Center for Energy and Environment

July 14, 2023

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

RE: Center for Energy and Environment's Comments in the Matter of Establishing an Updated Estimate of the Costs of Future Carbon Dioxide Regulation on Electricity Generation Under Minn. Stat. §216H.06

Docket Numbers E999/DI-22-236 and E999/CI-07-1199

Dear Mr. Seuffert,

Center for Energy and Environment ("CEE") respectfully submits these Comments to the Minnesota Public Utilities Commission ("Commission") in response to the March 29, 2023 Second Notice of Extended and Supplemental Comment Period in the Matter of Establishing an Updated Estimate of the Costs of Future Carbon Dioxide ("carbon" or "CO2") Regulation on Electricity Generation Under Minnesota Statute §216H.06 ("*Supplemental Notice*") in this docket.

The *Supplemental Notice* includes the following topics open for comment.

1. Should the Commission adopt the Agencies' recommendations from its January 5, 2023, Report? If not, how should the Agencies' recommendations be modified? The Agencies recommend the Commission:

    a. raise the upper bound of the existing range of likely costs of CO2 regulation to $30 per ton of CO2 emitted;

    b. keep the lower bound at $5 per ton of CO2 emitted;

    c. set an annual escalation factor for the regulatory cost of carbon at 4%;

    d. keep 2025 as the threshold planning year for which these values should begin to be applied; and

    e. continue to direct utilities to use the same scenarios of combining regulatory and environmental cost values as established in the September 2020 order.

2. How do capacity expansion models, such as EnCompass, treat CO2 regulatory costs differently than environmental externalities in resource planning and resource acquisition proceedings?

3. Are there other issues or concerns related to this matter

4. 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)?

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 CO2 regulation under the Section 111 (b) and (d) rules?

Below CEE responds to each of the open topics.

Background

CEE and several other parties, including utilities, filed Comments in this docket on August 31, 2022 in response to the June 30, 2022 Request for Comments issued by the Minnesota Department of Commerce, Division of Energy Resources ("Department") and the Minnesota Pollution Control Agency ("MPCA"). In our Comments, CEE recommended that if the Commission's approved regulatory cost of CO2 is less than the corresponding environmental cost of CO2, then the incremental environmental costs (i.e. the environmental cost of CO2 value minus the regulatory cost of CO2 value) shall be included in the modeling scenario for all applicable years. Additionally, we recommended a set of modeling scenarios for utility resource acquisition and planning proceedings for 2023 and 2024.

The Department and MPCA responded to our Comments and Comments from other parties and provided recommendations to the Commission in the January 5, 2023 Analysis and Recommendations of the Minnesota Pollution Control Agency and the Department (jointly "Agencies") regarding the 2023 (and 2024) update to the range of cost estimates for the future CO2 regulation on electricity generation, as required by Minn. Stat. § 216H.06 ("*Analysis and Recommendations*"). The Agencies recommended that, for 2023 and 2024, the range of the regulatory cost of carbon be between $5 and $30 per ton, that the regulatory cost of carbon be applied starting in 2025 of an analysis period, and that utilities continue to include the same set

of scenarios in resource planning as was approved in the Commission's September 2020 Order in this docket.

Since CEE and other parties filed Comments on August 31, 2022 and the Agencies' provided their January 5, 2023 *Analysis and Recommendations*, several relevant and important policy changes have occurred, as noted in the Commission's Notice. In February 2023, Minnesota enacted the 100 Percent Clean Energy Law.[1] The new law creates a carbon-free standard, requiring utilities to produce or procure a certain percentage of the electricity they provide to Minnesota retail customers with carbon-free energy technologies. The Minnesota Carbon-Free Standard is as follows.

