development meetings hosted by the Great Plains Institute (or, "GPI) in April and May of this year, and is pleased to present the recommendations to the Commission below.

[1] Docket No. E-999/CI-23-151, Docket No. E-999/CI-24-352. November 7, 2024.

II. COMMENTS

- **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.**

The Company recommends that the Commission adopt the International Organization for Standardization's (or, "ISO") Life Cycle Assessment Requirements and Guidelines as best practice for interpreting the statutory definition of "carbon free." The ISO is a worldwide federation of standards bodies dedicated to the development of international standards by technical subcommittees. In 2006, the Environmental Management's Life cycle analysis subcommittee developed the second edition of ISO 14040 and the first edition of ISO 14044.[2][3]

[2] Environmental management – Life cycle assessment – Principles and framework, *ISO 14040*. 2006 https://www.iso.org/standard/37456.html
[3] Environmental management – Life cycle assessment – Requirements and guidelines, *ISO 14044*. 2006 https://www.iso.org/standard/38498.html

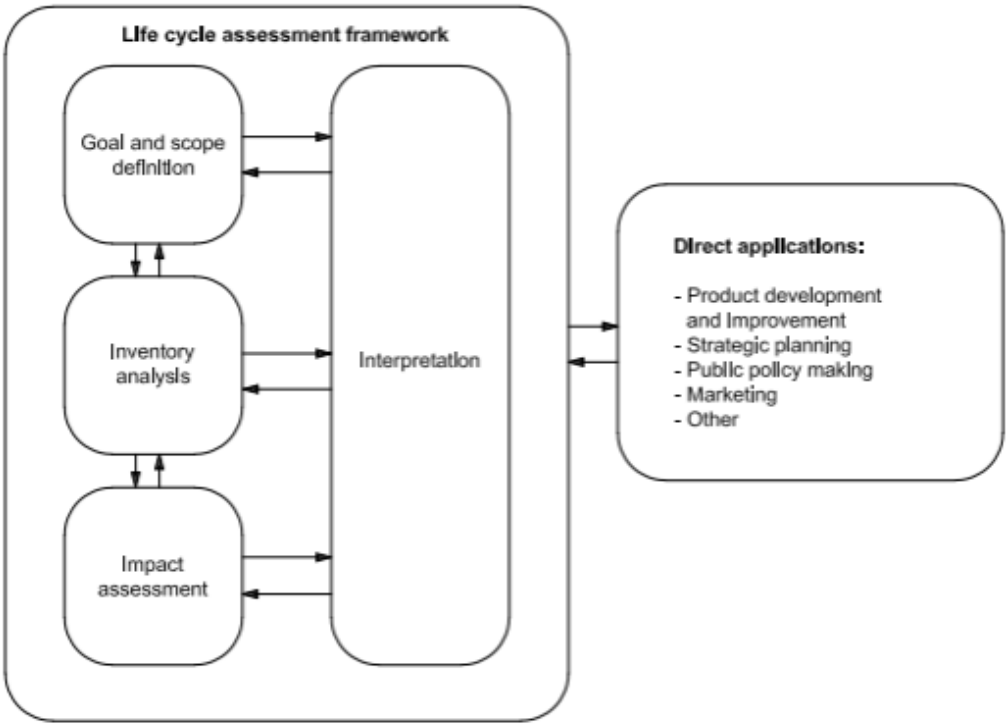

Figure 1: Stages of an LCA from ISO 14040

ISO 14040 is a foundational document that provides guidelines for every phase of an LCA including its goals, scope, and interpretation of results. ISO 14044 provides more guidance for implementation of these standards, including criteria pertaining to impact, quality, and reporting.

While the International Standard does not dictate specific data inputs for the individual phases of an LCA, the standard is a useful guide for defining and organizing the components of such an analysis. This guiding template allows for the use of more accurate, project-specific data inputs while adhering to a standardized framework. The Commission should consider ISO 14040 and 14044 as a framework for establishing future LCAs for its international recognition and adoption into other recognized methodologies. Adopters of the ISO standards for LCAs include national governments, voluntary carbon markets, and LCA consulting firms.

