March 25, 2015

Mr. Horst Greczmiel
Associate Director for NEPA Oversight
Council on Environmental Quality
722 Jackson Place, NW
Washington, D.C. 20503

Re: Revised Draft Guidance for Federal Departments and Agencies Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, 79 Fed. Reg. 77,802 (December 24, 2014)

Dear Mr. Greczmiel:

The American Chemistry Council, American Farm Bureau Federation, American Forest & Paper Association, American Fuel & Petrochemical Manufacturers, American Highway Users Alliance, American Iron and Steel Institute, American Petroleum Institute, American Public Power Association, American Wood Council, America's Natural Gas Alliance, Association of Oil Pipe Lines, Corn Refiners Association, Council of Industrial Boiler Owners, Gas Processors Association, Independent Petroleum Association of America, Interstate Natural Gas Association of America, National Association of Manufacturers, National Rural Electric Cooperative Association, Natural Gas Supply Association, Portland Cement Association, The Fertilizer Institute, and the U.S. Chamber of Commerce (collectively, "the Associations")[1] appreciate the opportunity to submit the following comments in response to the Council on Environmental Quality's ("CEQ's") Revised Draft Guidance for Federal Departments and Agencies

[1] A description of each Association is included in Appendix A.

Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, 79 Fed. Reg. 77,802 (December 24, 2014) ("Revised Draft Guidance").

Introduction and Summary of Comments

The Associations represent the United States' leading energy, agriculture, manufacturing, and transportation sectors that form the backbone of the nation's industrial ability to grow our economy and provide jobs in an environmentally-sustainable and energy-efficient manner. Projects and activities by the Associations' members that realize these joint goals of economic growth and environmental stewardship often require permits, licenses, or approvals from federal agencies and, hence, may be subject to review under the National Environmental Policy Act ("NEPA"). The Associations' members thus have a strong interest in ensuring that the agencies implement NEPA and achieve its goals effectively, efficiently, and consistently with established regulations and case law.

As more than forty years of experience with implementing NEPA have demonstrated, overly broad NEPA reviews can add significant and unreasonable costs and delays to projects and can, in turn, challenge the viability of projects that grow the economy, promote favorable environmental outcomes, and further energy development at home. As the nation works to recover from the recent economic recession, it is essential that government programs impacting economic development in the United States—including NEPA—are implemented in a manner that supports and does not hinder growth. Many of the key drivers of economic growth in this country are impacted by NEPA reviews. For example, increased oil and gas development—which is leading directly towards U.S. energy independence—is frequently subject to NEPA reviews, both for development on federal land as well as other infrastructure needed to transport and process products. Likewise, the manufacturing renaissance is inextricably tied to feedstock supply chains and infrastructure projects that are subject to NEPA review. Thus, adopting guidance that goes beyond the scope of NEPA imposes additional burdens on permitting agencies and significant delays on project applicants that could threaten to slow or even stop our ongoing economic recovery. Moreover, adopting unduly broad guidance could impede implementation of other federal policies, including those designed to reduce GHG emissions. Thus, to the extent CEQ elects to proceed with final guidance, it is imperative that the guidance stay firmly within the scope of the NEPA statute and CEQ's implementing regulations and does not unduly threaten economic growth, energy independence, or implementation of other environmental programs.

The unique nature of GHG emissions and climate change presents fundamentally different considerations than any other environmental issue and, in turn, bars a one-size-fits-all approach for all agencies addressing all projects in all situations as CEQ proposes. As CEQ explains in the Revised Draft Guidance, "GHG emissions from an individual agency action will have small, if any, potential climate change effects. Government action occurs incrementally, program-by-program, and climate impacts are not attributable to any single action, but are exacerbated by a series of smaller decisions, including decisions made by the government." 79 Fed. Reg. at 77,825. Because the contribution of any project with GHG emissions is minute relative to the atmospheric concentration of GHGs and relative to the GHG emissions from other natural and anthropogenic sources and because the effects of GHG emissions are global in

nature, it is virtually impossible to draw connections between a specific federal action and specific climate change effects.

As a result, consistent with decades of NEPA precedent and practice, it is critical that any guidance that addresses the evaluation of GHG emissions under NEPA provides appropriate and necessary limits to ensure that agencies remain focused on the specific proposed action before them. CEQ must ensure that its guidance to agencies appropriately prohibits them from venturing beyond the scope of what NEPA requires by restricting the evaluation of GHG emissions and related climate change effects that are so unrelated, speculative, or remote that they are unable to inform the agency's ultimate decision regarding a specific proposed action. Without such necessary limits in place, addressing GHG emissions has the risk of increasing uncertainty regarding critical government approvals and decisions. This will dramatically increase the time and cost of NEPA reviews into a boundless exercise that will overwhelm the agencies, cause unworkable delays to important projects, lead to legal and litigation burdens for all parties, and as such damage the international competitiveness of the Associations' members.

Despite the unique challenges posed by GHG emissions and climate change, at a minimum, CEQ must ensure that any guidance incorporating climate change considerations into NEPA analyses is consistent with NEPA itself, CEQ's implementing regulations, and the significant case law that has evolved in the courts over four decades. The distinct challenges of climate change do not authorize CEQ and the agencies to act inconsistently with long-established foundational principles of NEPA review that have been enforced consistently by the courts. Guidance documents serve a limited purpose of explaining and interpreting laws and regulations. They should have no binding legal effect and cannot be used as a tool to amend, revise, or repeal existing regulations without following proper administrative procedures. Where guidance goes too far and effectively expands existing interpretations of laws and regulations, it is unlawful and should not be issued or followed. Thus, it is critical that any final CEQ guidance for consideration of GHG emissions is grounded in existing CEQ regulations, particularly those that define the scope of appropriate NEPA reviews.

In light of these guiding principles, the Associations, who share decades of experience working with NEPA in a broad range of industry sectors subject to the law, have several serious concerns that we believe render the Revised Draft Guidance inconsistent with NEPA, its implementing regulations and established case law.

- In light of these serious deficiencies identified below by the Associations, the Revised Draft Guidance should be withdrawn.

- In no case should any final guidance issued by CEQ be applied to ongoing NEPA reviews that have proceeded past the scoping stage.

- CEQ's proposal to include upstream and downstream emissions in NEPA analyses significantly risks being applied in a manner that is inconsistent with NEPA regulations. The NEPA regulations are designed to limit and bound the scope of NEPA review by ensuring that potential environmental effects that are too remote, too speculative, or beyond the scope of the deciding agency's decision making authority are not included as indirect or cumulative effects.

- CEQ's proposal inappropriately expands the scope of the NEPA review of GHG emissions and climate change effects by including transnational environmental effects.

- CEQ's proposal inappropriately expands the scope of the Revised Draft Guidance to land and resource management actions. In doing so, CEQ fails to address the unique and diverse challenges that such NEPA reviews face, overlooks the paralyzing effect this one-size-fits-all guidance will have on the land management decision-making process both procedurally and from legal challenges, and exacerbates the risk that NEPA challenges will prevent agencies from fulfilling their statutory mandates to promote and authorize multiple, diverse uses of federal land. CEQ should expressly exclude land and resource management actions from any final guidance, as it initially proposed to do in 2010.

- CEQ's proposal inappropriately directs agencies to include the draft Office of Management and Budget ("OMB") social cost of carbon estimates when seeking to monetize costs and benefits in NEPA reviews.

- By directing agencies to incorporate climate change mitigation measures and monitoring into final decision documents as part of their NEPA review, CEQ's proposal exceeds the scope of NEPA and CEQ's implementing regulations.

- CEQ's proposal inappropriately sets an arbitrary 25,000 tons CO_2e/year threshold for including GHG emissions in NEPA reviews.

In light of these serious deficiencies, the Associations urge CEQ to withdraw the Revised Draft Guidance at the earliest opportunity. Withdrawing the Revised Draft Guidance will avoid any confusion related to the applicable requirements for addressing potential climate change impacts in a NEPA review. Withdrawing the Revised Draft Guidance will not impede the agencies' ability to use their discretion to continue to address all potential environmental impacts of a proposed action in a manner that is consistent with NEPA, CEQ's implementing regulations, and NEPA case law.

While the Associations believe that withdrawal of the Revised Draft Guidance is the best option available to CEQ at this time, we offer CEQ a number of suggestions for improvement if CEQ moves forward with revised or final guidance. These suggestions are presented as alternative arguments and are not intended to waive the Associations' primary position that the Revised Draft Guidance should be withdrawn.[2] At the outset, it is essential that CEQ ensure that any final guidance be fully consistent with CEQ's implementing regulations and case law and does not venture beyond the scope of what NEPA allows by incorporating GHG emissions and potential climate change impacts that cannot be attributed to the proposed action. To avoid duplicative efforts and unnecessary delay, CEQ should clarify that any final guidance will not be applicable to proposed actions that have already begun the scoping process. CEQ should also clarify that, consistent with existing NEPA law, transnational impacts should not be evaluated in NEPA reviews. Further, CEQ should exclude land and resource management actions from any

[2] Nor is this intended to waive any future arguments the Associations or their members may have regarding the Revised Draft Guidance or any of the provisions contained in it.

final guidance and proceed, if at all, with sector-specific guidance tailored to the unique challenges posed by land and resource management decisions. In addition, EPA should eliminate or, at a minimum, substantially increase the presumptive threshold for quantifying GHG emissions and allow agencies more discretion to determine whether qualitative or quantitative approaches to evaluating potential climate change effects should be employed. Finally, we urge CEQ and affected agencies to work with the Associations to develop approaches to address GHG emissions and climate change effects that focus on identifying the proper scope of NEPA review, establish a clear process and timeline for NEPA reviews, and avoid the creation of overwhelming burdens, delays, and litigation risk to new projects.

NEPA Overview

A fundamental tenet of NEPA is that it is a procedural statute. NEPA does not mandate any particular outcome or require an agency to select an alternative that has the fewest environmental consequences or the lowest GHG emissions. NEPA simply requires that an agency take a "hard look" at the environmental consequences of any major federal action it is undertaking. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350-51 (1989); *Kleppe v. Sierra Club*, 427 U.S. 390, 410, n.21 (1976). Once the procedural elements of NEPA have been satisfied and the environmental consequences of a proposed action have been given the required scrutiny, an agency may issue its decision relying on the factors and considerations specified in the statute under which it is acting.

When evaluating a proposed agency action under NEPA, an agency can begin by conducting an Environmental Assessment ("EA"), which is a concise environmental analysis that allows an agency to evaluate the significance of any potential environmental impacts of the proposed action. *See* 40 C.F.R. § 1508.9. If the agency determines that the environmental impacts of a proposed action will not be significant, it can issue a Finding of No Significant Impact ("FONSI") and conclude its NEPA obligations. *Id.* §§ 1508.9, 13. However, if an agency determines—either before or after conducting an EA—that a project's environmental impacts will be significant, it must prepare an Environmental Impact Statement ("EIS") that addresses, among other things, "the environmental impact of the proposed action" and "alternatives to the proposed action." 42 U.S.C. § 4332(C).

To complete this analysis, an agency must consider the direct, indirect, and cumulative effects of the proposed action 40 C.F.R. §§ 1508.7, 8. However, the scope of such a review is appropriately limited by the requirement that such effects be "reasonably foreseeable" and, for indirect effects, proximately caused by the proposed action under review. *Dep't of Transp. v. Public Citizen*, 541 U.S. 752, 767 (2004); *City of Shoreacres v. Waterworth*, 420 F.3d 440, 453 (5th Cir. 2005). In addition, the agency must evaluate mitigation measures which, if implemented, could reduce the environmental impact of the proposed action. *Id.* §§ 1508.20, 25.

Importantly, as discussed in more detail below, the scope of a NEPA analysis is not unlimited, and only that information that is useful to the environmental decision maker need be presented. *See Dep't. of Trans. v. Public Citizen*, 541 U.S. 752, 767-770 (2004) ("Rule of reason" limits agency obligation under NEPA to considering environmental information of use and relevance to decision maker. An agency need not evaluate an environmental effect where it "has no ability to prevent a certain effect due to its limited statutory authority over the relevant

actions"). Thus, despite its lack of substantive requirements, these procedural obligations, coupled with opportunities for public involvement, *see* 40 C.F.R. Part 1503, ensure that agencies are fully informed of potential environmental impacts before taking final action with respect to a proposed federal action. As discussed below, CEQ's Revised Draft Guidance fundamentally and unlawfully alters several of these current statutory and regulatory obligations.

I. CEQ Must Withdraw the Revised Draft Guidance

At the outset, the Associations urge CEQ to withdraw the Revised Draft Guidance. As explained in the sections that follow, the Revised Draft Guidance is inconsistent with NEPA and CEQ regulations and, if implemented, would unlawfully expand the scope of NEPA analyses. For example, the Revised Draft Guidance could be interpreted to expand the indirect and cumulative impacts that an agency must consider under NEPA and to require agencies to adopt and enforce mitigation measures as part of the NEPA process. In doing so, the Revised Draft Guidance would effectively transform NEPA from a procedural statute into a substantive one that directs agencies to adopt alternatives with the lowest GHG emissions. Thus it is critical that CEQ take action to ensure that neither agencies nor the courts utilize CEQ's Revised Draft Guidance in a manner that unlawfully contradicts NEPA or CEQ's implementing regulations. In the alternative, if CEQ determines that guidance is necessary, the Associations urge CEQ to prepare a second revised draft that addresses the Associations' concerns below in a manner that is consistent with NEPA and CEQ's implementing regulations and abandons a one-size-fits-all approach to addressing GHGs under NEPA for all federal actions—including land and resource management actions—that fails to consider the diverse scenarios under which NEPA can be triggered.

A. Addressing Climate Change Impact Under NEPA

GHG emissions and climate change are fundamentally different from other types of emissions and environmental impacts that agencies are required to evaluate in NEPA analyses. As EPA stated in its endangerment determination for GHG emissions from mobile sources, "greenhouse gas emissions emitted from the United States (or from any other region of the world) become globally well-mixed, such that it would not be meaningful to define the air pollution as greenhouse gas concentrations over the United States as somehow being distinct from the greenhouse gas concentrations over other regions of the world." 74 Fed. Reg. 66,496, 66,517 (Dec. 15, 2009). As a result, the GHG concentration at a given location cannot be traced to a specific source or subset of sources, but instead is the product of the incremental contributions of all sources of GHG emissions across the planet. As CEQ acknowledges, "GHG emissions from an individual agency action will have small, if any, potential climate change effects." 79 Fed. Reg. 77,825.

The global nature of GHG emissions and climate change has important implications for NEPA analyses and the evaluation of the potential environmental effects of a proposed federal action. As CEQ and other federal agencies have recognized:

> climate change presents a problem that the United States alone cannot solve. Even if the United States were to reduce its greenhouse gas emissions to zero, that step would be far from

> enough to avoid substantial climate change. Other countries would also need to take action to reduce emissions if significant changes in global climate are to be avoided.

Interagency Working Group on Social Cost of Carbon, Technical Support Document: - Social Cost of Carbon for Regulatory Impact Analysis – Under Executive Order 12866 at 10 (Feb. 2010) (hereinafter "2010 Social Cost of Carbon Report"). In light of the comparative magnitude of GHG emissions from other sources, it is virtually impossible to isolate and evaluate the climate change impact of GHG emissions from a single federal action, let alone the incremental differences in climate change impacts between various alternatives. Because individual projects make such small contributions to atmospheric GHG concentrations, it is difficult to imagine a scenario where the potential climate change impacts of a given project could be considered "significant" in any meaningful way. While CEQ suggests in the Revised Draft Guidance that this is simply "a statement about the nature of the climate change challenge," 79 Fed. Reg. at 77,825, it is nonetheless a factual and accurate statement that cannot simply be ignored as agencies assess obligations under NEPA.

In recognition of these unique challenges posed by the global nature of GHG emissions and climate change, CEQ has proposed to use GHG emissions as a "proxy for assessing a proposed action's climate change impacts." 79 Fed. Reg. at 77,825. It is important to recognize, however, the limitations with respect to establishing a causal link between GHG emissions from a particular source and the environmental and climate change impacts related to such source. Since the proportional emissions from any given project are infinitesimally small, CEQ must ensure that agencies avoid any temptation, as described in Section III, *infra*, to expand the scope of the NEPA review to include other upstream or downstream GHG emissions that lack the requisite causal connection to the proposed action in an effort to artificially increase the significance of a proposed project's climate change impacts. Instead, a qualitative approach that recognizes the causal disconnect—or at least the minute causal relationship—between any given project and potential climate change impacts may be more appropriate under NEPA.

At the same time, quantifying GHG emissions, in appropriate and specific circumstances, can be an effective tool in comparing various alternatives in a NEPA analysis. However, in order for such an approach to achieve NEPA's primary goal of informing agency decision making, it is critical that the GHG emissions included in the comparison are appropriately limited to those that are closely related to the proposed project and thus are useful to inform the agency's decision. As explained in Section III, *infra*, as the causal connection between a proposed action and potential upstream and downstream effect becomes more attenuated, attempts to quantify GHG emissions also become more speculative and uncertain. Thus, given the global nature of GHG emissions and climate impacts, any final guidance issued by CEQ must vigorously apply existing regulatory and legal limits on the scope of NEPA reviews, including the proximate cause and foreseeability limits included in the evaluation of indirect and cumulative effects. If appropriate limits are applied, quantifying GHG emissions can be an effective way for agencies to take the requisite hard look at the potential environmental impacts of a proposed action and alternatives. Without such limits in place, however, the scope of a NEPA review could become boundless and preclude any meaningful comparison between alternatives.

At this time, many federal agencies have been developing significant experience and expertise in analyzing climate change in NEPA reviews that are specifically tailored to the types of actions that those agencies undertake. In that context, CEQ's one-size-fits-all approach in this Revised Draft Guidance is both unnecessary and counterproductive to the extent that it interferes with agencies' existing efforts to address climate change under NEPA. In light of the progress made by individual agencies and the serious deficiencies in the Revised Draft Guidance, the Associations urge CEQ to withdraw the Revised Draft Guidance and consider whether such centralized guidance is even necessary. In the event that CEQ determines that such guidance is still necessary, it must narrow the scope to ensure the NEPA analysis is appropriately limited, in accordance with CEQ regulations and case law, and does not include other emissions that are not properly attributable to the proposed action.

B. Risks to Associations If the Revised Draft Guidance Is Finalized in this Form

If finalized in its current form, the Revised Draft Guidance effectively could amend CEQ's existing regulations in a manner that unlawfully expands the scope of the NEPA analysis and imposes substantive obligations on agencies and project sponsors without following proper rulemaking procedures. Because of their global nature, GHG emissions and climate change impacts can be evaluated on extremely broad scales, and it is imperative that the procedural and substantive limits on NEPA be vigorously enforced in this context, not expanded. Guidance documents are intended to serve a limited purpose, which is to interpret and explain laws and regulations, not to replace or amend them. It would be unlawful for CEQ to issue guidance that would effectively amend regulations without the necessary procedural protection afforded by the Administrative Procedures Act ("APA"). *See, e.g.*, *Appalachian Power Co. v. EPA*, 208 F.3d 1015, 1020 (D.C. Cir. 2000) (asserting that overreaching guidance documents allow an agency to make law "without notice and comment, without public participation, … without publication in the Federal Register or Code of Federal Regulations[,]" and without judicial review).