- By 2030, investor-owned utilities must meet at least 80 percent of total retail electric sales in Minnesota with carbon-free energy resources and consumer-owned utilities must meet 60 percent of total retail electric sales in Minnesota with carbon-free energy resources.
- By 2035 all electric utilities must meet at least 90 percent of total retail electric sales in Minnesota with carbon-free energy resources.
- By 2040, all electric utilities must meet at least 100 percent of total retail electric sales in Minnesota with carbon-free energy resources.[2]

The law provides additional information on eligible carbon-free energy technologies, compliance options, and issues the Commission may consider if a utility requests a modification or delay in meeting the Carbon-Free Standard. The law also includes direction to the Commission on the source citation and values to use for the environmental costs of greenhouse gas emissions when evaluating and selecting energy resource options, including resource plan and certificate of need proceedings. The law states:

> Environmental costs. (a) The commission shall, to the extent practicable, quantify and establish a range of environmental costs associated with each method of electricity generation. A utility shall use the values established by the commission in conjunction with other external factors, including socioeconomic costs, when evaluating and selecting resource options in all proceedings before the commission, including resource plan and certificate of need proceedings.
>
> (b) The commission shall provisionally adopt and apply the draft cost of greenhouse gas emissions valuations presented in the United States Environmental Protection Agency's EPA External Review Draft of Report on the Social Cost of Greenhouse Gases:

[1] Minnesota Session Laws 2023, Chapter 7
[2] Sec. 10. Minnesota Statutes 2022, section 216B.1691, Subd. 2g

> Estimates Incorporating Recent Scientific Advances, released in September 2022,[3] including the time horizon, global estimates of damages, and the full range of discount rates from 2.5 to 1.5 percent, with two percent as the central estimate. The commission shall adopt the estimates contained in the final version of the external review draft report when it becomes available.
>
> (c) If, at any time, the estimates adopted by the commission under paragraph (a) are exceeded by estimates released by the federal Interagency Working Group on the Social Cost of Greenhouse Gases or its successors, the commission shall adopt the working group estimates.[4]

Additionally, in 2023, the U.S. Environmental Protection Agency ("EPA") proposed new CO2 pollution standards for new and existing coal and natural gas-fired power plants under Section 111 of the Clean Air Act. Like Minnesota's new Carbon-Free Standard, the proposed EPA standards place limits on CO2 emissions from power plants and provide detailed options for compliance. The EPA is currently taking public comments on the proposed standards.[5]

While these two policies, the Minnesota 100 Percent Clean Energy Law and the EPA's proposed CO2 pollution standards, do not explicitly modify or mention how the regulatory cost of CO2 is used in resource planning and acquisition proceedings, they significantly change the overall paradigm for electric system planning and the reason and relative value of using an estimated regulatory cost of CO2 in planning and acquisition proceedings. We discuss this concept further in our comments below.

Comments

1. Should the Commission adopt the Agencies' recommendations from its January 5, 2023, Report? If not, how should the Agencies' recommendations be modified? The Agencies recommend the Commission:

> *a. raise the upper bound of the existing range of likely costs of CO2 regulation to $30 per ton of CO2 emitted;*

[3] The Environmental Protection Agency issued this draft report, updating previous cost-of-carbon estimates by the U.S. Interagency Working Group on the Social Cost of Greenhouse Gases ("IWG") with methodological updates and recommendations from the National Academies. The IWG was reconvened in 2021 to develop a comprehensive update of the social cost of carbon and recommendations for how it should be applied. That update is forthcoming.

[4] Sec. 18. Minnesota Statutes 2022, section 216B.2422, subdivision 3

[5] https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power#:~:text=Announcement,standards%20to%20August%208%2C%202023.

b. keep the lower bound at $5 per ton of CO2 emitted;

c. set an annual escalation factor for the regulatory cost of carbon at 4%;

d. keep 2025 as the threshold planning year for which these values should begin to be applied; and

e. continue to direct utilities to use the same scenarios of combining regulatory and environmental cost values as established in the September 2020 order.

CEE does not recommend that the Commission adopt the Agencies' recommendations included in the January 5, 2023 *Analysis and Recommendations*. Further, we do not recommend that the Commission adopt our own recommended planning scenarios included in our August 31, 2022 Comments. We believe that the policy changes discussed above warrant a different approach to energy resource acquisition and planning proceedings and require specific changes to the externality costs of greenhouse gases.

