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 No. E999/DI-22-236
Docket No. E999/CI-07-1199

CLEAN ENERGY ORGANIZATIONS' REPLY COMMENTS
On Behalf Of

Fresh Energy
Minnesota Center for Environmental Advocacy
Sierra Club
Union of Concerned Scientists

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These reply comments are offered by Fresh Energy, Minnesota Center for Environmental Advocacy, Sierra Club, and the Union of Concerned Scientists ("Clean Energy Organizations," or "CEOs").

I. CEOs welcome the Agencies' recognition that the practice of entirely replacing large externality values with small regulatory values should be reconsidered given the 2023 amendments

The Agencies' have shifted from their position since January on whether utilities should entirely replace externality values with lower regulatory values, citing the 2023 amendments to Minnesota's externalities law.[1] Considering these amendments and the significant gap between the Agencies' recommended regulatory cost of carbon ($5-30/short ton) and the EPA's social cost of carbon ($130-360/metric ton[2]), the Agencies now recommend that 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."[3] The Agencies acknowledge that while a perfectly designed regulatory cost[4] would theoretically represent the economically efficient level of emissions, "the Commission's decision-making may

[1] Agencies' Initial Comments, p. 7.

[2] Cost range reflects 2025 values. U.S. Environmental Protection Agency, *Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances,* External Review Draft, Docket No. EPA-HQ-OAR-2021-0317, Appendix A.4 (Sep. 2022), available at https://www.epa.gov/system/files/documents/2022-11/epa_scghg_report_draft_0.pdf

[3] Agencies' Initial Comments, p. 7.

[4] To the extent that the Agencies' implicitly recognize that their proposed $5-30/ton cost range falls short of being a "perfectly designed regulatory cost," CEOs strongly agree. This cost range, first adopted in 2018 based largely on the allowance costs in the Regional Greenhouse Gas Initiative (RGGI), reflects RGGI's emission reduction targets. RGGI's reduction targets are far less ambitious than the decarbonization goals that have been adopted by the world (in the Paris Agreement and Glasgow Pact), by the US (in its Nationally Determined Contribution and federal policy goals), and by the state (in the Laws of Minnesota 2023, chapter 60, section 61). And the $5-30/ton range in no way fully internalizes the costs imposed on the world by each ton of CO_2. *See* CEOs' Initial Comments, p. 8-9 and attached statement by Dr. Stephen Polasky.

benefit" from considering a plan's climate impacts.[5] In short, the Agencies' support of continuing to consider the externality costs even when regulatory costs are present is largely based on "useful information" grounds.

CEOs welcome this shift in approach, though CEOs urge the Commission to not just require a single modeling scenario that retains the externalities. The Commission should retain the non-internalized balance of the externalities in all scenarios that include regulatory costs. Certainly, it should require that these costs be retained in the utilities' reference cases, which are subject to the most rigorous comparative analysis and are typically the focus of an IRP and the Commission's consideration.

We explained in our initial comments why retaining the balance of the externalities is required on legal grounds and on economic theory grounds.[6] Here we emphasize that retaining those costs is also warranted on the useful information grounds relied on by the Agencies and that it provides this useful information in all scenarios with regulatory costs without depriving the Commission or public of any other useful information.

As the Agencies explain in their comments, the externality values should be and usually are modeled as a post-processing add-on.[7] As such, these values do not influence which resources the model selects or how the resources are dispatched.[8] Rather, the

[5] Agencies' Initial Comments, p. 7.
[6] CEOs' Initial Comments, Part I and attached statement by Dr. Stephen Polasky.
[7] Agencies' Initial Comments, p. 6-7. *See also* CEOs' Initial Comments, p. 11-12. Otter Tail in its IRP modeled CO_2 externalities as a dispatch adder rather than as an add-on, though the utility ignored most CO_2 externalities because they occur outside Minnesota. However, Otter Tail indicated in its comments its willingness in the future to model externalities as post-processing add-ons similar to other utilities. Otter Tail Power's Initial Comments, p. 2-3.
[8] EnCompass can be set up to optimize around the present value social cost (PVSC), but this has to our knowledge never been done in Minnesota.

externality values tell the Commission, the utilities, and the public how much damage the emissions from a particular resource mix are projected to do to society and the environment via climate change. In scenarios and years that assume a regulatory cost, the regulatory cost is modeled as a dispatch adder, and as such it does influence the resources selected and their dispatch rates. Experience shows that such regulatory costs suppress the dispatch of carbon-emitting units and steer models toward carbon-free resources, yielding scenarios with lower carbon emissions than scenarios without regulatory costs.