Despite CEQ's admonition that, if finalized, the Revised Draft Guidance would not be a binding rule or regulation, 79 Fed. Reg. at 77,823, the Associations are concerned that it may be treated as such by agencies or by the courts. If that were to occur, the Associations' members could find themselves and the agencies with which they interact effectively bound by the unlawful and overreaching provisions in the Revised Draft Guidance without being afforded the full complement of procedural protections the APA is intended to provide. In some cases, agencies elect to apply CEQ guidance in a binding manner, even if it overrides actual CEQ regulations. *See, e.g.*, *Kentucky Riverkeeper, Inc. v. Rowlette*, 714 F.3d 402, 409 (6th Cir. 2013) ("[T]he Corps appears to read the CEQ Guidance as overriding the [40 C.F.R.] § 1508.7 requirements to consider past impacts. . . . Yet, the Corps offers no authority that allows an interpretive guidance to work such a substantive change to a duly promulgated regulation) (internal citation omitted)).[3] As described below, the Revised Draft Guidance would expand the NEPA review for GHG emissions beyond what NEPA and CEQ regulations otherwise require,

[3] In fact, EPA is already urging other agencies to comply with the Revised Draft Guidance in comments on draft EISs. *See*, EPA Region 10, Comments on the Draft Environmental Impact Statement for the Jordan Cove Energy Project, (Docket No. CP13-483-000) and Pacific Connector Pipeline (Docket No. CP12-492-000) at 14 (Feb. 11, 2015) (recommending that FERC "consider the approaches for climate impact assessment outlined in CEQ's recent 'Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts.'"

and an Association member seeking approval of a project would have little recourse if an agency imposed such requirements on their projects during the NEPA process. As a result, they could be subject to additional costs, delays, and potentially unlawful substantive obligations. In addition, CEQ appears to pre-judge certain potential climate change effects by, for example, labeling geographies and ecosystems as vulnerable to climate change. *See, e.g.*, 79 Fed. Reg. at 77,821. Agencies may be hesitant to critically assess the likelihood of potential climate change impacts if they perceive that CEQ has already reached a conclusion within the context of this guidance.

Likewise, courts effectively can make a CEQ guidance document *de facto* binding in their jurisdictions by endorsing and adopting it as the correct interpretation of NEPA or a CEQ regulation. *See, e.g.*, *Russell Country Sportsmen v. U.S. Forest Service*, 668 F.3d 1037, 1045 (9th Cir. 2011) ("The First, Eighth, and Tenth Circuit have adopted this CEQ guidance as a framework for applying [40 C.F.R.] § 1502.9(c)(1)(i) …. We now join them in doing so." (internal citations omitted)); *Great Old Broads for Wilderness v. Kimbell*, 790 F.3d 836, 854 (9th Cir. 2013) ("[W]e have adopted the Council for Environmental Quality's ("CEQ") guidance that 'supplementation is not required when two requirements are satisfied: (1) the new alternative is a *minor variation* of one of the alternatives discussed in the draft EIS, and (2) the new alternative is *qualitatively within the spectrum of alternatives* that were discussed in the draft [EIS]." (emphasis in original)). If a court were to adopt final CEQ guidance on GHG emissions in a project-specific NEPA challenge that was unrelated to the Associations' missions, the Associations could be foreclosed from full participation in the judicial review process due to a lack of perceived legal interest in the project at issue sufficient to justify intervention in the case.

Moreover, the broad principles in the Revised Draft Guidance that are discussed more fully below, including the requirement to incorporate upstream and downstream GHG emissions, to include the draft OMB social cost of carbon estimates when monetizing costs and benefits, and to consider mitigation measures and monitoring plans, will further complicate the NEPA review process for agencies in a manner that will not only add time and cost to the NEPA review process, but will also increase the risk of litigation over the sufficiency of the agencies' attempts to incorporate these new obligations into NEPA analyses. Thus, even if the final guidance is applied by agencies and the courts as nonbinding guidance, NEPA's history has shown that litigation is inevitable and would produce additional costs and delay for both agencies and project applicants. To the extent litigation is based on confusion over the guidance or assertions that the guidance imposes obligations that are inconsistent with NEPA and CEQ's implementing regulations, neither the litigation nor the associated costs and delays would further NEPA's ultimate goal of improving agency decision making.

Thus, in the event that CEQ decides to go forward with guidance on considering the effects of GHG emissions and climate change effects in NEPA analyses, it must ensure that the guidance is consistent with NEPA and CEQ's existing regulations.

II. Any Final Guidance Should Not Be Applied to Ongoing NEPA Reviews

In the event CEQ proceeds to issue final guidance for addressing potential climate change impacts in NEPA analyses, the Associations request that CEQ clarify and amend the proposed effective date for a final guidance document. In the preamble, CEQ recognizes that "[t]he

revised draft guidance will be effective immediately once finalized for newly proposed actions …." 79 Fed. Reg. at 77,818. However, CEQ goes on to state in the Revised Draft Guidance that "[a]gencies are encouraged to apply this guidance to all new agency actions moving forward, *and, to the extent practicable, to build its concepts into currently on-going reviews*." *Id.* at 77,831 (emphasis added). While it is appropriate to delay the effective date until a final guidance is issued, the Associations are concerned by the costs and confusion that would follow if an agency attempts to apply the final guidance to NEPA reviews that are already underway when the guidance becomes effective. An agency's NEPA analysis is a frequently long, costly, and litigious process that demands considerable resources from the lead and coordinating agencies, private parties whose permit or license application is under review, and the general public that participates in the NEPA process. Project developers that have already completed a public scoping process have expended time and resources developing NEPA-required information established through this process and under nearly four decades of NEPA precedent, which the Revised Draft Guidance fundamentally alters. The same is true of lead and coordinating agencies. Therefore, imposing any final guidance on projects that are already well along in the permitting and NEPA review process would cause unplanned additional cost and considerable delay. Moreover, such retroactive applicability is bad public policy. Rather than creating confusion and uncertainty by requiring the final guidance to be incorporated into ongoing agency review "to the extent practicable," the Associations urge CEQ to adopt a bright-line rule that any final guidance will only apply to new NEPA reviews that have not yet undergone the scoping process.

As CEQ states in the Revised Draft Guidance, the provisions of any final guidance would not "establish legally binding requirements in and of itself." 79 Fed. Reg. at 77,823. Furthermore, as described below, agencies are already incorporating potential climate change impacts into NEPA analyses guided by existing laws, regulations, and legal precedent. *See, e.g.*,, FERC, Draft EIS: Jordan Cove Energy and Pacific Connector Gas Pipeline Project 4-892 to 895 (Nov. 7, 2014).[4] Those same laws and regulations will remain applicable after any guidance is finalized. While the Associations continue to have concerns with the manner in which agencies are currently conducting NEPA reviews, completing a NEPA review under the existing legal framework would be less burdensome than starting the NEPA process over again. Therefore, applying a bright-line applicability rule that excludes projects that have begun the scoping process will not create any risk that potential climate change impacts will be ignored in NEPA analyses already underway. Interested stakeholders will continue to have the full procedural protections afforded by NEPA in the event that they believe an agency's consideration of climate change impacts was insufficient. Thus, the Associations urge CEQ and the agencies to avoid unnecessary cost and confusion surrounding the NEPA review process by limiting application of any final guidance to new proposals that have not yet begun the NEPA review process when guidance is finalized and relying, in the interim, on existing regulations, case law, and established agency procedures.

[4] *Available at* https://www.ferc.gov/industries/gas/enviro/eis/2014/11-07-14-eis.asp.

III. The Proposal to Include Upstream and Downstream GHG Emissions Is Incompatible with CEQ's NEPA Regulations for Indirect and Cumulative Impacts

As proposed, the Revised Draft Guidance would create significant risks of being interpreted to transform and unlawfully expand the requirement in 40 C.F.R., Part 1508, that federal agencies consider the direct, indirect, and cumulative impacts of other federal and nonfederal actions. CEQ's regulations and current case law appropriately limit the scope of an agency's evaluation of such impacts to ensure that agencies remain focused on the proposed federal action before them. By imposing a requirement to account for the effects of upstream and downstream GHG emissions from other federal and nonfederal actions, 79 Fed. Reg. at 77,826, the Revised Draft Guidance could require agencies to consider environmental effects that may be outside of the scope of what is contemplated by existing regulations and case law. If finalized, this directive would prevent agencies from applying reasonable limits in determining which indirect and cumulative impacts bear a sufficient causal relationship to the agency action to be included in the related NEPA review and could subject agencies to unnecessary judicial review whenever irrelevant upstream and downstream GHG emissions are not addressed. Eliminating agency discretion to determine which potential indirect or cumulative impacts should be considered would, as the Supreme Court recognized in *Andrus v. Sierra Club*, 442 U.S. 347, 355 (1979), "trivialize NEPA."

As CEQ recognizes, climate change is unique among environmental impacts because "diverse individual sources of emissions each make relatively small additions to global atmospheric GHG concentrations …." 79 Fed. Reg. at 77,825. In this respect, "climate change is the ultimate 'small handle' problem, where an individual project has only a very small individual contribution to an extremely significant cumulative problem." Neal McAliley, NEPA and Assessment of Greenhouse Gases, 41 Envtl. L. Rep. News & Analysis 10,197, 10,199 (2011). However, CEQ should not respond to this "small handle" situation by requiring agencies to cast their nets more broadly to encompass more and virtually unlimited GHG emissions within the scope of their NEPA reviews by requiring the inclusion of upstream and downstream GHG emissions as indirect or cumulative effects.

The fundamental purpose of a NEPA review is to inform agency decision making and, as a result, NEPA and CEQ's regulations include important limitations to ensure that agencies do not consider environmental impacts that are either so far removed from the proposed federal action or so speculative that they are not relevant to the discrete project and decision before the agency. *See* 40 C.F.R. 1508.7, 8 (limiting scope of indirect and cumulative impact analysis to future actions that are "reasonably foreseeable"). These appropriate limits not only promote informed agency decision making by ensuring that decisions are based on environmental impacts over which the federal agency has control, but also protect agencies and private entities whose permit or license applications are subject to NEPA review against unnecessary litigation over hypothetical, tangential, or *de minimis* environmental effects. These limits must be strictly enforced in the unique context of GHG emissions and climate change where, unlike other environmental impacts, GHG emissions are universally mixed in the atmosphere and bear no specific geographic nexus to the climate impacts they may cause.

For decades, CEQ's NEPA regulations have required federal agencies to evaluate indirect effects of a proposed action, which are defined as effects that "are caused by the action and are

later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b). The concept of causation is central to understanding an agency's obligation under NEPA to consider indirect effects and must continue to serve as a critical limit in an agency's obligation to evaluate the effect of GHG emissions. While upstream and downstream GHG emissions may bear a relationship to a federal action, that is not the test for inclusion in a NEPA review. The Supreme Court has explained that "a 'but for' causal relationship is insufficient to make an agency responsible for a particular effect under NEPA and the relevant regulations." *Public Citizen*, 541 U.S. at 767. Indirect effects must only be considered when there is a "reasonably close causal relationship" that would qualify as a "proximate cause" under tort law. *Metropolitan Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983); *see also Public Citizen*, 541 U.S. at 767 (citing W. Keeton, *et al*., Prosser and Keeton on Law of Torts 264, 274-75 (1983) for proximate cause standard). Thus, for example, an agency need not consider environmental effects of actions over which the agency has no control. *Public Citizen*, 541 U.S. at 770 ("We hold that where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant 'cause' of the effect."); *National Association of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 667 (2007) (same).

Application of this proximate cause standard for indirect effects has significant implications for consideration of upstream and downstream GHG emissions. Specifically, a federal action cannot be considered a proximate cause of an upstream or downstream action if such other action is likely to occur without the proposed federal action. Courts have frequently addressed this issue in the context of induced growth, finding that an agency need not consider the environmental effects of third party development when the federal project is responding to development that would occur anyway. *See, e.g.*, *Citizens for Smart Growth v. Dep't of Transp.*, 669 F.3d 1203, 1205 (11th Cir. 2012) (no need to evaluate "the project's stimulation of commercial interests in a previously residential area" when "commercial uses in the study area were already being planned or developed"); *City of Carmel-By-The-Sea v. Dep't of Transp.*, 123 F.3d 1142, 1162 (9th Cir. 1997) ("The construction of Hatton Canyon freeway will not spur on any unintended or, more importantly, unaccounted for, development because local officials have already planned for the future use of the land, under the assumption that the Hatton Canyon Freeway would be completed."); *Morongo Band of Mission Indians v. Fed. Aviation Administration*, 161 F.3d 569 (9th Cir. 1998) ("[T]he project was implemented in order to deal with existing problems; the fact that it might also facilitate further growth is insufficient to constitute a growth-inducing impact under 40 C.F.R. § 1508(b).").

The same analysis applies to upstream effects. For example, in *Sierra Club v. Clinton*, 746 F. Supp. 2d 1025, 1045 (D. Minn. 2010), the court held that environmental effects associated with oil production in Canada need not be considered when evaluating a pipeline project because the oil would be produced and transported regardless of whether the pipeline project would be completed. Thus, a proposed federal action cannot be considered a proximate cause of upstream and downstream action simply because it is part of the same chain of events.

In addition, an agency's obligation to evaluate indirect and cumulative impacts is limited to those effects which are "reasonably foreseeable." 40 C.F.R. §§ 1508.7, 1508(b). "'Reasonable foreseeability' does not include 'highly speculative harms' that 'distort[] the decisionmaking process' by emphasizing consequences beyond those of 'greatest concern to the

public and greatest relevance to the agency's decision.'" *City of Shoreacres*, 420 F.3d at 453 (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 356 (1989)) (alteration in original). Applying this standard, courts have frequently affirmed agency decisions to limit the scope of NEPA analyses in order to exclude speculative future events. In *City of Shoreacres*, the court agreed that the Army Corps of Engineers' NEPA review for an evaluation of a proposed ship terminal did not need to evaluate cumulative effects from the potential deepening of the harbor at some future date. *Id.* at 453. In another case, the Fifth Circuit affirmed the Department of Transportation's decision to exclude from its cumulative impacts analysis of a proposed LNG facility the potential environmental effects of other proposed federal projects for which draft EISs had not yet been prepared. *Gulf Restoration Network v. Dep't of Transp.*, 452 F.3d 362, 370 (5th Cir. 2006). The court explained that the agency was "entitled to conclude that the occurrence of any number of contingencies could cause the plans to build the ports to be cancelled or drastically altered." *Id.*

Despite CEQ's recognition that "a reasonably close causal relationship" is required for consideration of upstream and downstream emissions, 79 Fed. Reg. at 77,826, other portions of the Revised Draft Guidance appear to ignore this critical legal limit by directing federal agencies to evaluate all upstream and downstream GHG emissions. Thus, the Revised Draft Guidance, if finalized, unnecessarily creates risks that it could be applied in a manner that defeats the purpose of a proper NEPA review by distracting federal agencies from proposed federal action through the inclusion of a host of upstream and downstream emissions that should be irrelevant to the agency's decision making process because they are either outside of the agency's control, too speculative, and/or not reasonably foreseeable. These risks are clearly evidenced in the example of a hypothetical open pit mine included in the Revised Draft Guidance. *See* 79 Fed. Reg. at 77,826. There, CEQ asserts that an agency considering whether to permit an open pit mine would need to evaluate the GHG emissions from every activity from "clearing the land for extraction" to "using the resource." 79 Fed. Reg. at 77,826.

Determining which upstream or downstream GHG emissions may be included within the scope of indirect or cumulative effects of a proposed action is necessarily context-driven and should not be subject to a categorical rule. In many cases, demand for minerals is driven largely by economic development and responds very little, if at all, to changes in supply. Thus, for example, construction of a new open pit copper mine is unlikely to induce growth in copper demand, and any emissions associated with final use of the product could be excluded from a NEPA analysis because it meets an existing rather than new demand. *See, e.g.*, *City of Carmel-By-The-Sea*, 123 F.3d 1142, 1162 (9th Cir. 1997) (no need to consider downstream effects when federal action will not spur additional demand for development). Similarly, when conducting a NEPA analysis for a pipeline intended to transport hydrocarbons from an established production basin to a central collection hub or refining and processing region, an agency would not need to consider upstream emissions associated with resource extraction because the hydrocarbons would be produced and transported to market even if the proposed pipeline were not built. *See Sierra Club v. Clinton*, 746 F. Supp. 2d 1025, 1045 (D. Minn. 2010); *see also*

As a result, CEQ cannot direct agencies to categorically incorporate all upstream and downstream GHG emissions into a NEPA analysis without first establishing that such emissions meet threshold standards as either indirect or cumulative effects. Several federal agencies already have set limits on the upstream and downstream impacts that are properly included in a

NEPA analysis for projects within their jurisdiction. *See, e.g., Algonquin Gas Transmission, LLC*, 150 FERC ¶ 61, 163, at P 128 (2015) ("The potential environmental effects associated with shale gas development are neither sufficiently causally related to the AIM Project to warrant a detailed analysis nor are the potential environmental impacts reasonably foreseeable, as contemplated by the CEQ regulations."); *Freeport LNG Development, L.P.*, 148 FERC ¶ 61,076 at PP 77-78 (2014) (explaining that upstream production activities are beyond the scope of FERC's NEPA review of an LNG export terminal application); *Constitution Pipeline Company, LLC*, 149 FERC ¶ 61,199, at P 98-101 (2014) (finding an insufficient causal link between proposed natural gas pipeline and increased natural gas development using hydraulic fracturing); *Central New York Oil and Gas Company, LLC*, 137 FERC ¶ 61, 121, at P 84 (2011) ("Marcellus Shale development and its associated potential environmental impacts are not sufficiently causally-related to the MARC I Project to warrant the more comprehensive analysis that commenters seek"), *aff'd sub nom. Coalition for Responsible Growth and Resource Conservation v. FERC*, 485 Fed. App'x 472, (2d Cir. 2012) ("FERC included a short discussion of Marcellus Shale development in the EA, and FERC reasonably concluded that the impacts of that development were not sufficiently causally-related to the project to warrant a more in-depth analysis."); DEPT. OF ENERGY, ADDENDUM TO ENVIRONMENTAL REVIEW DOCUMENTS CONCERNING EXPORTS OF NATURAL GAS FROM THE UNITED STATES 2 (2014) ("DOE cannot meaningfully estimate where, when, or by what method any additional natural gas would be produced. Therefore, DOE cannot meaningfully analyze the specific environmental impacts of such production . . . . [n]or can DOE meaningfully consider alternatives or mitigation measures as they relate to natural gas production …."). Thus, if CEQ issues a final guidance rather than withdrawing the Revised Draft Guidance, the Associations urge CEQ to clarify that the guidance is not intended to expand existing requirements to consider indirect and cumulative effects and to ensure that any examples, such as the open pit mine, are consistent with existing regulations and case law.

If the Revised Draft Guidance is finalized in its current form, the directive to consider upstream and downstream GHG emissions would add a large degree of regulatory uncertainty and significantly increase the time and cost of conducting NEPA reviews, both for the agencies and for parties seeking permits and licenses for development projects. At the same time, directing agencies to include upstream and downstream effects that lack the requisite causal connection to the proposed action will not fulfill NEPA's goal of improving agency decision making. As CEQ acknowledges in the Revised Draft Guidance, climate change is the result of "relatively small additions to global atmospheric GHG concentrations" made by "diverse individual sources." 79 Fed. Reg. at 77,825. It will be costly and time consuming for an agency to identify and quantify the GHG emissions from each diverse individual source that may be considered upstream or downstream of a proposed federal project. Furthermore, given the global nature of climate change, an open-ended directive to consider upstream and downstream emissions has the potential to dramatically increase legal challenges to NEPA analyses as critical stakeholders seek to identify potential upstream and downstream emissions that were not accounted for by the agency. Thus, rather than focusing on indirect and cumulative effects that are closely related to a proposed federal action and have the potential to inform an agency's decision, the Revised Draft Guidance's broad and open-ended directive to consider upstream and downstream GHG emissions could shift the agency's time and resources toward increasingly tangential issues that are unlikely to inform the agency's ultimate decision on a proposed action.

