STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION

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In the Matter of the Investigation into Environmental and Socioeconomic Costs Under Minn. Stat. § 216B.2422, subd. 3

Docket No. E-999/CI-00-1636

COMMENTS OF THE CLEAN ENERGY ORGANIZATIONS

The Clean Energy Organizations submit these comments in response the Minnesota Pollution Control Agency's ("PCA") and Minnesota Department of Commerce's ("Department") (collectively, the "Agencies") recommendations issued June 10, 2014. The Minnesota Public Utilities Commission ("Commission") solicited comments on the following five topics:

- Should the Commission adopt the Agencies' recommendation to use the federal Social Cost of Carbon ("SCC") as the CO_2 value, not sending that issue to hearing? If so, should the Commission clarify whether it is adopting the SCC number or the underlying methodology used to calculate the number?

- If the Commission were to adopt the SCC, would that decision be effective immediately for use in resource plans and other relevant dockets? Would adopting of the SCC include updating it any time it is updated by the federal government?

- Should the Commission specify that a damage value approach be used for developing externality values, as suggested at page 15 of the Agencies' report? Why or why not?

- Should the Commission endorse a particular model or modeling approach at this time?

- Are there any other specific findings the Commission should make with respect to the scope of this docket?

The Clean Energy Organizations appreciate the opportunity to weigh in on these important questions and offer the following comments.

I. THE COMMISSION SHOULD ADOPT THE FEDERAL SOCIAL COST OF CARBON.

The Clean Energy Organizations continue to recommend, as set out in our initial petition, that the Commission use the federal SCC, which estimates the additional economic harm caused by the emission of each additional metric ton of CO_2, as Minnesota's externality value for CO_2. This is precisely what the Minnesota Legislature had in mind when it directed the Commission to establish the "environmental costs" of pollution emitted from electricity generation. *See* Minn. Stat. § 216B.2422, subd. 3 (2012). The Commission has already determined that the externality values it adopted for CO_2 in 1996 are not supported by existing scientific evidence. There is no justification for re-creating the wheel with a Minnesota-based inquiry into the damage costs of carbon pollution and, as noted by the Agencies, "CO_2 is a global pollutant, and the existing Commission CO_2 value was developed using a global damage estimate approach."[1]

The Clean Energy Organizations agree with all points made by the Agencies[2] and highlight in particular the following:

A. The SCC And Minnesota Externality Values Share A Common Purpose.

The Interagency Working Group ("IWG") (the federal entity responsible for establishing the SCC) includes several federal agencies with diverse and varied expertise—the Council of Economic Advisers, Council on Environmental Quality, Department of Agriculture, Department of Commerce, Department of Energy, Department of Transportation, Environmental Protection Agency, National Economic Council, Office of Energy and Climate Change, Office of

[1] June 10, 2014, Agencies' Comments at 14.
[2] *See id.* at 9-15.

Management and Budget, Office of Science and Technology Policy, and the Department of the Treasury.[3] The IWG was convened because different agencies had been using different values to assess the costs and benefits of various federal actions and rules. The IWG's objective was to "develop a range of SCC values using a defensible set of input assumptions grounded in the existing scientific and economic literatures."[4] Further, "[t]he purpose of the SCC . . . is to make it possible for agencies to incorporate the social benefits from reducing carbon dioxide emissions into cost-benefit analyses of regulatory actions that have small, or 'marginal,' impacts on cumulative global emissions."[5] This is exactly the task before the Commission: to adopt a marginal cost value that will assist in evaluating the environmental and social costs and benefits of different sources of electricity based on their emissions.

