August 20, 2025

Via Electronic Filing

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

Re: Reply Comments
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: E999/CI-24-352

Dear Mr. Bull:

Central Minnesota Municipal Power Agency, d/b/a Central Municipal Power Agency/Services (CMPAS) submits these enclosed Reply Comments responding to the Public Utilities Commission's Notice of Comment issued on January 22, 2025, regarding a fuel life-cycle analysis framework and related issues for utility compliance with Minnesota's Carbon Free Standard.

We have electronically filed this document with the Minnesota Public Utilities Commission, and copies have been served on the parties on the attached service list. Please contact me at (763) 710-3932 or jaya@CMPAS.org with any questions.

Sincerely,

Jay D Anderson
Chief Executive Officer
Central Minnesota Municipal Power Agency/Services
Enc. Reply Comments of CMPAS
cc: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Joseph Sullivan	Vice Chair
Hwikwon Ham	Commissioner
John A. Tuma	Commissioner
Audrey Partridge	Commissioner

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. E-999/CI-24-392

Reply Comments of Central Municipal Power Agency/Services

Introduction

Central Minnesota Municipal Power Agency, d/b/a Central Municipal Power Agency/Services (CMPAS) submits these enclosed Reply Comments responding to the Public Utilities Commission's ("Commission") Notice of Comment issued on January 22, 2025, regarding a fuel life-cycle analysis framework and other related questions regarding Minnesota's Carbon Free Standard. CMPAS appreciates the chance to submit these comments and looks forward to future opportunities for input.

Additionally, CMPAS notes that its members include the City of Blue Earth, City of Fairfax, City of Glencoe, City of Granite Falls, City of Janesville, City of Kasson, City of Kenyon, City of Mountain Lake, City of Sleepy Eye, City of Springfield, City of Windom and/or their affiliated utilities.

Topic(s) Open for Comment:

1. What actions, if any, should the Commission take regarding the issues stated on pages 5-7 of the Commission's November 7, 2024 Order in Docket No. E-999/CI-23-151:

- *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.*

  As CMPAS has indicated in Initial Comments, CMPAS makes these recommendations only in the event the Commission wishes to use a lifecycle cost analysis ("LCA")

framework to allow these resources. CMPAS observed that a recent MPUC Agenda Meeting in Docket CI-23-151[1] focused very heavily on a plain reading of statute. Using that logic here, it is not yet clear whether lifecycle cost analysis, which is not mentioned in Minn. Stat. § 216B.1691, will be adopted for these types of resources.

Given that context, these comments are focused on technical aspects of LCA's. CMPAS also mentions here that it retained an engineering firm for technical assistance with portions of this response:

- CMPAS agrees with the Partnership on Waste & Energy's proposal to follow standardized principles (ISO 14040/44) to the extent possible in order to make results transparent and credible.[2]

- CMPAS agrees with the Minnesota Pollution Control Agency ("MPCA") and the Minnesota Department of Commerce ("MN DOC") Initial Comments that different types of software are likely to be appropriate for different fuel types. CMPAS agrees with the suggestions of GREET, LandGEM (specifically for exponential decay) and WARM.

- CMPAS recommends use of more precise definitions of "landfill" and "landfilling" in any glossary or compliance reporting forms for an LCA. The phrases "landfill" and "landfilling" were generically used by many parties in their Initial Comments when discussing baseline/reference cases or counterfactual scenarios for any life-cycle cost analysis. The phrases "landfills" and "landfilling" are very broad and ignore that a typical solid waste landfill includes a variety of waste, including municipal, commercial, and industrial waste.

- CMPAS recommends clarifying the proposed baseline for evaluating emissions from the "Waste to Energy" category in Attachment A of the MN DOC and MPCA Initial Comments. Specifically, for any LCA of these waste streams, we would use the "worst case emissions municipal solid waste ("MSW") landfill" as the baseline for comparing impacts.