Thus, the result would be significant costs and delay without a proportional improvement in the quality of agency decision making.

IV. CEQ Should Clarify that Transnational Impacts Should Not Be Evaluated

If CEQ proceeds to issue final guidance, it must explicitly affirm that NEPA does not require consideration of international and global impacts of GHG emissions, consistent with established law that agencies are only required to examine impacts within the United States. Congress' purpose in establishing NEPA was to "foster and promote the general welfare … and fulfill the social, economic, and other requirements of present and future generations of *Americans*." 42 U.S.C. § 4331(a) (emphasis added). Thus, to the extent that limited upstream and downstream GHG emissions are included in a NEPA review as indirect or cumulative effects, agencies must limit that analysis to domestic emissions. The rule regarding consideration of international impacts under NEPA was established by Executive Order 12114, which limits the scope of an EIS to the sovereign territory of the United States. The Executive Order was confirmed in *Natural Resources Defense Council v. Nuclear Regulatory Comm.* 647 F. 2d 1345 (D.C. Cir. 1981), where the court upheld an EIS that did not address impacts outside the United States. Other federal courts have been unanimous in declining to require an EIS to study any impacts beyond those set in E.O. 12114. *See, e.g.*, *Consejo de Desarrollo Economico de Mexicali v. United States*, 438 F. Supp. 2d 1207 (D. Nev. 2006) (NEPA does not apply to impacts in Mexico of actions to a canal located solely in the United States); *Born Free USA v. Norton*, 278 F. Supp. 2d 5 (D. D.C. 2003) (NEPA does not apply extraterritorially in areas under the sovereign control of another nation). This conclusion is further supported by CEQ's recognition that "it is not useful, for NEPA purposes, to link GHG emissions from a proposal to specific climatological changes to a particular site." 79 Fed. Reg. at 77,808.

The impacts of climate change are no different from other environmental impacts that agencies have long considered. Although climate change may be global in nature due to the fact that GHGs from all sources become well-mixed in the atmosphere, the only impacts that NEPA requires an agency to consider are those within the United States. Indeed, the global nature of climate change further reinforces the need to provide appropriate limits on the scope of NEPA reviews, as inclusion of transnational climate change impacts would make the scope of any NEPA review potentially boundless. Imposing such an obligation on agencies would be extremely onerous and would impose significant costs on agencies and project sponsors without a commensurate improvement in environmental decision making. Thus, CEQ should confirm this long-standing law and explicitly state that agencies need not include transnational climate change impacts in NEPA analyses.

V. The Revised Draft Guidance Should Not Be Applied to Land and Resource Management Actions

In a significant departure from CEQ's proposal in 2010, *see* 75 Fed. Reg. 8046 (Feb, 23, 2010), the Revised Draft Guidance includes land and resource management actions. 79 Fed. Reg. at 77,825. In doing so, CEQ fails to fully appreciate the complex nature of many land and resource management actions, the significant uncertainty related to climate change impacts from such actions, and the fact that there is no "one size fits all" approach to the myriad land and resource management activities that trigger NEPA. By failing to address the complex and

unique nature of land and resource management actions, the Revised Draft Guidance is particularly ill-suited in this context and will exacerbate many of the ongoing challenges that already plague NEPA reviews, particularly at the programmatic planning level. Moreover, the Revised Draft Guidance offers no specific insight into how climate change effects can be incorporated into the broad and diverse range of land and resource management actions which differ so significantly from other agency actions. We, therefore, urge EPA to explicitly exclude land and resource management actions from the scope of any final guidance.

Federal land management agencies are bound by statutory requirements to manage lands for diverse resource uses. *See* Multiple-Use Sustained-Yield Act 16 U.S.C. § 528 *et seq.*; National Forest Management Act 16 U.S.C. § 1604 *et seq.*; Federal Land Policy and Management Act ("FLPMA") 43 U.S.C. §1701 *et seq.*; Alaska National Interest Lands Conservation Act 16 U.S.C. § 3101 *et seq.* Managing lands for diverse use of resources means that agencies must promote and authorize a wide variety of activities, many of which will have some environmental impacts associated with them. As an example, under FLPMA, the BLM is required to manage public lands for multiple uses. *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 57 (2004); *Theodore Roosevelt Conservation P'ship v. Salazar*, 661 F.3d 66, 76 (D.C. Cir. 2011); *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 710 (10th Cir. 2009). "'Multiple use' means 'a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and [uses serving] natural scenic, scientific and historical values.'" *New Mexico ex rel. Richardson*, 565 F.3d at 710 (citing 43 U.S.C. § 1702(c)). These statutes drive the need for federal agencies to have comprehensive resource management plans which are, in effect, living documents establishing guiding principles for agency actions at the site-specific level. They are highly varied, dynamic and vast. Moreover, agencies have a legal obligation to revise resource management plans in response to changing conditions or changing public needs. *E.g.*, 16 U.S.C. § 1604(a); 43 U.S.C. § 1712(a).

Because resource management plans are intended to establish long-term management principles for subsequent agency actions, it is often difficult to predict the environmental effects of establishing such plans *ex ante*. As a result, decisions made in the land and resource management context frequently involve a greater degree of speculation than other federal actions subject to NEPA. At the time NEPA review is required, many details regarding resource development proposals remain uncertain. Final decisions regarding when, or even if, resources are extracted may depend on unpredictable market conditions. Likewise, the scope and eventual impact of a given project or series of projects may depend on additional exploratory activities. Thus, while a qualitative assessment of the potential environmental impacts of the multiple uses included in a resource management plan may be possible, a more detailed analysis that quantifies the potential environmental impacts of such a diverse array of future actions is virtually impossible to conduct at the resource management plan stage.

Further, resource management plans are part of a multi-phased decision-making structure that is unique to land and resource management actions. In this decision making structure, broad programmatic resource management plans are followed at a later date by site-specific plans where decisions are made with respect to specific proposals for action. As a result, NEPA review may be triggered multiple times and at various degrees of specificity within the land and

resource management structure. This phased structure can create uncertainty regarding whether, and at what level of detail, potential climate change impacts must be considered at the various stages. In particular, to ensure efficient and meaningful consideration of potential environmental effects under NEPA it is critical to understand how the various levels of NEPA review interact and the degree to which certain potential environmental effects—such as climate change impacts—can be addressed more effective at earlier or later stages of the NEPA review process. For example, as the Revised Draft Guidance notes, in some contexts, it may be most efficient to address environmental impacts primarily at the programmatic level and then incorporate those analyses by reference at the site-specific stage. 79 Fed. Reg. at 77,830. In other cases, it may be reasonable to defer a substantial portion of the NEPA analysis to the site-specific decision-making stage where potential environmental impacts may be less speculative.

Given the challenges associated with applying NEPA in the context of land and resource management actions, it is not surprising these actions, particularly the development of comprehensive resource management plans, can be effectively paralyzed by legal challenges brought by interest groups opposing a particular use. Thus, interest groups opposed to land and resource management actions such as snowmobiling, timber harvests, and oil and gas development can use NEPA challenges based on potential impacts related to climate change or any host of other potential environmental effects can use NEPA challenges as a way to stall implementation of actions with which they disagree. As a result, litigation of programmatic EISs can paralyze implementation of the management plans, and any subsequent agency decision under the plan threatening to extinguish any reasonable possibility to engage in activities on federal land. For example, in *People of the State of California v. United States Department of Agriculture*, No. CIV-s-05-0211 (E.D. Cal., filed May, 26, 2005), a NEPA challenge to the 2004 Sierra Nevada Forest Plan amendment was litigated for seven years before the judge eventually ordered a supplemental NEPA analysis. Such litigation can effectively block any land or resource management actions. As long as such legal challenges can proceed, agencies attempting to manage their resources in accordance with their multi-use mandates will rarely, if ever, reach decisions or implementation of decisions in a reasonable time frame.

The end result of the general agency paralysis produced by such NEPA litigation is the agencies' unlawful failure to comply with their statutory mandates to develop and revise resource management plans and promote multiple uses on federally managed lands. Indeed, by preventing land use agencies from taking action to implement their statutory mandates, the litigation-based delays that have become so common for programmatic EISs have in many cases barred the government from achieving NEPA's primary goal by impeding rather than informing agency decision making. However, despite CEQ's suggestion to the contrary, applying the Revised Draft Guidance generally to the wide and diverse universe of land and resource management decisions will do nothing to alleviate existing challenges in applying NEPA and, instead, will almost certainly have the effect of making things worse.

CEQ asserts in the preamble that it is extending the Revised Draft Guidance to include land and resource management actions in order to "ensure consistency and certainty about whether and how agencies should address GHG emissions and impacts of climate change in their NEPA analyses and documents." 79 Fed. Reg. at 77,803. Despite that stated goal, the Revised Draft Guidance offers virtually no concrete assistance to help agencies achieve it. Instead, the Revised Draft Guidance makes vague statements such as: "The revised draft guidance sets out

the broad principles to assist agencies when they make determinations on how to conduct NEPA analyses with respect to the effects of GHGs and climate change …." *Id.* at 77,805. CEQ compounds these generalized exhortations by referring repeatedly to existing regulations, such as 40 C.F.R. § 1502.22, that direct agencies' response to uncertainty and a lack of data in a NEPA review. *Id.* at 77,803, 77,805, 77,806. CEQ continues by urging agencies to "apply their best judgment and expertise when determining how to consider the level of GHG emissions and impacts of climate change at the programmatic and project or site-specific level of NEPA analysis and documentation" and to "use their discretion to determine the appropriate comparison and balancing of long- and short-term emissions and impacts of climate change with other long- and short-term resource impacts and benefits." *Id.* at 804.

Directing agencies to comply with these broad principles in a diverse number of settings without providing any concrete guidance on how they can be implemented will do little to ensure consistency and certainty in NEPA analyses for land and resource management actions. To the contrary, establishing a guidance that instructs agencies to use their "best discretion" and "best judgment" while also directing them to apply broad principles such as indirect and cumulative impacts (both upstream and downstream) will further exacerbate existing confusion related to NEPA reviews for land and resource management decisions and lead to the paralysis of public policy. The Associations do not dispute the need to defer to the expertise of land and resource management agencies in this context; however, the structure of the Revised Draft Guidance, which is simultaneously prescriptive and vague, is particularly ill-suited as a one-size-fits-all approach for land and resource management actions. By failing to address the unique challenges posed by specific and varied types of land and resource management actions—including compliance with statutory management mandates, evaluating highly speculative environmental effects associated with future site-specific action, and balancing NEPA obligations at various stages of the agency planning and implementation process—applying the Revised Draft Guidance to land and resource management actions would add to the existing complexity of such NEPA reviews and give opponents of agency actions even more opportunities to disrupt the agencies' planning processes through time consuming NEPA litigation. For these agencies with specific statutory mandates to actively manage federal lands for multiple uses, a default "no action" alternative brought about through virtually endless NEPA challenges is contrary to Congress' intent in drafting their organic statutes and unlawfully deprives end users of the benefits that a multiple use mandate is intended to provide.

As CEQ correctly notes, land and resource management decisions are highly complex and frequently involve the potential for countervailing environmental effects associated with both carbon emissions and carbon sequestration. *Id.* at 826. A single guidance based solely on broad principles simply cannot provide the level of analysis necessary to improve decision making across a wide range of agency actions that include forest management and grazing plans, recreational use plans, and resource extraction permitting covering hydrocarbons, coal, and a wide variety of hard-rock minerals. As a result, extending the Revised Draft Guidance to include land and resource management actions, in its current form, would be counterproductive and ill-advised, burdening agencies to respond to litigation, and threatening the legal rights of mineral interest holders. In the absence of concrete guidance applicable to land and resource management actions, requiring agencies to apply such broad principles will subject them to even greater scrutiny during judicial review by stakeholders and courts who in the absence of any concrete guiding principles articulated by CEQ could seek to apply their own standards instead.

For these reasons, we urge CEQ to expressly exclude land and resource management actions from any final guidance, as it originally proposed to do in 2010. The Revised Draft Guidance will exacerbate greatly any perceived flaws in existing NEPA case law and regulations by failing to take into account the unique contexts for land and resource management decisions both generally as distinct from other types of actions under NEPA and the specific contexts in which specific land management decisions arise. To the extent that CEQ believes that guidance is necessary for land and resource management actions, it should proceed through a separate process for individual types of land use management actions rather than subjecting them to an ill-suited approach that fails to account for the complex nature of land and resource management decisions. Specifically, in the event CEQ moves forward with guidance for land and resource management actions, we urge it to proceed on a sector-by-sector approach that addresses the challenges described above in a concrete manner that is specific to the multitude of different land and resource management decisions that agencies may face.

VI. The Draft OMB Social Cost of Carbon Estimates Should Not Be Applied in NEPA Analyses

The Revised Draft Guidance adds further uncertainty, confusion, and vulnerability to the NEPA review process by directing federal agencies to apply the draft OMB social cost of carbon estimates when monetizing the costs and benefits of a proposed action and alternatives. 79 Fed. Reg. at 77,827. The Associations have identified a host of critical problems with the draft OMB social cost of carbon estimates in prior comments submitted to the OMB. We incorporate those comments here by reference.[5] In light of some fundamental and critical flaws in the draft OMB social cost of carbon estimates and the process that led up to it, a decision to include this metric in NEPA analyses would be antithetical to the purposes of transparency and improved decisionmaking that NEPA seeks to achieve. Unless and until a more rigorous, balanced, and transparent social cost of carbon estimate can be developed as part of an appropriately open and public process, CEQ must rescind this aspect of the Revised Draft Guidance and, for the reasons explained below, explain that the draft OMB social cost of carbon estimates should not be included in NEPA reviews unless and until the flaws and deficiencies identified in comments to OMB are corrected. Directing agencies to apply flawed social cost of carbon estimates would impede NEPA's goal of promoting informed decision-making. For example, overestimating the benefits of reducing GHG emissions could cause an agency to consider alternatives with inappropriately expensive (and cost-ineffective) mitigation measures that would not be justified under a more accurate assessment of climate benefits.

Several flaws and deficiencies are of particular relevance in the context of a NEPA review. First, the goal of this concept—projecting cost to society for carbon emitting activities—

[5] *See* Comments of The American Chemistry Council *et al.* re: Technical Support Document: Technical Update to the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order No. 12866 (Appendix A); American Natural Gas Alliance *et al.*, Petition for Correction: Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 1286 (February 2010) and Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866 (May 2013) (Appendix B); Comments of The American Public Power Association re: The Technical Support Document, Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order No. 12866 (February 26, 2014) (Appendix C).

can be manipulated by simply changing relevant timeframes, adjusting discount rates, including particular risks, and arbitrarily calibrating other data inputs. Thus, the outcome of a social cost of carbon analysis based on the draft OMB social cost of carbon estimates will have less to do with the possible environmental impacts of a proposed action than with the assumptions of the agency that performs the analysis. As a result, rather than informing agency decision making, the inclusion of draft OMB social cost of carbon estimates may instead be used to advance policy priorities rather than the permitting and licensing of proposals from private parties.

Second, the draft OMB social cost of carbon estimates were developed by OMB and other federal agencies through a process lacking both transparency and any opportunity for peer or public review. As the Associations have explained, the process failed to comply with OMB guidance for developing influential policy-relevant information under the Information Quality Act, Pub. L. No. 106-554 § 515, and legal standards for promoting public participation and transparency in understanding and replicating models. Further, the process used to develop the draft OMB social cost of carbon estimates is antithetical to the NEPA's central premise that transparency and open discourse are critical to informed agency decision making.

Third, the draft OMB social cost of carbon estimates are based on global rather than domestic effects. In fact, in its 2010 Report, the Interagency Working Group on Social Cost of Carbon concluded that 90 to 93 percent of the benefits of reducing GHG emissions would occur outside of the United States. 2010 Social Cost of Carbon Report at 11. As discussed in Section IV, *supra*, agencies must confine NEPA reviews to environmental impacts that will occur within the United States. Thus, applying the draft OMB social cost of carbon estimates without first excluding international benefits would be inconsistent with NEPA.

Fourth, many of the key assumptions and data inputs to the draft OMB social cost of carbon estimates—including damage functions and modeled time horizons—remain highly uncertain, casting significant doubt on the accuracy of any estimates that an agency may include in a cost benefit analysis. Further, OMB has failed to disclose and quantify key uncertainties to inform decision makers and the public about the effects and uncertainties of alternative actions which are required by OMB and central to a proper NEPA analysis. Given the opaque process by which the draft OMB social cost of carbon estimates were developed and the unlawful failure to give the public an opportunity to test and recreate the models used to develop the draft OMB social cost of carbon estimates, the supposed accuracy of the draft OMB social cost of carbon estimates—and their usefulness in agency decision making—is unsupportable.

In light of these significant deficiencies and the uncertainty surrounding the draft OMB social cost of carbon estimates, directing agencies to include draft OMB social cost of carbon estimates in cost benefit analyses would be inconsistent with CEQ's existing regulations. CEQ's implementing regulations provide agencies with detailed instructions for addressing incomplete or unavailable information. 40 C.F.R. § 1502.22. The central function of this regulation is to allow the agency to explain the information that is missing and its relevance to the agency action so that both the agency and interested stakeholders are fully informed of the uncertainty associated with potential environmental effects. In earlier versions of the regulation, agencies faced with incomplete or unavailable information were directed to prepare a hypothetical worst-case scenario in lieu of complete or available information. *See, e.g.*, *Southern Oregon Citizens Against Toxic Sprays, Inc. v. Clark*, 720 F.2d 1474 (9th Cir. 1983); *Sierra Club v. Sigler*, 695

F.2d 957 (5th Cir. 1983). In rescinding the "worst case analysis" requirements, CEQ explained that such catastrophic outcomes should only be included in a NEPA review "if the analysis is supported by credible scientific evidence and is not based on pure conjecture." 51 Fed. Reg. 15,618, 15,618 (Apr. 25, 1986). Instead, CEQ stressed that "when preparing an EIS, agencies must disclose the fact that there is incomplete or unavailable information," *id.* at 15,621, in order to "better inform the decision maker and the public," *id.* at 15,620. By now directing agencies to include draft OMB social cost of carbon estimates in cost benefit analyses, CEQ fails to fully inform agency decision makers and the public of the significant uncertainty in these estimates and suggests instead that they are based on credible scientific evidence. Using NEPA guidance to validate this flawed and controversial metric would be utterly inconsistent with NEPA's goals.

The problems associated with applying the draft OMB social cost of carbon estimates to NEPA analyses are readily observable in *High Country Conservation Advocates v. U.S. Forest Service*, __ F. Supp. 2d __, 2014 WL 2922751 (D. Colo. June 27, 2014). In that case, which involved three agency actions related to a coal mine on federal land, several organizations challenged the final EIS, alleging that the agencies failed to appropriately address the draft OMB social cost of carbon estimates in their cost benefit analysis. The court found that the final EIS was arbitrary and capricious because the agencies failed to justify their decision not to apply the draft OMB social cost of carbon estimates. *Id.* at *10. Significantly, however, the court did not mandate the inclusion of the draft OMB social cost of carbon estimates in NEPA cost benefit analysis and observed that "the agencies might have justifiable reasons for not using (or assigning minimal weight to) the social cost of carbon protocol to quantify the cost of GHG emissions from the Lease Modifications." *Id.* at 11. This case highlights the challenges that agencies face when seeking to monetize the costs and benefits of a proposed federal action, particularly when GHG emissions and climate change effects must be evaluated. Given the critical flaws and deficiencies in the draft OMB social cost of carbon estimates and the district court's clear direction that agencies have discretion to exclude the draft OMB social cost of carbon estimates from cost benefit analysis when properly justified, it is critical that CEQ provide guidance to the agencies that explains the deficiencies in the draft OMB social cost of carbon estimates and assist agencies in articulating a reasoned basis for excluding the metric from cost benefit analyses in future NEPA reviews at this time.