B. The SCC Has Been Subject To A Science-Based, Open, And Transparent Process.

The IWG's 2010 Technical Support Document provides a detailed description of its methodology and the three integrated assessment models it relied on to calculate its estimates.[6] In 2013, the IWG updated its estimates using the same methodology but with updated versions of the integrated assessment models.[7] As the Agencies pointed out, the SCC values have been subject to public comment in several federal rulemakings.[8] The Office of Management and

[3] Interagency Working Group on the Social Cost of Carbon, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12,866 (2010), *available at* http://www.epa.gov/oms/climate/regulations/scc-tsd.pdf (hereinafter "TSD 2010").
[4] *Id.* at 1.
[5] *Id.* at 2.
[6] *Id.*
[7] Interagency Working Group on the Social Cost of Carbon, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12,866 (2013), *available at* http://www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf (hereinafter "TSD 2013").
[8] June 10, 2014, Agencies' Comments at 11.

Budget also held a separate public comment period on the SCC ending in early 2014.[9] Several parties participating in this docket submitted official comments on the SCC, including Xcel Energy, Great River Energy, Minnesota Power, and Peabody Energy Corporation.[10]

Simply put, the SCC values were developed with the full expertise of the federal government through a transparent process. The values have been subject to thorough critique and review. There is no need to re-create in Minnesota at Minnesota ratepayer expense what has already been completed by the federal government.

C. Uncertainty Is Inherent In Externality Estimates And Does Not Invalidate The SCC.

The IWG acknowledged that calculation of incremental impacts of CO_2 emissions involves uncertainty and speculation.[11] The existence of uncertainties does not, however, disqualify the SCC as a useful externality value for regulatory decision-making at the Commission. The Executive Order pursuant to which the SCC is developed calls on the federal government to "take into account benefits and costs, both quantitative and qualitative . . . and use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible."[12] The IWG used the *best available techniques*—three separate integrated assessment models that reflect the best available, peer-reviewed science on the marginal costs of greenhouse gas emissions. These models all use assumptions and the values are subject to uncertainty, but that does not mean they are not valid estimates for purposes of administrative action.

[9] Notice of Extension of Public Comment Period, 79 Fed. Reg. 4,356 (Jan. 27, 2014).
[10] For a complete list of SCC commenters *see* http://www.regulations.gov/#!docketBrowser;rpp=25;po=0;dct=PS;D=OMB-2013-0007.
[11] TSD 2010 at 2.
[12] Exec. Order No. 13,563 §§ 1(a)-(c), 76 Fed. Reg. 3,821 (Jan. 18, 2011).

Generally, the uncertainties in climate models result in the undervaluation of likely costs. Several recent studies have highlighted the fact that the SCC is a very conservative estimate of the overall damage caused by climate change.[13] But regardless of whether the known uncertainties result in an over- or under-estimation of the damage caused by climate change, a Minnesota contested case proceeding would not remove the existing uncertainties from the calculation of an externality for carbon emissions. Instead, the uncertainties are accounted for by establishing a range of values. As the Commission noted in its January 3, 1997 Order in this docket, "[q]uantification of environmental values necessarily involves the consideration of scientific evidence that generally does not provide definitive answers. The statute implemented here requires the Commission to establish a range of values. Using a range of values appropriately acknowledges the uncertainty attending the quantification of environmental costs."[14] Again, some uncertainty is inevitable and there is no point to repeating the work of the IWG at Minnesota ratepayer expense.

Finally, the Clean Energy Organizations do not see a need to distinguish between the values adopted by the IWG and the methodology employed. As the science advances, the methodology may change which, in turn, could affect the values. We believe the best way to approach this issue is to make clear that the Commission is relying on the work of the federal government in this area, that the results of that work will become Minnesota's presumptive

[13] *See, e.g.*, Peter Howard, "Omitted Damages: What's Missing from the Social Cost of Carbon (March 13, 2014), *available at* http://costofcarbon.org/files/Omitted_Damages_Whats_Missing_From_the_Social_Cost_of_Carbon.pdf; Jeff Spross, "Right Now We 'Grossly Underestimate' Economic Damage from Climate Change, New Paper Says," ClimateProgress, (June 16, 2014), *available at* http://thinkprogress.org/climate/2014/06/16/3449645/stern-updated-climate-model-economic/

[14] Docket No. E-999/CI-93-583, *Order Establishing Environmental Cost Values* (Jan. 3, 1997).

externality value for carbon dioxide, and that as the federal SCC value changes, whether due to a change in methodology or other reason, Minnesota's value will be updated accordingly.

