



April 10, 2024

To: Public Service Commission, State of Montana

Re: Petition for Rulemaking on Consideration of Climate Impacts (Docket 2024.03.028)

The Institute for Policy Integrity at New York University School of Law (Policy Integrity)¹ respectfully submits this letter supporting the petition filed by a coalition of public-interest organizations requesting that the Public Service Commission (PSC or the Commission) consider climate change in its regulation of electric and gas utilities (Petition for Rulemaking).² Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in administrative law, economics, and public policy.

The Petition for Rulemaking calls on the Commission to consider the impacts of climate change in its proceedings using the latest estimates of the social cost of greenhouse gases. In support of the petition, this comment offers the following insights:

- **The social cost of greenhouse gases is a well-established tool** for valuing the incremental impacts of climate change per ton of greenhouse gas emissions;
- **Numerous U.S. states use the social cost of greenhouse gases in utility and public-service proceedings** such as resource planning, ratemaking, and elsewhere.
- **The valuations published by the Environmental Protection Agency (EPA) in 2023 reflect the most recent and robust government climate-damage estimates.** However, they are widely regarded as underestimates due to omitted impacts, supporting the Petition for Rulemaking's treatment of them as a floor for measuring climate effects.

The letter expands upon each of these points below. For further reading, please see the enclosed report titled *The Social Cost of Greenhouse Gases: A Guide for State Officials*. Note, however, that this report was published prior to EPA's 2023 updated values and thus does not reflect them.

A. The Social Cost of Greenhouse Gases Is a Well Established Economic Tool for Valuing the Incremental Impacts of Greenhouse Gas Emissions on Climate Change

The social cost of greenhouse gases is a monetary estimate of the damage caused by each ton of greenhouse gases emitted. In essence, the social cost of greenhouse gases methodology

¹ This document does not purport to present the views, if any, of New York University School of Law.

² Petition for Rulemaking, In the Matter of the Petition for Adoption of New Rule I and Declarations Pertaining to the Commission's Consideration of the Adverse Climate Impacts of Greenhouse Gas Emissions (Feb. 28, 2024) (Docket No. 2024.03.028) [hereinafter Petition for Rulemaking].

calculates how the emission of an additional unit of greenhouse gases affects atmospheric greenhouse concentrations, how that change in atmospheric concentrations changes temperature and sea-level, and how those temperature and sea-level changes incrementally contribute to various economic damages.³ Social cost values exist for different greenhouse gases. The valuation for one ton of carbon dioxide (the most prevalent greenhouse gas) is called the “social cost of carbon.” For methane (another prevalent greenhouse gas), the valuation is called the “social cost of methane.”

There are numerous benefits to applying the social cost of greenhouse gases in policy analysis. First, it captures many different climate impacts in a single metric, allowing policymakers to holistically consider the effects of climate change in a way that simply measuring the volume of emissions does not allow. Second, the unit of that metric—dollars—facilitates simple comparison to other monetized effects such as a policy’s compliance cost. Third, the metric provides policymakers aiming to value carbon dioxide emissions (such as in ratemaking or procurement) with a specific and scientific price.

The social cost of greenhouse gases is well established in both economics and policymaking. Several of the leading economic models of climate damages that underlie the social cost of greenhouse gases were first released in the 1990s.⁴ A Yale University economics professor, William Nordhaus, won the Nobel Prize in Economics for developing one of those damage models. And over the past few decades, dozens of peer-reviewed studies have contributed to this field.⁵

Owing to its strong academic and empirical foundations, the social cost of greenhouse gases is also widely used in policymaking. Over fifteen years ago, a federal appeals court, pointing to the valuations and methodologies that were then in use, recognized that the social cost of greenhouse gases is widely established in the economics literature and therefore concluded that a federal agency must value greenhouse gas emissions in its regulatory analysis.⁶ As the court explained, the economics behind valuing climate impacts is “scientifically-supported” and makes it “possible to monetize the benefit of carbon emissions reduction.”⁷

Federal agencies have widely applied the social cost of greenhouse gases in policymaking ever since.⁸ Beginning in 2010, a federal interagency working group comprised of experts throughout the executive branch endorsed valuations based on the leading economics literature available at the time.⁹ Federal agencies have extensively applied those valuations, including both in

³ INTERAGENCY WORKING GRP. ON SOCIAL COST OF CARBON, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS 5 (2010).

⁴ Richard L. Revesz & Max Sarinsky, *The Social Cost of Greenhouse Gases: Legal, Economic, and Institutional Perspective*, 39 YALE J. ON REG. 856, 861 (2022).