Thus, the Associations urge CEQ to rescind its proposal to apply the draft OMB social cost of carbon estimates in NEPA reviews and instead direct agencies to comply fully with 40 C.F.R. § 1502.22 when seeking to monetize the environmental costs and benefits of proposed actions. To that end, until draft OMB social cost of carbon estimates are improved significantly as a result of a fully public and transparent process, this will require agencies to fully disclose the uncertainties and inadequacies of current efforts to calculate the social cost of carbon. Only after these uncertainties and inadequacies are resolved should CEQ and the agencies consider whether to include draft OMB social cost of carbon estimates in NEPA analyses.

VII. Agencies Cannot Be Compelled to Adopt Mitigation Measures as Part of a NEPA Analysis

In the Revised Draft Guidance, CEQ makes a number of statements that could be construed as requiring federal agencies to take affirmative action to mitigate GHG emissions from federal projects as part of their NEPA review. Specifically, CEQ calls on federal agencies

to evaluate the permanence, verifiability, enforceability, and additionality of proposed mitigation measures. 79 Fed. Reg. at 77,828. The Revised Draft Guidance then goes further and directs agencies when adopting either a FONSI (which accompanies an EA) or Record of Decision ("ROD") (which follows an EIS) to "identify those mitigation measures [adopted to address climate change] and … consider adopting an appropriate monitoring program." *Id.*

The Associations are concerned that these directives could be construed by federal agencies, public stakeholders, or the courts as establishing a legal obligation to adopt climate change mitigation measures as part of any NEPA review. For example, the Revised Draft Guidance's reference to "permanence, verifiability, enforceability, and additionality," *id.*, refer to substantive obligations imposed in offset programs used to mitigate emissions in other contexts and blurs the line between procedural and substantive requirements. Further applying these standards in the context of potential climate change impacts is even more problematic because, as described in Section I, *supra*, the climate change impacts, if any, attributable to a specific action and, by extension, any related mitigation measures are too small to be measured. The risk that these directives would be construed as imposing a legal obligation is further heightened by CEQ's response to comments on the 2010 Draft Guidance. There, CEQ noted that some commenters requested that CEQ "explicitly acknowledge that adoption of mitigation measures considered under NEPA are not *per se* required, and should not be required under the NEPA statute." *Id.* at 77,819. CEQ has declined to do so in this Revised Draft Guidance.

Requiring mandatory adoption of climate change mitigation measures would impermissibly transform NEPA from a procedural statute into one with substantive requirements. As such, the Revised Draft Guidance cannot be reconciled with the Supreme Court's holding that, while "NEPA does set forth significant substantive goals for the Nation, … its mandate to the agencies is essentially procedural." *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519, 558 (1978). This is among the most critical limiting factors of NEPA and applies to all aspects of an agency's decision making process, including the decision whether or not to adopt measures to mitigate potential environmental effects of a proposed action.

CEQ's implementing regulations require that the scope of an EIS include, as alternatives to the proposed action, "[m]itigation measures (not included in the proposed action)." 40 C.F.R. § 1508.25(b)(3); *see also id.* §1508.20 (defining mitigation). Thus, as the Supreme Court has noted, "one important ingredient of an EIS is the discussion of the steps that can be taken to mitigate adverse environmental consequences." *Methow Valley*, 490 U.S. at 351. The Court went on to explain that "[t]here is a fundamental distinction, however, between a requirement that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated, on the one hand, and a substantive requirement that a complete mitigation plan be actually formulated and adopted on the other." *Id.* at 352. As a result, the Court reversed an appellate court ruling requiring each EIS to include "a detailed explanation of specific measures which *will* be employed to mitigate the adverse impacts." *Id.* at 353 (emphasis in original). Citing *Methow Valley*, appellate courts have routinely confirmed that there is no substantive obligation to adopt mitigation measures identified in an EIS. *Westlands Water District v. Department of Interior*, 376 F.3d 853, 873 (9th Cir. 2004); *Mississippi River Basin Alliance v. Westphal*, 230 F.3d 170, 176-77 (5th Cir. 2000); *City of Caramel-By-The-Sea*, 123 F.3d at 1154.

In contrast to EISs, CEQ's regulations allow agencies to include appropriate mitigation measures in EAs to avoid an action rising to the level of a significant impact to the environment. *See Akiak Native Community v. U.S. Postal Service*, 213 F.3d 1140, 1147 (9th Cir. 2000) ("We must keep in mind that NEPA does not *require* that Environmental Assessments include a discussion of mitigation strategies."). Promoting voluntary adoption of mitigation measures in the EA context is a helpful tool that agencies can use to ensure that a proposed action's environmental effects will not reach a level of significance. By adopting such measures in a "mitigated FONSI," an agency can avoid the added cost and burden of preparing a full EIS while ensuring that environmental impacts are minimized. Thus, the decision whether to address (and ultimately adopt) mitigation measures in an EA and FONSI are left to the discretion of the agency conducting the NEPA analysis, and such discretion should not be curtailed by the mandates that would be imposed by the Revised Draft Guidance.

The courts have made clear that neither NEPA nor CEQ's implementing regulations impose a duty on federal agencies to adopt mitigation measures in a FONSI or ROD after completing an EA or EIS. Thus, to the extent the Revised Draft Guidance would direct federal agencies to do so, it is unlawful. The Associations urge CEQ to clarify in the final guidance that, consistent with settled NEPA law, the duty to consider mitigation measures while preparing an EIS is strictly a procedural requirement and imposes no substantive obligation on federal agencies to adopt measures to mitigate climate change in the subsequent ROD or FONSI. Consistent with CEQ regulations and established case law, the Associations also urge CEQ to clarify that agencies have no legal obligation under NEPA to evaluate mitigation measures when conducting an EA, but instead have discretion to consider mitigation options when evaluating the significance of potential environmental impacts in the context of a mitigated FONSI. Without these changes, the Revised Draft Guidance could be construed as impermissibly amending CEQ's existing regulations in a manner that is fundamentally inconsistent with NEPA's role as a procedural statute designed to improve agency decision making. Further, it will invite needless litigation from stakeholders whose preferred mitigation measures are not included in final RODs.

The Associations also urge CEQ to clarify that, consistent with existing law, NEPA is a procedural statute that does not require agencies to include monitoring programs in their RODs if they elect to adopt mitigation measures. *See* 79 Fed. Reg. at 77,828 (urging agencies to "consider adopting an appropriate monitoring program"). Regardless of the value, if any, that such monitoring programs may provide, those programs are clearly outside the scope of NEPA. As explained above, NEPA cannot be used to impose obligations of any kind on an agency after a decision on a proposed project has been made. For example, the Supreme Court rejected a demand for a supplemental EIS to address increased use of a forest road by off-road vehicles, holding that, because there was no "ongoing major federal action," there was no duty under NEPA to reopen an EIS that had been completed years earlier. *Norton v. Southern Utah Wilderness Alliance*, 542 U.S. 55, 73 (2004). Thus, NEPA cannot provide a cause of action to require a monitoring program in a ROD that adopts mitigation measures.

Likewise, the Associations urge CEQ to clarify that NEPA imposes no substantive requirements with respect to government goals for emission reduction targets. The Revised Draft Guidance states that agencies can "incorporate by reference applicable agency emissions targets such as applicable Federal, state, tribal, and local goals for GHG emissions reductions … and make it clear whether the emissions being discussed are consistent with such goals." 79 Fed.

Reg. 77,826. CEQ must make clear that complying with any relevant emission reduction goals is not required under NEPA. Failure to do so could create the risk both of federalizing state, tribal, and local emission reduction goals and of making compliance with such goals a statutory obligation under NEPA. Either of these outcomes would be unlawful under NEPA. Further, to the extent CEQ elects to reference such emission reduction goals in any final guidance, the Associations urge CEQ to expressly acknowledge that many such goals include provisions to allow for growth and for the development of new projects.

Finally, the Associations have concerns with the list of potential mitigation measures identified in the Revised Draft Guidance, which include "enhanced energy efficiency, lower GHG emitting technology (e.g. using renewable energy), carbon capture, carbon sequestration (e.g. forest and coastal habitat restoration), sustainable land management practices, and capturing or beneficially using fugitive GHG emissions such as methane." 79 Fed. Reg. at 77,828. Contrary to CEQ's suggestion in the Revised Draft Guidance, many of these proposed alternatives will not be available to agencies or project applicants as a practical matter. In many cases, these options are not provided for in existing regulations and pose significant technical, financial, and logistical challenges. In particular, the Associations note that carbon capture and sequestration ("CCS") is technically infeasible due to the short-term and long-term uncertainty and risks surrounding the design, installation and operation of CCS projects, and the absence of a regulatory infrastructure to oversee and regulate long-term CO_2 storage. Mandating CCS for proposed projects would impose technical and regulatory uncertainties in project development, force unacceptable delays to the project, and could impose costs that would likely render the project unviable. Likewise, in most cases, a renewable energy project would be outside the scope of a proposed action and thus outside of a proposed project's boundary and control. Directing agencies to consider these theoretical mitigation measures will not improve agency decision making if, as a practical matter, they cannot be implemented due to technical, financial, or logistical constraints.

VIII. CEQ Should Not Adopt A Presumptive Threshold For GHG Quantification, And, In Any Event, The Proposed 25,000 Metric Ton Threshold Is Inappropriate

In the Revised Draft Guidance, CEQ retains a presumptive 25,000 metric ton threshold for quantifying GHG emissions from a proposed federal action. First, the blanket presumed threshold is contrary to established NEPA procedures and the "rule of reason" that is designed to guide agency NEPA reviews. The Guidance makes no attempt to scientifically support its 25,000 metric ton "reference point" as an appropriate threshold for analysis. This, at the outset, contravenes the NEPA requirements for "accurate scientific analysis" and "scientific integrity." 40 C.F.R. § 1500.1. Further, CEQ provides no rational basis in the Revised Draft Guidance for selecting 25,000 metric tons as the threshold and fails to provide clear guidance as to how such a threshold should be assessed. Finally, to the extent such a threshold is warranted, the threshold selected by CEQ is far too low and should be set significantly higher to better capture projects that are truly substantial in nature and reflect the level of GHG emissions that may be relevant to agency decision making.

First, adopting a presumptive threshold for quantifying GHG emissions is both unnecessary and inconsistent with prior NEPA practice. There is no established "threshold" for reporting or quantifying emissions or discharges of other conventional pollutants, and there is no

reason to establish such a uniform threshold for all federal agencies with respect to GHG emissions. Thus, CEQ should refrain from establishing a black line quantitative threshold and instead, consistent with prior practice, allow agencies to apply the "rule of reason" to govern when they should consider GHG emissions and climate change.

Despite CEQ's suggestions to the contrary, it is a likely scenario that, if the final guidance were to contain such a threshold, agencies applying the guidance would treat the 25,000 metric ton reference point as a binding threshold point for quantifying GHG emissions, if not for making significance determinations. As described in Section I, *supra*, federal agencies frequently apply CEQ guidance strictly. As a practical matter, agencies are unlikely to "use their experience and expertise to determine when a more detailed analysis of GHG emissions is required," 79 Fed. Reg. at 77,811, and instead will mechanically apply the threshold provided by CEQ. Thus, adopting a presumptive threshold would likely cause agencies to mechanically apply the threshold rather than relying on their own expertise and the rule of reason as Congress intended.

Second, CEQ offers no rationale to support the proposed threshold of 25,000 metric tons. The Revised Draft Guidance asserts that 25,000 metric tons is "an appropriate reference point that would allow agencies to focus their attention on proposed projects with potentially large GHG emissions." *Id.* at 77,828. However, it makes no attempt to explain why 25,000 metric tons is an appropriate level to distinguish between large and small emissions. Instead, it appears that CEQ may be relying implicitly on its prior justifications from the 2010 Draft Guidance. *See* 2010 Draft Climate Change Guidance at 3 (stating that the 25,000 metric ton threshold was selected because it is consistent with EPA's use of that threshold for GHG emission reporting under the Clean Air Act). As the Associations explained in comments on the 2010 Draft Guidance, these considerations are irrelevant in the NEPA context. NEPA's primary goal is to ensure that the potential environmental impacts of major federal actions are considered. Ensuring a proper balance between capturing enough emissions and avoiding too great a burden for purposes of the reporting scheme, as EPA has attempted to do, is an entirely different goal from ensuring that potential environmental issues are properly evaluated. Indeed, EPA never intended or implied that this threshold was relevant to an analysis of potential environmental impacts. Further, in any event, EPA in choosing a threshold for regulation of GHG emissions under the agency's Tailoring Rule subsequently adopted a much larger emission threshold in final GHG regulations. 75 Fed. Reg. 31,514 (June 3, 2010) (applying emissions thresholds of 75,000 and 100,000 metric tons under the prevention of significant deterioration program). Thus, to the extent that CEQ does adopt an emissions threshold in the final guidance, a much higher threshold should be adopted.

Third, CEQ fails to provide necessary guidance for determining when the threshold is met and what an "emission quantification analysis means." For example, CEQ fails to clarify whether the threshold would apply only to direct emissions from the proposed action or also includes indirect and cumulative impacts such as the upstream and downstream emissions discussed in Section III, *supra*. Given the concerns that the Associations have identified with the Revised Draft Guidance's proposed treatment of indirect and cumulative impacts, it is critical that any emissions threshold focus solely on direct emissions from the proposed federal action. To do otherwise would exacerbate the uncertainty and confusion that CEQ's proposed treatment of indirect and cumulative emissions will produce.

Conclusion

The Associations thank CEQ for the opportunity to present comments on the Revised Draft Guidance. As indicated, the Associations, who share decades of experience working with NEPA in a broad range of industry sectors subject to the law, have several serious concerns with the Revised Draft Guidance and with CEQ's proposed approach to evaluating potential climate change effects under NEPA. As explained above, addressing climate change under NEPA poses unique challenges because the relative contribution of any project with GHG emissions is minute relative to the atmospheric concentration of GHGs and to the GHG emissions from other natural and anthropogenic sources domestically and globally. Thus, because the effects of GHG emissions are global in nature it is virtually impossible to draw connections between a specific federal action and specific climate change effects. In light of these challenges, it is imperative that CEQ and the agencies avoid venturing beyond the scope of what NEPA requires and restrict evaluation of climate change effects and GHG emissions that lack an adequate causal relationship with the proposed action to inform the agency's ultimate decision. For the reasons explained above, the Revised Draft Guidance fails to meet these criteria and is inconsistent with NEPA, its implementing regulations, and established case law. Therefore, the Revised Draft Guidance should be withdrawn. In the event CEQ decides to finalize this Revised Draft Guidance, it must first address the deficiencies identified above and ensure that the final guidance is consistent with NEPA and CEQ's implementing regulations. We look forward to meeting with CEQ and, as appropriate, the relevant agencies to discuss these comments at the earliest convenience.

Respectfully Submitted,

American Chemistry Council

American Farm Bureau Federation

American Forest & Paper Association

American Fuel and Petrochemical Manufacturers

American Highway Users Alliance

American Iron and Steel Institute

American Petroleum Institute

American Public Power Association

American Wood Council

America's Natural Gas Alliance

Association of Oil Pipe Lines

Corn Refiners Association

Council of Industrial Boiler Owners

Gas Processors Association

Independent Petroleum Association of America

Interstate Natural Gas Association of America

National Association of Manufacturers

National Rural Electric Cooperative Association

Natural Gas Supply Association

Portland Cement Association

The Fertilizer Institute

U.S. Chamber of Commerce

Appendix A

The **American Chemistry Council** ("ACC") represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $812 billion enterprise and a key element of the nation's economy.

The **American Farm Bureau Federation** is the nation's largest general farm organization, representing agricultural producers in all 50 states and Puerto Rico growing commodities in virtually all sectors of agriculture.

The **American Forest & Paper Association** ("AF&PA") is the national trade association of the paper and wood products industry, which accounts for approximately 4 percent of the total U.S. manufacturing GDP. The industry makes products essential for everyday life from renewable and recyclable resources, producing about $210 billion in products annually and employing nearly 900,000 men and women with an annual payroll of approximately $50 billion.

The **American Fuel & Petrochemical Manufacturers** ("AFPM") (formerly known as NPRA, the National Petrochemical & Refiners Association) is a national trade association whose members comprise more than 400 companies, including virtually all United States refiners and petrochemical manufacturers. AFPM's members supply consumers with a wide variety of products and services that are used daily in homes and businesses.

The **American Highway Users Alliance** represents motorists, RV enthusiasts, truckers, bus companies, motorcyclists, and a broad cross-section of businesses that depend on safe and efficient highways to transport their families, customers, employees, and products. Highway Users members pay the taxes that finance the federal highway program and advocate public policies that dedicate those taxes to improved highway safety and mobility.

The **American Iron and Steel Institute** ("AISI") serves as the voice of the North American steel industry and represents member companies accounting for over three quarters of U.S. steelmaking capacity with facilities located in 43 states.

The **American Petroleum Institute** ("API") represents over 625 oil and natural gas companies, leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and, since 2000, has invested nearly $2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

The **American Public Power Association** ("APPA") is the national service organization representing the interests of the more than 2,000, not-for-profit municipal and other state and local community-owned electric utilities that collectively provide electricity to approximately 47 million Americans. These utilities, or "public power" systems, are among the most diverse of the electric utility sector, providing power to small, medium, and large communities in 49 states, except Hawaii, and in many American territories, such as the U.S. Virgin Islands, Puerto Rico, American Samoa, and Guam.

The **American Wood Council** (“AWC”) is the voice of North American traditional and engineered wood products, representing over 75% of the industry. From a renewable resource that absorbs and sequesters carbon, the wood products industry makes products that are essential to everyday life and employs more than 360,000 men and women in family-wage jobs.

Representing North America’s leading independent natural gas exploration and production companies, **America's Natural Gas Alliance** (“ANGA”) works with industry, government and customer stakeholders to promote increased demand for and continued availability of our nation’s abundant natural gas resource for a cleaner and more secure energy future.

The **Association of Oil Pipe Lines** (“AOPL”) is a national trade association that represents owners and operators of oil pipelines across North America and educates the public about the vital role oil pipelines serve in the daily lives of Americans. AOPL members bring crude oil to the nation’s refineries and important petroleum products to our communities, including all grades of gasoline, diesel, jet fuel, home heating oil, kerosene, propane, and biofuels. AOPL members operate approximately 90% of the energy liquids pipeline miles in the United States.

The **Corn Refiners Association** (“CRA”) is the national trade association representing the corn refining (wet milling) industry of the United States. CRA and its predecessors have served this important segment of American agribusiness since 1913. Corn refiners manufacture sweeteners, ethanol, starch, bioproducts, corn oil and feed products from corn components such as starch, oil, protein and fiber.

The **Council of Industrial Boiler Owners** (“CIBO”) is a trade association of industrial boiler owners, architect-engineers, related equipment manufacturers, and University affiliates representing 20 major industrial sectors. CIBO members have facilities in every region of the country and a representative distribution of almost every type of boiler and fuel combination currently in operation. CIBO was formed in 1978 to promote the exchange of information about issues affecting industrial boilers, including energy and environmental equipment, technology, operations, policies, laws and regulations.