II. THE COMMISSION SHOULD ADOPT SCC IMMEDIATELY AND INCLUDE A MECHANISM FOR UPDATING ITS EXTERNALITY FOR CO_2 AS THE SCC CHANGES.

A. What Is Certain Is That The Commission's Current Value Is Inaccurate; The Commission Should Therefore Make The SCC Immediately Effective.

While there are uncertainties involved in estimating the marginal damage costs of greenhouse gas emissions, what is clear is that ***no*** science supports the Commission's existing externality value for carbon dioxide. No party to this proceeding has attempted to justify, based on science, the continued use of the Commission's existing externality value for CO_2, which currently ranges from $0.43 to $4.46 per ton.[15] As Dr. Stephen Polasky testified in comments before the Commission and in his report which supported the Clean Energy Organization's motion to re-open this docket, there is simply no science that supports such a low estimate of marginal damage costs based on what we now understand about climate change.[16]

The Commission should act now to make the SCC effective. The Commission has before it important decisions that the state's citizens and ratepayers will live with for decades. Those decisions should benefit from an analysis that includes an externality value for carbon based on the *best available science*. If the Commission fails to make use of the SCC effective immediately it is essentially agreeing to continue to use an outdated estimate that has no scientific support; such a decision would be in direct contradiction of the letter and spirit of the controlling statute.

[15] Docket No. E-999/CI-00-1636, *Notice of Comment Period on Updated Environmental Externality Values*, (May 22, 2014).
[16] *See* Andrew Goodkind and Stephen Polasky, "Health and Environmental Costs of Electricity Generation in Minnesota" (Sept. 26, 2013).

B. The Commission Should Establish A Presumption That The SCC, As Reflected In Revised Publication Of The IWG, Will Be Automatically Adopted As The Externality Value For CO_2 Emissions.

The IWG made clear when it established the SCC that the value should be refined over time as more is learned about the consequences of greenhouse gas emissions. Specifically, it stated:

> It is important to emphasize that the interagency process is committed to updating these estimates as the science and economic understanding of climate change and its impacts on society improves over time. Specifically, we have set a preliminary goal of revisiting the SCC values within two years or at such time as substantially updated models become available, and to continue to support research in this area.[17]

Given the evolving nature of climate change science and economics, it is likely that the SCC will continue to change in coming years. Moreover, there is no indication that the consumer price index or some other indicator of inflation would accurately reflect the pace of such changes, whether up or down. The Clean Energy Organizations therefore recommend that the Commission adopt the 2013 SCC and establish a presumption in its Order that, if and when the SCC is updated by the IWG, the new SCC will become the externality value used in Commission proceedings. The Commission would retain jurisdiction over Minnesota's externality value and could allow for motions by interested parties to assert that the change is not warranted. But such a presumption would clearly place the burden on the moving party to provide material evidence in support of its claim. Likewise, to ensure fairness, if the IWG fails to change the SCC despite material evidence that it should be altered, the continued use of the SCC by the Commission should be subject to review by motion. Establishing this type of presumption will allow the Commission, and Minnesota ratepayers, to take advantage of the federal work being done on a

[17] TSD 2010 at 3.

regular basis to update the SCC, but will not limit the Commission's jurisdiction over the issue in the future.