⁵ ENV’T PROT. AGENCY, EPA REPORT ON THE SOCIAL COST OF GREENHOUSE GASES: ESTIMATES INCORPORATING RECENT SCIENTIFIC ADVANCES 46 fig.2.3.1 (2023) [hereinafter EPA REPORT] (charting relevant research studies from 1990–2021).

⁶ *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1198–1203 (9th Cir. 2008).

⁷ *Id.* at 1200.

⁸ E.g. ENV’T PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT ON BENEFITS OF REDUCING GHG EMISSIONS 13 (2008) (endorsing social cost of carbon valuations).

⁹ Revesz & Sarinsky, *supra* note 4, at 862.

rulemakings¹⁰ and in other contexts such as project-level decisionmaking, budgeting, and procurement.¹¹

The federal government published its latest climate-damage valuations in December 2023.¹² As detailed below in Section C, those valuations reflect the latest and best available science and economics.

B. Many State Governments Use the Social Cost of Greenhouse Gases, Including in Utility and Public-Service Proceedings

It is not only the federal government that applies the social cost of greenhouse gases; many state governments apply it too. At least 15 state governments have applied the social cost of greenhouse gases in recent years,¹³ and many of those states have used the metric in public-utility proceedings similar to those that fall under the Commission's jurisdiction.¹⁴ These uses include (but are not limited to):

- **Resource and Utility Planning:** Numerous states have applied the social cost of greenhouse gases in public-utility resource planning, including Minnesota,¹⁵ Nevada,¹⁶ Washington,¹⁷ Colorado.¹⁸ For instance, Colorado uses the social cost of greenhouse gases to value emissions in electric resource plans, renewable energy standards, beneficial electrification, and demand-side management programs.¹⁹

¹⁰ See Peter Howard & Jason A. Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 COLUM. J. ENV'T L. 203, 270–84 (2017) (listing uses through mid-2016).

¹¹ See Fact Sheet: Biden-Harris Administration Announces New Actions to Reduce Greenhouse Gas Emissions and Combat the Climate Crisis, THE WHITE HOUSE (Sept. 21, 2023), <https://perma.cc/G3DB-59P8>.

¹² EPA REPORT, *supra* note 5.

¹³ See States Using the SC-GHG, COSTOFCARBON, <https://costofcarbon.org/states>.

¹⁴ See Justin Gundlach & Iliana Paul, Inst. for Pol'y Integrity, *The Social Cost of Greenhouse Gases: A Guide for State Officials* 1-3 tbl.1.1-1 (2022) (listing state government uses in various contexts including resource compensation and integrated resource planning).

¹⁵ Minnesota PUC Requires SCC Use for Utilities, COSTOFCARBON, <https://costofcarbon.org/states/entry/minnesota-puc-requires-scc-use-for-utilities> (Jan. 2018).

¹⁶ PUC of Nevada Uses SCC to Fulfill New Mandate on Integrated Resources Plans, COSTOFCARBON, <https://costofcarbon.org/states/entry/puc-of-nevada-uses-scc-to-fulfill-new-mandate-on-integrated-resource-plans> (Aug. 2018).

¹⁷ Washington State Enacts Law Requiring the Use of the SCC in Resource Planning, COSTOFCARBON, <https://costofcarbon.org/states/entry/washington-state-enacts-law-requiring-the-use-of-the-scc-in-resource-planni> (May 2019).

¹⁸ Colorado Law Requires Use of SC-GHG in Utility Planning, COSTOFCARBON, <https://costofcarbon.org/states/entry/colorado-law-requires-use-of-sc-ghg-in-utility-planning> (June 2021).

¹⁹ *Id.*

- **Zero Emissions Credits.** Numerous states use the social cost of greenhouse gases to set the value for zero-emission credits, including Illinois,²⁰ New Jersey,²¹ and New York.²² After calculating the emissions avoided from zero-emissions sources, these state agencies then use the social cost of greenhouse gases as an input in setting the credit value.
- **Valuing Distributed Energy Resources:** Both the New York Public Service Commission²³ and the Maryland Public Service Commission²⁴ have used the social cost of greenhouse gases to value distributed energy resources.
- **Energy Efficiency and Demand-Reduction Programs:** In addition to Colorado, as noted above, other states including Massachusetts²⁵ and New Jersey²⁶ use the social cost of carbon to monetize the benefits of greenhouse gas emissions reductions to assess the cost-effectiveness of energy-efficiency and demand-reduction programs.

These various decisionmaking contexts are comparable to those that fall under the Commission’s jurisdiction and demonstrate the wisdom and feasibility of applying the social cost of greenhouse gases in the Commission’s own proceedings. For additional examples of states using the social cost of greenhouse gases, please visit <https://costofcarbon.org/states>.