The **Gas Processors Association** (“GPA”) has served the U.S. energy industry since 1921 as an incorporated non-profit trade association. GPA is composed of 130 corporate members of all sizes that are engaged in the gathering and processing of natural gas into merchantable pipeline gas, commonly referred to in the industry as "midstream activities." Such processing includes the removal of impurities from the raw gas stream produced at the wellhead, as well as the extraction for sale of natural gas liquid products (“NGLs”) such as ethane, propane, butane and natural gasoline. GPA members account for more than 90 percent of the NGLs produced in the United States from natural gas processing. Our members also operate hundreds of thousands of miles of domestic gas gathering lines and are involved with storing, transporting, and marketing natural gas and NGLs.

The **Independent Petroleum Association of America** (“IPAA”) serves as an informed voice for the exploration and production segment of America’s oil and natural gas industry. IPAA represents the thousands of independent oil and natural gas producers and service companies across the United States. Independent producers develop 95 percent of domestic oil and gas wells, produce 54 percent of domestic oil and produce 85 percent of domestic natural gas.

The **Interstate Natural Gas Association of America** ("INGAA") is a trade association that advocates regulatory and legislative positions of importance to the interstate natural gas pipeline industry in North America. INGAA's 24 members represent the vast majority of the interstate natural gas transmission pipeline companies in the United States, operating approximately 200,000 miles of pipelines, and serving as an indispensable link between natural gas producers and consumers.

The **National Association of Manufacturers** ("NAM") is the largest manufacturing association in the United States, representing small and large manufacturers in every industrial sector and in all 50 states. Manufacturing employs nearly 12 million men and women, contributes more than $1.8 trillion to the U.S. economy annually, has the largest economic impact of any major sector and accounts for two-thirds of private-sector research and development. The NAM is the powerful voice of the manufacturing community and the leading advocate for a policy agenda that helps manufacturers compete in the global economy and create jobs across the United States.

The **National Rural Electric Cooperative Association** ("NRECA") is the national service organization for more than 900 not-for-profit rural electric utilities that provide electric energy to over 42 million people in 47 states or 12 percent of nation's electric customers. NRECA is dedicated to representing the national interests of cooperative electric utilities and the consumers they serve. NRECA member electric cooperatives are private, independent electric utilities, owned by the members they serve.

Established in 1965, the **Natural Gas Supply Association** ("NGSA") represents integrated and independent companies that produce and market approximately 30 percent of the natural gas consumed in the United States. NGSA encourages the use of natural gas within a balanced national energy policy and promotes the benefits of competitive markets to ensure reliable and efficient transportation and delivery of natural gas and to increase the supply of natural gas to U.S. customers.

The **Portland Cement Association** ("PCA") represents 27 U.S. cement companies operating 82 manufacturing plants in 35 states, with distribution centers in all 50 states, servicing nearly every Congressional district. PCA members account for approximately 80% of domestic cement-making capacity

The Fertilizer Institute ("TFI") represents the nation's fertilizer industry including producers, importers, retailers, wholesalers and companies that provide services to the fertilizer industry. TFI's members provide nutrients that nourish the nation's crops, helping to ensure a stable and reliable food supply.

The **U.S. Chamber of Commerce** is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system.

APPENDIX B

February 26, 2014

VIA WWW.REGULATIONS.GOV

Administrator Howard Shelanski
Office of Information and Regulatory Affairs
Office of Management and Budget
New Executive Office Building
Washington, D.C. 20503

Re: Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order No. 12866; Docket ID OMB-OMB-2013-0007; Comments of The American Chemistry Council, the American Coalition for Clean Coal Electricity, the American Exploration & Production Council, the American Forest & Paper Association, the American Fuel & Petrochemical Manufacturers, the American Iron & Steel Institute, the American Petroleum Institute, America's Natural Gas Alliance, the Brick Industry Association, the Council of Industrial Boiler Owners, The Fertilizer Institute, the Independent Petroleum Association of America, the National Association of Home Builders, the National Association of Manufacturers, the National Mining Association, the National Oilseed Processors Association, the Natural Gas Supply Association, the Portland Cement Association, and the U.S. Chamber of Commerce

Dear Administrator Shelanski:

The American Chemistry Council, the American Coalition for Clean Coal Electricity, the American Exploration & Production Council, The American Forest & Paper Association, the American Fuel & Petrochemical Manufacturers, the American Iron & Steel Institute, the American Petroleum Institute, America's Natural Gas Alliance, , the Brick Industry Association , the Council of Industrial Boiler Owners, The Fertilizer Institute, the Independent Petroleum Association of America, the National Association of Home Builders, the National Association of Manufacturers, the Natural Gas Supply Association, the National Mining Association, the National Oilseed Processors Association, the Portland Cement Association, and the U.S. Chamber of Commerce (collectively, "the Associations")[1] hereby submit the following comments in response to the November 26, 2013, Office of Management and Budget ("OMB") invitation for public comments on the Technical Support Document entitled *Technical Update of*

[1] *See* Attachment 1 for each organization's statement of interest.

the Social Cost of Carbon ("SCC") for Regulatory Impact Analysis Under Executive Order 12866.[2]

Member companies of the Associations will be impacted by the SCC Estimates because many of them manufacture products that, when combusted, result in greenhouse gas ("GHG") emissions (including carbon dioxide ("CO_2")), and because, in the course of their business, they emit CO_2. When this Administration, or any subsequent one, promulgates further regulation of these products or emissions, under Executive Order 12866, such proposals and rules to the extent permitted by law, must be based on "a reasoned determination that the benefits of the intended regulation justify its costs." The SCC Estimates are generated through a formal interagency process, whose purpose is to affect and bind agency regulatory actions and regulations. As such, the SCC Estimates, though subject to periodic re-examination, mark the consummation of the government's cost-benefit analysis, which, in turn, is binding on federal agencies pursuant to Executive Order 12866. Indeed, the pattern and practice of the government has confirmed that federal agencies view the SCC Estimates as binding and already have relied upon them in crafting and adopting regulations that affect the Associations' members.[3] Our members, therefore, have a direct and concrete interest in ensuring that any SCC Estimates are based on transparent processes, accurate information, and rational assumptions, and are within the reach of the current scientific understanding and impact models. To be clear, the Associations are not herein discussing the existence or potential causes of climate change. Instead, we are questioning the IWG's estimates of the social cost of carbon, based on estimates of complex economic impacts hundreds of years in the future, which in turn are based on present day understanding of current and future carbon emissions.

These comments address issues related to the SCC Estimates published in February 2010[4] and May 2013,[5] including the most recent technical update issued in November 2013.[6] On

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[2] 78 Fed. Reg. 70,586 (Nov. 26, 2013).

[3] *E.g.*, The U.S. Environmental Protection Agency ("EPA") frequently has used the 2010 SCC Estimates in cost-benefit analyses supporting Clean Air Act rules. *See, e.g.*, 77 Fed. Reg. 62,624 (Oct. 12, 2012) (light-duty vehicle CAFE standards; 77 Fed. Reg. 49,489 (Aug. 16, 2012) (NESHAPs for the oil & gas source category); 77 Fed. Reg. 9,304 (Feb. 16, 2012) (NESHAPs for the power plant source category); 75 Fed. Reg. 25,324 (May 7, 2010) (tailpipe GHG/CAFE rules). The Department of Energy ("DOE") has used the May 2013 SCC Estimates in connection with a rulemaking addressing the energy efficiency standard for microwave ovens. 78 Fed. Reg. 36,316 (June 17, 2013). Likewise, DOE used the May 2013 SCC Estimates to support a recently finalized energy efficiency rule for metal halide lamp fixtures (79 Fed. Reg. 7,746 (Feb. 10, 2014)) and proposal rules for commercial refrigeration equipment (78 Fed. Reg. 55,889 (Sept. 11, 2013)); walk-in coolers and freezers (78 Fed. Reg. 55,888 (Sept. 11, 2013); residential furnace fans (78 Fed. Reg. 64067 (Oct. 25, 2013)); commercial and industrial electrical motors (78 Fed. Reg. 73,590 (Dec. 6, 2013)); Industrial Air Compressors (79 Fed. Reg. 6,839 (Feb. 5, 2014)); and, external power supplies (79 Fed. Reg. 7,846 (Feb 10, 2014)).

[4] Interagency Working Group on Social Cost of Carbon, United States Government, *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (February 2010) ("2010 Estimate").

[5] Interagency Working Group on Social Cost of Carbon, United States Government, *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (May 2013; revised Nov. 2013) ("2013 Estimate").

September 4, 2013, a group of trade associations, including many of the undersigned parties, submitted a Petition for Correction of the 2010 and 2013 Estimates pursuant to the Information Quality Act[7] ("IQA") requesting that the Technical Support Documents ("TSD") and SCC Estimates be withdrawn and not used in rulemaking and policymaking for a variety of reasons further explained herein.[8] Importantly, while OMB responded to that IQA Petition the evening of January 24, 2014, OMB's response merely defended the TSD through text borrowed from the TSD, provided no additional details about the interagency processes that developed the TSD or the SCC Estimates, declined to withdraw the TSD or SCC Estimates, or prohibit their use in rulemaking.[9] Accordingly, the Associations request OMB reconsider its response to this IQA petition and continue to urge OMB to withdraw and instruct federal agencies to cease the rulemaking and policymaking uses of the SCC Estimates and TSDs for the following reasons:

1. The SCC Estimates fail in terms of process and transparency. The SCC Estimates fail to comply with Office of Management and Budget ("OMB") guidance for developing influential policy-relevant information under the IQA. The SCC Estimates are the product of a "black box" process and any claims to their supposed accuracy (and therefore, usefulness in policymaking) are unsupportable.

2. The models with inputs (hereafter referred to as "the modeling systems") used for the SCC Estimates and the subsequent analyses were not subject to peer review.

3. Even if the process used to develop the SCC Estimates was transparent, rigorous, and peer-reviewed, the modeling conducted in this effort does not offer a reasonably acceptable range of accuracy for use in policymaking.

4. The Interagency Working Group ("IWG") has failed to disclose and quantify key uncertainties to inform decision makers and the public about the effects and uncertainties of alternative regulatory actions as required by OMB.

5. By presenting only global SCC estimates and downplaying domestic SCC estimates in 2010 and 2013, the IWG has severely limited the utility of the SCC for use in cost-analysis and policymaking.

6. The IWG must (i) supplement the record to provide all of the data, models, assumptions and analyses relied on to arrive at the SCC Estimates, and (ii) allow the public a reasonable opportunity to review and comment on the supplemented record.

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[6] *See* Howard Shelanski, Administrator of the Office of Information and Regulatory Affairs at the Office of Management and Budget, *Refining Estimates of the Social Cost of Carbon* (Nov. 1, 2013) (available at www.whitehouse.gov/blog/2013/11/01/refining-estimates-social-cost-carbon) ("November 2013 Revision").

[7] P.L. 106-554, §515, 144 Stat. 2763 (2001).

[8] The November 2013 Revision contained no substantive analytical changes. As such, the comments detailed regarding the February 2010 and May 2013 Estimate herein and in the Associations' IQA Petition apply with equal force to the most recent SCC Estimate issued in November 2013.

[9] January 24, 2014 Letter from Howard A. Shelanski (Director, Office of Information and Regulatory Affairs to Wayne D'Angelo (Kelley Drye & Warren, LLP) ("OMB IQA Response").

Importantly, that OMB is now providing a mechanism for public comment does not make OMB's SCC estimation effort transparent or the process collaborative.[10] Despite repeated requests from Congress, the Associations, and many other individuals and organizations, OMB has not made available to the public all of the information necessary to allow the public and regulated community to evaluate the SCC Estimates. By not providing any information on the policy decisions, inputs, and assumptions that underpin the SCC Estimates, OMB's "request for comments" is meaningless. By withholding this information from the public, OMB deprives the IWG and this Administration of the benefit of outside input on the validity of the critical decisions, inputs, and assumptions that form the basis of the SCC Estimates. Providing an opportunity to comment, but then denying or withholding access to the data necessary to inform such comments, may be designed to give a superficial appearance of transparency and collaboration, but, in reality, merely perpetuates an impermissibly opaque process.[11] Instead of including the critical inputs and assumptions that serve as the basis for the SCC Estimates in the rulemaking docket or other public forum, some of the undersigned Associations have been compelled to seek these necessary documents through the Freedom of Information Act ("FOIA"). While some of the participating agencies have provided partial, and heavily redacted responses to the FOIA requests, many of the participating agencies unlawfully have refused to respond to these requests at all.[12] The record should remain open until these agencies have complied with the law and produced these documents.

That the Environmental Protection Agency ("EPA") and Department of Energy ("DOE") are proceeding to utilize the SCC Estimates[13] without even waiting for the comment period to close on the docket for such estimates confirms the tangible harm to the Associations' members

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[10] For example, several regulatory actions and proposals have been issued prior to OMB seeking public comment on the SCC Estimates, yet none have been retracted pending receipt and review of the comments sought here. *See, e.g.*, 78 Fed. Reg. 79,419 (Dec. 30, 2013) (U.S. DOE, *Energy Conservation Program for Consumer Products and Commercial and Industrial Equipment: Effect of Revised Estimates of the Social Cost of Carbon*). Critically, DOE even finalized one rule that relied on the SCC without awaiting the consummation of this rulemaking (metal halide lamps (78 Fed. Reg. 7,746). EPA has identified 19 rulemakings since 2009 that utilized federal SCC Estimates. *See* Letter dated January 16, 2014, from Joel Beauvais, EPA Associate Administrator, Office of Policy, to Senator David Vitter (Table 1).

[11] To be able to meaningfully comment on the SCC Estimates, the public record must be supplemented with, at a minimum: (i) the specific versions of the IAMs upon which the government relied to generate the SCC Estimates (including the source codes for the models); (ii) the inputs and assumptions used in the model runs upon which the government relied to generate the SCC Estimates (including, but not limited to, assumptions on discounting, equilibrium climate sensitivity, and socio-economic variables); (iii) the results of any modeling runs or scenarios generated by the IAMs upon which the government relied; (iv) technical analyses regarding the government's decision on how it averaged the results of the IAM model runs; and (v) any analyses conducted by and conclusions reached by the government regarding the uncertainties associated with each of the IAMs and calculating the SCC Estimates. Without this information in the record, the public does not have a meaningful opportunity to understand, evaluate and comment upon the SCC Estimates

[12] 5 U.S.C. §552(a)(6).

[13] 78 Fed. Reg. 79,419 (Dec. 30, 2013); See Regulatory Impact Analysis for the Proposed Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units (EPA-452/R-13-003 (Sept. 2013)).

and unambiguously confirms that OMB does not intend to use the public comment process as a means of updating and improving its SCC Estimates or to obtain the best available information.

Although the Associations are concerned that OMB is simply replacing the IWG's "black box" analysis with its own opaque process, the importance of this issue compels us to provide input to the best of our abilities using the limited (and inadequate) information made available to the Associations. As such, the Associations reiterate that, given the significant issues described herein, the SCC Estimates and Technical Support Documents should be withdrawn, pending correction through a transparent, public process.[14] Further, we request OMB not to utilize, and to direct publicly other executive branch agencies not to utilize, the SCC Estimates for any regulatory action or policymaking.

I. BACKGROUND

In June 2013, the IWG released the revised TSD on SCC recommended for use in Regulatory Impact Analysis ("RIA"). In the revised TSD, the IWG continued to express the SCC as the dollars/ton of monetized damages associated with an incremental increase in carbon emissions in a given year. The IWG used the same basic methodology that it used in 2010 to estimate the SCC figures. As per the 2010 TSD, the SCC values were estimated using the average results from the same three integrated assessment models at the same discount rates – 2.5%, 3%, and 5% – and a fourth value using the 95th percentile estimate at the 3% discount rate. The IWG used the same five climate change scenarios utilized in 2010. The IWG indicated the only changes that altered the SCC values were the new versions and runs of the three assessment models.

For example, the new SCC values estimated for 2020 in 2007 dollars were $12, $43, $65, and $129 for the 5%, 3%, 2.5%, and 95th percentile of the 3% discount rates, respectively. By comparison, the SCC values in the 2010 TSD for 2020 were $7, $26, $42, and $81, respectively (all in 2007 dollars). At the key discount rate of 3% (considered the central value), the new SCC

[14] Such a process is mandated by Executive Order 13563, January 18, 2011, which states:

> Sec. 2. Public Participation. (a) Regulations shall be adopted through a process that involves public participation. To that end, regulations shall be based, to the extent feasible and consistent with law, on the open exchange of information and perspectives among State, local, and tribal officials, experts in relevant disciplines, affected stakeholders in the private sector, and the public as a whole.
>
> (b) To promote that open exchange, each agency, consistent with Executive Order 12866 and other applicable legal requirements, shall endeavor to provide the public with an opportunity to participate in the regulatory process. To the extent feasible and permitted by law, each agency shall afford the public a meaningful opportunity to comment through the Internet on any proposed regulation, with a comment period that should generally be at least 60 days. To the extent feasible and permitted by law, each agency shall also provide, for both proposed and final rules, timely online access to the rulemaking docket on regulations.gov, including relevant scientific and technical findings, in an open format that can be easily searched and downloaded. For proposed rules, such access shall include, to the extent feasible and permitted by law, an opportunity for public comment on all pertinent parts of the rulemaking docket, including relevant scientific and technical findings.

Estimate of $43 is approximately 65% higher than the 2010 value. By comparison, in 2009, the IWG estimated a central value of $19 and, in 2008, the U.S. Department of Transportation ("DOT") estimated a central value of $7.[15] Thus, in a span of five years, the central SCC Estimate to be used in regulation has changed multiple times and increased 600 percent.

The size and frequency of these increases to IWG's SCC Estimates call into question the accuracy and reliability of the IWG's most recent estimate (the third proffered in 2013 alone), and further indicate that the process and models through which the estimates were generated were either flawed or unsuitable for generating estimates that reasonably could inform important regulatory and policy decisions. As discussed further below, the first step in addressing these potential flaws and suitability issues is for OMB and IWG to shed light on these processes, allow for an informed and transparent discussion, and present IWG's estimates as accurately as possible.

II. INFORMATION QUALITY ACT GUIDELINES

The process for generating the SCC Estimates violates the IQA. The IQA requires federal agencies to take steps to maximize the quality, objectivity, and integrity of the information they disseminate, and to provide a mode of redress to correct flawed or incomplete information. Consistent with its directive to other agencies and entities, OMB developed its own guidelines ("IQA Guidelines") that require that the information it disseminates meets standards for objectivity, utility, and integrity.[16] The "objectivity standard" focuses on whether the information is "accurate, reliable, and unbiased and whether the information is presented in an accurate, clear, complete, and unbiased manner."[17] The "integrity standard" refers to information security, such as protection of information from unauthorized access or revision, while the "utility standard" refers to the usefulness of the information for the intended audience's anticipated purposes.[18]

OMB's Guidelines require it to maximize the quality of disseminated information that it classifies as influential. "Influential information" generally refers to information that "will have a clear and substantial impact on important public policies or important private sector decisions."[19] Without question, the SCC Estimates, upon which a number of agencies already have based regulations and which numerous agencies may base billions, if not trillions, of dollars of regulation, are "influential information" that has had and will have a clear and substantial impact on important public policies and important private sector decisions.[20]

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[15] 2010 TSD at 4.

[16] Office of Management and Budget, *Information Quality Guidelines* (Oct. 1, 2002).
[17] *Id.* at 8.
[18] *Id. at I.*
[19] *Id.* at 8.
[20] *Id.*

Further, under OMB Guidelines, such influential information must meet a higher level of "transparency."[21] According to OMB, transparency requires that its findings be reproducible, within an acceptable range of imprecision, by third parties.[22] Influential information must also be transparent with respect to: (1) the source of the utilized data; (2) the various assumptions employed; (3) the analytic methods applied; and (4) the statistical assumptions employed.[23] All these transparency elements are important considerations in any objective, third-party review and analysis of Agency information.

