COMMERCE DEPARTMENT | MINNESOTA POLLUTION CONTROL AGENCY

July 14, 2023

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

RE: **In the Matter of Establishing an Updated 2023 and 2024 Estimate of the Costs of Future Carbon Dioxide Regulation on Electricity Generation under Minn. Stat. § 216H.06.**
Docket Nos. E999/CI-07-1199 and E999/DI-22-236

Dear Mr. Seuffert:

Attached are the Analysis and Recommendations of the Minnesota Pollution Control Agency and the Minnesota Department of Commerce, Division of Energy Resources (collectively, the Agencies) regarding the questions raised under Supplemental Topics in the Commission's second notice issued on March 29, 2023 with regards to the 2023 (and 2024) update to the range of cost estimates for the future cost of carbon dioxide (CO_2) regulation on electricity generation, as required by Minn. Stat. § 216H.06.

The Agencies are available to answer any questions in this matter that the Commission may have.

Sincerely,

LOUISE MILTICH
Assistant Commissioner of Regulatory Affairs
Division of Energy Resources
Commerce Department

FRANK KOHLASCH
Assistant Commissioner for Air and Climate Policy
Pollution Control Agency

LM/FK
Attachment

I. BACKGROUND

On January 5, 2023, the Agencies submitted their recommendations regarding the 2023 (and 2024) update to the range of cost estimates for the future cost of carbon dioxide (CO_2) regulation on electricity generation, as required by Minn. Stat. § 216H.06.

On January 11, 2023, the Commission issued its first notice of comment period in which it asked if the Commission should accept the Agencies recommendations.

On January 20, 2023, Fresh Energy, Minnesota Center for Environmental Advocacy, Sierra Club, and Union of Concerned Scientists (collectively, the Clean Energy Organizations or CEOs) requested a 45-day extension to the comment period.

On January 24, 2023, the Commission granted the CEOs' request and extended the comment period to March 30, 2023.

On March 17, 2023, the CEOs requested an additional 3-month extension to the comment period.

On March 29, 2023, the Commission granted the CEOs request and issued a second notice of extended and supplemental comment period. In this second notice, the Commission extended the previous comment period to June 30, 2023 and included three additional questions under Supplemental Topics for stakeholders to respond to.

On June 28, 2023, in response to a request from the Agencies, the Commission granted an additional two-week extension of the comment period to July 14, 2023.

The Agencies provide their response to the questions raised in these Supplemental Topics in its current filing.

II. AGENCIES' ANALYSIS

The Commission's second notice had the following three additional questions listed under supplemental topics:

4. How should the Commission's likely range of CO_2 regulatory costs incorporate the requirements of Minnesota Session Laws 2023, Chapter 7, section 10, which requires Minnesota utilities to generate or procure 100 percent carbon-free electricity by 2040 (the Carbon-Free Standard)?

5. How should the Commission implement Minnesota Session Laws 2023, chapter 7, section 18, which requires the Commission to adopt estimates released by the federal Interagency Working Group on the Social Cost of Greenhouse Gases or its successors,

and requires that resource planning and acquisition proceedings incorporate these estimates?

6. How should the Commission incorporate potential regulatory costs resulting from the U.S. Environmental Protection Agency's CO_2 regulation under the Section 111 (b) and (d) rules?

The Agencies will explain their responses to these questions and lay out their recommendations for the Commission in the subsequent sections.

A. REGULATORY COST RANGE AND CARBON FREE ELECTRICITY STANDARD

Minnesota Session Laws 2023, Chapter 7, section 10 (Carbon-Free Standard or CFS) requires each electric utility to generate or procure sufficient electricity from carbon-free energy technologies so that at least the following percentages of the electric utility's total retail electric sales to retail customers in Minnesota are generated from carbon free energy technologies by the end of the year indicated:

2030: 80 percent for public utilities; 60 percent for other electric utilities
2035: 90 percent for all electric utilities
2040: 100 percent for all electric utilities

The CFS allows utilities to meet these standards through a combination of carbon free generation and renewable energy credits (RECs).

Minn. Stat. § 216H.06 requires the establishment and use of a likely range for the regulatory cost of CO_2 regulation. The new CFS regulates CO_2 emissions from utilities by establishing a limit on carbon emissions associated with retail sales of electricity in Minnesota only. The carbon emission limits in the CFS represent a similar approach to the cap-and-trade carbon regulatory approaches which inform our estimates for a regulatory cost of carbon. While both the CFS and cap-and-trade systems put an upper limit on the total carbon emissions allowed from electricity generation, the compliance processes differ. A cap-and-trade system requires the emitter to hold and submit a credit for each ton of carbon emissions released, with carbon credits purchased through an auction and market system. For the CFS, compliance can be achieved by keeping emissions below the allowable carbon emissions limit or procuring and retiring RECs for emissions in excess of the carbon emissions limit.

The current regulatory cost of carbon approach creates a dollar per ton of CO_2 emitted value that affects resource planning decisions by imposing a uniform per-ton variable cost (e.g. a carbon credit price or a marginal carbon tax value) for emitting carbon across the entire system. Since Minnesota's CFS does not establish a requirement to procure a carbon credit or pay a carbon tax for each ton of carbon emitted, estimating the per ton cost to comply with the CFS involves a different approach to estimate the future cost of compliance than has been constructed in the past and was included the memo submitted on January 5, 2023. The regulatory cost to the comply with the CFS could be determined by estimating each utility's cost to meet the emission limitation within the CFS, with the additional cost of REC purchase for any emissions in excess of the limit included in the estimate.

With the Encompass Model, the current modeling platform we utilize in Minnesota regulatory analysis, a CFS could, in concept, be integrated into resource planning by treating it as an external planning constraint. The Encompass model, however, is not capable of capturing all the complexities of Minnesota's CFS, which places limits on emissions associated with a utility's Minnesota retail sales (not total generation) and allows compliance to be achieved through the purchase and retirement of RECs. Without a dollar per ton value to input into the Encompass model, it might not provide dispatch outputs that would inform compliance pathways to meet the CFS.

