BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 NORTH ROBERT STREET
ST. PAUL, MINNESOTA 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
SUITE 350
121 SEVENTH PLACE EAST
ST. PAUL, MINNESOTA 55101-2147

Beverly Jones Heydinger	Chair
Nancy Lange	Commissioner
Dan Lipschultz	Commissioner
John Tuma	Commissioner
Betsy Wergin	Commissioner

In the Matter of Further Investigation into Environmental and Socioeconomic Costs under Minnesota Statute 216B.2422, Subdivision 3	OAH Docket No. 80-2500-31888 MPUC Docket No. E-999/CI-14-643

REPLY BRIEF OF THE MINNESOTA DEPARTMENT OF COMMERCE, DIVISION OF ENERGY RESOURCES AND MINNESOTA POLLUTION CONTROL AGENCY

CARBON DIOXIDE

Dated: December 15, 2015

Respectfully submitted,

LINDA S. JENSEN
Attorney Reg. No. 0189030
Telephone: 651-757-1472
445 Minnesota Street, Suite 1800
St. Paul, MN 55101-2134

Attorney for Minnesota Department of Commerce
and Minnesota Pollution Control Agency

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I. INTRODUCTION

The Minnesota Department of Commerce, Division of Energy Resources, (the Department or DOC) and Minnesota Pollution Control Agency (MPCA) (jointly "the Agencies") respectfully submit this Reply Brief to the Administrative Law Judges (ALJs) and the Minnesota Public Utilities Commission (Commission). Proposed Findings of Fact are separately filed.

The Agencies' Reply Brief is solely responsive to other parties' initial briefs. The Agencies do not repeat here the extensive analyses and recommendations set forth in their Initial Brief, Comments in the jointly-submitted Issues Matrix, or proposed Findings of Fact, on and for which the Agencies continue to rely and advocate.

II. ARGUMENT

1. MISCHARACTERIZATIONS OF AGENCIES' POSITION.

A. Direct Health Impacts

Peabody Energy Corporation (Peabody) claimed that "[p]roponents of the FSCC attempt to portray CO_2 as a traditional pollutant that causes health effects…—asthma and respiratory disorders." (Peabody Initial Brief at 68).

This is inaccurate. No witness for a proponent of the federal social cost of carbon ("federal SCC") made any claims that carbon dioxide ("CO_2") causes direct health impacts. At least one witness (Dr. Rom) testified that a warmer climate exacerbates the impacts of other pollutants (particulate matter, ozone) on human health, but, again, no proponent of the federal SCC claimed any direct health impacts of CO_2.

B. Minnesota Large Industrial Group ("MLIG") Misrepresented the Agencies' Position Regarding the Range of Discount Rates.

MLIG characterized the Agencies' position as advocating only the adoption of a three percent discount rate. MLIG Initial Brief at 1-2. This characterization is inaccurate. The Agencies position was clearly stated by Dr. Hanemann:

> "Q. If you had to recommend a range of values for the 2015 SCC and 2020 SCC, what range would you recommend?
>
> A. I would recommend the range of estimates presented by the IWG corresponding to the alternative discount rates it considered – 2.5%, 3% and 5%.
>
> The range for the 2015 SCC is from $11 (5%) to $56 (2.5%).
> The range for the 2020 SCC is from $12 (5%) to $62 (2.5%)."

Agencies Ex. 801 at 87 (Hanemann Rebuttal)

C. 95th Percentile Value of the SCC Distribution for the Three Percent Discount Rate

MLIG claimed that the Agencies support the use by the Commission of the 95th percentile, pointing to Dr. Hanemann's rebuttal of Xcel witness Mr. Martin: "We wouldn't get on a plane if there was a 5% chance of the plane crashing, but we're treating the climate with that same level of risk in a very offhand, complacent way." MLIG asserted that, by including the 95th percentile of the SCC distribution (and not including the 5th percentile), Dr. Hanemann put "more weight on regulating the uncertain, lower average risk over more certain, higher average risk." MLIG Initial Brief at 61, 62 (*citing* Agencies Ex. 801 at 71 (Hanemann Rebuttal).