C. EPA’s 2023 Valuations Reflect the Best Available Government Climate-Damage Values, But Still Underestimate the Full Impacts of Climate Change

The Petition for Rulemaking calls on the Commission to apply EPA’s 2023 social cost of greenhouse gases valuations or any higher valuations released in the future by a federal interagency working group.²⁷ This request is appropriate because EPA’s values reflect the government’s best available climate-damage estimates but still undervalue the true costs of climate change.

²⁰ Illinois Implements Zero Emission Credits Based on SCC, COSTOFCARBON,

<https://costofcarbon.org/states/entry/illinois-implements-zero-emission-credits-based-on-scc> (Oct. 2018).

²¹ New Jersey Legislature Recognizes SCC as “Accepted Measure” for Cost of Carbon Emissions, COSTOFCARBON,

<https://costofcarbon.org/states/entry/illinois-implements-zero-emission-credits-based-on-scc> (May 2018).

²² New York Incorporates SCC Into Proceeding on Reforming the Energy Vision, COSTOFCARBON,

<https://costofcarbon.org/states/entry/new-york-incorporates-scc-into-proceeding-on-reforming-the-energy-vision> (Oct. 2018).

²³ New York Public Service Commission Adopts Updated E-Value Using the SCC, COSTOFCARBON,

<https://costofcarbon.org/states/entry/new-york-public-service-commission-adopts-updated-e-value-using-the-scc> (Apr. 2021).

²⁴ Maryland PSC Uses SCC in Report on DER Valuation, COSTOFCARBON,

<https://costofcarbon.org/states/entry/maryland-psc-uses-scc-in-report-on-der-valuation> (Nov. 2018).

²⁵ Massachusetts Law Requires Public Utilities Commission to Consider Social Cost of Carbon in Benefit-Cost Analysis, COSTOFCARBON, <https://costofcarbon.org/states/entry/massachusetts-law-requires-public-utilities-commission-to-consider-social-cost-of-carbon-in-benefit-cost-analysis> (May 2021).

²⁶ New Jersey Uses SCC in Cost Test for Energy Efficiency and Demand Reduction Programs, COSTOFCARBON, <https://costofcarbon.org/states/entry/new-jersey-uses-scc-in-cost-test-for-energy-efficiency-and-demand-reduction> (Aug. 2020).

²⁷ Petition for Rulemaking, *supra* note 2, at 25.

EPA’s 2023 social cost of greenhouse gases estimates are the latest in a series of federal estimates. EPA first published climate-damage values in 2008.²⁸ In 2009, the White House convened the Interagency Working Group on the Social Cost of Carbon (Working Group)²⁹ to ensure that the federal government used consistent, scientifically rigorous values to estimate climate damages. The Working Group released climate-damage estimates in 2010, updated them in 2013, and updated their presentation and technical documentation in 2016.³⁰ In 2021, the Working Group adjusted its prior estimates for inflation; it recognized that those estimates were largely outdated and in need of update, but did not update them at that time.³¹

EPA released updated valuations in December 2023. For numerous reasons, EPA’s updated values are the most robust and comprehensive federal climate-damage estimates available. First, they rely on much newer studies and data than the Working Group estimates. As EPA explained, the “climate change literature and the science underlying the economic damage functions have evolved” since the Working Group’s last substantive updates.³² Whereas the research underlying the Working Group’s damage functions was published in the 1990s and 2000s, many economic studies have since been published.³³

Second, EPA’s updated values apply the 2017 recommendations from the National Academies of Sciences. In 2017, the National Academies largely endorsed the Working Group’s approach but offered recommendations for improvement and called for future updates consistent with those recommendations.³⁴ EPA’s update holistically incorporates those recommendations. For instance, EPA developed its climate-damage estimates through a modular approach with “four components . . . — socioeconomics and emissions, climate, damages, and discounting”—following the National Academies’ recommended framework.³⁵

Third, EPA’s updated values apply the latest research on discounting by applying a central 2% discount rate. EPA’s approach to discounting is consistent with both current federal guidance³⁶ and expert consensus.³⁷ The Working Group’s estimates, in contrast, apply higher discount rates that it recognizes (and many others recognize³⁸) are outdated.³⁹

²⁸ ENV’T PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT ON BENEFITS OF REDUCING GHG EMISSIONS (2008).

²⁹ This group later changed its name to the Interagency Working Group on the Social Cost of Greenhouse Gases.