Given the limitations of the Encompass model but understanding the likely desire to use resource planning to project progress toward the CFS, staff explored whether the recommended regulatory cost range could be modified to drive model outcomes that also meet the recently passed CFS. While compliance with the CFS uses a different mechanism than cap-and-trade systems used in the US or North America, incorporating a dollar per ton regulatory cost value could achieve similar outcomes, namely, to reduce carbon emissions to allowable levels.

With this concept in mind, the Department issued Information Requests (IRs) to Xcel Energy (Xcel), Minnesota Power (MP), Otter Tail Power (OTP) and Great River Energy (GRE). All IR responses have been attached to this Supplemental Comment. The Department asked the utilities to ramp up the regulatory cost of carbon in their Encompass model until the utilities achieved compliance with the CFS requirement and to report back to the Department on what these regulatory costs would be.

The utilities pointed out some challenges with undertaking the specific modeling exercise requested by the Department and pointed out that existing utility filings in their respective integrated Resource Plan (IRP) dockets provide answers to this question. The Agencies request the utilities to clarify in their reply comments what value of the regulatory cost of carbon was consistent with their IR responses on carbon free generation in their IRP Plans.

OTP stated that by 2030, they expect to cover over 100 percent of their energy delivered to Minnesota customers from a combination of renewable generation and REC retirement. OTP's generation fleet is meant to serve about 135,000 customers and half of them are in

Minnesota. OTP in its supplemental letter dated February 16, 2023, in Docket E017/RP-21-339 explained their projected compliance with the CFS requirements. OTP's current IRP has not been decided at the time of writing these comments.

GRE stated that they have been planning a transition of their portfolio for over a decade and have adequate renewable generation combined with REC retirements that would satisfy Minnesota's CFS requirements. GRE pointed to the preferred plan in its 2022-2036 IRP in Docket No. ET2/RP-22-75 and claimed that they are anticipated to meet the compliance standards in 2030 and 2035, and continued portfolio transition and REC retirements are expected to lead to 2040 compliance. By 2035, GRE claimed its retail electric sales will be 90% carbon-free and carbon emissions will be more than 90% reduced from 2005 base levels. GRE's current IRP has not been decided at the time of writing these comments.

Xcel stated that since 73 percent of their system sales are to Minnesota customers, they would demonstrate compliance to Minnesota's CFS requirement by allocating 73 percent of their carbon-free generation to their Minnesota jurisdiction. Based on Xcel's currently approved Alternate Plan in their IRP, Xcel would exceed the requirements set forth under the CFS. Xcel also noted that this calculation does not rely on RECs or partial carbon-free energy credit associated with market purchases to demonstrate compliance with the CFS, although it is their understanding that those represent acceptable compliance pathways per the legislation. Xcel's current IRP was approved by the Commission on April 15, 2022, in Docket E-002/RP-19-368.

MP's IRP was filed in 2021 and its modeling inputs were based on 2020 data. Since then, significant changes have taken place, including passage of the Inflation Reduction Act and the Infrastructure Inflation and Jobs Act, a significant increase in inflation, and progress of carbon free technologies. Given these developments, MP stated its assumptions are "stale" and market outlooks "dated." Unlike the other utilities, MP did not show if it is on path to be in compliance with the CFS requirements. A detailed analysis would require updating of its modeling assumptions. The Agencies conclude that significant additional work would be required for MP to answer this specific question raised in the Department's IR. MP also raised the question that, since Minnesota already has a CFS requirement in place, is there sufficient need for a regulatory cost?

Based on these responses, and subject to clarification by the utilities in reply comments as discussed above, the Agencies conclude that the utilities' most recent integrated resource plans which includes modeling scenarios using a range of $5 to $30 per ton of carbon dioxide gets the utilities fairly close to the decarbonization targets of Minnesota's CFS. This can be seen as most Minnesota utilities are already on track to meet the statutory requirements of the CFS as demonstrated by IRPs that incorporate the regulatory cost. It is not clear, however, which regulatory cost scenario best matched the CFS outcomes for each utility, or whether the regulatory cost was material in driving those outcomes.

In conclusion, the Agencies have a reasonable basis to recommend that the Commission set the 2023 and 2024 updated range of regulatory cost of carbon from $5 to $30 per ton of CO_2. This range continues to represent the agencies' best estimate for a likely future system wide cost on carbon emissions for electricity generation, based on the cost of carbon credits in existing cap-and-trade systems and other markets or systems that generate a cost to emit carbon.

At the same time, the Agencies acknowledge that since the CFS establishes a carbon emission limit for each utility for 2030, 2035, and 2040, the consideration when the regulatory cost to comply with the CFS is fully internalized will inform future recommendations from the Agencies.

B. SOCIAL COST OF GREENHOUSE GASES

Minnesota's CFS also requires the Commission to adopt environmental cost estimates for greenhouse gas emissions from electricity generation that are presented by the United States Environmental Protection Agency's (EPA) External Review Draft Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, released in September 2022[1]. The draft report estimates the social cost of CO_2 at $190 per metric ton for emission year 2020 at a 2% discount rate.

The Agencies note that the externality cost of greenhouse gases and is independent of the instant docket with respect to the regulatory cost of carbon. The Commission established Docket E-999/CI-14-643 to determine externality cost of various pollutants. On January 3, 2018, the Commission issued its Order Updating Environmental Cost Values in Docket E-999/CI-14-643. Given the language of the CFS, the Agencies recommend the Commission update its order in Docket E-999/CI-14-643 to make it consistent with current statutes.

While the two costs are set in different dockets, both are required to be used in resource planning. The utilities and Department apply the regulatory cost of carbon (regulatory compliance cost) differently from the social cost of carbon (future damages-based costs) in resource planning procedures. The regulatory cost of carbon is treated as any other variable cost that a utility would have to pay for, in the presence of a regulatory limit on their carbon emissions, and thus affects dispatch decisions of the utility. In contrast, the social cost of carbon is an external cost that is imposed on society but not paid for by the utility. Thus, the utilities and Department do not incorporate the social cost of carbon into the model's

[1] The report is available at https://www.epa.gov/environmental-economics/scghg

dispatch decision-making. The social cost of carbon is added to the different IRP scenarios at the end of the model run based on the emissions resulting from the dispatch decisions in that run. As noted in our January 5, 2023, comments, the Agencies have found that due to the different stage of the resource planning process to which these values are applied, regulatory costs have a significantly greater impact in terms of carbon emission reduction than environmental costs. Thus, the new language in Section 18 of Minnesota Session Laws 2023, Chapter 7 is unlikely to have notably significant impact on the modeled resource planning outcomes under the current framework.