MLIG erred in failing to recognize that Dr. Hanemann's discussion of the 95th percentile of the SCC distribution was given in rebuttal of Mr. Martin's recommendation to exclude all damages in the "fat" upper tail of the damages distribution.[1] MLIG does not appear to

[1] Dr. Hanemann testified:
10. Q. Mr. Martin's range of values excludes the 95-percentile of the SCC distribution. Do

understand that Dr. Hanemann's rebuttal of Martin's recommendation is a separate matter from Dr. Hanemann's and the Agencies' own recommendation, which is limited to the values at the 2.5, 3.0 and 5.0 percent discount rates. The Agencies and Dr. Hanemann do not oppose adopting the 95th percentile should the Commission choose to view "the SCC through the lens of risk management."

Somewhat similarly, Great River Energy, Minnesota Power and OtterTail Power ("GRE,MP,OTP") claimed that Agencies' witness, Dr. Michael Hanemann, "suggested that the a [sic] risk premium should be included in the SCC." GRE, MP, OTP Initial Brief at 24. Again, Dr. Hanemann did not suggest that an adder be applied to the federal SCC as a "risk premium," but rather that viewing "the SCC through the lens of risk management" may be a reasonable approach.

To be clear, the Agencies' and Dr. Hanemann's recommendation is limited to the three discount rates of 2.5, 3.0 and 5.0 percent, but they would not oppose the adoption of the 95th

---

11 you agree with his decision to exclude the 95-percentile from consideration?
12 A. I disagree with his decision in Xcel Ex. ___ at 29 (Martin Direct) to exclude the 95-
13 percentile of the SCC distribution from consideration. I believe there is a case for
14 considering the 95-percentile of the SCC distribution.
15 This is done in other regulatory contexts involving low risk but potentially
16 catastrophic outcomes. It is common in that setting to focus attention on events that
17 can occur with as little as a 5% probability and to examine the probability density
18 function through at least the 95-percentile (the point where there is a 95% probability
19 that a lower value outcome occurs).
20 An analogy is offered by Mr. Nick Robins of the United Nations Environmental
21 Program. Mr. Robins is quoted in a new report on the value at risk from climate
22 change by the Economist Intelligence Unit as follows:
1 We wouldn't get on a plane if there was 1 a 5% chance of the plane crashing,
2 but we're treating the climate with that same level of risk in a very offhand,
3 complacent way.
4 This concern with tail risks (risks associated with the low probability, high
5 damage events represented in the skewed tail of the distribution) is consistent with,
6 and validates, the IWG's analysis in reporting the 95-percentile value of the SCC
7 distribution for the 3% discount rate.
Agencies Ex. 801 at 71 (Hanemann Rebuttal).

percentile values by the Commission, if the Commission viewed the SCC through the lens of risk management, in which case, the 95th percentile value would be a relevant consideration. Dr. Hanemann's full rebuttal testimony on the Agencies' value recommendation is as follows:

> Q. If you had to recommend a range of values for the 2015 SCC and 2020 SCC, what range would you recommend?
>
> A. I would recommend the range of estimates presented by the IWG corresponding to the alternative discount rates it considered – 2.5%, 3% and 5%.
>
> The range for the 2015 SCC is from $11 (5%) to $56 (2.5%).
> The range for the 2020 SCC is from $12 (5%) to $62 (2.5%).
>
> These values are given in Interagency Working Group, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866. Revised July 2015, page 3. Ibid.
>
> Q. Is there additional information you wish to note about the IWG's SCC estimate?
>
> A. First, as stated above, I believe the IAM damage functions used by the IWG are likely to understate the SCC.
> Second, I believe that 5% is likely to be too high as an estimate of the social consumption rate of discount because the marginal utility factor which it reflects is likely to be overstated for the reasons I gave above (page 39, line 1286 – page 40, line 1308).
> Third, ***if one viewed the SCC through the lens of risk management***, the IWG's 95-percentile value of the 2015 SCC (($105) and the 2020 SCC ($123) ***would be a relevant consideration.***

Agencies Ex. 801 at 87-88 (Hanemann Rebuttal)(citations omitted)(emphasis added).