OMB imposes these guidelines on itself as well as on the information on which it relies. It requires OMB staff, and the working groups it oversees, to acquire relevant information by acceptable and unbiased methods.[24] Further, information collected must generally display indicia of reliability such as being subjected to peer review or being founded on transparent and reproducible methods.

OMB's obligations under the IQA are significant, requiring OMB to issue government-wide guidelines that "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies." These obligations were put in place by Congress and are supported by an Administration-wide effort to make informed and transparent decisions based on sound science.[25] The IQA guidelines, peer review guidelines, and internal protocols that OMB uses are intended to ensure the Administration's disseminations are objective, unbiased, and robust. Importantly, OMB, as the entity that developed and oversees the IQA's guidelines to federal agencies, has a profound and unique interest in ensuring those guidelines are followed to the greatest extent possible in its own regulatory decision making. As detailed below, the development of the SCC Estimates failed to follow these OMB guidelines.

III. THE SCC ESTIMATES ARE THE PRODUCT OF A FUNDAMENTALLY FLAWED AND IMPERMISSIBLY OPAQUE PROCESS

The SCC Estimates represent specific monetary values per metric ton of CO_2 intended to be used in regulatory impact analyses required under Executive Order 12866 to estimate the costs and benefits of major federal regulations.[26] These values, developed by the IWG, reflect an incredibly broad range that corresponds to different assumed discount rates that purport to translate estimated future dollar damages from current emissions into a present value. These estimates are derived from values obtained from computer models, known as the Integrated

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[21] *Id.* at 2.
[22] *Id.*
[23] 67 Fed. Reg. 369, 374 (Jan. 3, 2002).
[24] *Id.* at 23.
[25] *See* President Obama's Memorandum for the Heads of Executive Departments and Agencies: Transparency and Open Government (74 Fed. Reg. 4685 (Jan. 21, 2009)) ("My Administration is committed to creating an unprecedented level of openness in Government."); *see also* President Obama's Memorandum for the Heads of Executive Departments and Agencies: Scientific Integrity. ("Science and scientific processes must inform and guide decisions of my Administration on a wide range of issues.").
[26] Neither the TSDs nor the SCC Estimates attempt to monetize costs of methane emissions. See 2010 TSD.

Assessment Models ("IAMs"), that, in short, purport to represent the linkage from (1) greenhouse gas emissions, to (2) global temperature changes, to (3) the "climate change impacts" projected to result from these temperature changes, to (4) the monetized economic damages of these effects. The 2010 and 2013 SCC Estimates were derived by inputting a set of undisclosed assumptions developed by the IWG into three particular IAMs selected by the IWG from a wider class of IAMs: DICE (Dynamic Integrated model of Climate and Economy), FUND (Framework Uncertainty, Negotiation and Distribution), and PAGE (Policy Analysis for the Greenhouse Effect).[27]

The process of selecting the models and input assumptions, including much of the basic information underlying these decisions, has been insulated from public scrutiny. The resulting SCC Estimates are a product of this fundamentally flawed process that failed to comply with basic IQA requirements designed to enhance and ensure the credibility of data used to make critical regulatory decisions.[28] These flaws are discussed in detail below.

A. The IWG Estimation Process Was Not Transparent

In his March 9, 2009, "Memorandum for the Heads of Executive Departments and Agencies" on "Scientific Integrity" ("Scientific Integrity Memo"), President Obama called on his Administration to commit to procedures and a code of conduct that ensures scientific integrity and builds public trust. President Obama's opening line of that memorandum could not be more relevant and directly applicable to the SCC Estimates and the processes which underlie them:

> Science and the scientific process must inform and guide decisions of my Administration on a wide range of issues, including improvement of public health, protection of the environment, increased efficiency in the use of energy and other resources, mitigation, and protection of national security. The public must be able to trust the science and the scientific process informing public policy decisions.

In furtherance of these important goals, President Obama instructed "[t]o the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking." The requirement of transparency is at the core of

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[27] DICE (W. Nordhaus, Yale University), PAGE (C. Hope, University of Cambridge UK), and FUND (R. Tol, Ireland Economic and Social Institute and Carnegie Mellon University).

[28] In addition to the procedural flaws discussed in detail below, the SCC Estimate itself is contrary in significant ways to OMB's own guidance on conducting cost-benefit calculations intended to guide regulatory agency decision makers. *See* OMB Circular A-4, "Regulatory Analysis" (Sept. 2003) (as amended) ("OMB Circular A-4"). For example, cost-benefit normally applies to specific decisions relating to individual rulemakings. OMB Circular A-4 states that a good regulatory analysis cannot be formulaic. *Id.* at 2, ¶5. Yet the SCC Estimate provides a formulaic result – developed in isolation – that is intended to be applied to any regulatory action addressing carbon emissions. It is necessary only to plug in the proper cost number and calculate benefits for any planned regulatory actions. The SCC Estimate similarly ignores Circular A-4's requirement that costs and benefits must be evaluated and compared to each other. The SCC Estimate is based entirely on the projected benefit of avoiding each ton of carbon that is modeled to cause damage at some point in the future. Further concerns with OMB's compliance with Circular A-4 are discussed in subsequent sections of these Comments.

the OMB's IQA reproducibility standards mandated for "influential information" such as the SCC Estimates.

Under OMB's IQA Guidelines, "influential information" must meet a higher level of "transparency."[29] According to OMB, transparency requires that the OMB/IWG findings be reproducible, within an acceptable range of imprecision, by third parties.[30] Influential information must be transparent with respect to: (1) the source of the utilized data; (2) the various assumptions employed; (3) the analytic methods applied; and (4) the statistical assumptions employed. All of these elements of transparency are important considerations in any objective, third-party critical review and analysis of the SCC Estimate.[31]

According to OMB in the IQA Rule:

> [T]he primary benefit of public transparency is not necessarily that errors in analytic results will be detected, although error correction is clearly valuable. The more important benefit of transparency is that the public will be able to assess how much an agency's analytic results hinge on the specific analytic choices made by the agency. Concreteness about analytic choices allows, for example, the implications of alternative technical choices to be readily assessed. This type of sensitivity analysis is widely regarded as an essential feature of high-quality analysis, yet sensitivity analysis cannot be undertaken by outside parties unless a high degree of transparency is achieved.[32]

OMB, as the disseminator of the SCC Estimates, and the overseer of the IWG, has a duty to ensure the transparency of the IWG estimation process. That duty has not been met. The public knows nothing about the IWG other than the identity of the agencies and entities that make up the group and the fact that this group of unspecified officials provided three substantially different SCC estimates in the period between 2010 and 2013.

OMB has not revealed the identity of the IWG participants or any information from which to make an assessment as to their expertise or qualification to participate in a group tasked to estimate the SCC. According to OMB Circular A-4's directive to agencies (presumably applicable also to OMB): "You should also disclose the use of outside consultants, their qualifications, and history of contracts and employment . . . ."[33] The public does not even know whether all the IWG's listed agencies and entities provided personnel or what levels of engagement each of the agencies actually had in the development of the SCC Estimates. The public does not know whether or how government contractors were used in the development process. Further, OMB has not revealed how these unidentified individuals collaborated. The public does not know whether, or how often, they met, what was discussed, what information

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[29] OMB IQA Guidelines at 2.
[30] 67 Fed. Reg. at 378.
[31] 67 Fed. Reg. at 374.
[32] 67 Fed. Reg. at 374.
[33] OMB Circular A-4 at 17.

was considered, what information was rejected, or how decisions were made. This information must be made available so that the public can conduct a critical review.

For sake of perspective, consider EPA's recent efforts to evaluate whether the Agency can quantify with sufficient accuracy the "economy-wide" impacts of its air regulations.[34] Unlike OMB's SCC Estimates, which attempt to monetize global impacts of U.S. emissions of a ubiquitous substance centuries into the future, EPA's efforts are far more modest because the Agency is only attempting to consider: (1) domestic costs; (2) of traditional pollutants with more direct "dose-response" functions; (3) emitted by far fewer industrial sources; (4) within discrete timeframes.

Even still, EPA claims its effort presents "serious technical challenges . . ."[35] To address these challenges, EPA presented the issue to the independent Science Advisory Board ("SAB") and provided public notice in the Federal Register. EPA published detailed draft charge questions it would present to the SAB and a similarly detailed analytical blueprint and list of materials for the SAB to consider. Importantly, EPA provided public notice of the provision of all these materials and is seeking comment on them.

In undertaking the far more complex and ambitious task of estimating the SCC, OMB undertook a conspicuously different approach. OMB tasked its effort to the IWG without any public notification. OMB never published nor took comment on its charge questions to the IWG, or the analytical blueprint or materials it requested the IWG consider. The public only learned of the IWG, its important role within the Federal government, and its SCC estimates when they were referenced in an efficiency standard for microwave ovens.

The SAB also operates in a starkly different manner than the IWG. The SAB provides notice of its meetings, as well as opportunities to observe and participate. The SAB's advisories and consultations with EPA are published, as are EPA's responses to such. The SAB discloses its members, provides detailed biographies of each members' affiliation and expertise, publishes criteria for participation in the SAB, and offers the public an opportunity to nominate members.

The IWG, on the other hand, provides no notice of its meetings (before or after they occur), and the public has no opportunity to observe, participate in, review minutes, communications, or even summaries of such. The IWG's interaction and consultation with OMB is unknown, and no records of charges or instructions are made available. The IWG's members are secret, as are the means by which they are selected. Their expertise are entirely unknown. All that is known about IWG members are the identities of the federal entities on whose behalf they participate. It is not even known whether they are Federal employees, contractors, or third parties.

While EPA and SAB processes are by no means perfect, and the Associations may well disagree with their outcomes, the contrast between the transparency and engagement in EPA's

[34] 79 Fed. Reg. 6899 (Feb. 5, 2014).

[35] *Id.* at 6900.

"economy-wide modeling effort," and the opacity of OMB's "global" modeling effort is both striking and disturbing. OMB has failed to comply with the transparency policies that it promulgated for developing influential policy-relevant information under the IQA and imposes on other agencies and executive offices. The SCC Estimates are the product of an opaque process, riddled with uncertainties. Any claims to their supposed accuracy (and, therefore, usefulness in policymaking) are unsupportable. None of these failures in transparency has been remedied by allowing for after-the-fact comment on the SCC Estimates. As noted above, without access to the fundamental information underlying the SCC Estimates necessary to formulate comments and some indication that OMB actually will consider comments, OMB's solicitation provides only the impression of transparency.

B. The Modeling Systems (Models With Inputs) And Subsequent Analyses Were Not Subject To Peer Review

OMB and the IWG masked the inherent flaws and limitations of the SCC Estimates by not exposing the modeling systems, inputs, and results (the SCC Estimates) to peer review. As OMB's Final Information Quality Bulletin for Peer Review ("Peer Review Bulletin") states, "[p]eer review is one of the most important procedures to ensure that the quality of published information meets the standards of the scientific and technical community."[36] Further, President Obama's 2009 Scientific Integrity Memorandum states that "[w]hen scientific or technical information is considered in policy decisions, the information should be subject to well established scientific processes, including peer review . . . ."

OMB's IQA Guidelines recognize the critical importance of peer review in government decision-making, and point to the existence of peer review as providing a presumption of objectivity.[37] Similarly, EPA, which already has relied upon the SCC Estimates, recognizes that the hallmark of scientific integrity is a robust and independent peer review process.[38] According to EPA guidance,

> [p]eer review is conducted by qualified individuals (or organizations) who are independent of those who performed the work, and who are collectively equivalent in technical expertise (*i.e.*, peers) to those who performed the original work. Peer review is conducted to ensure that activities are technically supportable, competently performed, properly documented, and consistent with established quality criteria.[39]

Further, EPA has recognized in its peer-review guidance that, particularly when reviewing influential findings such as the SCC Estimates, a peer reviewer must be independent to be

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[36] Memorandum for Heads of Departments and Agencies from Josh B. Bolton, Director, OMB "Issuance of OMB's 'Final Information Quality Bulletin for Peer Review'" at 2 (Dec. 16, 2004).

[37] 67 Fed. Reg. at 377.

[38] *Peer Review Handbook, 3rd Edition, Prepared for the U.S. Environmental Protection Agency by Members of the Peer Review Advisory Group for EPA's Science Policy Council,* EPA/100/B-06/002.

[39] *Id.* at 12.

credible, defensible, and unbiased.[40] Indeed, peer review and adherence to sound scientific methods are required by EPA's guidelines implementing the IQA.[41]

Despite the fact that OMB's IQA Rule and Guidelines, as well as its Peer Review Bulletin, recognize the critical need for peer review in administrative decision-making, neither OMB nor the IWG subjected the final SCC Estimates, or their key foundations, to peer review. This failure is a critical flaw and undermines the credibility of the SCC Estimates.

That the IWG utilized models that generally may be available to the public does not sufficiently demystify the IWG selection process. There is no evidence, for example, of how the IWG addressed, if at all, the limitations of each of the selected models. The class of models known as IAMs are continuously changing and evolving. While such models attempt to predict the near and far future, they all rely on numerous assumptions – including many that are decades old, and others that simply cannot be calibrated or verified. Yet, one of the models used claims to have the capacity to predict climate impacts through the year 2595. Further, it is not clear if or how modest changes to the inputs to the FUND, DICE, and PAGE models could drastically change the SCC Estimates (*i.e.*, the sensitivity of inputs to model outcomes is not transparent). Without access to information regarding the hundreds of model inputs (or the people or processes that selected them, or developed them, or both), and their sensitivities, expertise, or biases, it is impossible to call the SCC Estimates rational or supportable. Indeed, in an analysis focused on the "damage function" component of the SCC Estimates (a source of substantial uncertainties in the models, as discussed further below), the authors admit that "the range of possible parameters leads to enormous differences in estimated [SCC] values."[42] The process of selecting these input parameters must be subject to transparency and peer review.

On July 18, 2013, Administrator Howard Shelanski of OMB's Office of Information and Regulatory Affairs ("OIRA") suggested in testimony before the House Committee on Oversight and Government Reform Subcommittee on Energy Policy, Healthcare, and Entitlements that peer review of the IWG decisions was unnecessary because the FUND, DICE, and PAGE models all were subjected to their own peer review.[43] This suggestion is incorrect, or at least misleading, for several reasons. The SCC Estimates are not just the product of the models (flawed or limited as they may be). Rather, the SCC Estimates are the product of the data, and the policy choices that were inherent in the model input data selection. Other than for a few of

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[40] *Id.* at 13.

[41] *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency*, EPA/260R-02-008 (Oct. 2002).

[42] NERA Economic Consulting, "A Review of the Damage Functions Used in Estimating the Social Cost of Carbon" at 17 (Jan. 2014) ("*Damage Function Report*") (attached).

[43] OMB now provides a bit more nuance that the models may not have actually been reviewed by peers, but rather than they were made available for peer review because they "were published in peer reviewed journals." (OMB IQA Response at 3-4). However, when publishing the IQA Guidelines, OMB found that the effectiveness of "journal peer review" was "overstated," cited to instances where flawed science was published in respected journals, and ultimately concluded that "[f]or information likely to have an important public policy or private sector impact, OMB believes that additional quality checks beyond peer review are appropriate." (67 Fed. Reg. at 8455)

the hundreds of variables that comprise the input data set for the three models used, most members of the public, other than those allowed access by the participating executive branch agencies, have no idea of what the inputs underlying the SCC Estimates were or how they were determined. This critical "black box" encompasses not only the deterministic inputs (*i.e.*, assumed values for those inputs held constant), but also, importantly, the stochastic inputs (*i.e.*, those inputs that were selected to be variable) that supported the Monte Carlo analysis.[44] Model inputs, and the judgments, principles, and processes that generated those inputs, are critical to the model output. As the developer of the FUND model prominently and candidly acknowledges on the model's website:

> It is the developer's firm belief that most researchers should be locked away in an ivory tower. Models are often quite useless in unexperienced hands, and sometimes misleading. No one is smart enough to master in a short period what took someone else years to develop. Not-understood models are irrelevant, half-understood models treacherous, and mis-understood models dangerous.[45]

The SCC Estimates are as much a product of the inputs to the models as they are the product of the models themselves. Stated plainly, if unreliable or questionable data are entered into the models, there is no basis for concluding that reliable estimates would result. The inputs that drive the SCC Estimates (and the input selection criteria) were never peer reviewed – nor are the majority of them even known. Further, the final estimates (*i.e.*, the products of these opaque models and inputs) were never peer reviewed. That is critical, as the output of the models was manipulated further by the IWG through averaging that may be inappropriate and misleading (*see infra* §V.A). That versions of the models were made available for peer review during the model development process, or utilized in papers that were themselves peer reviewed, is necessary and important, but not sufficient. OMB and the IWG must subject the current SCC Estimates, and the decisions that generated those values, to peer review. Nor does accepting comments on the IWG's conclusions, without providing commenters with the underlying information necessary for credible evaluation, provide a substitute for peer review. OMB's suggestion to the contrary in the OMB IQA Response[46] is without merit. Indeed, these actions reinforce the need to conduct peer review on all subsequent model changes and inputs, which alter the estimates coming out of the models. After all, ***the May 2013 SCC Estimate is 60 percent higher than the one developed just three years ago and required further amendment within six months***. Unfortunately, OMB and the IWG have sheltered and insulated the model choice criteria, data inputs, and analyses from outside scrutiny and peer review – and continue to do so in the present "request for comments."

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[44] Consider, for instance, the selection of discount rates for one of the few model inputs that was disclosed. If a discount rate of 7% were utilized, (as mandated by OMB Circular A-4 (at 12)), the SCC Estimates would be closer to zero and potentially even demonstrate benefits. We raise this issue, not to advocate for a particular discount rate, but to highlight that even a single model input of the hundreds can materially affect the outcomes of the models.

[45] Available at www.fund-model.org (accessed Jan. 9, 2014).

[46] OMB IQA Response at 4.

The SCC Estimates/TSD are precisely the type of influential scientific information that OMB envisioned in its Final Information Quality Bulletin for Peer Review when it stated "[m]ore rigorous peer review is necessary for information that is based on novel methods or presents complex challenges for interpretation. Furthermore, the need for rigorous peer review is greater when the information contains precedent-setting methods or models, presents conclusions that are likely to change prevailing practices, or is likely to affect policy."[47] Importantly, the Final Information Quality Bulletin for Peer Review and the IQA under which they were promulgated characterize these as the "*minimum standards* for when peer review is required for scientific information . . ."[48]

C. Selection Of The Discount Rates Used To Estimate The SCC Violated OMB Requirements And Should Be An Open Process

The choice of the discount rate arguably is the most significant factor in derivation of the SCC Estimates. Depending on the discount rate selected (as noted above and *infra* §IV.A), there is substantial variation in the amount of damages calculated and, hence, the SCC Estimate that ultimately is derived. In short, the higher the discount rate used, the lower the future predicted damage impacts. The IPCC 4th Assessment report confirms the critical nature of the discount rate used to estimate the SCC:

> Notwithstanding the differences in damage sensitivity to temperature..., the effect of the discount rate on estimates of SCC is most striking. The 90th percentile SCC, for instance, is US$62/tC for a 3% pure rate of time preference, $165/tC for 1% and $1,610/tC for 0%. Stern (2007) calculated, on the basis of damage calculations, a mean estimate of the SCC in 2006 of US$85 per tonne of CO2 (US$310 per tonne of carbon)... Other estimates of the SCC run from less than US$1 per tonne to over US$1,500 per tonne of carbon. Downing et al. (2005) argued that this range reflects uncertainties in climate and impacts, coverage of sectors and extremes, and choices of decision variables.