However, these emission-suppressed scenarios can still emit millions of tons of CO_2 yearly, damaging the climate and contributing to the climate crisis in a way that should not be ignored. Requiring utilities to continue to model the non-internalized balance of the externalities as post-processing add-ons will give the Commission an understanding of just how much damage those ongoing emissions would do. This estimated climate damage is crucial to any determination of whether a resource plan is in the public interest in our rapidly warming world, which is something the Commission must determine before approving a resource plan[9] and before approving or allowing rate recovery for any new or refurbished nonrenewable resource.[10] And of course, state law has long directed the Commission to consider externality costs, with the 2023 amendments insisting that the Commission give greater weight to climate damages than it ever has.[11] Understanding the magnitude of the climate damages caused by a long-term

[9] Minn. Stat. § 216B.2422, subd. 2(a).
[10] Minn. Stat. § 216B.2422, subd. 4(1).
[11] Minn. Stat. § 216B.2422, subd. 3, as amended by Laws of Minnesota 2023, chapter 7, section 18.

resource plan is also relevant to assessing the ongoing regulatory risk attached to that plan.

Moreover, retaining the externalities (minus the regulatory costs) as post-processing add-ons in no way deprives utilities or the Commission of other useful information. The direct cost of a resource mix to ratepayers, including regulatory costs but excluding all externalities, remains fully apparent in the present value rate requirement (PVRR), which the model will always calculate (and will usually optimize around). Retaining the balance of the externalities – costs which will appear solely in the present value social cost (PVSC) -- is nothing but a gain of vital information that the law and the times demand the Commission to consider. Entirely ignoring the externalities once regulatory costs are assumed to apply is a loss of that vital information.

Xcel similarly comments that the EPA's draft social cost values should only be considered in a sensitivity analysis, along with the interim or successor values adopted by the federal Interagency Working Group (IWG).[12] Xcel apparently disputes the EPA's draft estimates of the social cost of carbon; however, the legislature not only accepted EPA estimates but enshrined them in law, relieving the Commission of the difficult duty of predicting future climate damages itself. The Commission should not evade the statutory requirement to use EPA's values by limiting their application to just a sensitivity analysis and excluding them from the main analysis. To do so merely deprives

[12] Xcel's Initial Comments, p. 10.

the Commission of climate impact information the legislature explicitly requires it to consider.

II. The Commission should comply with the mandate of section 216H.06 to estimate future carbon regulatory costs by focusing on the regulatory costs utilities will likely face even after complying with the CFS and the EPA rule

All parties except for the Agencies indicate that there is no actual need for the Agencies' $5-30/ton proposed range as an estimate of the costs of complying with the carbon-free standard (CFS). We agree. Rather, the utilities' resource plans must now incorporate the utility-specific changes necessary to comply with the CFS and reflect the utility-specific costs of doing so. (Utilities will also need to demonstrate compliance with the EPA rule when final; as we discuss in our Initial Comments, utility plans filed in the meantime should demonstrate compliance with the proposed EPA rule.[13]) If utilities choose to add a cost/ton of carbon into their modeling to help them find the least cost path to complying with the CFS, they are free to do so. But that cost/ton will vary by utility, and there is no planning value in modeling the Agencies' estimate of an average system cost.

However, not making any estimate of future regulatory costs would sidestep section 216H.06, which says the Commission "shall establish an estimate of the likely range of costs of future carbon dioxide regulation on electricity generation." Unlike the provision requiring the Commission to estimate externality costs, there is no "to the extent practicable" limitation[14] to the requirement of section 216H.06. Great River Energy

[13] *See* CEOs' Initial Comments, p. 17.
[14] Minn. Stat § 216B.2422, subd. 3(a).

suggests the Commission could comply with the mandate of section 216H.06 by establishing an estimate of $0/ton,[15] but this would not constitute compliance. Unfortunately, climate progress has not advanced to the point that there is no chance of additional future emissions regulation. There is no reasonable basis for the Commission to make the finding that there is zero risk of additional regulatory costs facing utilities beyond the CFS and EPA proposed rule. On the contrary, the risk of stricter limits imposed on the power sector as the climate crisis advances is both very real and far too high to prudently ignore in long term planning.