D. Modeling the Time Horizon to Year 2300.

To support its argument that the federal SCC's projections of emission scenarios beyond 2100 are not reasonable, GRE,MP,OTP, in a misleading manner, quoted the IWG's 2010 Technical Support Document ("IWG 2010 TSD Report") to the effect that "[t]he IWG itself has recognized that 'the trajectory of socioeconomic emission scenarios beyond 2100 is uncertain.'" GRE,MP,OTP made this assertion to support its argument that damages after 2100 should be

disregarded. GRE,MP,OTP Initial Brief at 23 (*citing* CEO Ex. 101 at Schedule 1, p. 29 (Polasky Rebuttal)).

This selective quotation of a single phrase is misleading because it is taken out of context. The rest of the passage explains the importance of modeling the time horizon to 2300:

> "However, as the 2010 TSD notes, because of the long atmospheric lifetime of CO2, using too short a time horizon could miss a significant fraction of damages under certain assumptions about the growth of marginal damages. Therefore, the IWG ran each model through 2300. The IWG will continue to follow and evaluate the scientific literature on long-term scenario development."

CEO Ex. 101 at Schedule 1, p. 29 (Polasky Rebuttal).

The argument in GRE,MP,OTP's Initial Brief at 21-23, that the selection of a time horizon of 2300 was unreasonable is also disingenuous because it fails to acknowledge that the selection of 2300 was a part of the IWG's standardization of the models. The IWG explained in its IWG 2010 TSD Report that

> [E]ach of the three [IAM] models has a different default end year. The default time horizon is 2200 for PAGE, 2595 for DICE, and 3000 for the latest version of FUND. This is an issue for the multi-model approach because differences in SCC estimates may arise simply due to the model time horizon.
>
> Many consider 2200 too short a time horizon because it could miss a significant fraction of damages under certain assumptions about the growth of marginal damages and discounting, so each model is run here through 2300. This step required a small adjustment in the PAGE model only. This step also required assumptions about GDP, population, and greenhouse gas emission trajectories after 2100, the last year for which these data are available from the EMF-22 models.

Agencies Ex. 800 at WMH-2, p. 25 (Hanemann Direct).[2]

[2] A more detailed discussion of the IWG assumptions is included in the Appendix to the IWG 2010 TSD Report. *Id.* Mr. Martin saw these projections to 2300 as a source of uncertainty. Agencies Ex. 801 at 17 (Hanemann Rebuttal) (citing Xcel Ex. 600 at 30 (Martin Direct). The Agencies' Initial Brief addressed Mr. Martin's concerns with uncertainty as "Issue 22."

Dr. Hanemann's expert opinion was that the steps the IWG undertook to standardize the three IAMs were reasonable and necessary to put the three models on a common footing and to make them directly comparable. Agencies Ex. 802 at 30 (Hanemann Surrebuttal); Tr. Vol.2B at 78, lines 16-120. Standardizing the model inputs and parameters is a standard practice in model inter-comparison exercises. In his opinion, it would have been unreasonable if the IWG had not done this. Agencies Ex. 800 at 46, 47, 66 (Hanemann Direct); Agencies Ex. 802 at 30 (Hanemann Surrebuttal).