A New Approach to Electric Resource Planning

Since 2007, the regulatory cost of CO2 has been an important and consequential policy mechanism to model, analyze, and ultimately drive reductions in CO2 emissions in the electric sector. Historically, the Commission established, and utilities included, a regulatory cost of CO2 in capacity expansion and dispatch modeling for electric resource planning proceedings. The regulatory cost of CO2 internalized some of the environmental costs of CO2 emissions and provided a price signal that affected energy resource evaluation and modeling outcomes and, therefore, drove CO2 emissions reductions.

With the passage of the 100 Percent Clean Energy Law in 2023, Minnesota's approach to reducing emissions of the electric sector has changed. The new law includes the Carbon-Free Standard for electric generation, which sets clear limits on CO2 emissions associated with retail sales of electricity in Minnesota. This new policy approach no longer relies on price signals within resource modeling to drive or determine the appropriate level of emissions. Minnesota's new approach aligns with the newly proposed EPA carbon pollution standards, which also sets clear emissions limits on fossil-fuel-fired power plants.

CEE believes that this new policy approach to reducing emissions of our electric system allows for a simpler resource planning process in terms of the required modeling scenarios. First, we no longer see the need to include the regulatory cost of carbon in resource plan modeling scenarios. As noted above, the new Carbon-Free Standard prescribes limits on CO2 emissions for retail sales of electricity in Minnesota. With these new limits, it is no longer necessary to include a price signal on emissions in our modeling to drive emissions reductions.

Further, we believe that there are more straight-forward and effective ways to develop and analyze resource plans that meet the emissions requirements of the new Carbon-Free Standard. For some utilities, one option may be instituting a constraint on emissions within the capacity expansion model. For other utilities, especially those who plan to use renewable energy credits ("RECs") to comply with the new standard, the emissions requirements of the new law may be instituted more broadly and flexibly within the overall planning process. In either case, we believe that including the regulatory cost of carbon in the capacity expansion and dispatch models could create unnecessary complexity and possibly confusing or contradictory modeling outcomes.

We recognize that Minnesota Statute 216H.06 continues to require the Commission to establish a likely range for the regulatory cost of carbon and that it be used in electric resource acquisition proceedings. With this in mind, we suggest that the Commission could establish a zero value for the regulatory cost of carbon at this time and consider updates to that value if and when policy changes. Alternatively, the Minnesota Legislature may consider removing or modifying the requirement for the regulatory cost of carbon in Minnesota Statute 216H.06.

CEE remains interested and open to hearing from other parties about whether a modeling scenario that includes a regulatory cost of carbon could provide value to the resource planning process. While we do not believe that including the regulatory cost of CO2 in resource planning is necessary to ensure or enable utilities to meet the new Carbon-Free Standard, we continue to believe that this type of analysis may provide valuable insight into utility operations and dispatch practices. Such an analysis could allow regulators, utilities, and stakeholders to see how electric generation resources would be dispatched if environmental costs of CO2 emissions were embedded into our energy costs. Further, we believe this type of analysis could be useful for comparing dispatch modeling results to how resources are actually operated and dispatched. We look forward to hearing from other parties about whether this type of analysis provides value in the resource planning context or in other regulatory proceedings.

Environmental Externality Cost of Greenhouse Gases

We continue to recommend that the Commission require utilities to apply an externality value of CO2 emissions to electric resource plans on a post hoc basis. The externality cost of greenhouse gas emissions does not affect the outcome of energy resource modeling, but is applied to modeling outcomes. Estimating and applying environmental externalities to electric resource plans provides valuable information about the environmental costs associated with different resource plan options and is useful for comparing different plans. We anticipate that even among resource plans that comply with Minnesota's new Carbon-Free Standard, there will be differences in the overall environmental costs each plan imposes and, therefore, estimating the environmental costs of each plan will continue to be informative and useful.