The IWG recognized in the 2010 TSD that "the interagency group has been keenly aware of the deeply normative dimensions of both the debate over discounting in the intergenerational context and the consequences of selecting one discount rate over another."[49] Despite the criticality of the discount rate to the SCC estimation process, OMB has failed to subject the IWG's selection of the discount rate to peer review.

Moreover, in selecting the discount rates used for the SCC Estimates, OMB disregarded explicit instructions from Congress, embodied in the Regulatory Right to Know Act, intended to guide the cost-benefit analysis of federal regulations. The Regulatory Right to Know Act requires OMB to issue standardized guidelines to federal agencies on the measurement of costs

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[47] *Final Information Quality Bulletin for Peer Review* at 12.

[48] *Id.* at 7 (emphasis added).

[49] 2010 TSD at 19.

and benefits. These guidelines are to be subjected to external peer review. Circular A-4 represents the current version of these guidelines and includes a discussion of the best practices to be used for applying discount rates to future benefits and costs:

> As a default position, OMB Circular A-94 states that a real discount rate of 7 percent should be used as a base-case for regulatory analysis. The 7 percent rate is an estimate of the average before-tax rate of return to private capital in the U.S. economy. It is a broad measure that reflects the returns to real estate and small business capital as well as corporate capital. It approximates the opportunity cost of capital, and it is the appropriate discount rate whenever the main effect of a regulation is to displace or alter the use of capital in the private sector. OMB revised Circular A-94 in 1992 after extensive internal review and public comment. In a recent analysis, OMB found that the average rate of return to capital remains near the 7 percent rate estimated in 1992. Circular A-94 also recommends using other discount rates to show the sensitivity of the estimates to the discount rate assumption.[50]

Circular A-4 also allows "a further sensitivity analysis using a lower but positive discount rate" when a rule "will have important intergenerational benefits or costs," but requires that the 7% rate be used for the base-case analysis.[51]

By selecting discount rates lower than prescribed by current OMB guidelines, and failing to subject the change in discount rates to the external peer review process, OMB has failed to follow the procedures mandated by Congress in the Regulatory Right to Know Act.

These comments do not advocate for use of a particular discount rate. Rather, consistent with the emphasis throughout these comments on process, the Associations similarly urge OMB and the federal government generally to pursue an open process – with full disclosure of information and how various factors and considerations are weighed – regarding the selection of an appropriate discount rate for use in development of the SCC Estimates. As Cass Sunstein, former head of OIRA/OMB, recently remarked:

> Reconsideration of existing judgments must be subjected to a demanding and time-consuming process of internal review (and potentially to external review as well). Institutional constraints, including the need to obtain consensus, can

[50] OMB Circular A-4 at 33 (emphasis added).

[51] *Id.* at 36 ("If your rule will have important intergenerational benefits or costs you might consider a further sensitivity analysis using a lower but positive discount rate in addition to calculating net benefits using discount rates of 3 and 7 percent."). A 3% rate is prescribed "when regulation primarily and directly affects private consumption (e.g., through higher consumer prices for goods and services)," a scenario that is not primarily implicated with respect to the SCC.

> impose obstacles to efforts to rethink existing practices, especially in an area like discounting, which is at once technical and highly controversial.[52]

Mr. Sunstein argues for caution in revisiting the discount rates used by the IWG for the SCC Estimates. The need for such caution is appropriate, but also underscores the importance of subjecting departures from existing federal guidelines to proper scrutiny and an open and transparent process. In departing from the discount rates prescribed by Circular A-4, the IWG and OMB process should and must be subjected to public comment and peer review to allow proper vetting of the choice of this "technical and highly controversial" factor.

IV. THE BROAD RANGE OF SCC ESTIMATES GENERATED BY THE COMPUTER MODELING SYSTEMS MAKES THEM UNSUITABLE FOR USE IN RULEMAKING AND POLICY DECISIONS

Predicting the future in terms of impacts stemming from the emission of GHGs, as one might expect, is a massively imprecise exercise reliant on assumptions, hypotheses, and judgments about future technological advances, principles, and decisions that directly impact emissions scenarios, mitigation, and adaptation. While the undersigned Associations support the use of economic modeling, there are limits to the effectiveness of certain modeling techniques. For instance, the imprecision inherent in modeling assumptions, hypotheses, and judgments are significantly magnified when impacts (and costs) are projected over a longer time period. While certainty is not a characteristic of any modeling effort, OMB and the IWG cannot push prognostications so far beyond the capabilities of current science and economic modeling that the estimates become little more than guesswork. There is a threshold beyond which uncertainties become so profound, widespread, and compounded that, when further undermined by data limitations and the inherent limitations of the models, render the ultimate estimate flawed and unusable. Even the Intergovernmental Panel on Climate Change ("IPCC") limits its future climate predictions and presents a range of possible scenarios (*see infra* §IV.B).

In the OMB IQA Response, OMB seems to acknowledge that such a tipping point exists whereby data are so uncertain they render the ultimate estimate unusable, and that "[i]n the absence of quantitative estimates, we would use a qualitative description of the types of impacts on society that we would expect."[53] OMB further stated that, "[i]t is not clear to us, however, how the SCC estimates would be near such a threshold."[54] While the Associations welcome OMB's acknowledgement that a threshold exists where quantitative estimates become unworkable, we do not share OMB's view that impacts predicted in 2300 are not yet "near such a threshold."

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[52] Sunstein, Cass, "On Not Revisiting Official Discount Rates: Institutional Inertia and the Social Cost of Carbon" (2014) (draft) (forthcoming in *American Economic Review: Papers and Proceedings*).

[53] OMB IQA Response at 4.

[54] *Id.*

Significantly, the 2010 TSD appears to be somewhat in agreement with the Associations on this point. After noting extensively the "uncertainty, speculation, and lack of information" on key inputs necessary to estimate the SCC, the TSD disclaims that "[t]he purpose of the SCC estimates presented here is to make it possible for agencies to incorporate the social benefits from reducing carbon dioxide emissions into cost-benefit analysis of regulatory actions that have small, or 'marginal,' impacts on cumulative global emissions."[55] Again, the Associations do not endorse the notion that the SCC Estimates are useful for even "marginal" regulatory actions, but we concur with the 2010 TSD's apparent conclusion that the SCC Estimates have limited utility in rulemaking. To the extent that the OMB IQA response is articulating OMB's new position that these highly uncertain SCC Estimates have broad utility in all types of regulatory decisions, the Associations urge OMB to either reconsider, or provide some support in the record, for this new conclusion.

Further, that the 2013 SCC Estimates increased by 60 percent from the previous estimate developed only a few years prior (and, once again, within six months of publication) using the same set of models demonstrates that this exercise is massively uncertain and not sufficiently robust for policymaking. That degree of variability over the short term (2010-2013) should give OMB and the IWG pause and a heightened concern that estimating the SCC with a level of accuracy suitable for policymaking is perhaps beyond the capabilities of the model systems utilized.

Importantly, a subset of the Associations made a similar point in their IQA petition (before the SCC Estimate changed for the second time in 2013), to which OMB responded that this variability was a "reflection of the rapid pace of ongoing research on a topic of profound interest to the scientific community . . . and that rapidly evolving scientific understanding makes it more important, not less, to review and update the estimates on a periodic basis."[56] The Associations believe that OMB misinterpreted the nature of our concern over the degree of "variability over the short term." We fully agree that scientific understanding of these issues is "rapidly evolving" and changing based on "the rapid pace of ongoing research," but we do not understand why OMB fails to view these frequent and fundamental changes in scientific understanding as evidence that the estimates are highly uncertain. If the scientific understanding is in flux, then the conclusions derived from that scientific understanding are *per se* uncertain.

A. Model(s) Structure And Damage Functions

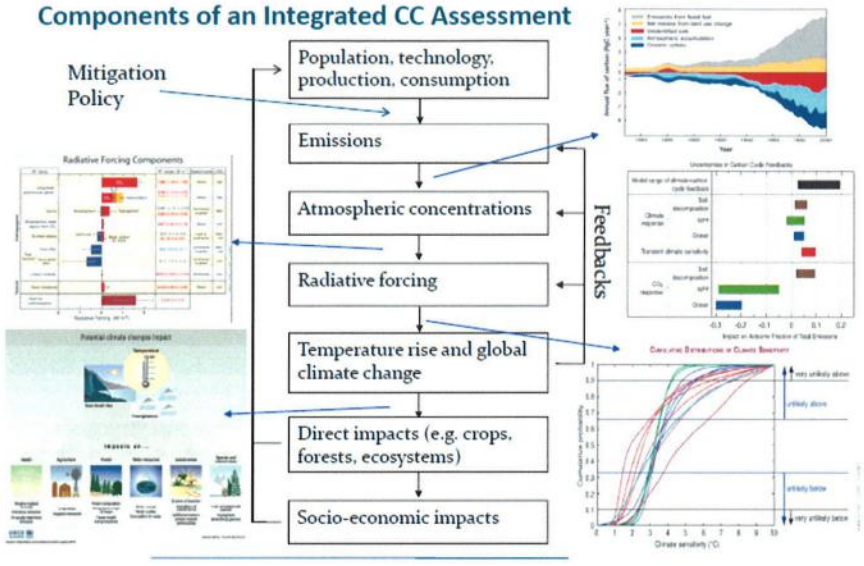
OMB and the IWG rely on three models which purport to predict the ultimate costs of a long chain of impacts stemming from the emission of GHGs (*i.e.*, the impact of temperature on sea-level rise, the impact of sea-level rise on waterside cities, the monetization of the impacts on waterside cities, *etc.*). These models have a similar "stacked" structure, shown in the figure below.[57] These models do not provide a detailed representation of the impact that climate

[55] 2010 TSD at 4-5.

[56] OMB IQA Response at 5.

[57] Taken from a presentation by Traeger, C., The Economics of Climate Change.

change may have on health, the environment, or the (global or domestic) economy, particularly at the regional or local levels.



The models on which the IWG relied utilize simplifying assumptions and judgments reflecting the modeler's attempts to aggregate the available scientific and economic research characterizing these relationships. In particular, the "damage functions" used in these models simply reflect a guess about the relationship between changes in temperature and GDP. The record does not reflect an adequate scientific or factual basis for the "damage function" in any of the models upon which the government relies. As a result, the SCC Estimates are plagued by a high level of uncertainty that spans several orders of magnitude. The final socioeconomic impact prediction at the end relies on the cascading series of uncertain inputs in the prior steps. Model uncertainty, at any stage, is affected and magnified by all of the uncertainties in the prior steps (including model input and structure uncertainties, as well as the uncertainties of climate science), and the uncertainties associated with that particular step. This is especially true if socioeconomic outputs are predicted over very long time periods, as with the SCC Estimates.

Based in part on these compounded uncertainties, for the 2010 Estimates the authors noted that the IWG offered the new SCC values "with all due humility" about the uncertainties embedded in them and with a "sincere promise to continue work to improve them."[58] In contrast, the 2013 SCC Estimates have done seemingly nothing to alleviate the uncertainty, but have nevertheless downplayed any discussion of that uncertainty. Only a small paragraph on "research gaps" is provided on the last page of the TSD for the 2013 SCC Estimates.

Other than a brief reference back to the 2010 SCC Estimates, the "humility" with which the estimates were originally provided has been lost. To our knowledge, modeling science has not made any quantum leaps in the intervening three years to merit this loss of humility. The

[58] 2010 Estimate at 29.

meager discussion of uncertainty in the most recent SCC Estimates promotes the unsupported and misleading idea that the updated SCC values are highly accurate figures.

The OMB IQA Response suggests that each subsequent iteration of the TSD (May 2013 and November 2013) should be viewed as having been appropriately discussed, uncertainty because those versions reference back to the 2010 TSD, which contained a more substantive discussion.[59] The Associations disagree. We believe it is important that wherever OMB presents changes to its SCC Estimates and the changes that lead to the amended estimate, it should provide a full discussion of the context for those estimates – including disclosing sources of uncertainty. Incorporating by reference a discussion of uncertainty buried 30 pages into a TSD issued multiple years and multiple versions previous makes it unnecessarily difficult for rule writers and regulators to view the SCC Estimates in the context of their profound uncertainty. Indeed, each of the subsequently issued TSDs utilize the same exact text as the 2010 TSD (except for those portions referencing the change in the estimate). The discussion of uncertainty, however, is uniquely shorthanded down to a reference to the 2010 TSD, in what seems like a calculated effort to split off the TSD's discussions of the SCC estimates from the TSD's discussions of uncertainty. While the easiest approach would be to leave the text in place when updating the TSD, it required an affirmative step to remove the uncertainty discussion and replace it with a shorthanded reference.

That there are key and substantial differences in the IAMs is not in dispute. The range of uncertainty across and within the two IAMs generating the lowest and highest average SCC estimate used by the IWG are demonstrated in Table 1 of the attached NERA *Damage Function Report,* reproduced here:

Table 1. Average SCC Estimates by Individual IAMs in IWG's Analysis(*)
($/ton for emissions in 2020)

Discount Rate	Lowest Average SCC Estimate (from FUND)	Highest Average SCC Estimate (from PAGE)	Ratio of Highest to Lowest Average SCC
5%	$3	$22	8.3
3.0%	$19	$71	3.7
2.5%	$33	$101	3.1

(*) The average dollar values were calculated by taking each model's average SCC value across the IWG probability distribution of climate sensitivity values for each of the five IWG socioeconomic scenarios, and taking a simple average of those five values. They have been rounded to the nearest dollar. The ratios are based on the unrounded averages. The underlying data to compute these averages are in Appendix A of IWG (2013b), Tables A2-A4. In each case, the DICE estimate is the middle value, hence not affecting the range; DICE's average values are $12, $38 and $57 for the 5%, 3% and 2.5% discount rates, respectively.

This range of values reflects the average model estimates across five baseline input assumptions (and the probability distribution for climate sensitivity), and is presented for the three discount rates used in the IWG report. These results indicate a wide range of SCC values across the two models. Holding constant the other variables that the IWG standardized across the three models,

[59] OMB IQA Response at 5-6.

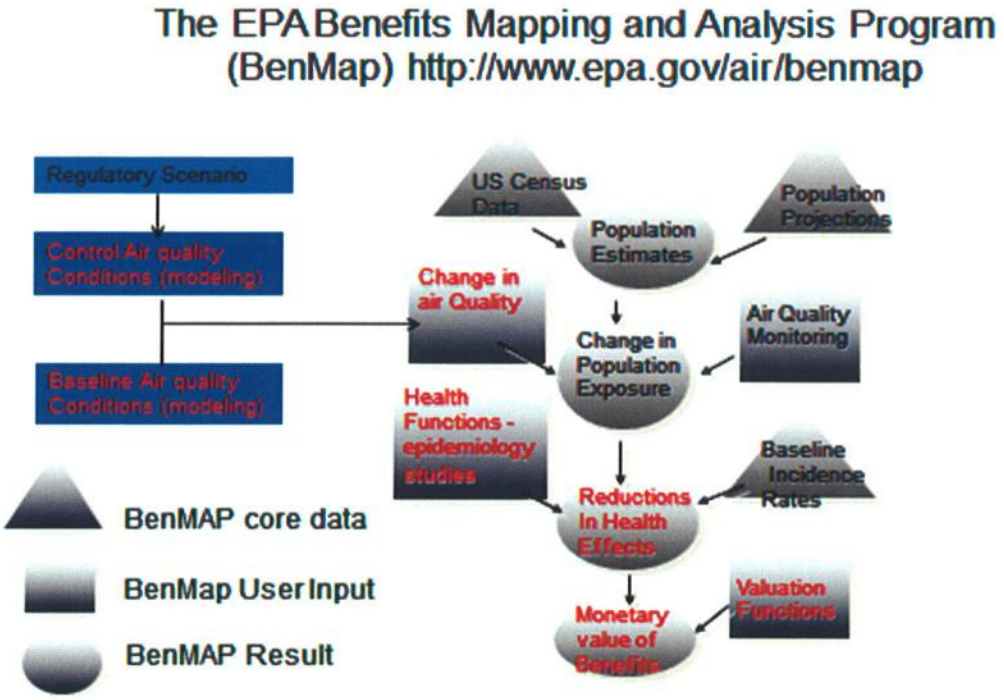
the average SCC estimates from the two models differ by a factor of 3 to 8, depending on the discount rate.

Given the degree of standardization already applied to the model input assumptions, these variations are substantial. The reasons for these variations are numerous. A considerable source of uncertainty and variability with the IAMs, not addressed by the IWG, is the "damage function" component of the models.[60] In fact, the NERA report suggests that the range of potential SCC values based upon uncertainties in the damage function is even larger than the structural variations across the DICE, FUND and PAGE models. This variability is because the formulation and utilization of the damage function in the three models are *ad hoc* and arbitrary, lack any theoretical or empirical foundation, and depend crucially on the views of the individual model builders.

The damage function is the point in the flow of computation within an IAM where the focus shifts from scientific relationships to economic relationships. Damage functions translate variables, such as projected sea level rise, to estimated economic damages. The simplified "damage function" approach used for the IAMs contrasts significantly with the traditional approach, used by EPA and others, to estimate the economic impact of pollutant emissions. Under the traditional approach, the available scientific evidence is evaluated to identify health and environmental effects deemed to be caused by the emitted pollutants. Concentration response functions are developed to define the frequency of the effects expected to result from exposure to the pollutant at varying concentrations. Finally, the estimated health and environmental effects are monetized using a valuation methodology. The following figure is adapted from EPA's regulatory analysis for the final revisions to the National Ambient Air Quality Standards for Particulate Matter.[61]

[60] For a detailed analysis of the critical role of "damage functions" in the development of the SCC Estimates, and how treatment of the damage function in the IAMs contrasts with traditional regulatory impact analysis, see the attached *Damage Function Report*.

[61] EPA-452/R-12-005 (Dec. 2012). Importantly, the Associations do not herein suggest that EPA's analysis for PM NAAQS was accurate or appropriate. Instead, we are merely pointing out that EPA's approach to assessing and monetizing damage from pollutants provides far more detail and a more tangible and supported connection between the pollutant at issue and the damage presumed therefrom.



In contrast to this traditional approach to damage functions, the "damage function" of the IAMs utilized by the IWG neglects each of the traditional elements of a true damage function approach. To develop the SCC Estimates, the determination of the health, environmental, and physical damages attributed to GHG emissions is left to the authors of the IAMs, who translate these effects into an estimate of economic damage using a simple overall damage function of GDP versus temperature change. In doing so, the IWG defers to the model authors' critical evaluations of the causal framework between GHG emissions and climate change impacts; the concentration-response function for various climate effects; and the monetization of those effects. Consequently, the subjective assumptions of the three model authors about the future can have great consequence to U.S. policy decisions.

The modelers recognize and readily concede the limitations of their models. Richard Tol, developer of the FUND model, admits that the result is not "a climate change impact model that is adequate. The accompanying static impact assessment is far from perfect, with many pieces missing and a lot of questionable assumptions."[62] William Nordhaus, developer of the DICE model, similarly states that "the damage functions continue to be a major source of modeling uncertainty."[63] According to a well-known economist, "developers of IAMs can do little more than make up functional forms and corresponding parameter values. And that is pretty much

[62] Tol, R. S., "Estimates of Damage Costs of Climate Change – Part 2: Dynamic Estimates," *Environmental and Resource Economics,* 21:135-160, at 136 (2002).
[63] Nordhaus, W., *A Question of Balance*, New Haven: Yale University Press, at 51 (2008).

what they have done. . . . The bottom line here is that the damage function used in most IAMs are completely made up, with no theoretical or empirical foundation."[64] Nordhaus similarly stated that the damage function analysis "involves the economic impacts of climate change, which is the thorniest issue in climate-change economics. These estimates are indispensable for making sensible decisions about the appropriate balance between costly emissions reductions and climate damages. However, providing reliable estimates of the damages from climate change over the long run has proven extremely difficult."[65]

There are numerous examples of the arbitrary outcomes created by the subjective judgment-based damage functions in the IAMs. For example, one of the key differences in the IAMs is the degree to which adaptation is considered to occur. FUND considers a significantly higher degree of adaptation to occur than DICE or PAGE. Similarly, each of the models considers the impact of catastrophic events in sharply dissimilar ways.