With respect to the purported concerns of GRE,MP,OTP and its witness, Dr. Smith, that although the IWG's assumptions and projections prior to 2100 are reliable, the assumptions underlying the projections *beyond* 2100 are not "evidentiary-based" and/or supported by facts, available evidence, or peer-reviewed analyses (GRE,MP,OTP Initial Brief, at 16-23 26-31; GRE,MP,OTP Ex. 300 at 67, 68 (Smith Direct)), Dr. Hanemann explained why that concern was not well founded. This is because, by implication, this claim implies that the EMF-22 projections through 2100 *are* supported by facts, available evidence, and peer-reviewed analyses. Dr. Hanemann rebutted this reasoning, explaining that there is no way to support a projection of anything prior to 2100 through "facts" or "available evidence." By the very nature of projections into the far future, they cannot be evidentiary or fact based, but instead, can be based only on reasonable assumptions. Agencies Ex. 801 at 24-25 (Hanemann Rebuttal). Nothing in the record suggests that projections after 2100 are more or less reasonable than those before 2100.

2. MLIG'S NEW 5.66 PERCENT DISCOUNT RATE PROPOSAL IS UNSUPPORTED

MLIG's Initial Brief proposed adoption of a 5.66 % discount rate. MLIG Initial Brief at 6, 77. This proposal was not supported by any witness' testimony, nor was the basis for the proposal disclosed during discovery, and as such, witnesses had no opportunity to assess the

merits of the proposal and critique or endorse such a discount rate, nor was any opportunity afforded for any expert witness to evaluate the methodology underlying the proposed new discount rate. It is not disclosed if MLIG's new proposal is for a single discount rate, or whether MLIG proposed to add the rate to the existing discount rates reflected in the federal SCC. Because the evidentiary record has closed and expert evaluation is unavailable, this untimely proposal should not be considered.

Furthermore, the three alternative discount rates for the federal SCC, 2.5, 3.0 and 5.0 percent, "reflect reasonable judgments under both descriptive and prescriptive approaches" to determining an appropriate rate of discount. Agencies Ex. 800 at WMH-2, p. 23 (Hanemann Direct) (IWG 2010 TSD Report). *Id*. at 54. Dr. Hanemann testified that it was appropriate for the IWG to use these three values because they are consistent with the values used in the existing literature on the economics of climate change and of GHG mitigation. Dr. Hanemann knew of no values higher than 5.5 percent being used in the existing literature on the economics of climate change. *Id*. at 68-69, 73. The Agencies strongly recommend that the ALJ not entertain the 5.66 percent discount rate proposal of the MLIG.

3. GRE, MP, OTP, MLIG WITNESS DR. SMITH'S "FIRST TON" APPROACH

Under Dr. Smith's proposed "first ton" approach to calculating a SCC value, she assumed that no anthropogenic emissions occur after 2020. This became her baseline scenario. Agencies Ex. 801 at 28 (Hanemann Rebuttal) (*citing* GRE,MP,OTP Ex. 300 at 33 (Smith Direct)). Dr. Hanemann testified that Dr. Smith's first ton approach is not a reasonable way to proceed because the baseline for the first ton approach assumes that no emissions of CO_2 occur anywhere in the world after 2020. *Id.* at 29. Dr. Hanemann stated that, in his opinion, that is a "ridiculous assumption" and it is not a reasonable foundation on which to base an estimate of the SCC. *Id.*

In its Initial Brief, GRE,MP,OTP attempted to minimize the significance of this inappropriate assumption, arguing that:

> "[o]ther witnesses have suggested that Dr. Smith is assuming no emissions will occur after 2020, which all parties recognize is an unrealistic scenario. But these witnesses miss the point, the first ton approach is *merely an analytic exercise* designed to separate out the extent to which damages result from historical emissions as opposed to emissions that have not yet occurred."

GRE,MP,OTP Initial Brief at 37 (emphasis added).

The Agencies continue to recommend that the ALJs reject the proposal of Dr. Smith and GRE,MP,OTP. The federal SCC appropriately considers both baseline (historical and projected) and marginal emissions. Further, the "first ton" approach was not merely an analytic exercise, but rather was the foundation of Dr. Smith's recommendation for estimating the SCC.