Minnesota's CFS is relevant to the present docket in that the Commission's January 11, 2023, notice of comment period, the Commission requested comments on whether it should continue to direct utilities to use the same scenarios of combining regulatory and environmental cost values as established in the Commission's September 2020 *Order Establishing 2020 and 2021 Estimate of Future Carbon Dioxide Regulation Costs*.

In our January 5, 2023, comments, the Agencies recommended no changes to the Commission's September 2020 decision on how to apply these value ranges in resource planning and acquisition proceedings. The Agencies maintained in the January filing that regulatory costs and environmental costs should not be applied together in the same planning scenario, relying on the principle that the regulatory cost represents a societally optimal outcome and achieves emission levels at which impacts to humans and the environment are deemed acceptable.

Considering the passage of the CFS and the new directives under 216B.1691 Subdivision 2 and 3 (e.g. consideration of impacts to historically undervalued communities) and considering the significant gap between the recommended regulatory cost of carbon and social cost of carbon for greenhouse gas emissions from electricity generation that are presented by the EPA External Review Draft Report on the Social Cost of Greenhouse Gases, the Agencies recommend the Commission consider including a model scenario that recognizes human and environmental impacts of emissions that occur in all years, even those years where a regulatory cost of carbon is applied. Although a perfectly designed regulatory cost theoretically represents an economically efficient level of emissions and would optimally signal a price point at which society does not value any further reduction in climate change impacts, the Commission's decision-making may benefit from model scenario that considers those impacts.

C. IMPACT OF EPA RULES UNDER SECTION 111(b) AND 111(d)

EPA published its proposed Greenhouse Gas (GHG) Standards and Guidelines for Fossil-Fired Power Plants (GHG Power Plant Rule) for new and existing electric generating units on May

23, 2023.[2] These CO_2 regulations were proposed under Section 111 of the Clean Air Act. The proposed rule for Section 111(b) seeks to set New Source Performance Standards for new fossil-fuel power plants. Additionally, the proposed rule for Section 111(d) seeks to set Emission Guidelines for existing fossil-fuel power plants. The proposed rule seeks to establish emission limitations in both Section 111(b) and 111(d) for fossil-fuel power plants, based on the fossil fuel used, the type of generation unit, the boilerplate capacity of each unit, and the utilization rate for each type of unit. The rule then requires each state to develop a State Plans to meet EPA's applicable emission limit for the existing fossil-fuel plants covered by the federal rule in their state. While EPA is required to identify available technologies that will achieve the respective emission limits, states have flexibility in establishing how each covered unit will meet its emission limit.

Since the proposed rule is still open for comment and subject to significant public interest, it is difficult to determine the full impact of EPA's proposed GHG Power Plant Rule on fossil-fuel power plants in Minnesota. EPA has been clear that they are seeking comments on all parts of the rule, and it is difficult to predict the critical details that will remain in EPA's final rule. In order to understand the impacts of EPA's proposed rule, the Agencies and utilities will need significantly more clarity regarding which fossil-fuel plants in Minnesota will be covered by the rule, the compliance timelines for each type of covered unit, the emission limits applicable to each type of covered unit at the different phases of the rule, the available compliance pathways for each covered unit, and the timeline for development of state plans to establish enforceable requirements on covered units.

Since EPA's proposed GHG Power Plant Rule has different timelines than Minnesota's CFS and operates at a unit-by-unit basis, it is conceivable or likely that EPA's rule could create additional compliance costs, beyond the costs meeting the CFS requirements. While Minnesota's CFS requirement of 100% carbon-free emissions by 2040 is more stringent than EPA's proposed regulations at 2040, EPA's final GHG Power Plant Rule could result in more stringent emission control requirements between 2030 and 2040. These more stringent federal regulations could create a unit-specific regulatory cost applied in resource planning but would increase the complexity of the modeling.

The Agencies, therefore, recommend that the Commission should continue monitoring the development of EPA's GHG Power Plant Rule to determine which fossil-fuel units in Minnesota will be covered by the final rule, what emission limits will apply to each unit, and the compliance timelines and the compliance pathways that will be available in the final rule for each unit.

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[2] Federal Register accessed through https://www.federalregister.gov/documents/2023/05/23/2023-10141/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed

III. CONCLUSIONS AND RECOMMENDATIONS

Based on its analysis, the Agencies conclude:

1. Minnesota Session Laws 2023, Chapter 7, section 10 establishes a CFS, designed to achieve outcomes by placing an absolute limit on carbon emissions associated with retail sales of electricity in Minnesota only. Recognizing that it is unclear at this time whether utilities have fully internalized the cost to comply with the CFS, the Agencies recommended range of regulatory costs remain unchanged.
2. The Commission's current range of regulatory costs gets utilities fairly close to the decarbonization targets of Minnesota Session Laws 2023, Chapter 7, section 10, which requires utilities to generate or procure 100 percent of their Minnesota sales from carbon-free electricity by 2040 (the Carbon-Free Standard).
3. The Agencies recommend that the proposed range of $5 to $30 per ton of CO_2 is consistent the decarbonization targets set forth in Section 18 of Minnesota Session Laws 2023, Chapter 7.
4. The Agencies recommend that the Commission should continue monitoring the development of EPA's GHG Power Plant rule to determine which fossil-fuel units in Minnesota will be covered by the final rule, what emission limits will apply to each unit, and the compliance timelines and compliance pathways that will be available in the final rule for each unit.
5. The Agencies request the utilities to clarify in their reply comments what value of the regulatory cost of carbon was consistent with their IR responses on carbon free generation in their IRP Plans.

The Agencies continue to recommend that the Commission adopt their recommendations laid out in the comments filed on January 5, 2023, except as modified in these comments.