- CMPAS recommends aligning the study period for any LCA with the life period of the beneficial use program. A beneficial use program for landfill gas would be a project that captures the energy from landfill gas for beneficial use such as landfill gas to electricity or landfill gas to Renewable Natural Gas. While CMPAS is of the understanding that a 100-year study period for an LCA is fairly standard, it should be noted that a landfill typically produces gas for about 50 years after

[1] Docket No. E-999/CI-23-151. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.* Agenda Meeting July 17, 2025.
[2] Docket No. E-999/CI-23-151. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.* Partnership on Waste & Energy. Initial Comments. June 6, 2025. Page 2.

waste is placed there. A 50-year period is much longer than a typical beneficial use program; the typical time period for a landfill gas beneficial use project financial return on investment is approximately 10 years, at an existing landfill. Depending on the lifespan of the already existing landfill, the corresponding beneficial use program may last 10-30 years if there is adequate landfill gas to justify continued operations.

See Figure 1, below, for additional context into the timing of landfill gas production and the effectiveness of conventional active landfill gas extraction systems. As presented, application of a 100-year LCA would result in many of the years being included in the analysis without the beneficial use system in operation. If the intent of the LCA is to quantify the impacts of the beneficial use project instead of the existence of the landfill, the proposed 100-year study period is a misalignment. Said another way, in the world of demand-side management programs, for a new home construction program promoting high efficiency heat pumps, an example of this type of misalignment would be evaluating the impacts of the heat pump, as well as impacts from the existence of the new home after the heat pump has ceased operation.