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

Sustainable biomass is already defined in Minnesota Statute. It is the Company's position that these definitions are sufficient requirements to define sustainable biomass in the context of the Carbon Free Standard.

MN Statute 216B.2424 Subd. 1 (d) defines "sustainable managed woody biomass" as:

> (1) brush, trees, and other biomass harvested from within designated utility, railroad, and road rights-of-way;
>
> (2) upland and lowland brush harvested from lands incorporated into brushland habitat management activities of the Minnesota Department of Natural Resources;
>
> (3) upland and lowland brush harvested from lands managed in accordance with Minnesota Department of Natural Resources "Best Management Practices for Managing Brushlands";
>
> (4) logging slash or waste wood that is created by harvest, by precommercial timber stand improvement to meet silvicultural objectives, or by fire, disease, or insect control treatments, and that is managed in compliance with the Minnesota Forest Resources Council's "Sustaining Minnesota Forest Resources: Voluntary Site-Level Forest Management Guidelines for Landowners, Loggers and Resource Managers" as modified by the requirement of this subdivision; and
>
> (5) trees or parts of trees that do not meet the utilization standards for pulpwood, posts, bolts, or sawtimber as described in the Minnesota Department of Natural Resources Division of Forestry Timber Sales Manual, 1998, as amended as of May 1, 2005, and the Minnesota Department of Natural Resources Timber Scaling Manual, 1981, as amended as of May 1, 2005, except as provided in paragraph (a), clause (1), and this paragraph, clauses (1) to (3).

The Company particularly wishes to call attention to the importance of finding outlets for unmerchantable wildfire fuels which can provide important risk mitigation to prevent catastrophic wildfires, which can emit CO_2 and other greenhouse gas emissions in a few months which exceed annual industrial emissions by entire countries. In May of this year,

Minnesota Power customers were affected by three major wildfires simultaneously which burned nearly 30,000 acres, destroyed nearly 150 structures, prompted evacuation orders, and led to the Company proactively deenergizing its 115kv 1 and 2 transmission lines for safety purposes.[4] WDIO reported on May 15, 2025 that the Camp House Fire was fueled by "mixed forest vegetation and spruce budworm-infested areas of forest … dead and distressed balsam and aspen trees are prone to ignition, and pose a significant hazard for firefighters." [5] Setting aside the immediate and devastating impacts of the fires themselves, their total carbon impact is, as yet, unknown. As the Company stated in its June 28, 2024 Initial Comments in Phase 2 of Docket No. E999/M-23-151, controlled combustion of biomass sourced from unmerchantable wildfire fuels can not only reduce the risk of wildfire, but would also reduce soot and other pollutants from entering the atmosphere. The need for increased, robust mitigation of conditions favorable to wildfires is already here, and is critical to the health and wellbeing of Minnesotans. Such efforts will only become more critical in the years to come.

The Company also notes that 216B.2424 Subd. 1 (d) is consistent with how biomass harvesting has been defined in MN Statute 41A.18 Subd. 3:

> All forestry-derived cellulosic biomass used for biomass thermal production must be produced using Minnesota forest biomass harvesting guidelines or the equivalent. All cellulosic biomass from brushlands must be produced using Minnesota brushland biomass harvesting guidelines or the equivalent. Forestry-derived cellulosic biomass that comes from land parcels greater than 160 acres must be certified by the Forest Stewardship Council, the Sustainable Forestry Initiative, or the American Tree Farm System. Uncertified land from parcels of 160 acres or less, tribal lands, and federal land must have a forest management plan, as defined in section 290C.02, subdivision 7, or the equivalent and be harvested by a logger who

[4] https://www.startribune.com/northeast-minnesota-wildfires-inching-toward-containment/601359419
[5] https://www.wdio.com/front-page/top-stories/brimson-complex-thursday-update-jenkins-creek-now-smaller-in-size/

has completed training for biomass harvesting from the Minnesota logger education program or the equivalent.