³⁰ INTERAGENCY WORKING GRP. ON SOC. COST OF GREENHOUSE GASES, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON, METHANE, AND NITROUS OXIDE 2–3 (2021).

³¹ See generally *id.*

³² EPA REPORT, *supra* note 5, at 45–46. The Working Group released estimates of the social cost of methane and the social cost of nitrous oxide in 2016. In 2021, it endorsed its prior valuations for all three greenhouse gases and adjusted them for inflation.

³³ *Id.* at 46 fig.2.3.1.

³⁴ NAT’L ACADS. OF SCIS., ENG’G & MED., VALUING CLIMATE DAMAGES: UPDATING ESTIMATION OF THE SOCIAL COST OF CARBON DIOXIDE (2017).

³⁵ EPA REPORT, *supra* note 5, at 1.

³⁶ OFF. OF MGMT. & BUDGET, CIRCULAR A-4: REGULATORY ANALYSIS 77 (2023) (endorsing a 2% discount rate).

³⁷ Peter H. Howard et al., *U.S. Benefit-Cost Analysis Requires Revision*, 380 SCIENCE 803, 803 (2023) (noting that “recent economic data” supports a discount rate “close to 2%”).

³⁸ *Id.*

³⁹ INTERAGENCY WORKING GRP., *supra* note 30, at 4 (calling for “lower discount rates” consistent with EPA’s 2% rate).

For these reasons and others, expert peer reviewers offered extensive praise for EPA’s estimates.⁴⁰ These experts lauded EPA’s numbers as a “huge advance,”⁴¹ a “significant step,”⁴² and a “much-needed improvement”⁴³ over the Working Group’s estimates that “advanc[es] our state of knowledge”⁴⁴ and “represents well the emerging consensus in the literature.”⁴⁵ Expert reviewers particularly praised EPA for faithfully applying the National Academies’ recommendations.⁴⁶

While EPA’s estimates capture numerous important climate impacts and greatly improve upon the Working Group’s approach, “[t]here are still many important categories of climate impacts and associated damages that are not yet reflected in these estimates due to data and modeling limitations.”⁴⁷ Moreover, EPA captures certain climate damages incompletely.⁴⁸ These omissions do not cast doubt on EPA’s approach, as no method could capture all the harm from climate change. Rather, they suggest that EPA’s values are conservative, lower-bound estimates of climate costs.⁴⁹

Accordingly, while EPA’s valuations are the best currently available, the Petition for Rulemaking appropriately uses them as a floor for the Commission’s consideration of climate impacts that could be supplanted by higher damage estimates in the future as our ability to value climate damages continues to improve.

Conclusion

As detailed above, the social cost of greenhouse gases is a well-established tool for measuring and monetizing the incremental impacts of greenhouse gas emissions on climate change. For this reason, it is widely applied in both federal and state policymaking. Numerous state public utility commissions apply the social cost of greenhouse gases to value climate impacts in a wide range of proceedings such as resource and utility planning and valuing distributed energy resources. The Commission too should apply the social cost of greenhouse gases in its regulatory proceedings, as requested in the Petition for Rulemaking.

EPA’s valuations published in December 2023 are widely considered the best government estimates currently available. Accordingly, the Petition for Rulemaking appropriately calls upon the Commission to apply these valuations in its proceedings. Nonetheless, EPA’s valuations

⁴⁰ FINAL COMMENTS SUMMARY REPORT, EXTERNAL LETTER PEER REVIEW OF TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF GREENHOUSE GAS (2023).

⁴¹ *Id.* at 7 (comments of Dr. Maureen Cropper).

⁴² *Id.* at 9 (comments of Dr. Chris E. Forest)

⁴³ *Id.* at 10 (comments of Dr. Catherine Louise Kling)

⁴⁴ *Id.* at 14 (comments of Dr. Wolfram Schlenker).

⁴⁵ *Id.* at 15 (comments of Dr. Gernot Wagner).

⁴⁶ *E.g. id.* at 9 (comments of Dr. Forest); *id.* at 14 (comments of Dr. Schlenker).

⁴⁷ EPA REPORT, *supra* note 5, at 81.

⁴⁸ *Id.*

⁴⁹ *Id.* at 105 (summarizing that EPA’s values “likely underestimate the marginal damages from greenhouse gas pollution”).

likely undervalue the true impacts of climate change, supporting the Petition for Rulemaking's treatment of them as a floor for measuring climate effects.

Respectfully,

Max Sarinsky, Regulatory Policy Director

Enclosure: Justin Gundlach & Iliana Paul, Inst. for Pol'y Integrity, *The Social Cost of Greenhouse Gases: A Guide for State Officials* (2022)