Historically, the Commission established and required utilities to apply a range of estimated environmental costs for CO2 emissions in resource planning proceedings. The most recently approved values were established in the Commission's January 3, 2018 Order in Docket Number E999/CI-14-643.

As noted above, the 100 Percent Clean Energy Law included specific directions to the Commission about the data source and values to use for greenhouse gas emissions costs when evaluating and selecting resource options. The law directs the Commission to "provisionally adopt and apply the draft cost of greenhouse gas emissions valuations presented in the United States Environmental Protection Agency's EPA External Review Draft of Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, released in September 2022 ("EPA's Draft Report"), including the time horizon, global estimates of damages, and the full range of discount rates from 2.5 to 1.5 percent, with two percent as the central estimate."[6] The law also directs the Commission to adopt future updates from the U.S. Interagency Working Group on the Social Cost of Greenhouse Gases ("IWG"), which we discuss further in our Comments under question five.

CEE recommends that the Commission provisionally adopt and require utilities to use the draft values for the social cost of CO2 with a two percent discount rate, included in the EPA's Draft Report and summarized on in Table ES 1 on page 3 of the draft report, as the environmental externality values for electric resource planning proceedings in 2023 and 2024.

We do not believe it is necessary to adopt or to require utilities to apply a range of values for the environmental externality costs of CO2 emissions. It is our understanding that environmental externality costs are applied to a modeling outcome by multiplying the estimated externality cost value by the total resulting tons of CO2 emissions. Including a lower or higher value for environmental externality costs would result in either lower or higher overall estimated environmental externality costs proportionate to the difference in the estimated value. Directionally and comparatively, applying different values would have no effect. Therefore, we think it is not necessary to include a range of values for environmental externality costs and is another opportunity to simplify the resources planning process and required modeling scenarios.

Substituting Environmental Externality Costs with Regulatory Costs

As discussed, CEE no longer believes that it is necessary to include a regulatory cost of carbon in resource planning models. However, if the Commission does require utilities to include the regulatory cost of carbon in resource planning, we continue to recommend that the Commission no longer require modeling scenarios in which utilities fully substitute the regulatory cost of CO2 for the environmental costs of CO2. As we discussed at length in our August 31, 2022 Comments in this docket and Docket E999/DI-22-236, we understand that this has been the modeling

[6] Minnesota Session Laws 2023, chapter 7, section 18

approach used since Minnesota established a regulatory cost of CO2, and we believe that approach may have been appropriate in the past. However, we no longer believe that this practice is an appropriate way to estimate the costs of CO2 emissions.

CEE agrees that that the estimated regulatory cost of CO2 should not be additive to the estimated environmental costs of CO2. However, we do not believe that it is always appropriate to omit the environmental costs of CO2 entirely when including the regulatory cost of carbon in a modeling scenario. While the estimated regulatory cost of CO2 and the estimated environmental cost of CO2 are different, they are related and not simply two different ways to quantify the burden of CO2 emissions.

The environmental cost of CO2 represents the estimated environmental damages caused by emitting an additional ton of CO2 into the atmosphere at a particular point in time. These costs are externalities because they are not internalized into the cost of energy through taxes, fees, utility rates, fuel costs, or otherwise. Therefore, ratepayers do not pay these costs through utility bills. Rather, these costs are borne by society broadly.

The estimated regulatory cost of CO2 represents the likely costs that regulation will impose on utilities for future CO2 emissions. Imposing a regulatory cost to CO2 emissions effectively internalizes some or all of the external environmental costs of CO2. A regulatory cost of CO2 emissions would be paid by the utility and, therefore, passed on to ratepayers through utility bills.[7]

If the Commission adopts a regulatory cost of CO2 that is less than the corresponding environmental cost of CO2, then the full damages of CO2 emissions are not fully internalized in the regulatory cost of CO2 and the incremental environmental costs (i.e. the environmental cost of CO2 value minus the regulatory cost of CO2 value) should be calculated and considered the remaining environmental costs imposed by a plan. To do otherwise, is to effectively discount the actual environmental and economic damages of CO2 emissions.