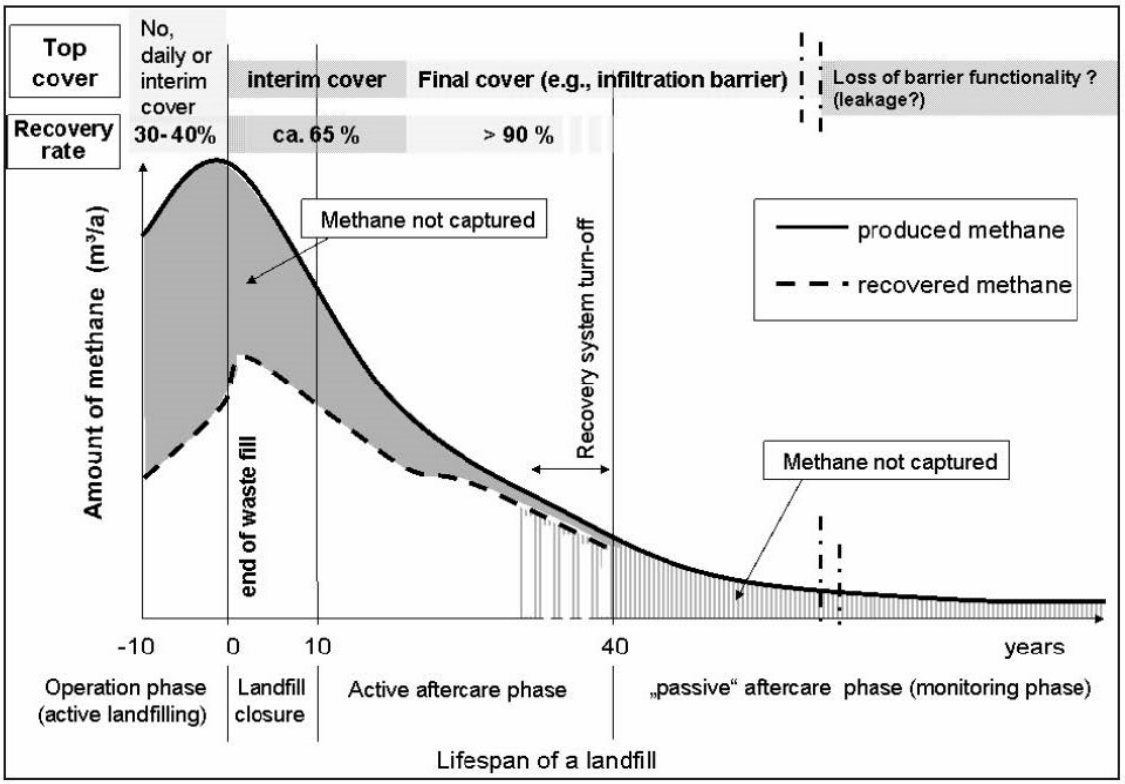

Figure 1 (on page 4). Methane amount and operational status during landfill lifetime[3]. Many beneficial programs last for 10-30 years (only part of the time during the presence of the dashed

[3] Huber-Humer, M., Gebert, J., Hilger, H., 2008. *Biotic systems to mitigate landfill methane emissions.* Waste Management and Research, 2008: 26: 33-46.

black line).

- CMPAS requests clarification from MN DOC and MPCA regarding the inclusion of Greenhouse Gas Emissions throughout their Initial Comments. Specifically, please clarify whether other types of greenhouse gas ("GHG") emissions impacts included in any LCA will be converted to carbon dioxide equivalents ("CO2e") or remain as separate types of emissions. The Initial Comments of MN DOC and MPCA mention GHG emissions more broadly than carbon dioxide. While this will most certainly impact results for certain technologies, and CMPAS does not necessarily object to quantifying other types of GHG emissions optionally, Minn. Stat. § 216B.1691 only mentions greenhouse gas emissions for increased electric load from beneficial electrification, not for other cases, and it does not mention CO2e. As such, CMPAS is unclear why the MPCA and MN DOC included additional types of GHG emissions in their Initial Comments proposal.

- CMPAS requests clarification that fuel composition means fuel type or feedstock. As CMPAS understands it, the MPCA and MN DOC's proposal[4] to monitor fuel composition is related to the type of fuel being used, not whether the fuel itself is changing. As a hypothetical example, if a facility using landfill gas was to start using different fuel, such as natural gas, then a new LCA would need to take place, but if a facility continued using landfill gas from the same landfill, the fuel composition would effectively remain the same. If that is indeed the intent, CMPAS supports this and recommends clarifying that intent as part of the proposal.

Finally, CMPAS is amenable to using a fuel LCA and a "well-to-generator" boundary if in the event it needs to conduct any LCA for CFS compliance. That said, although the fuel LCA proposed in Initial Comments is a simpler LCA, and while the proposed "well-to-generator" analysis boundary proposed in Initial Comments is through and seems practical, what remains is still a complex analysis. The analysis must estimate methane generation and capture, combustion emissions, and any avoided emissions. It also includes gas processing and transport emissions, using models like EPA's LandGEM and DOE Argonne's GREET. A further unique twist proposed in this docket is comparing the fuel's life-cycle emissions to an "alternative handling" scenario, such as flaring the gas instead of using it for electricity.

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

CMPAS agrees with the definition of waste biomass proposed by the MN DOC and

[4] Docket No. E-999/CI-24-352. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.*
Joint Initial Comments of MN DOC and MPCA. Page 10. June 6, 2025.

MPCA in their Joint Initial Comments, Attachment A.[5] This overrides CMPAS' Initial Comments on this definition; CMPAS withdraws those comments.

- *The Partnership on Waste and Energy's recommendations regarding the scope of the instant docket.*

  CMPAS has no further comments at this time but may file Supplemental Comments on this matter.

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

  CMPAS has no Reply Comments on this matter.

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

  CMPAS has no Reply Comments on this matter.

- *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 to determine its carbon-free generation*.

  CMPAS has no Reply Comments on this matter.

- *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.*

  CMPAS agrees with the statute referenced by the MN DOC and MPCA in their Joint Initial Comments[6] to define solid waste. As such, CMPAS withdraws its Initial Comments on this topic that reference a different statute where landfill gas is included as part of biomass (Minn. Statute § 216B.1691, subdivision 1).

