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June 5, 2025

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

Electronically Filed PUC E-Docket No. E-999/CI-24-352

Re: In the Matter of a Commission Investigation into a Fuel Life-Cycle Analysis Framework for Utility Compliance with Minnkota's Carbon-Free Standard, PUC Docket No. E-999/CI-24-352

Dear Mr. Seuffert,

Pursuant to Minnesota Public Utilities Commission's (Commission) Notice of Comment Period issued January 22, 2024 (Notice), Minnkota Power Cooperative, Inc. (Minnkota) respectfully submits its Initial Comments on the issue presented in Docket No. E-999/CI-24-352, described as:

> 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?

Specifically, Minnkota is providing comments on two of the issues identified in the Commission's November 7, 2024 Order in Docket No. E-999/CI-23-151. Minnkota appreciates the opportunity to offer comment to the Commission.

1. **Calculating partial compliance for fossil fuel generation with carbon capture and sequestration/storage (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.**

In response to the Docket No. E-999/CI-23-151issues, which the Commission's November 7, 2024 order addressed, Minnkota submitted comment that the commission should consider partial compliance with respect to Minn. Stat. §216B.1691 Subd. 2d(b) and proposed a direct point measurement approach and method to calculating the partial compliance for fossil fuel generation which uses carbon capture and storage technology. Minnkota offers in this docket a summary of that methodology and proposed actions for the Commissions consideration.

A. Direct Measurement of Carbon-Free Percentage

Minnkota proposes using direct measurements to develop the percentage of CO2 captured and stored over the total CO2 emissions generated by the electric generating unit(s), multiplied by the total megawatt-hours generated

from the electric generating unit(s) to establish the total carbon-free megawatt-hours. Subd. 2d requires the Commission to:

> [I]ssue necessary orders detailing the criteria and standards used to: (1) measure an electric utility's efforts to meet the standards under subdivisions 2a, 2f, and 2g; and (2) determine whether the utility is achieving the standards.
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> (b) In the order under paragraph (a), the commission shall include criteria and standards that: (1) protect against undesirable impacts on the reliability of the utility's system and economic impacts on the utility's ratepayers and that consider technical feasibility; and (2) require the commission to allow for partial compliance with subdivision 2g from:
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> (i) electricity generated from facilities that utilize carbon-free technologies for electricity generation, but only for the percentage that is carbon-free…

Partial compliance with respect to Minn. Stat. § 216B.1691 Subd. 2d(b), including both subpoints i and ii, should include the capture of CO2 from carbon capture equipment. Minnkota proposes that the percentage of carbon-free generation from a generating unit utilizing carbon capture equipment be identified by the following equation, which, in this instance, has been written specifically for Unit 1 (Young 1) and Unit 2 (Young 2) of the Milton R. Young Station:

$$\left| \text{[Young 1 Net Meter (MWh)} + \text{Young 2 Net Meter (MWh)]} \right| \times \frac{\text{Carbon Captured (actual tons)}}{\text{Carbon Generated (actual tons)}} = \text{Carbon Free MWh}$$

The following explanations establish the direct points of measurement for: 1) the total megawatt-hours generated and transmitted by the electric generating unit(s); 2) the CO2 sequestered; and, 3) the CO2 generated from the electric generating units.

1) Minnkota proposes that the point of measurement for the total megawatt-hours generated and transmitted to the grid would be the last revenue quality meter upstream of the substation connecting the generating unit(s) into the transmission grid system (net meter). This proposal allows for a net megawatt-hour generated reading that is placed into the transmission grid system and ultimately transmitted and distributed to retail consumers. Megawatt-hour values are utilized for market participation in MISO. Meters used for measuring and recording these megawatt-hour values are of revenue-class accuracy and are maintained and tested according to electric utility standards and according to MISO Tariff requirements. The Commission can rely on the veracity of the net megawatt-hours generated and transmitted from the electric generating unit(s) for purposes of this calculation.