4. THE ALJS SHOULD NOT MAKE A RECOMMENDATION ON XCEL'S TRUNCATION AND RE-SHAPING OF THE DAMAGES DISTRIBUTION CURVE BECAUSE THIS IS AN "APPLICATION" ISSUE THAT WAS NOT REFERRED TO THE OFFICE OF ADMINISTRATIVE HEARINGS, BUT WILL BE ADDRESSED IF IT ARISES WHEN THE COMMISSION APPLIES THE FEDERAL SCC IN SPECIFIC DOCKETS.

Xcel's Initial Brief raised application concerns to support its argument that its 75/25 percentile cutoffs should be adopted. Xcel's Initial Brief argued that the approach to estimate the SCC cannot be a purely scientific or economic exercise, but must take into consideration public policy concerns that may arise when CO_2 values are subsequently applied by the Commission:

> …this proceeding is not a scientific and economic exercise limited to the climate change context; this is a state-level regulatory process that will affect how regulated utilities in Minnesota will select, allocate, and build resources.

Xcel Initial Brief at 25. While the adoption of the federal SCC as a methodology for valuing the environmental costs of CO_2 emissions involves acceptance of the limited policy decisions made by the IWG, that acceptance is not dependent on determination of a range of public policy concerns that the Commission will need to address when applying the federal SCC in specific

resource plan, certificate of need, or other dockets. How the federal SCC is applied in specific dockets involves policy issues that were not fully vetted in this proceeding; this proceeding focused solely on whether the federal SCC is the best available measure to quantify the damage-cost value of carbon emissions. Policy considerations regarding application of those damage values can and should be addressed in subsequent proceedings before the Commission.

5. SPATIAL SCOPE

The GRE,MP,OTP Initial Brief urged the ALJs to count as damages from CO_2-caused global warming only damages that occur in the United States. To support its request, GRE, MP, OTP claimed that, in proceedings such as this, there exists a "usual practice of only considering domestic damages," that there exists a "recognized exception" to that usual practice for "situations in which there is reciprocity," and that, "other states and countries have not agreed to consider damages to Minnesota when making utility resource planning decisions." GRE,MP,OTP Initial Brief at 39.[3] None of these claims in the GRE,MP,OTP Initial Brief are supported by citations to authority.

The Agencies have attempted to determine whether any such "usual practice" or "recognized exception" exists in State utility resource planning, carbon valuation, or other environmental cost dockets, and they have reviewed a number of legal surveys of state action on power sector carbon emissions, including:

[3] The GRE,MP,OTP Initial Brief inconsistently acknowledges that, "[a]ny meaningful progress in slowing global climate change will require **coordinated global action,** and even a complete elimination of *damages* in Minnesota will have almost no impact." GRE,MP,OTP Initial Brief at 39 (emphasis added.) This likely was meant to refer to "a complete elimination of CO_2 *emissions* in Minnesota." The Agencies agree with this argument. If there is to be "meaningful progress in slowing global climate change" then damages outside of Minnesota and the U.S. will need to be considered. As GRE,MP,OTP acknowledge, consideration only of domestic damages does not slow climate change in "**a coordinated"** fashion. A serious effort to address global climate change needs to consider global CO_2-caused environmental damages, and to not be geographically restricted.