III. THE COMMISSION SHOULD SPECIFY THAT THE DAMAGE COST APPROACH WILL BE USED TO ESTABLISH EXTERNALITY VALUES.

The Commission already determined that it would use the damage-cost approach to establish externality values in its January 3, 1997 Order. "[T]he Commission finds that the damage-cost approach is superior because it appropriately focuses on actual damages from uncontrolled emissions. By contrast, the cost-of-control method does not attempt to measure directly residual damages and instead estimates the cost of reducing an emission at the source."[18] Some parties have raised the idea that current or proposed emissions-reduction regulations should be considered by the Commission and that the cost of complying with these future regulations would potentially obviate the need for an externality value.[19] These arguments miss the basic point of Minnesota's externality statute.

The Commission is required to put a dollar figure on the cost that is inflicted on society from uncontrolled emissions. In other words, this value seeks to quantify the additional damage caused by the remaining emissions of these pollutants even after a utility complies with all federal, state, and local regulations and has reduced emissions to the required levels. Accordingly, unless a regulation sets a zero-emissions level, there will still be pollutants being emitted by electricity generators. It is the damage caused by these "leftover" emissions that are not internalized by the company. Instead, these costs are borne by society. The existence of emissions regulations is therefore unrelated to the need for an externality value for uncontrolled emissions.

[18] Docket No. E-999/CI-93-583, *Order Establishing Environmental Cost Values* (Jan. 3, 1997).
[19] *See, e.g.*, Docket No. E-999/CI-00-1636, *Minnesota Large Industrial Group Comments* at 2 (May 9, 2014); *Minnesota Power Comments* at 2-5 (May 9, 2014).

The basic purpose of setting an externality value highlights why a damage-cost approach is the most appropriate measure to use. In order for a cost-of-control method to fully account for all of the damage from a given pollutant, this method would need to estimate what it would cost to control 100% of the emissions of that pollutant. In the absence of pollution-control technology that allows for 100% emission reduction, the cost-of-control methodology is not practical. Using a damage-cost value for any unregulated emissions is therefore the best strategy and one that has already been selected by the Commission.

IV. THE COMMISSION SHOULD NOT ENDORSE A PARTICULAR MODELING APPROACH AT THIS TIME.

The Clean Energy Organizations assert that it is premature at this point to choose a particular modeling approach. We reiterate our previous overarching concern that any modeling used should balance the credibility of the results with the time and cost of completing the modeling, but we would leave the ultimate selection of a model to an expert retained by the Agencies. The Clean Energy Organizations are not necessarily opposed to the photochemical modeling recommended by the Agencies, and we agree that this type of modeling has the potential to produce highly credible results. But we are concerned that certain suggestions of how the model could be run, presumably made in an effort to control time and cost, will undermine the credibility of the results.

For example, the benefits of photochemical modeling would be lost if, as suggested, sources were grouped by urban, metro fringe and rural before running the model. This obscures locational differences which is the main benefit of a photochemical model. (For instance, marginal damages from emissions in the western edge of the Metro Area are likely much greater than the emissions from its eastern edge.) Although this strategy would reduce the need to run the photochemical model many times, it would also undermine the credibility of the results. An

average of the marginal damages across many areas is not an accurate depiction of the impacts of criteria pollutants in Minnesota.

In contrast, there are reduced form models that can be run many times for different locations. An ideal method would run a model for many areas of Minnesota—groups can then be created based on the areas with the most similar estimates of damages. The Clean Energy Organizations are also aware of a new model that is being developed at University of Minnesota, InMAP, which would perhaps be a better method than the full photochemical process models. It is based off the complex process models but can be run much faster without sacrificing credibility. It would be feasible to run it for each of the pollutants at many locations in Minnesota and provide estimates that are much more specific to an area. Because this particular reduced-form model is still being developed, and because there are tradeoffs between a full photochemical model and reduced form models, it seems prudent to leave the ultimate decision of model selection to the expert(s) retained, and the Clean Energy Organizations recommend that the Commission not endorse a particular model at this time.

V. CONCLUSION.

The Clean Energy Organizations appreciate the opportunity to submit these comments and we look forward to working with the Commission, the Agencies, and the other interested parties in updating Minnesota's externality values.

Dated: June 26, 2014

Respectfully submitted,

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