Moreover, in the 2023 100 Percent Clean Energy Law, the Minnesota Legislature included clear direction on how to value the environmental costs of greenhouse gas emissions in resource acquisition and planning proceedings before the Commission. We believe that substituting those environmental externality values with a regulatory cost of carbon value in resource evaluations would undermine the intent of this law, if the regulatory cost of carbon were set at a value below the environmental cost values directed by the new law, especially if such a scenario were used for resource decision-making.

<u>CEE's Recommended Resource Planning Guidance</u>

[7] Pag 3 of the Commission's December 21, 2007 Order in Docket Number E999/CI-07-1199.

CEE recommends that in all electricity generation resource acquisition and planning proceedings during 2023 and 2024, utilities shall:

1. Develop and propose electric resource plans that meet the requirements of Minnesota's Carbon-Free Standard.
2. Incorporate an environmental externality cost for carbon dioxide using the draft cost of greenhouse gas emissions valuations presented in the United States Environmental Protection Agency's EPA External Review Draft of Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, released in September 2022, with a 2 percent discount rate, in all resource acquisition and planning scenarios.
3. Not include a regulatory cost of CO2, or include it with a zero value, in modeling for electric resource acquisition and planning proceedings.
4. If the Commission adopts a regulatory cost of CO2 and it is less than the environmental cost of CO2 used in electric resource acquisition and planning proceedings, the utility should calculate and consider the incremental environmental costs (i.e. the environmental cost of CO2 value minus the regulatory cost of CO2 value) imposed by a resource or resource plan.

2. How do capacity expansion models, such as EnCompass, treat CO2 regulatory costs differently than environmental externalities in resource planning and resource acquisition proceedings?

It is our understanding that environmental externality costs are applied to resource plans after the capacity expansion model is run. Environmental externality costs do not affect resource selection during the resource plan modeling process, but rather are applied on a post hoc basis to provide an estimate of the environmental costs imposed on society by the CO2 emissions of a particular resource or resource plan. Environmental externalities provide valuable information for comparing the environmental costs imposed by different resources and resource plan options, which is an important factor in evaluating whether and how a particular plan may contribute to the public interest.

The regulatory cost of carbon is treated as a utility cost, much like the cost of fuel, and is an input to the utility's dispatch model. In theory, the regulatory cost of carbon is an estimate of some or all of the external costs caused by greenhouse gas emissions. It is added to the capacity expansion model as an internalized cost, effectively making greenhouse gas-emitting energy resources relatively more expensive. The magnitude of this effect depends on the value of the added price signal for emissions and the cost of energy produced by different resource options. Unlike the environmental externality cost of carbon emissions, the regulatory cost of carbon affects the output of the utilities' dispatch and capacity expansion model.

As discussed above, the regulatory cost of carbon has proved a valuable mechanism for internalizing a portion of the external damages of carbon emissions into our electric resource

planning process. It created a price signal within our planning tools that helped to drive down carbon emissions in Minnesota's electric system. However, under the new Carbon-Free Standard, CEE believes that other planning and modeling approaches may be better suited to enable utilities to develop resource plans that meet the emissions requirements of the new law. Further, we believe that the regulatory cost of carbon may no longer be useful and could potentially add unnecessary complexity to the planning process.

Conversely, CEE believes that the environmental externality cost of carbon emissions will continue to be a valuable metric and tool for comparing resources and resource plans in the context of the new Carbon-Free Standard. Environmental externalities provide insight on the overall environmental costs imposed by different resource plans, which will likely vary even among plans that meet Minnesota's Carbon-Free Standard. We believe that environmental externalities will continue to be one of several important considerations for developing and selecting resource plans that serve the public interest.