L. Jensen, K. Nishikawa, B. Lowenthal, "Chapter 11: The State Response to Climate Change: 50 State Survey," Pace Law School Center for Environ. Legal Studies, Sept. 1, 2014 (reflecting developments through April 2014).[4]

"Technical Support Document: Survey of Existing State Policies and Programs that Reduce Power Sector CO2 Emissions Appendix for State Plan Considerations" June 2, 2014, U.S. Environmental Protection Agency Clean Power Plan, Docket ID No. EPA-HQ-OAR-2013-0602. (EPA 2014 Report"). Publ. at *http://www.epa.gov/sites/production/files/2014-06/documents/existing-state-actions-that-reduce-power-sector-co2-emissions-june-2-2014_0.pdf*[5]

Greenhouse Gas Emissions Targets, U.S. States and Regions, Climate Action, Center for Climate and Energy Solutions (2014) published at *http://www.c2es.org/us-states-regions/policy-maps/emissions-targets* (Indicates that twenty states and District of Columbia have GHG emissions targets); *see also http://www.c2es.org/docUploads/all-state-initiatives-feb-2014.pdf*

M. Dworkin, D. Farnsworth, J. Rich and J. Salmi Klotz, "Revisiting the Environmental Duties of Public Utility Commissions" *Vermont Environmental Law Journal* Vol 7 (2006).[6]

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[4] This survey compiles state legislation, rules and executive orders that specifically address climate change as of the end of April 2014. It is published by the American Bar Association at *http://www.americanbar.org/content/dam/aba/administrative/environment_energy_resources/committees_dch/Full_50_State_Survey_%20Final_Thru_April_2014.authcheckdam.pdf* This survey accompanies *Global Climate Change and U.S. Law, 2nd Ed.* (Michael B. Gerrard and Jody Freeman, eds.) (American Bar Association 2014), published at *http://shop.americanbar.org/eBus/Default.aspx?TabID=251&productId=215104&sc_cid=5350250-NR_B2*

[5] The EPA 2014 Report indicates that "ten states have passed legislation requiring GHG emission reductions and are using a combination of emission limits, performance standards, energy efficiency and renewable energy measures to achieve these requirements. States include California, Connecticut, Hawaii, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Oregon, and Washington." EPA 2014 Report at 7 and n. 1. As of March 2014, four states - California, New York, Oregon and Washington - have enacted mandatory GHG emission standards that impose enforceable emission limits on new and/or expanded electric generating units. *Id* at 17-18. Three states - California, Oregon and Washington – have enacted mandatory GHG emission performance standards that set an emission rate for electricity purchased by electric utilities. Two states, Illinois and Montana, have enacted policies to incentivize or require new coal plants to capture at least 50 % of their CO_2 emissions. (citations omitted). *Id*. at 18.

[6] Dworkin *et al* indicates that as long ago as 2006, sixteen states had statutes that either imposed an obligation or grant authority to the Public Utility Commission to consider environmental concerns. Those states included California, Connecticut, Maryland, Minnesota and New Hampshire, where the State public utility commissions are required to consider the external environmental costs of energy resources. Dworkin *et al* at 1-69.

C. Simpson, B. Hausauer, A. Rao, "Emissions Performance Standards in Selected States," Regulatory Assistance Project (August 2010), published online at *http://www.raponline.org/document/download/id/250*

David R. Hodas. "State Initiatives" *Global Climate Change and U.S. Law* (2nd ed). Ed. Michael Gerrard & Jody Freeman, American Bar Association, 2014.

Contrary to the claim in the GRE,MP,OTP Initial Brief, the Agencies have found in these State surveys no support for the assertion that there exists a usual practice of States considering only domestic damages in state-level CO_2 emission reduction policies. They have found no "recognized exception" for "reciprocity" nor an indication that other states and countries have generally chosen to disregard out-of-jurisdiction damage due to CO_2 emissions and global warming when making utility resource planning decisions.

To the contrary, global impacts of CO_2 have been adopted in other states. *See, e.g., In re Cent. Vt. Pub. Serv. Corp*., No. 5624, 1994 WL 400909 (Vt. P.S.C. June 29, 1994) (requiring the addition of a 59 percent allowance to base costs for "external costs of producing energy, such as contributions to . . . global warming."); *and In re Mont. Power Co.*, 152 P.U.R.4th 403 (Mont. P.S.C. 1994) (ordering the utility "to include cost estimates for externalities in its next rate filing . . . although such estimates are uncertain it is inappropriate to continue to design rates under the assumption that the value for externalities is zero. At a minimum the utility must estimate damage costs associated with carbon dioxide," and other pollutants to "reflect impacts on human health, agriculture, timber, livestock, ecosystems and biodiversity, global warming, recreation, visual and audio aesthetics, and land use (including property values).")