[5] Docket No. E-999/CI-24-352. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.* Joint Initial Comments of MN DOC and MPCA. Attachment A. June 6, 2025.

[6] Docket No. E-999/CI-24-352. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.* Joint Initial Comments of MN DOC and MPCA. Attachment A. June 6, 2025.

- *Calculating partial compliance by generators burning waste materials based on a fuel cumulative life-cycle basis considering greenhouse gas benefits relative to alternative waste management methods.*

  In its Initial Comments, CMPAS had interpreted this as only belonging to direct burning of municipal solid waste (MSW). After reading Initial Comments and the Waste to Energy definition proposed by the MN DOC and MPCA in those Initial Comments, CMPAS now believes this question also pertains to capturing landfill gas from a waste facility and using that gas to fuel a Reciprocating Internal Combustion Engine. Since this resource type is in the fleet of resources serving CMPAS members, CMPAS provides Reply Comments on this topic.

  Similar to our comments in the section regarding the sources and requirements for a life-cycle analysis and our comments in our Attachment A, CMPAS supports calculating partial compliance for this type of generators only in the event the Commission wishes to use a lifecycle cost analysis ("LCA") framework to allow any type of resources to qualify for the Carbon Free Standard ("CFS"). As indicated above, CMPAS observed that a recent MPUC Agenda Meeting in Docket CI-23-151[7] focused very heavily on a plain reading of statute. Using that logic here, it is not yet clear whether any type of lifecycle cost analysis, which is not mentioned in Minn. Stat. § 216B.1691, will be adopted as part of the ultimate framework. But if the Commission does indeed allow LCA's for some types of "emitting generation" – specifically biomass, MSW, and landfill gas – to qualify for the CFS, CMPAS asks for consistency: allow all types of emitting generation to attempt to qualify for the CFS via an LCA. The reason for this is that Minn. Stat § 216B.1691 does not specifically call for differential treatment between these specific types of emitting generators.

  Regarding comparing impacts from these generators with impacts from alternative waste management handling scenarios, CMPAS is amenable to this but recommends being more specific with the proposed alternatives. Instead of saying "landfill" or "landfilling", please use the phrase "worst case emissions municipal solid waste (MSW) landfill".

  Regarding fuel lifecycle cost analyses and a "well-to-generator" boundary, please refer to the CMPAS comments in the first response above regarding sources and requirements for lifecycle cost analysis.

  Finally, CMPAS has a few comments specifically regarding landfill gas on this issue. Regardless of the outcome in this docket, landfills remain present in Minnesota today. Modern landfilling offers safe containment of non-recyclables, enables energy recovery through methane capture, provides cost-effective waste management, operates under strict environmental controls, and allows for land repurposing after closure. Capturing

[7] Docket No. E-999/CI-23-151. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.*
Agenda Meeting July 17, 2025; additional Order forthcoming in written form.

landfill gas for electricity generation reduces GHG emissions, produces renewable energy from a source that would otherwise be wasted, supports local power needs and creates economic opportunities. Excluding these projects, but allowing pathways for other, emitting generator types to qualify for CFS can help incentivize investing in better methane collection technology and energy recovery systems at landfills and waste facilities.

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

  CMPAS notes there were many Initial Comments submitted in this docket regarding how to calculate a carbon-free percentage or how to apply this percentage to net market purchases to determine the amount of carbon free energy that can be used for CFS compliance. CMPAS appreciates these perspectives but reiterates that a key focus of the specific question in this docket is to confirm how to define and mathematically calculate net market purchases themselves.