3. Are there other issues or concerns related to this matter

Flexibility Through Implementation

Minnesota's new 100 Percent Clean Energy Law represents a major shift in how we drive emissions reductions and regulate the electric sector. CEE supports this shift in policy to emissions limits. Climate science has advanced significantly in recent years and the science is clear on the degree and timeline on which we must reduce CO2 emissions to mitigate the worst effects of climate change. Minnesota's new Carbon-Free Standard aligns with the latest climate science and provides clarity and certainty about the trajectory of emissions of our electric system.

However, as with any major shift in policy and approach, it may take time to identify, potentially develop, test, and apply the appropriate tools and techniques to successfully implement our new policy framework. CEE encourages all parties to be flexible and patient as we collectively learn through the initial utility resource acquisition and planning proceedings following this policy change.

Requests for Modifications or Delay in Meeting the Minnesota Carbon-Free Standard

We note that if a utility requests a modification or delay in complying with Minnesota's Carbon-Free Standard, under Sec. 6. Minnesota Statutes 2022, section 216B.1691, subdivision 2b, additional modeling and analysis, beyond what we recommend in these Comments, may be required. These Comments focus largely on what CEE believes will be necessary to analyze, evaluate, and select utility resource plans that meet the CO2 emissions limits laid out by the Carbon-Free Standard.

4. 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)?

CEE does not recommend that the Commission attempt to incorporate or embed the requirements of Minnesota's new Carbon-Free Standard into a regulatory cost of carbon. In fact, we do not recommend using the regulatory cost of carbon to implement Minnesota's new Carbon-Free Standard.

We believe there are better ways to develop and analyze electric resource plans that meet the requirements of the new Carbon-Free Standard. With this new standard, it is unclear to CEE that including a regulatory cost of carbon in resource planning and acquisition proceedings continues to provide value. The regulatory cost of carbon acts as a price signal on emissions in resource modeling and affects the results of the modeling, driving emissions reductions. With the new Carbon-Free Standard, there is no need for a price signal to drive emissions reductions. Additionally, we believe a regulatory cost of carbon would add unnecessary complexity and, potentially, confusing modeling results.

Rather than establishing a regulatory cost of carbon, CEE recommends that the Commission require utilities to develop and propose multiple resource plan options that meet the requirements of Minnesota's new Carbon-Free Standard. For some utilities, this might be achieved by instituting a constraint on emissions within the capacity expansion model. For other utilities, especially those who plan to use renewable energy credits ("RECs") to comply with the new standard, the emissions requirements of the new law may be instituted more broadly and flexibly within the overall planning process.

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?

As indicated, the new 100 Percent Clean Energy Law, directs the Commission to adopt environmental externality values released by the U.S. Interagency Working Group on the Social Cost of Greenhouse Gases (IWG), if those values exceed values previously adopted by the Commission to estimate the environmental costs of electricity production. In the meantime, the law directs the Commission to provisionally adopt and apply the draft social cost of greenhouse gas valuations presented in the EPA's Draft Report.[8]

The IWG was reconvened in 2021 and directed, by Executive Order 13990, to develop a comprehensive update to the social cost of greenhouse gas estimates, recommendations for how

[8] https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf

it should be applied, and a standardized process for future review and updates.[9] It is our understanding that the work of the IWG is ongoing and updated estimates of the social cost of greenhouse gases and the additional information required by Executive Order are forthcoming. We recommend that the Commission request comments to consider a process to review and adopt future IWG estimates of the social cost of carbon after the IWG releases its updated values along with more information about the IWG's process and timing for ongoing reviews and updates.

For 2023 and 2024, CEE recommends that the Commission require utilities to apply the provisional social cost of carbon values included in the EPA's Draft Report, using a 2 percent discount rate, as summarized on in Table ES 1 on page 3 of the Draft Report, as the environmental externality values for electric resource planning and acquisition proceedings.

6. How should the Commission incorporate potential regulatory costs resulting from the U.S. Environmental Protection Agency's CO2 regulation under the Section 111 (b) and (d) rules?