ATTACHMENTS

☐ **Not Public Document – Not For Public Disclosure**
☒ **Public Document – Not Public Data Has Been Excised**
☐ **Public Document**

Xcel Energy		Information Request No.	1
Docket No.:	E999/DI-22-236		
Response To:	Minnesota Department of Commerce		
Requestor:	Adway De, Stephen Rakow		
Date Received:	June 7, 2023		

Question:
Topic: Topic: Regulatory Cost of Carbon
Reference(s): Minnesota's Carbon Free Electricity Standard

In the Commission's Second Notice of Extended and Supplemental Comment period, issued on March 29, 2023, in Dockets E999/CI-07-1199 and E999/DI-22-236 the Commission asked:

"How should the Commission's likely range of CO2 regulatory costs incorporate the requirements of Minnesota Session Laws 2023, Chapter 7, section 10, which requires Minnesota utilities to generate or procure 100 percent carbon-free electricity by 2040 (the Carbon-Free Standard)?"

The standards laid out in statute specify that utilities must be able to meet the following thresholds by the end of the year indicated:

2030: 80 percent for public utilities; 60 percent for other electric utilities
2035: 90 percent for all electric utilities
2040: 100 percent for all electric utilities

In order to answer this question, please run your company's Encompass model and ramp up the regulatory cost of CO2 such that the electricity mix you obtain from your model meets the CFS standard laid out in statute. Start by introducing three values of the regulatory cost: one in 2024, one in 2031one in 2036 and escalate each of them at 2% every year (2024-2030, 2031-2035 and 2036-2040 respectively) to obtain yearly profile of regulatory cost. Continue experimenting with the three initial regulatory cost values (in 2024, 2031 and 2036) until the CFS Standard is met for 2030, 2035 and 2040. As part of your response, please include for each year,

a. the regulatory cost of CO2 that resulted in meeting the CFS standard,
b. the electricity mix across different fuel types; and

c. the percentage of electricity that is carbon free

Response:
As noted in the Commission's Notice, Minnesota Session Laws 2023, Chapter 7, section 10 enacted the new Minnesota Carbon-Free Electricity Standard (MN CFS) states:

Subd. 2g. **Carbon-free standard.**
In addition to the requirements under subdivisions 2a and 2f, each electric utility must generate or procure sufficient electricity generated from a carbon-free energy technology to provide the electric utility's retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, 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:

(1) 2030 80 percent for public utilities; 60 percent for other electric utilities
(2) 2035 90 percent for all electric utilities
(3) 2040 100 percent for all electric utilities.

The legislation requires that each utility "generate or procure" an amount of carbon-free energy equivalent to at least 80 percent of Minnesota retail electric sales by 2030, 90 percent of Minnesota retail electric sales by 2035, and 100 percent of Minnesota retail electric sales by 2040. Like compliance with the renewable energy standard (RES), we will demonstrate compliance with the MN CFS by comparing the MWh of carbon-free generation on our system to our Minnesota retail sales. Our system's carbon-free generation will be allocated to our Minnesota jurisdiction based on the percentage of total system sales in Minnesota. Currently, approximately 73 percent of our total system sales are to Minnesota customers.

The Company is well positioned to transition to a system that achieves compliance with the new legislation under the Alternate Plan approved in our last IRP.[1]

Table 1: IRP Alternate Plan Carbon-Free Energy

	2030	2035	2040
Carbon-Free Generation (GWh)	42,873	40,044	46,348
Allocation to Minnesota (GWh)	31,187	29,129	33,714
Minnesota Retail Sales (GWh)	30,062	30,702	33,467

[1] Docket No. E002/RP-19-368.

Percentage Carbon-Free Generation (Carbon-Free Gen/MN Retail Sales)	104%	95%[2]	101%

As shown in the table above, based on the IRP Alternate Plan (which represents our currently approved IRP), our system will meet or exceed the thresholds enacted in the MN CFS. Therefore, for our system, the carbon cost assumptions used in our last IRP resulted in a plan that complies with the MN CFS.[3] We note that Table 1 does not rely on renewable energy credits (RECs) or partial carbon-free energy credit associated with market purchases to demonstrate compliance with the MN CFS, although it is our understanding that those represent acceptable compliance pathways per the legislation. We provide the energy mix of our IRP Alternate Plan for 2030, 2035, and 2040 as Attachment A.

We also note the MN CFS applies only to energy sales in Minnesota and differs materially in both scope and carbon accounting framework from the Company's goal to achieve a carbon-free generation system across the eight states we serve by 2050. Notably, the legislation preserves opportunities to invest in firm dispatchable units as needed to ensure system reliability, provided sufficient quantities of energy generated, relative to retail sales, on a utility's system is carbon-free.

Preparer:	Farah Mandich
Title:	Director, Resource Planning and Bidding
Department:	Integrated System Planning
Telephone:	612.330.5918
Date:	June 20, 2023

[2] Note that the decline in percentage of carbon-free energy is attributable, in large part, to Prairie Island units rolling off the system, per their current end of license life in 2033/2034.
[3] See Xcel Reply Comments, Appendix A, Docket No. E002/RP-19-368 (June 25, 2021). Numbers presented in Table 1 are based on the PVRR results where cost of carbon is not considered in the dispatch decisions, but has been included in capacity expansion optimization.

Alternate Plan - PVRR
Scenario 9 - BlackStart - Sherco King - A

Enegy Mix (GWh)			
Coal:Conventional	[TRADE SECRET DATA HAS BEEN EXCISED]		
Demand:Distributed Generation			
Demand:Energy Efficiency			
Gas/Oil:Combined Cycle			
Gas/Oil:Combustion Turbine			
Hydro:Hydroelectric			
Nuclear:Nuclear			
Other:Other			
Renewable:Biomass			
Renewable:Landfill			
Renewable:Solar PV			
Renewable:Wind			
Total	**64,348**	**62,942**	**65,417**
Carbon Free Generation	**42,873**	**40,044**	**46,348**

Scenario	Year	Energy (GWh) without DSM/EE	Energy (GWh) with DSM/EE
Scenario 9 - BlackStart - Sherco King - PVSC	2030	52,804	41,327
Scenario 9 - BlackStart - Sherco King - PVSC	2035	55,417	42,207
Scenario 9 - BlackStart - Sherco King - PVSC	2040	58,556	46,008

MN Retail Sales Share of NSP Retail Sales 72.74%

MN Energy with DSM/EE (GWh)
30,062
30,702
33,467

Minnesota Department of Commerce
85 7th Place East | Suite 280 | St. Paul, MN 55101
Information Request

Docket Number: E999/DI-22-236 ☐Nonpublic ☒Public
Requested From: Zac Ruzycki, GRE
Bria E. Shea, Xcel Energy
Nathan Jensen, Otter Tail Power
Ana Vang, Minnesota Power
Date of Request: 6/7/2023
Type of Inquiry: General
Response Due: 6/19/2023

SEND RESPONSE VIA EMAIL TO: Utility.Discovery@state.mn.us as well as the assigned analyst(s).
Assigned Analyst(s): Adway De, Stephen Rakow
Email Address(es): Adway.De@state.mn.us, stephen.rakow@state.mn.us
Phone Number(s): 651-539-1857

ADDITIONAL INSTRUCTIONS:
Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy.