The Company further recommends that non-hazardous secondary materials such as sawmill residues and railroad ties be included as sustainable biomass consistent with their treatment in EPA rule 40 CFR Part 241.[6]

- **The definition and calculation of net market purchases.**

The Company's position on the definition and calculation of net market purchases has not changed since its Initial Comments of January 29, 2025 in Docket No. 999/M-23-151, which is reproduced below:

Net market purchases should be purchases made to serve retail customers after accounting for all other carbon free energy produced, procured, or generated by the company and non-carbon free energy produced, procured, or generated by the company. The utility should be allowed to apply the excess RECs generated by its owned assets or purchased toward the non-carbon free portion of its market purchases or generation. Excess carbon free energy that is sold into the MISO market should be netted from the carbon-based energy used to serve customers in a two step process:

1. The excess should be netted from the carbon-based generation serving customers.
2. The remaining excess carbon free MISO market energy sales from Step 1 should be netted from MISO market energy purchases.

The remaining market purchases after Step 1 and Step 2 are the market purchases to which the MISO market carbon free percentage is applied.

[6] https://www.federalregister.gov/documents/2016/02/08/2016-01866/additions-to-list-of-categorical-non-waste-fuels

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

As stated in its January 29, 2025 filing in Docket No. 999/M-23-151, the Company believes utilities should report compliance in a spreadsheet detailing the amount of carbon-free energy (or, "MWh") generated by (or purchased from) eligible carbon-free technologies compared to the annual energy sales to its customers. A Renewable Energy Credit ("REC") used to meet the Renewable Energy Standard ("RES") in a compliance year may also be applied to the CFS provided it meets CFS eligibility requirements. Other carbon free energy that might not produce a REC (i.e. nuclear or green hydrogen) but is eligible for CFS can be applied to meet compliance requirements.

In the context of this docket, the Company recommends that generation resources determined to be partially carbon-free based upon a life-cycle analysis should be reported consistently with the method stated above. Should an LCA determine that a resource is, for example, 75% carbon free, the responsible utility would report that 75% of the MWhs generated from that facility annually are carbon free.

- **Calculating partial compliance for fossil fuel generation with carbon capture and sequestration/storage (or, "CCS") by estimating the total direct carbon dioxide emissions per megawatt-hour (MWh) reduced by the CCS, and applying that percentage to the output of the generation resource employing CCS to determine its carbon-free generation.**

It is the Company's position that partial compliance in this circumstance should be calculated by tracking carbon emissions at the stack with CCS compared to a non-CCS baseline with a similar fuel. The reduction in emissions when compared to the baseline would then be the percentage considered to be carbon free for compliance purposes.

- **Development of an accounting methodology to consider energy withdrawn from short-, medium-, and long-duration storage assets.**

It is the Company's position that whether electricity is carbon free is dependent upon the manner in which it is *generated*, not stored. Energy should be determined to be carbon-free based upon its original generation method. Storage technology does not generate any new energy on the grid. A megawatt generated by solar energy creates a REC whether or not it is stored in an accompanying battery.

- **Calculating partial compliance for hydrogen co-firing generation by estimating the direct and indirect emissions of the generation resource per MWh with hydrogen cofiring, compared to the carbon dioxide per MWh that would be emitted if the generator burned only natural gas.**

The Company approaches this question in two parts:

1. What would be the direct emissions of the generation facility if the percentage combusted hydrogen had been natural gas; and
2. What is the carbon intensity of production for the hydrogen being combusted

In response to point 1, the Company recommends that partial compliance be calculated by a simple formula subtracting the amount of fossil gas displaced by the hydrogen in the combustion process. This amount can then be further modified by applying the carbon intensity of the production process of the hydrogen.

For example, if a natural gas generation facility emitted 100 tons of CO2 combusting 100 percent natural gas, but when co-firing with hydrogen emitted 50 tons, then 50 percent of the energy produced should be considered carbon free. Regarding point 2, any direct carbon emissions attributed to the production of hydrogen can be added to the total carbon emissions, then compared to the base emission rate.