As we explain in Part III of our initial comments, neither the CFS nor the EPA rule as proposed will achieve carbon reductions as complete and as fast as needed to align with limiting warming to 1.5° C. Limiting warming to 1.5° requires reaching net-zero by 2050, and to achieve that goal the Biden administration has called it crucial to achieve a carbon-free power sector by 2035.[16] Multiple studies charting emission reduction pathways consistent with climate protection goals have similarly indicated the need for accelerating decarbonization of the power sector, retiring unabated coal plants by 2030, and stopping the construction of new unabated gas plants.[17] And since the world is not currently on track to meet our globally-agreed climate goals, these emission reductions may need to be even steeper in the years ahead to keep warming from reaching catastrophic levels.

[15] Great River Energy's Initial Comments, p. 3.
[16] *See* CEOs' Initial Comments, p. 18-19.
[17] *Id.,* p. 19 and note 40.

The EPA rule as proposed does not retire all unabated coal plants by 2030, nor does it on its own yield a carbon-free power sector by 2035. The CFS does not require these things either, though the exact carbon reductions it achieves will depend in part on what compliance criteria the Commission sets in the future. For example, some utilities are asserting compliance with the CFS despite planning significant CO_2 emissions on their systems for decades.[18] Clearly, any significant ongoing emissions from power plants has the potential to draw the legitimate attention of the public and that of future regulators seeking ways to further cut emissions to retain a decent chance of meeting our climate goals. Assuming that the carbon limits in the CFS and proposed EPA rule are the only carbon limits utilities will face in the years ahead is a bit like assuming that the heat waves, droughts, wildfires and storms we are confronting in the summer is 2023 are as bad as the climate crisis is going to get. It is dangerous wishful thinking.

Section 216H.06 requires the Commission to look down the road and do its best to anticipate future laws, to make sure the long-term plans of utilities reflect the regulatory risk inherent in their carbon emissions as the world struggles to address the climate crisis. An estimated cost/ton is still needed to reflect the carbon regulatory risk that will be faced even by utilities in compliance with the CFS and EPA rule.

As we explained in our initial comments,[19] a $0-75/ton cost beginning in 2028 is a reasonable (though conservative) quantification of this residual regulatory risk. Separate

[18] Otter Tail Power, for example, states in its Supplemental IRP that it believes it can continue to operate one of its coal plants until 2040 and the other until 2046 and still comply with the requirements of the CFS. Otter Tail Power, *In the Matter of Otter Tail Power Company's 2022-2036 Integrated Resource Plan*, Application for Supplemental Resource Plan Approval 2023-2037, Docket No. E017/RP-21-339, p. 26-28 (Mar. 31, 2023).
[19] CEOs' Initial Comments, p. 22-25.

studies from Wood Mackenzie, the International Energy Agency, the World Bank, and the International Monetary Fund have in recent years attempted to estimate what sort of carbon price it would take to actually achieve either the 1.5° limit or the 2.0° limit under the Paris Agreement. In this important way, these estimated costs differ from the Agencies' proposed $5-30 cost range, which was never based on what it would actually take to prevent warming from crossing these globally-agreed thresholds.

CEOs offer the $75/ton upper cost value based on the 2022 analysis by the International Monetary Fund. It found this cost would be needed in high income nations like the US in order to reduce emissions in line with keeping warming below the less ambitious Paris limit of 2°C. (The other studies mentioned above estimate the need for higher costs, supporting the conservative nature of a $75 cost.) The upper value of $75/ton reflects the possibility that in response to rising temperatures the state or US will take the additional regulatory steps needed to stay within the warming limits. The $0 value at the low end reflects the possibility that utilities will not face additional carbon limits, which could happen if, for example, utility decarbonization is driven at a sufficiently fast pace by technological and economic advances and by subsidies rather than by carbon limits.

Adopting a $0-75/ton cost range would satisfy both the letter and intent of section 216H.06. And it would add genuine planning value by quantifying a very real financial risk that utility models will otherwise simply ignore.

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