Request Number: 1
Topic: Regulatory Cost of Carbon
Reference(s): Minnesota's Carbon Free Electricity Standard

Request:

In the Commission's Second Notice of Extended and Supplemental Comment period, issued on March 29, 2023, in Dockets E999/CI-07-1199 and E999/DI-22-236 the Commission asked: "How should the Commission's likely range of CO2 regulatory costs incorporate the requirements of Minnesota Session Laws 2023, Chapter 7, section 10, which requires Minnesota utilities to generate or procure 100 percent carbon-free electricity by 2040 (the Carbon-Free Standard)?" The standards laid out in statute specify that utilities must be able to meet the following thresholds by the end of the year indicated:

2030: 80 percent for public utilities; 60 percent for other electric utilities
2035: 90 percent for all electric utilities
2040: 100 percent for all electric utilities

In order to answer this question, please run your company's Encompass model and ramp up the regulatory cost of CO2 such that the electricity mix you obtain from your model meets the CFS standard laid out in statute. Start by introducing three values of the regulatory cost: one in 2024, one in 2031 and one in 2036 and escalate each of them at 2% every year (2024-2030, 2031-2035 and 2036-2040 respectively) to obtain yearly profile of regulatory cost. Continue experimenting with the three initial regulatory cost values (in 2024, 2031 and 2036) until the CFS Standard is met for 2030, 2035 and 2040. As part of your response, please include for each year,

a. the regulatory cost of CO2 that resulted in meeting the CFS standard,
b. the electricity mix across different fuel types; and
c. the percentage of electricity that is carbon free.

Response:

As discussed below, GRE believes that the IR 1 may misconstrue the requirements of the CFS and thus the requested modeling runs are unlikely to provide information relevant to the Commission's inquiry in this proceeding. This is because the modeling would not appropriately capture the manner in which Renewable Energy Certificates (RECs) can be retired to meet the CFS.

I. Carbon-Free Standard

On February 7, 2023, Governor Tim Walz signed into law new legislation that established a carbon free standard. Sec. 10 Minnesota Statutes 2022, section 216B.1691, was amended by adding a subdivision to read:

> *Subd. 2g.* ***Carbon-free standard.*** *In addition to the requirements under subdivisions 2a and 2f, each electric utility must generate or procure sufficient electricity generated from a carbon-free energy technology to provide the electric utility's retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, 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:*

(1)	*2030*	*80 percent for public utilities; 60 percent for other electric utilities*
(2)	*2035*	*90 percent for all electric utilities*
(3)	*2040*	*100 percent for all electric utilities.*

Notably, and relevant to GRE's response in this information request, is the target of this legislation for achieving the carbon-free standard. Total retail electric sales are the basis upon which compliance with the standard will be measured. Fossil fuel units operating for reliability purposes can remain operational to ensure continuing system reliability as Renewable Energy Certificates (RECs) can be retired to meet the standards per the language in Sec. 12. Minnesota Statutes 2022, section 216B.1691, subdivision 4, which was amended to read:

> *Subd. 4.**Renewable energy credits.***
>
> *(a) To facilitate compliance with this section, the commission, by rule or order, shall establish by January 1, 2008, a program for tradable renewable energy credits for electricity generated by eligible energy technology. The credits must represent energy produced by an eligible energy technology, as defined in subdivision 1. Each kilowatt-hour of renewable energy credits must be treated the same as a kilowatt-hour of eligible energy technology generated or procured by an electric utility if it is produced by an eligible energy technology. The program must permit a credit to be used only once, except that a credit may be used to satisfy both the carbon-free energy standard obligation*

To be completed by the responder

Response Date: June 20, 2023
Response by: Zac Ruzycki – Director, Resource Planning
Email Address: zruzycki@grenergy.com
Phone Number: 763-445-6116

under subdivision 2g and either the renewable energy standard obligation under subdivision 2a or the solar energy standard obligation under subdivision 2f, if the credit meets the requirements of each subdivision. The program must treat all eligible energy technology equally and shall not give more or less credit to energy based on the state where the energy was generated or the technology with which the energy was generated. The commission must determine the period in which the credits may be used for purposes of the program.

GRE has been thoughtfully planning and executing the transition of its power supply portfolio for more than a decade. The cooperative's portfolio of renewable resources combined with the ability to retire RECs to satisfy Minnesota's carbon-free standard puts GRE in a strong position to meet the standard on our current path established in the 2023 Integrated Resource Plan filing.

II. Response to DOC's IR 1

The request included in DOC's IR 1 would have the utilities model an increasingly stringent price on carbon until compliance with the carbon free standard is demonstrated through modeling results.

GRE believes that modeling compliance by either allowing retirement of additional fossil fuel generating units in the model or driving reductions in generation amounts from resources due to carbon pricing, would not be aligned with the language of the legislation. The citations above clearly allow generating units to continue operating as required to meet reliability needs while RECs are retired to offset that generation amount. Illustrating a carbon price that is predicated on a scenario that is misaligned with the legislation as written would introduce extraneous information into the record.

Additionally, the price of carbon to meet the goal would vary by modeling run, and would be entirely dependent on other assumptions, such as gas price, the cost of renewable energy, etc. Using EnCompass modeling to elicit a price on carbon resulting from the new carbon-free standard in this manner would quickly become a referendum on the modeling assumptions of all parties filing comments and would vary not only between each parties' modeling scenarios but amongst all intervenors' modeling results and scenarios.