2) Minnkota proposes that the point of measurement for the CO2 sequestered will be the flow meters identified in the EPA approved monitoring, reporting and verification plan pursuant to 40 CFR Part 98 Subpart RR, or other equivalent independently approved reporting plan. This point of measurement is approved and verified at the Federal level and can easily be relied upon by the Commission.

3) Minnkota proposes that the point of measurement for the CO2 generated from the electric generating units would be the continuous emissions monitors identified in the air monitoring plan submitted in accordance with 40 CFR Part 75 monitoring plan for the associated electric generating unit(s). This point of measurement also is approved and verified at the Federal level and provides a reliable source of information for the Commission without requiring further processes by the State.

B. Eligible Generating Resources that have direct emissions and Performance measurements should not be subjected to an Estimated Carbon-Free Percentage.

Minnkota disagrees with the Great Plains Institute's (GPI) implied conclusion that the Commission adopt a definition of "partial compliance" requiring a life-cycle analysis ("LCA") in the context of fossil fuel generation using carbon capture and storage. Minnkota objects to such an approach for three (3) reasons: (1) a life-cycle analysis is not found in the plain language of MN Stat. §216B.1691, (2) performing a life-cycle analysis would not be reflective of the actual annual carbon-free megawatts generated, and (3) performing a life-cycle analysis which accounts for upstream emissions only for fossil fuel generation using carbon capture would be discriminatory unless the Commission also utilizes a life-cycle analysis for the upstream carbon emissions generated in the production of all eligible energy technologies, because as GPI points out "the inclusion or exclusion will impact the partial compliance percentage."

Additionally, Minnkota respectfully objects to an LCA approach because it fails to provide measurement of compliance, as well as failing to provide accurate, efficient, verifiable annual accounting for the generation of megawatts. Subd. 2g. requires that each electric utility demonstrate that they either generated or procured sufficient electricity from a carbon-free energy technology, "so that the electric **utility generates or procures an amount of electricity** from carbon-free energy technologies that is equivalent to at least the following standard percentages of **the electric utility's total retail electric sales to retail customers** in Minnesota **by the end of the year indicated**:" 216B.1691(2)(g). Emphasis added.

Subd. 2d. provides that,

> (a) The commission shall issue necessary orders detailing the criteria and standards used to: (1) **measure** an electric utility's efforts to meet the standards under subdivisions 2a, 2f, **and 2g**; and (2) **determine whether the utility is achieving the standards**.
>
> (b) In the order under paragraph (a), the commission shall include criteria and standards that: (1) protect against undesirable impacts on the reliability of the utility's system and economic impacts on the utility's ratepayers **and that consider technical feasibility**;…

The plain language of the statute requires a measurement that allows the Commission to determine whether the utility is achieving standard, generation or procurement of carbon-free megawatts, at the percentage of its total electric sales "by the end of the year indicated." The language does not say the order should allow for "estimates," "projections" or "forecasts," rather it is clear that the Commission is to determine criteria and standards for **measuring** compliance efforts on an annual basis. An LCA is a framework that is used to evaluate or forecast environmental impact, not a measurement of actual performance. The Department has advocated for rigorous and exacting tracking, monitoring and measuring requirements for market purchases. It would be arbitrary to take the opposite approach for accounting for generation, requiring only estimates. However, Minnkota offers an approach that meets the plain language of the statute and offers the Commission direct emissions and performance measurements that can be used for the partial compliance calculation. Where direct measurements can be used the Commission should not rely on or require speculation, forecasting, and projection.

The National Energy Technology Laboratory (NETL), referenced by GPI in their comments, and other federal agencies often perform life-cycle analyses under agency directive, guidance or under the National Environmental Policy Act (NEPA) in support of a decision to permit a project or fund a project. Such federal agencies utilizing an LCA are evaluating the environmental impact, which requires a "baseline to change in baseline" analysis. In these pre-development decisions, the federal agency does not have direct emissions or performance inputs for the post-project impact and therefore must rely upon the best scientific estimates and averages to include in the LCA.