Further, contrary to the assertions in the MLIG Initial Brief at 29, fn. 80 and the GRE,MP,OTP Initial Brief at 11 (regarding the IAMs) environmental adders such as the federal SCC have been used extensively by States in resource planning. David R. Hodas. "State

Initiatives" *Global Climate Change and U.S. Law* (2nd ed). Ed. Michael Gerrard & Jody Freeman. American Bar Association, 2014 at 318.

Last, and perhaps most important, the notion of considering only domestic impacts would be inconsistent with the law at issue in this docket, Minn. Stat. § 216B.2422, subd. 3. On its face, Minn. Stat. § 216B.2422, subd. 3 requires the Commission "to the extent practicable, [to] quantify and establish a range of environmental costs associated with each method of electricity generation." It has no provision that would authorize the Commission to disregard all but "domestic" environmental costs of CO_2 emissions.

6. THE AGENCIES CONTINUE TO RECOMMEND USE OF THE FEDERAL SCC

Xcel's Initial Brief notes a difficulty in comparing various parties' recommendations for the range of environmental values because the recommendations are in different dollars and different tons. The Agencies continue to recommend that, because the most recent update of the federal SCC occurred in 2013, the ALJs find the 2013 estimate of the federal SCC is reasonable and the best available measure to determine the environmental cost of CO_2 under Minn. Stat. § 216B.2422. However, should the ALJs and Commission want to consider values in 2015 dollars, or on a per-short-ton basis, the Agencies provide Attachments 1 and 2 to this Reply Brief. The Attachments update the values presented across the discount rates from 2007 US dollars to 2015 US dollars using a United States GDP deflator index, calibrated from the third quarter of 2007 to the third quarter of 2015.[7] Additionally the Agencies provide the IWG SCC values converted from metric tons to short tons.[8] Finally, the Agencies provide the IWG SCC values converted from metric tons to short tons in 2015 US dollars. These alternate values add no new

[7] The Agencies note that the 2013 IWG SCC damage values reflect global non-US monetary units converted to US dollars. Absent a global GDP deflator index, applying the US GDP deflator index may be appropriate.

[8] The current CO_2 externality value is measured in dollars per ton, rather than per metric ton. Either measure could be used in the Commission's proceedings.

methodology to the record, nor do they alter the Agencies' recommendations. The Agencies continue to recommend that the 2013 IWG SCC values be adopted by the Commission, and simply provide alternate values based on these figures as a reference for the convenience of the Commission and the ALJs. The Agencies would not oppose adoption of any of the conversions shown in the Attachments.

III. CONCLUSION

The Agencies continue respectfully to request a Recommendation from the Administrative Law Judges and an Order from the Commission, determining that the 2013 estimate of the federal Social Cost of Carbon developed by the federal government's Interagency Working Group is reasonable and the best available measure to determine the environmental cost of CO_2 under Minn. Stat. § 216B.2422.

The Agencies request that the Commission issue an Order consistent with the principles, analyses and recommendations addressed in the Agencies' testimony, Initial Brief, this Reply Brief, and the proposed Findings submitted herewith.

Dated: December 15, 2015

Respectfully submitted,

LINDA S. JENSEN
Attorney Reg. No. 0189030
Telephone: 651-757-1472
445 Minnesota Street, Suite 1800
St. Paul, MN 55101-2134
Attorneys for Minnesota Department of Commerce
and Minnesota Pollution Control Agency

SCHEDULE OF ATTACHMENTS

Attachment 1

Attachment 2