GRE interprets this legislation as one that is directed at a common-sense transition away from fossil fuel generation, while ensure reliability and no impacts on generation resources outside of Minnesota. Operating EnCompass to create a price on carbon that achieves legislative compliance with the new carbon free standard makes this a generation portfolio-based exercise as opposed to demonstrating compliance with total electric retail sales.

GRE's preferred plan in its recently filed IRP is anticipated to meet the compliance standards in 2030 and 2035 once established, and continued portfolio transition and REC retirements are expected to lead to 2040 compliance. By 2035, GRE's retail electric sales will be 90% carbon-free and carbon emissions will be more than 90% reduced from 2005 base levels. GRE's forthcoming comments in this proceeding will lay out its proposed values for the future cost of regulation for CO_2, and GRE looks forward to collaboration with all parties on determining a regulatory cost of carbon.

To be completed by the responder

Response Date: June 20, 2023
Response by: Zac Ruzycki – Director, Resource Planning
Email Address: zruzycki@grenergy.com
Phone Number: 763-445-6116

OTTER TAIL POWER COMPANY
Docket No: E999-DI-22-236 E999-CI-07-1199

Response to: MN Department of Commerce
Analyst: Stephen Rakow, Adway De
Date Received: June 07, 2023
Date Due: June 19, 2023
Date of Response: June 20, 2023
Responding Witness: Nathan Jensen, Manager, Resource Planning - (218) 739-8989

Information Request:
Topic: Regulatory Cost of Carbon
Reference(s): Minnesota's Carbon Free Electricity Standard

In the Commission's Second Notice of Extended and Supplemental Comment period, issued on March 29, 2023, in Dockets E999/CI-07-1199 and E999/DI-22-236 the Commission asked: "How should the Commission's likely range of CO2 regulatory costs incorporate the requirements of Minnesota Session Laws 2023, Chapter 7, section 10, which requires Minnesota utilities to generate or procure 100 percent carbon-free electricity by 2040 (the Carbon-Free Standard)?"

The standards laid out in statute specify that utilities must be able to meet the following thresholds by the end of the year indicated:

2030: 80 percent for public utilities; 60 percent for other electric utilities
2035: 90 percent for all electric utilities
2040: 100 percent for all electric utilities

In order to answer this question, please run your company's Encompass model and ramp up the regulatory cost of CO2 such that the electricity mix you obtain from your model meets the CFS standard laid out in statute. Start by introducing three values of the regulatory cost: one in 2024, one in 2031 and one in 2036 and escalate each of them at 2% every year (2024-2030, 2031-2035 and 2036-2040 respectively) to obtain yearly profile of regulatory cost. Continue experimenting with the three initial regulatory cost values (in 2024, 2031 and 2036) until the CFS Standard is met for 2030, 2035 and 2040. As part of your response, please include for each year,

a. the regulatory cost of CO2 that resulted in meeting the CFS standard,
b. the electricity mix across different fuel types; and
c. the percentage of electricity that is carbon free.

Attachments: 0

Response:

Re-running our modeling and experimenting with regulatory cost values to identify the point(s) at which compliance with the Carbon Free Standard is achieved is a significant and labor-intensive undertaking. We do not believe it necessary to engage in the requested experimental modeling to determine compliance with the Carbon Free Standard when we have previously modeled compliance applying the current required cost of carbon. Moreover, the requested modeling would appear to have limited validity as more fully noted below.

The Carbon Free Standard is set forth in Minn. Stat. §216B.1691 Subd. 2g:

Subd. 2g. Carbon-free standard. In addition to the requirements under subdivisions 2a and 2f, each electric utility must generate or procure sufficient electricity generated from a carbon-free energy technology to provide the electric utility's retail customers in Minnesota, or the retail customers of a distribution utility to which the electric utility provides wholesale electric service, 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:

(1) 2030 80 percent for public utilities; 60 percent for other electric utilities
(2) 2035 90 percent for all electric utilities
(3) 2040 100 percent for all electric utilities

Minn. Stat. §216B.1691, Subd. 4 (as amended by the Minnesota Clean Energy Law) explains that renewable energy credits may be utilized to comply with the carbon-free requirements:

> *. . . (b) In lieu of generating or procuring energy directly to satisfy a standard obligation under subdivision 2a, 2f, or 2g, an electric utility may utilize renewable energy credits allowed under the program to satisfy the standard.*

Otter Tail has analyzed the Carbon Free Standard in the context of its Integrated Resource Plan for 2022-2036 in Commission Docket No. E017/RP-21-339. On March 31, 2023, Otter Tail supplemented its initial filing (Supplemental IRP Filing) with updated modeling to address recent developments, including MISO's adoption of a seasonal resource adequacy construct and capacity requirement and the enactment of the Inflation Reduction Act. Our Supplemental IRP Filing included an updated preferred plan (Updated Preferred Plan), which included approximately 400 MW in new renewable generation.

Based on our Updated Preferred Plan, we forecasted that our owned renewable generation would allow us to comply with Carbon Free Standard of Minn. Stat. §216B.1691. We explained this projected compliance in a Supplemental Letter Filing to Address 100 Percent Clean Energy Legislation dated February 16, 2023, and provided a more detailed compliance analysis in our Supplemental IRP Filing at pages 26-28 (all in Docket No. E017/RP-21-339).

In our Supplemental IRP Filing we explained how we are uniquely and well positioned to comply with the Minnesota Clean Energy Law's 100 percent carbon-free obligation because the statute expressly provides for compliance through the retirement of renewable energy credits (RECs). Specifically, compliance can be achieved if the energy delivered to Minnesota customers is accompanied by a corresponding quantity of RECs that can be retired on their behalf, without regard to the disposition of any existing thermal generation resources.

Otter Tail already has significant renewable generation in its fleet relative to the energy we deliver to Minnesota customers and as noted above we plan to add approximately 400 MW of renewable generation in the future. We estimate that by 2030 we will be able to cover more than 100 percent of our Minnesota sales with RECs produced by our own generation resources. This will also be the case in 2040. This is largely possible for Otter Tail because our generation fleet is built to serve about 135,000 customers, only about half of whom are in Minnesota. Please refer to Tables 4-5 and 4-6 of our Supplemental IRP Filing which reflect modeling results that applied no externality values or regulatory costs of carbon in combination with modeling results using the externality values and regulatory cost of carbon ordered by the Commission on September 30, 2020, in Docket No. E999/DI-19-406.