In 2023, the EPA proposed new carbon pollution standards for new and existing fossil-fuel-fired power plants under Section 111(b) and (d).

CEE believes that the proposed EPA standards and timeline are largely aligned with Minnesota's Carbon-Free Standard. Once the EPA's proposed standards are finalized, CEE recommends that the Commission require utilities to provide a description of how they plan to comply with the EPA's new carbon pollution standards for each applicable plant they own and operate, and if and how the EPA standards affect compliance with Minnesota's Carbon-Free Standard. We look to other parties in this docket with greater expertise on the new proposed standards and the existing standards for additional insight and recommendations for how rules 111(b) and (d) will apply to Minnesota utilities.

Conclusion

CEE recommends the Commission order the following.

1. CEE recommends that in all electricity generation resource acquisition and planning proceedings during 2023 and 2024, utilities shall:
    a. Develop and propose electric resource plans that meet the requirements of Minnesota's Carbon-Free Standard.

[9] EPA. *Supplementary Material for the Regulatory Impact Analysis for the Supplemental Proposed Rulemaking, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review" EPA External Review Draft of Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances.* Page. 1. (https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf)

b. Incorporate an environmental externality cost for carbon dioxide using the draft cost of greenhouse gas emissions valuations presented in the United States Environmental Protection Agency's EPA External Review Draft of Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances, released in September 2022, with a 2 percent discount rate in all resource acquisition and planning scenarios.
c. Not include a regulatory cost of CO2, or include it with a zero value, in modeling for electric resource acquisition and planning proceedings.
d. If the Commission adopts a regulatory cost of CO2 and it is less than the environmental cost of CO2 used in electric resource acquisition and planning proceedings, the utility should calculate and consider the incremental environmental costs (i.e. the environmental cost of CO2 value minus the regulatory cost of CO2 value) imposed by a resource or resource plan.
e. Provide a description of how they plan to comply with the EPA's new carbon pollution standards under Section 111 of the Clean Air Act for each applicable plant they own and operate, and if and how the EPA standards affect compliance with Minnesota's Carbon-Free Standard.

2. We recommend that the Commission open a comment period in this docket or another docket, perhaps Docket No. E-999/CI-14-643, to consider a process to review and adopt future IWG estimates of the social cost of carbon after the IWG releases updated values for the social cost of CO2 along with more information about the IWG's process and timing for ongoing reviews and updates.

CEE thanks the Commission for considering our Comments. Please contact me at apartridge@mncee.org with any questions.

Sincerely,

Audrey Partridge
Director of Policy
Center for Energy and Environment

AFFIDAVIT OF SERVICE

DOCKET NUMBERS E999/DI-22-236 and E999/CI-07-1199

I, Audrey Partridge, herby certify that on this 14th day of July 2023, I served Center for Energy and Environment's *Comments in the Matter of Establishing an Updated Estimate of the Costs of Future Carbon Dioxide Regulation on Electricity Generation Under Minn. Stat. §216H.06* in Docket Numbers E999/DI-22-236 and E999/CI-07-1199 on the following persons on the attached Service Lists by:

_XX_ placing such filing in envelopes, properly addressed, and depositing the same in the Post Office at the City of Minneapolis, for delivery by the United States Post Office as directed by said envelopes.