Life cycle analysis principally relies upon assumptions for its inputs, rather than direct measurements. However, under the 216B requirements, the Commission is supposed to be accounting for, and the utilities are required to demonstrate, their measured annual generation.

The LCA methodology, as presented by GPI, is principally used in circumstances where there is no ability to directly measure the inputs and outputs of a commodity, product or service, e.g. long-haul trucks do not have emission monitoring. However, in the electricity generation sector, emissions and performance are highly regulated, monitored, and directly measured. Minnkota proposes using already required direct emissions and performance measurements, which are backed up by federally approved monitoring plans and accounting methodologies. Minnkota's approach provides the Commission with the actual, verifiable annual measurements supporting the percentage of carbon-free megawatt hours. Further, the approach allows for efficient verification of annual measurements. Whereas an LCA approach, if it were intended to be remotely reflective of annual emissions and performance characteristics of the generation, would require forecasts and assumptions of load, MMBtu of the fossil fuel, operating efficiency, and fossil fuel consumption. This would require standardization of LCA assumptions, boundaries and procedures across all eligible energy resources, including wind, solar, and biomass generation resources. This process of standardizing would require the Commission to hear and settle any disagreements on LCA framework, require due process, rounds of comments, and likely result in contested dockets and potential appeals of any issued Commission's orders therein. Establishing a Minnesota specific LCA framework would significantly increase burdens on both the utilities operating each resource and Department staff which was not the intent of implementing a carbon-free framework.

Under an LCA framework, the Commission would need to plan to reevaluate the LCA every reporting year to ensure that the assumptions used in the LCA are still accurate and reflective of any trends or updates to approaches previously adopted. Ongoing compliance under an LCA framework would have to allow for and would require the rigor of updating each resource's LCA annually to accurately account for the measured annual performance characteristics. The Commission would need to employ a tremendous amount of staff time towards diligence of input assumptions to avoid manipulation of the LCA process and inaccurate projections or forecasts. For example, the impact of an inaccurate LCA projection or forecast resulting in a Commission determination of insufficient carbon-free generation would assuredly influence a utility's resource planning. Requiring LCA to determine partial compliance would cut against the plain language of Minn. Stat. § 216B.1691, Subd. 2d by creating unduly burdensome impacts on each utility's system and increase the likelihood of negative economic impacts on the rate payers of Minnesota.

Minnkota's proposed calculation, without the overly burdensome and often contested process of LCA, utilizes inputs that have been established by Environmental Protection Agency (EPA) and are independently certified through the Greenhouse Gas Reporting Program. Accuracy and validity of the calculation input variables is a factor supported by the calculation proposed by Minnkota. The variables proposed in the calculation are certified and verified by the EPA, using EPA approved measurement and calculation methods federally adopted and approved. Minnkota believes the independent and federally approved nature of the measurements and calculations supporting the variables in the calculation leaves little room for dispute over validity and prevents manipulation while minimally impacting Minnesota rate payers.

1. The definition and calculation of net market purchases.

Minnkota believes that Minn. Stat. 216B.1691, Subd.2d(b)(ii) plainly states how net market purchases should be counted towards CFS compliance.

216B.1691 Subdivision 2d(b)

(ii) an electric utility's annual purchases from a regional transmission organization net of the electric utility's sales to the regional transmission organization, but only for the percentage of annual net purchases that is carbon-free, which percentage the commission must calculate based on the regional transmission organization's systemwide annual fuel mix or an applicable subregional fuel mix.

MISO annually posts its resource mix which identifies energy generated from eligible energy technologies which could easily be extrapolated to identify the percentage of annual net purchases that is carbon-free under the statute.

Respectfully submitted,

MINNKOTA POWER COOPERATIVE, INC.

/s/ Todd Sailer

Todd Sailer
Executive Power Advisor

cc: Service List