Given this prior modeling and the provision of the Clean Energy Law that expressly provides for compliance through the use of RECs, we do not believe it is reasonable to engage in the experimental modeling requested by this Information Request. Modeling which attempts to measure compliance with the Carbon Free Standard without the statutorily authorized transfer of RECs is of questionable validity. Such modeling would likely call for retirement of our co-owned coal facilities in the very short term, and likely our other thermal peaking facilities as well. Prior to the retirement of large thermal resources, system impact studies would be needed to ensure reliability. While the EnCompass model could technically create an expansion plan with these assumptions, a significant amount of work outside of EnCompass would be necessary to ensure validity of any results. Also please note that Otter Tail models its three-state jurisdiction system as one integrated system. Modeling to assess compliance with the Carbon Free Standard that omits the use of statutorily authorized RECs is likely to produce results that do not account for our integrated system and potentially create unnecessary jurisdictional conflicts – something we understand the Clean Energy Law was drafted in part to avoid or minimize.

Minnesota Department of Commerce
85 7th Place East │ Suite 280 │ St. Paul, MN 55101
Information Request

Docket Number: E999/DI-22-236
Requested From: Zac Ruzycki, Great River Energy
Bria E. Shea, Xcel Energy
Nathan Jensen, Otter Tail Power
Ana Vang, Minnesota Power
Type of Inquiry: General

☐Nonpublic ☒Public
Date of Request: 6/7/2023

Response Due: 6/19/2023

SEND RESPONSE VIA EMAIL TO: Utility.Discovery@state.mn.us as well as the assigned analyst(s).
Assigned Analyst(s): Adway De, Stephen Rakow
Email Address(es): Adway.De@state.mn.us, stephen.rakow@state.mn.us
Phone Number(s): 651-539-1857

ADDITIONAL INSTRUCTIONS:
Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy.

Request Number:	**1**
Topic:	Regulatory Cost of Carbon
Reference(s):	Minnesota's Carbon Free Electricity Standard

Request:

In the Commission's Second Notice of Extended and Supplemental Comment period, issued on March 29, 2023, in Dockets E999/CI-07-1199 and E999/DI-22-236 the Commission asked:
"How should the Commission's likely range of CO2 regulatory costs incorporate the requirements of Minnesota Session Laws 2023, Chapter 7, section 10, which requires Minnesota utilities to generate or procure 100 percent carbon-free electricity by 2040 (the Carbon-Free Standard)?"
The standards laid out in statute specify that utilities must be able to meet the following thresholds by the end of the year indicated:

2030: 80 percent for public utilities; 60 percent for other electric utilities
2035: 90 percent for all electric utilities
2040: 100 percent for all electric utilities

In order to answer this question, please run your company's Encompass model and ramp up the regulatory cost of CO2 such that the electricity mix you obtain from your model meets the CFS standard laid out in statute. Start by introducing three values of the regulatory cost: one in 2024, one in 2031 and

To be completed by responder

Response Date: June 19, 2023
Response by: Eric Palmer
Email Address: epalmer@mnpower.com
Phone Number: 218-355-3839

Minnesota Department of Commerce
85 7th Place East │ Suite 280 │ St. Paul, MN 55101
Information Request

Docket Number: E999/DI-22-236 ☐Nonpublic ☒Public
Requested From: Zac Ruzycki, Great River Energy Date of Request: 6/7/2023
Bria E. Shea, Xcel Energy
Nathan Jensen, Otter Tail Power
Ana Vang, Minnesota Power
Type of Inquiry: General Response Due: 6/19/2023

SEND RESPONSE VIA EMAIL TO: Utility.Discovery@state.mn.us as well as the assigned analyst(s).
Assigned Analyst(s): Adway De, Stephen Rakow
Email Address(es): Adway.De@state.mn.us, stephen.rakow@state.mn.us
Phone Number(s): 651-539-1857

ADDITIONAL INSTRUCTIONS:
Each response must be submitted as a text searchable PDF, unless otherwise directed. Please include the docket number, request number, and respondent name and title on the answers. If your response contains Trade Secret data, please include a public copy.

one in 2036 and escalate each of them at 2% every year (2024-2030, 2031-2035 and 2036-2040 respectively) to obtain yearly profile of regulatory cost. Continue experimenting with the three initial regulatory cost values (in 2024, 2031 and 2036) until the CFS Standard is met for 2030, 2035 and 2040. As part of your response, please include for each year,

a. the regulatory cost of CO_2 that resulted in meeting the CFS standard,
b. the electricity mix across different fuel types; and
c. the percentage of electricity that is carbon free.

Response:

Minnesota Power's (or, the "Company") most recent EnCompass model was developed for its 2021 Integrated Resource Plan ("IRP") in Docket No. E015/RP-21-33. Model inputs are from 2020 data and were informed by the Modeling Subcommittee of the Company's stakeholder process that started in 2019 and concluded in 2020.[1] The Company filed it's 2021 IRP on February 1, 2021, and an order in the docket was published on January 9, 2023. Since filing the 2021 IRP, the Inflation Reduction and Infrastructure Inflation and Jobs Acts passed, carbon free technologies have progressed, and inflation has significantly increased the costs of goods and services. The Company's 2021 IRP models do not take any of these impacts into account.

Minnesota Power respectfully declines the Departments request to run EnCompass modeling to calculate the regulatory cost of carbon and outlines specific concerns with this approach below. As stated above, Minnesota Power's most recent IRP model contains stale assumptions from the 2021 IRP including dated outlooks for markets, cost of renewables, IRA impacts, availability of carbon free technologies to be selected in the model, and resource adequacy requirements. Even if the Company agreed with the modeling approach, the outcome would not be useful

[1] For the complete Modeling Subcommittee stakeholder report, please refer to Appendix R filed in Docket No. E015/RP-21-33.