In this, it is the Company's position that the hydrogen produced for energy should be considered in the same way as biomass, where its full or partial compliance be calculated based upon a lifecycle analysis. Hydrogen produced via electrolysis powered by solar power ("Yellow Hydrogen") or nuclear power ("Pink Hydrogen") would have far lower carbon intensities than Black or Brown hydrogen generated using fossil fuels.

- **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.**

The Company supports defining biomass as a fully or partial carbon-free resource based upon a fuel life-cycle analysis. The Company recognizes that some parties are skeptical of this approach, but reiterates its position that a robust life-cycle analysis paired with the state's rigorous forest certification process can provide a source of dispatchable, renewable, carbon-neutral electricity needed to support reliability for Minnesota Power customers and the region, while the local community receives the economic benefits. As the Company stated in its Initial Comments of Phase 2 of Docket No. E-999/CI-23-151, the Company views biomass as carbon-free fuel as it is part of the biogenic carbon cycle of decay and regrowth. Carbon emitted from fossil fuels that have been stored underground for millions of years result in a rapid conversion of solid or liquid carbon into carbon dioxide and other greenhouse gases which exceed the ability of vegetation to absorb via photosynthesis. Biogenic emissions are recaptured via natural processes on a span of years to decades as opposed to fossil fuel-based emissions, which linger in the atmosphere for centuries. That utilization of managed forest resources in Minnesota provides a carbon benefit supported by the Minnesota Forest Resources Council's 2024 report, which shows that Minnesota forests are a carbon sink and that all management scenarios modeled will increase greenhouse gas benefits beyond the baseline scenario through the 21st century.[7]

Furthermore, biomass is the only dispatchable, non-fossil generation technology available to Minnesota utilities without preexisting nuclear generation assets. The importance of dispatchable generation to the energy transition is becoming increasingly evident. Hibbard Renewable Energy Center (or, "Hibbard"), the Company's only biomass generation unit, has become increasingly important to local and regional system reliability in recent years. As reviewed in detail in the March 31, 2025 filing of Appendix O to the

[7] Zobel, John, et. al. "Estimating current and future carbon stocks and emissions in Minnesota forests and forest products under multiple management scenarios." 13 December, 2024. https://mn.gov/frc/assets/MFRC_Carbon_Project_FINAL_REPORT_tcm1162-661769.pdf

Company's 2025 Integrated Resource Plan, between 2015 and 2024 Hibbard has shown an increase in capacity factor from less than 5 percent to over 20 percent as recently as 2022, as regional fossil fuel-based generation units have retired over the last 10 years.[8] More recently, Hibbard's capacity factor was as high as 22 percent in January of 2025, demonstrating its increasing importance as a dispatchable generation unit.

While the Company currently does not anticipate the use of renewable natural gas or solid waste for its energy generation purposes at this time, it does support the use of a life-cycle analysis to determine the full or partial eligibility of these fuel sources.

[8] Docket No. E015/RP-25-127 "APPENDIX O: HIBBARD RETIREMENT STUDY"

III. CONCLUSION

Minnesota Power appreciates the continued collaboration with interested stakeholders and the opportunity to discuss these important considerations. The recommendations proposed in these comments represent what the Company views as the most efficient and executable options available with current technology and in compliance with statute and state energy goals. The Company wishes to restate its commitment to meeting those goals while providing reliable, affordable, and resilient services to its customers.

If you have any questions regarding this filing, please contact me at 218.428.9846 or jmccullough@mnpower.com.

Dated: June 5, 2025

Respectfully,

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(218) 428-9846
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STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	)ss	ELECTRONIC FILING
COUNTY OF ST. LOUIS	)	

I, Tiana C. Heger of the City of Duluth, County of St. Louis, State of Minnesota, hereby certify that on the 5th day of June, 2025, I electronically filed a true and correct copy of Minnesota Power's Initial Comments in **Docket No. E002/CI-24-352** on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on eDocket's Official Service List for this Docket were served as requested.

Tiana Heger