_XX_ electronic filing

/s/ Audrey Partridge
Audrey Partridge

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Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company	200 1st Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_7-1199_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Russell	Olson	rolson@hcpd.com	Heartland Consumers Power District	PO Box 248 Madison, SD 570420248	Electronic Service	No	OFF_SL_7-1199_Official
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
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_7-1199_Official
Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative	P.O. Box 227 Madison, SD 57042	Electronic Service	No	OFF_SL_7-1199_Official
Kay	Schraeder	kschraeder@minnkota.com	Minnkota Power	5301 32nd Ave S Grand Forks, ND 58201	Electronic Service	No	OFF_SL_7-1199_Official
Christine	Schwartz	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_7-1199_Official
Will	Seuffert	Will.Seuffert@state.mn.us	Public Utilities Commission	121 7th Pl E Ste 350 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_7-1199_Official
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_7-1199_Official
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_7-1199_Official
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_7-1199_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Elizabeth	Wefel	eawefel@flaherty-hood.com	Flaherty & Hood, P.A.	525 Park St Ste 470 Saint Paul, MN 55103	Electronic Service	No	OFF_SL_7-1199_Official
Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	OFF_SL_7-1199_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jon	Brekke	jbrekke@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_22-236_DI-22-236
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
Stacy	Dahl	sdahl@minnkota.com	Minnkota Power Cooperative, Inc.	5301 32nd Ave S Grand Forks, ND 58201	Electronic Service	No	OFF_SL_22-236_DI-22-236
David	Dahlberg	davedahlberg@nweco.com	Northwestern Wisconsin Electric Company	P.O. Box 9 104 South Pine Street Grantsburg, WI 548400009	Electronic Service	No	OFF_SL_22-236_DI-22-236
Curt	Dieren	curt.dieren@dgr.com	L&O Power Cooperative	1302 S Union St Rock Rapids, IA 51246	Electronic Service	No	OFF_SL_22-236_DI-22-236
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_22-236_DI-22-236
Barb	Freese	bfreese@mncenter.org	Minnesota Center for Environmental Advocacy	1919 University Ave W Ste 515 Saint Paul, MN 55104-3435	Electronic Service	No	OFF_SL_22-236_DI-22-236
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_22-236_DI-22-236
Bruce	Gerhardson	bgerhardson@otpco.com	Otter Tail Power Company	PO Box 496 215 S Cascade St Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_22-236_DI-22-236

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP	Suite 1750 220 South Sixth Street Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_22-236_DI-22-236
Kim	Havey	kim.havey@minneapolismn.gov	City of Minneapolis	350 South 5th Street, Suite 315M Minneapolis, MN 55415	Electronic Service	No	OFF_SL_22-236_DI-22-236
Joe	Hoffman	ja.hoffman@smmpa.org	SMMPA	500 First Ave SW Rochester, MN 55902-3303	Electronic Service	No	OFF_SL_22-236_DI-22-236
Casey	Jacobson	cjacobson@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58501	Electronic Service	No	OFF_SL_22-236_DI-22-236
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
Craig	McDonnell	Craig.McDonnell@state.mn.us	MN Pollution Control Agency	520 Lafayette Road St. Paul, MN 55101	Electronic Service	No	OFF_SL_22-236_DI-22-236
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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Pouya	Najmaie	pouya@cooperativeenergyfutures.com	Cooperative Energy Futures	3416 16th Ave S Minneapolis, MN 55407	Electronic Service	No	OFF_SL_22-236_DI-22-236
Peter	Nelson	peter.nelson@americanexperiment.org	Center of the American Experiment	8441 Wayzata Boulevard Suite 350 Golden Valley, MN 55426	Electronic Service	No	OFF_SL_22-236_DI-22-236
David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_22-236_DI-22-236
Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company	200 1st Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_22-236_DI-22-236
Russell	Olson	rolson@hcpd.com	Heartland Consumers Power District	PO Box 248 Madison, SD 570420248	Electronic Service	No	OFF_SL_22-236_DI-22-236
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
Zachary	Ruzycki	zruzycki@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, Minnesota 55369	Electronic Service	No	OFF_SL_22-236_DI-22-236

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Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative	P.O. Box 227 Madison, SD 57042	Electronic Service	No	OFF_SL_22-236_DI-22-236
Kay	Schraeder	kschraeder@minnkota.com	Minnkota Power	5301 32nd Ave S Grand Forks, ND 58201	Electronic Service	No	OFF_SL_22-236_DI-22-236
Christine	Schwartz	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_22-236_DI-22-236
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
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_22-236_DI-22-236
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_22-236_DI-22-236
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
Analeisha	Vang	avang@mnpower.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_22-236_DI-22-236
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