To be completed by responder

Response Date: June 19, 2023
Response by: Eric Palmer
Email Address: epalmer@mnpower.com
Phone Number: 218-355-3839

Minnesota Department of Commerce
85 7th Place East │ Suite 280 │ St. Paul, MN 55101
Information Request

Docket Number: E999/DI-22-236 ☐Nonpublic ☒Public
Requested From: Zac Ruzycki, Great River Energy Date of Request: 6/7/2023
Bria E. Shea, Xcel Energy
Nathan Jensen, Otter Tail Power
Ana Vang, Minnesota Power
Type of Inquiry: General Response Due: 6/19/2023

for the intended purpose given the stale modeling assumptions used in the analysis.

The following are some of the concerns Minnesota Power has with the request.

- Using this approach to calculate a regulatory cost of carbon will result in a unique regulatory cost specific to that utility and the assumptions used in the modeling at that point in time. The regulatory cost of carbon identified through this analysis would result in the intended carbon free target only under that set of assumptions used in the model. Anytime a model is updated for a new IRP, for example, the regulatory cost of carbon identified in a prior analysis will not result in the intended carbon free target in the new modeling. There are other modeling approaches that should be explored that would more efficiently achieve a carbon-free target and be universal across any set of assumptions.
- Another concern is the Department's proposed calculation for the regulatory cost of carbon does not consider stakeholder input and other costs that would be considered in a robust IRP plan that met the 100% carbon free by 2040 legislation. This analysis ignores any cost to ensure energy adequacy, host community impacts, feasibility of building carbon free energy, and any other cost identified from Minnesota Power's upcoming IRP stakeholder meetings. The Company believes this type of approach misrepresents the total cost to achieve the carbon free mandate.
- The Commission has an open docket that will include discussions to determine how a utility will demonstrate compliance with the state carbon-free requirement of 100% carbon free by 2040. Furthermore, it's Minnesota Power's understanding that the carbon free mandate is to cover all retail sales and does not limit having a carbon emitting resource in the portfolio if the need is identified in the IRP. The Department's requested analysis appears to presume that only carbon free resources can meet 100% off all system energy needs based on increasing the regulatory cost of carbon. This request assumes an outcome of a future regulatory proceeding on how compliance will be demonstrated for Minnesota carbon free requirements. Minnesota Power believes this request for analysis is too early in the process.

Minnesota Power appreciates the Department reaching out on the regulatory cost of carbon and starting to think about how carbon regulation cost could be calculated given the new standard to achieve 100% carbon free by 2040. The Company recognizes that the regulatory cost of carbon and developing a plan to achieve 100% carbon by 2040 are related given they both address carbon emissions. That being said, the solution to modeling and developing a plan to meet 100% carbon free by 2040 does not need to include a regulatory cost of carbon. For example, given that 100% carbon free by 2040 is now a requirement there is no longer a need to model carbon regulation costs to reduce carbon emissions in a plan. The Company believes that a thoughtful discussion is needed on carbon cost modeling in

To be completed by responder

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Response by: Eric Palmer
Email Address: epalmer@mnpower.com
Phone Number: 218-355-3839

Minnesota Department of Commerce
85 7th Place East | Suite 280 | St. Paul, MN 55101
Information Request

Docket Number: E999/DI-22-236 ☐Nonpublic ☒Public
Requested From: Zac Ruzycki, Great River Energy
Bria E. Shea, Xcel Energy
Nathan Jensen, Otter Tail Power
Ana Vang, Minnesota Power
Date of Request: 6/7/2023
Type of Inquiry: General
Response Due: 6/19/2023

IRPs. Minnesota Power looks forward continuing to work with the Department and other stakeholders on the regulatory cost of carbon docket and the 100% carbon free by 2040 docket.

To be completed by responder

Response Date: June 19, 2023
Response by: Eric Palmer
Email Address: epalmer@mnpower.com
Phone Number: 218-355-3839

CERTIFICATE OF SERVICE

I, Nicole Westling, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

Minnesota Department of Commerce
Supplemental Comments

Docket Nos. E999/CI-07-1199, E999/DI-22-236

Dated this **14th** day of **July 2023**

/s/Nicole Westling

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Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	60 S 6th St Ste 1500 Minneapolis, MN 55402-4400	Electronic Service	No	OFF_SL_7-1199_Official
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	No	OFF_SL_7-1199_Official
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Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_7-1199_Official
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Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	60 S 6th St Ste 1500 Minneapolis, MN 55402-4400	Electronic Service	No	OFF_SL_22-236_DI-22-236
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1400 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_22-236_DI-22-236
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Nathan	Jensen	njensen@otpco.com	Otter Tail Power Company	215 S. Cascade St. Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_22-236_DI-22-236
Alice	Madden	alice@communitypowermn.org	Community Power	2720 E 22nd St Minneapolis, MN 55406	Electronic Service	No	OFF_SL_22-236_DI-22-236
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David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_22-236_DI-22-236
Dalene	Monsebroten	dalene.monsebroten@nmpagency.com	Northern Municipal Power Agency	123 2nd St W Thief River Falls, MN 56701	Electronic Service	No	OFF_SL_22-236_DI-22-236
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_22-236_DI-22-236

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Audrey	Partridge	apartridge@mncee.org	Center for Energy and Environment	212 3rd Ave. N. Suite 560 Minneapolis, Minnesota 55401	Electronic Service	No	OFF_SL_22-236_DI-22-236
Kristel	Porter	kristel@mnrenewablenow.org	MN Renewable Now	N/A	Electronic Service	No	OFF_SL_22-236_DI-22-236
Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012131	Electronic Service	Yes	OFF_SL_22-236_DI-22-236
Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy	26 E Exchange St, Ste 206 St. Paul, MN 551011667	Electronic Service	No	OFF_SL_22-236_DI-22-236
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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul, MN 55101	Electronic Service	Yes	OFF_SL_22-236_DI-22-236
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Karen	Tyler	ktyler@nd.gov	Industrial Commission of North Dakota	14th Floor 600 E. Boulevard Avenue, Dept. 405 Bismarck, ND 58505	Electronic Service	No	OFF_SL_22-236_DI-22-236
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Elizabeth	Wefel	eawefel@flaherty-hood.com	Flaherty & Hood, P.A.	525 Park St Ste 470 Saint Paul, MN 55103	Electronic Service	No	OFF_SL_22-236_DI-22-236
Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	OFF_SL_22-236_DI-22-236