  Given that the Commission followed the plain reading of statute very closely in the Agenda Meeting and pending Order for Round 3 of Docket No. E-999/CI-23-151,[8] CMPAS believes similar action should be taken here, as Minn. Stat. § 216B.1691, Subd. 2d (ii) clearly identifies net market purchases as "*an electric utility's annual purchases from a regional transmission organization net of the electric utility's sales to the regional transmission organization".*

  This definition is clear enough that no additional phrases or terminology needs to be added. CMPAS wishes to update the intent of the operational definition it suggested for net market purchases in its Initial Comments. CMPAS now clarifies that it included the definition to simply show how it plans to implement, when necessary, the calculation of its net market purchases prior to applying any carbon free percentage(s), as MISO S55 statements are literally the record of the amount of energy a utility purchased from and sold to the regional transmission organization MISO. CMPAS provided this definition, <u>not</u> for the Commission to necessarily explicitly adopt word for word as a decision option, but rather to illustrate that the statute provides enough detail to utilities as is; it is not necessary to venture beyond statute and incorporate additional phrases that all utilities must endeavor to follow.

  CMPAS notes that some parties added additional terms in their Initial Comments to the definition of net market purchases. For example, the MN DOC and MPCA propose defining net market purchases as "Total Retail Sales – Electricity Generation – Specified Electric Purchases", where "Specified purchases" are "specified purchases of power from

[8] Docket No. E-999/CI-23-151. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.*

specific electric generators".[9] The plain reading of statute does not mention total retail sales, electricity generation, or the term "specified electric purchases". As such, CMPAS recommends not including these terms in the Commission's definition of net market purchases.

Nonetheless, should the Commission decide it still is appropriate to issue any order point(s) that do use the additional phrases "power purchase agreement", "bilateral contract", or "specified purchases", CMPAS recommends the Commission 1) is aligned on consistent operational definitions of these phrases; and 2) that complete definitions, not citations of contracts with trade secret details, are provided as guidance for the utilities who will ultimately have to use them in the future for compliance reporting.

To be clear, an example of an operational definition would be the definition of "power purchase agreement" that CMPAS recommended including in Round 3 of Docket No. CI-23-151: "any forward contract delivering predetermined amounts of physical energy to a utility, regardless of whether the source is a single generator/asset, an aggregation of varying numbers of generators/assets, or MISO's MINN.HUB"[10]. An operational definition should not include references to contracts that have multiple trade secret details as examples. This has already occurred, such as when Docket No. E-015/M-22-501 was used to illustrate the meaning of a "bilateral contract" in Round 3, Docket CI-23-151[11].[12]

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

None at this time.

[9] Docket No. E-999/CI-24-352. *In the Matter of a Commission Investigation into a Fuel Life-Cycle Analysis Framework for Utility Compliance with Minnesota's Carbon Free Standard.* MN Department of Commerce and Minnesota Pollution Control Agency Joint Initial Comments. June 5, 2025, page 19.

[10] Docket No. E-999/CI-23-151. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.*CMPAS Letter with Preferred Decision Options. July 14, 2025, page 2.

[11] CMPAS appreciates references in Docket CI-23-151 to a contract from another utility, as an example of an attempt to define "bilateral contract". However, various details surrounding the actual contract in Docket No. E-015/M-22-501 are trade secret and thus do not provide a conclusive operational definition for CMPAS as to whether this type of contract only includes energy and capacity from a single generator or how a "bilateral contract" is different from a "power purchase agreement", which is also included in the same sentence in the November 7, 2024 Order in Docket No. E-099/CI-23-151. CMPAS would also note that commodity brokers use bilateral contracts to make long-term forward sales for unbundled RECs and other environmental attributes; when reading the phrase "bilateral contract" with that understanding, the relevant November 7, 2024 Order point could possibly be interpreted as suggesting that a bilateral contract for unbundled RECs, which do originate from specific resources, could be used in the calculation of the percentage of carbon free energy.

[12] Docket No. E-999/CI-23-151. *In the Matter of an Investigation into Implementing Changes to the Renewable Energy Standard and the Newly Created Carbon-Free Standard under Minn. Stat. § 216B.1691.* MN Department of Commerce Reply Comments. March 19, 2025, page 21.