The variability and arbitrariness of the parameters that define the judgment-based damage functions can lead to profoundly different GDP impacts. For example, the *Damage Function Report* finds that the estimates of global damages due to a given temperature change can differ substantially depending upon the parameters of the presumed damage function.[66] The quantitative importance of the choice of damage function parameters is illustrated by considering the estimate of global damages when just two damage function parameters are varied from the lowest to the highest values for each that are discussed in the IAM literature. The figure below graphs the values that these four different damage functions would project at temperature changes up to 15°C. The sensitivity of results over this wide range of temperature change is shown because temperature changes up to 13°C may have been projected in some of the IWG's IAM runs by the later end of the modeling period, the year 2300.

The sensitivity analyses show that the magnitude of the difference depends upon the level of temperature change, with the sensitivity greater at higher temperature changes. Although the large temperature changes are not important in the near term years of the projections, these temperature changes can be relevant in the later years of the projections.

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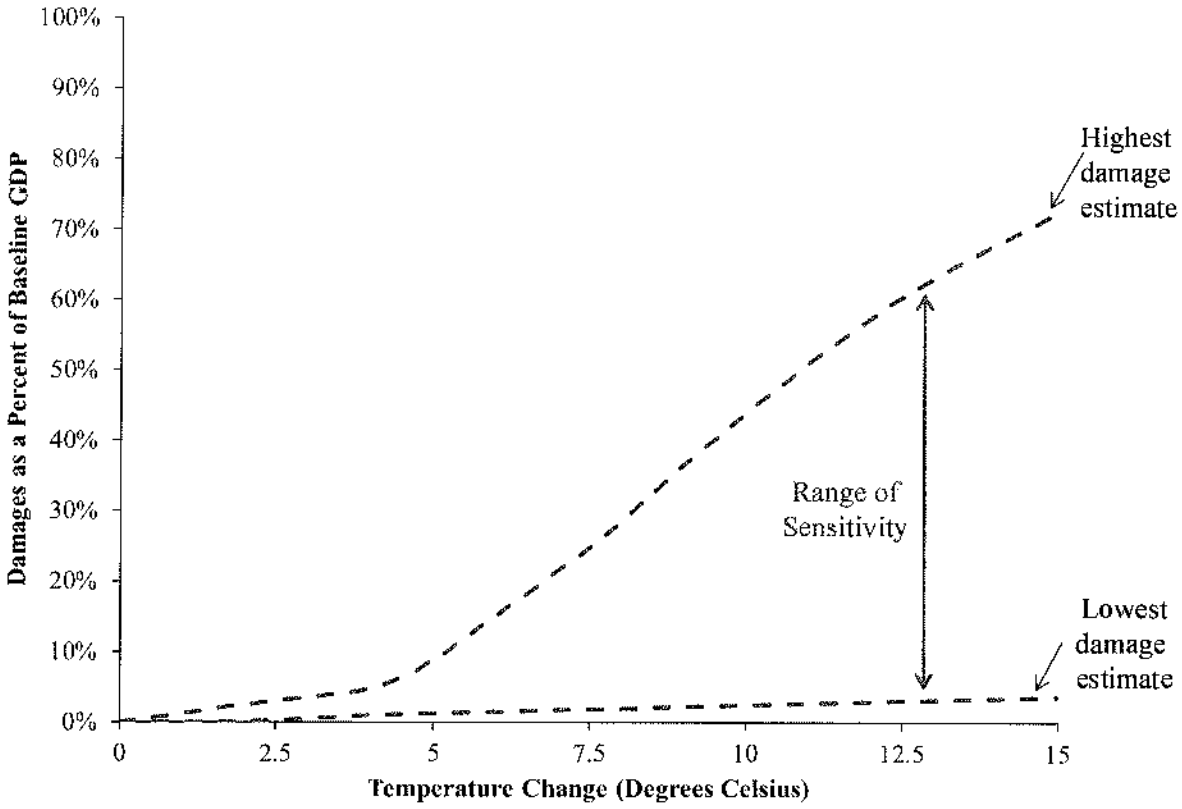
[64] Pindyck, R.S., "Climate Change Policy: What Do the Models Tell Us?," NBER Working Paper Series, WP 19244, at 11, 13 (July 2013) (Attachment 4).

[65] Nordhaus, W, *et. al.*, "DICE 2013: Introduction and User's Manual," at 10 (May 2013).

[66] *Damage Function Report* at 3-4.

Range of Damage Estimates with Variations in Two Damage Function Input Assumptions



According to the 2013 TSD, the larger SCC values reflect only changes made to the underlying IAMs. Directionally, all of the changes appear to be towards higher impacts. For the DICE model, the primary changes relate to the explicit representation of sea level rise ("SLR") and associated damages and an updated calibration of the carbon cycle. The primary changes in the FUND model are updated damage functions for space heating, SLR agricultural impacts, changes to transient response of temperature buildup of GHG concentrations, and inclusion of indirect climate effects of methane. For PAGE, the key changes mentioned were explicit representation of SLR damages, revisions to damage functions to ensure damages do not exceed 100% of GDP, changes to regional scaling of damages, revised treatment of potentially abrupt damages, and some updated assumptions on adaptation.

Importantly, nothing in the IWG's TSD effectively captures the arbitrary nature of how the updated IAMs have repeatedly changed the SCC estimates. For example, the authors of the DICE model claim the key damage function they used was based on a study by Tol (2009).[67] However, the Tol (2009) study indicates that up to a temperature rise of 2° C, climate change results in an *increase* in GDP.[68] In contrast, the damage function used in DICE presents a

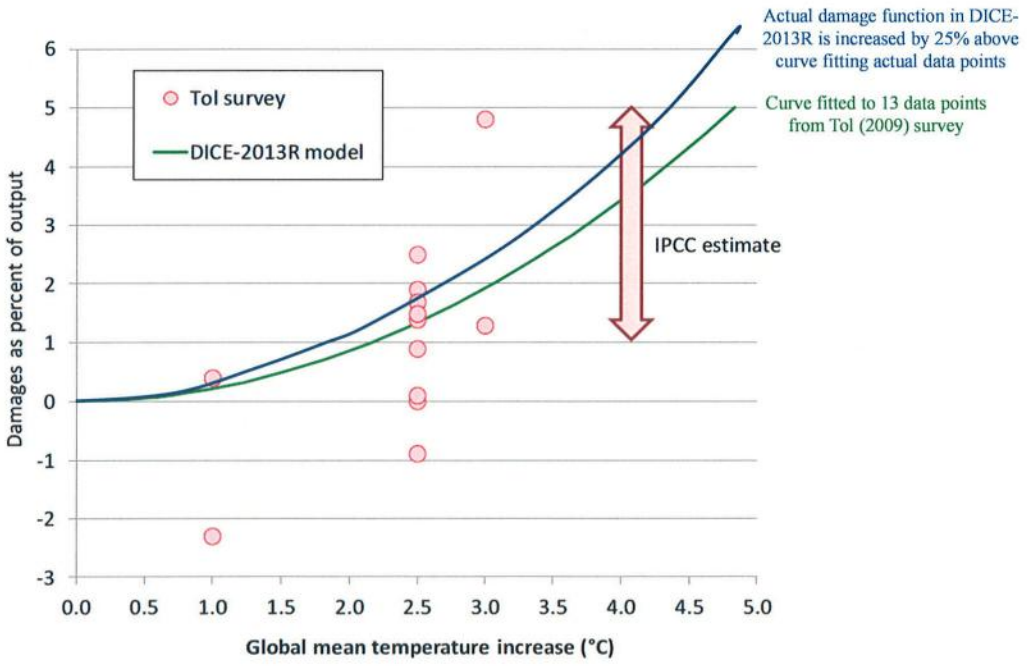
[67] This study is cited because it was used in or cited by models utilized for the TSD. The Associations are not endorsing this study or data to the exclusion of other information.

[68] See figure on page 18 in Tol (2009).

negative GDP change across all temperature changes considered. It is not clear how the authors of DICE altered the damage function presented in Tol (2009) or what the scientific basis was for this significant change.

Furthermore, the 25% increase in monetary value coming out of the updated 2013 DICE model was not produced by the IAM itself. Rather, the lead author, William Nordhaus, added an adjustment of 25% to the monetary damages to adjust for certain factors, including biodiversity, ocean acidification, and sea level rise.[69] See the figure below for the results of the survey conducted by Tol (2009), the DICE model's summary of that survey and the impact of the 25% adjustment. As the figure shows, for an assumed 4° C increase in global mean temperature rise, DICE predicts "damage" at the very high-end of the range that the IPCC projects. While the factors considered by Norhaus are certainly worthy of potential consideration to include in an evaluation of the SCC, the arbitrary nature by which the 25% increase in monetary value was assigned is troubling – estimates of economic damages should be scientifically derived, not assigned by one individual because those adjustments can have significant impacts on the output from the models.

Figure: DICE-2013R Damage Function (Before And After Adjustment)



Source: Nordhaus and Sztorc,"DICE-2013R: Introduction and User's Manual," Oct 2013. (Blue curve added to Nordhaus' figure by NERA to show damage function with the 25% adder assumed by Nordhaus to reflect non-monetized effects.)

[69] See Attachment 3

Similarly, the increase in the SCC in the PAGE model is based largely on the opinions of the authors as described in Hope (2011). In the updated PAGE2009 model used to derive the 2013 SCC figures, the authors assume far less adaptation will occur in response to climate change than they previously assumed. However, the authors cite no references to support this change. Nonetheless, this single change in assumption results in a 1.3-fold increase in the SCC versus the projections from PAGE2002. Another key change was how transient climate response ("TCR"), one of several components of climate sensitivity, was considered. To illustrate the importance of this one factor, a change in one standard deviation of the TCR can increase the SCC by 67%. In PAGE2009, a different triangular distribution of the TCR function was used than in PAGE2002. This resulted in a 1.5-fold increase in the SCC.[70] Further, in PAGE2009, the possibility for a catastrophic outcome or "discontinuity" above a fixed temperature threshold due to climate change was increased to 10% from the 1% used in PAGE2002. No documentation was provided to support these changes.

Subjective and arbitrary "adjustments" are troubling because those adjustments can have significant impacts on the output from the models. For example, compare the DICE damage function with that estimated by the IPCC, as shown in the figure above. For an assumed 4° C increase in global mean temperature rise, as the figure shows, DICE predicts "damage" at the very high-end of the range that the IPCC projects. Therefore, the inputs from DICE into the predicted SCC Estimates are biased extremely high relative to the IPCC estimated range of damages.

Ultimately, the authors of the *Damage Function Report* concluded:

> [A]lthough the mathematical form of the damage function is relatively simple, plausible parameters for this mathematical formulation lead to very different estimates of global damages. We find, for example, that possible damage estimates at a given point in time can differ by up to a factor of 20 within the range of parameters and range of temperature changes found in the IAM literature. . .
>
> The large degree of uncertainty regarding the damage function has implications for the uncertainty in the SCC values developed by the IWG. A comprehensive representation of damage function uncertainties – analyzed in combination with the other IAM input uncertainties – is needed to characterize how much more uncertain the IWG's SCC estimates would be as a result of that damage function uncertainty. The IWG did not conduct such an analysis. Since the damage estimate is a central input to the ultimate SCC estimate, the large uncertainty in the damage function translates into uncertainty in the estimates of the social cost of carbon that may be correspondingly large.[71]

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[70] We note that use of a crude triangular distribution for this key climate sensitivity factor itself is a reflection of the high degree of guesswork involved in the estimation of this factor.

[71] *Damage Function Report* at 36-37.

Indeed, the SCC calculations in the DICE, FUND and PAGE models are the product of a highly simplified and aggregated formulation of the detailed calculations of climate science that goes directly from projected change in temperature to economic loss stated as change in GDP.[72] The IWG acknowledges the consequences of the use of such models:

> These models are useful because they combine climate processes, economic growth, and feedbacks between the climate and the global economy into a single modeling framework. At the same time, they gain this advantage at the expense of a more detailed representation of the underlying climatic and economic systems. DICE, PAGE, and FUND all take stylized, reduced form approaches. Other IAMs may better reflect the complexity of the science in their modeling frameworks but do not link physical impacts to economic damages.[73]

As one expert noted to William Nordhaus (developer of the DICE model): "I marvel that they can translate a single number, an extremely poor surrogate for a description of the climatic conditions, into quantitative estimates of impacts of global economic conditions."[74]

B. Model Time Horizons

The 2010 and 2013 SCC Estimates are ambitiously projected for very long time horizons – specifically, until 2300.[75] The 2013 TSDs note that the DICE model, for example, can be run for an even longer time horizon (until 2595). The ability of any of these models (and their input assumptions) to hold for three centuries or more is not clear and certainly not verifiable. That the SCC Estimates increased 60 percent and changed three times in three years provides sufficient evidence to question the viability and usefulness of modeling that purports to render predictions nearly 300 years into the future. Incorporation of climate-affecting inputs – such as population changes, economic development, consumption patterns (regional and global), and technological advancements for mitigation (including the role of innovation and disruptive technologies) – as well as material stochastic variables, such as volcanic eruptions that can affect the underlying climate-forcing functions of GHG concentrations and temperature rise, over such time frames rely on identifying empirical relationships imbued with significant uncertainties. If we were to consider back to the year 1713, who could have predicted where the world is today?

Based on these key variables and uncertainties, IPCC does not attempt predictions beyond the year 2100.[76] Among other reasons, this constraint is due to the widely predicted

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[72] *See* NERA *Damage Function Report* at 10-14. The NERA report discusses in detail how the "damage function" component of the IAM models is a highly simplified approach to the traditional "damages function method" in which economic assessments are narrowly confined to valuing a specific set of projected adverse effects.

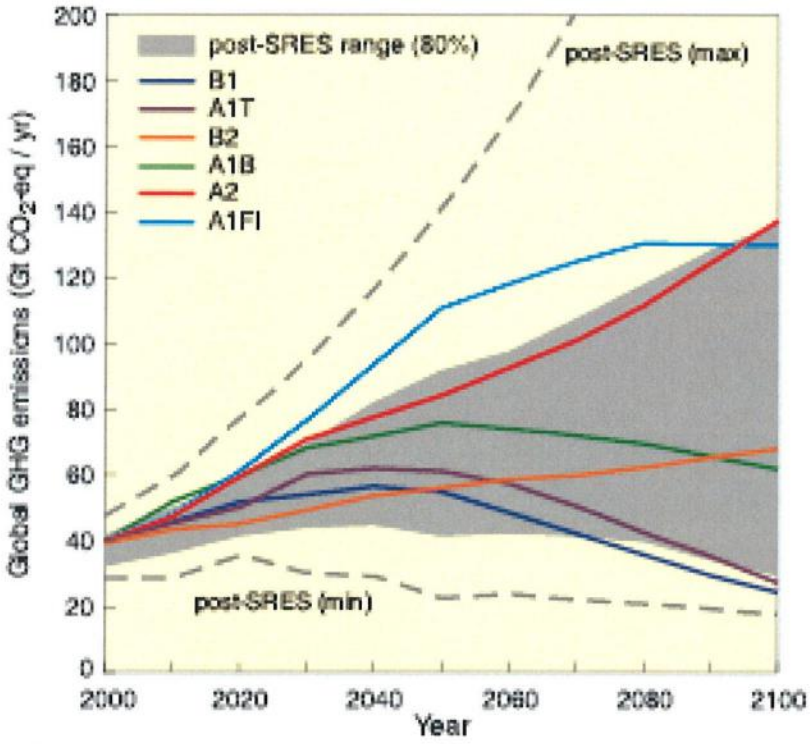
[73] 2010 TSD at 5.

[74] Nordhaus, W., "Expert Opinion on Climatic Change," American Scientist, 82:45-51 (1994).

[75] 2013 Estimate at 7.

[76] *See* www.ipcc.ch/publications_and_data/ar4/syr/en/mains3.html. This reference should not be viewed as an endorsement of the IPCC's conclusions, but rather as a reference point from which to compare the three models used in the SCC Estimates. The Fish and Wildlife Service & National Marine Fisheries Service often limit their modeling of potential climate impacts on species to even shorter time horizons.

variances in critical inputs, such as predicted model emissions. For example, the figure below, taken from the most recent IPCC work, shows how wide the emission predictions from various scenarios are, through just the year 2100.



As the authors of the *Damage Function Report* state:

> [I]n the case of climate change, many of the impacts are very far in the future (up to 300 years hence, in the case of the IWG analyses), and also highly variable in terms of the region affected. Thus [condensing projections of economic damages across many years and regions into a single present-value global measure of welfare] raises issues regarding inter-generational and inter-regional equity that seem largely ethical rather than economic.[77]

Clearly, attempting to extrapolate SCC Estimates to 2300 is simply too speculative and uncertain for use in policymaking.

V. CONCERNS WITH THE PRESENTATION OF THE SCC ESTIMATES

In addition to the Associations' concerns with opacity and accuracy of the modeling and SCC estimation process, we are further concerned that OMB and the IWG present the SCC Estimates in a confusing and potentially misleading manner. Failure to present this information

[77] *Damage Function Report* at 12.

in a way that appropriately identifies (and quantifies) uncertainty, neglects to explain the use and impact of averaging, and focuses on the global, rather than domestic, SCC, diminishes the utility of the SCC Estimates and increases the likelihood that they will be misused or misinterpreted by risk managers.[78]

A. Uncertainty Is Not Addressed Appropriately

While there is no requirement that the SCC Estimates be absolutely precise and accurate, OMB's Circular A-4 requires key uncertainties to be disclosed and quantified to the extent possible "to inform decision makers and the public about the effects and uncertainties of alternative regulatory actions."[79] Circular A-4 requires uncertainties to be analyzed qualitatively and quantitatively, delineated, and disclaimed.[80] Further, OMB's Circular A-4 admonishes that:

> Your estimates cannot be more precise than their most uncertain component. Thus, your analysis should report estimates in a way that reflects the degree of uncertainty and not create a false sense of precision. Worst-case or conservative analysis are [sic] not usually adequate because they do not convey the complete probability distribution of the outcomes, and they do not permit calculation of an expected value of net benefits.[81]

Rather than appropriately quantifying and disclaiming the profoundly speculative nature of the SCC Estimates, the IWG downplays the wide variability in the three models' outputs through averaging. Similar to the 2010 Estimates, the 2013 Estimates are based on the average outputs of the three models. Individual model predictions, however, vary significantly. For example, at a 3% discount rate, the cost per ton varies from a high of $71/ton for PAGE to a low of $21/ton for FUND, with the DICE estimate between these two costs at $38/ton. This is shown in the table below.[82]

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[78] As detailed in the attached comments submitted by many of the undersigned Associations, problems with the implementation of the SCC Estimates by federal agencies in rulemakings already have been identified with regard to several proposed rulemakings, including DOE's proposed energy efficiency standards for metal halide lamps, walk-in coolers and freezers, and commercial refrigeration equipment. *See, e.g.*, Comments submitted October 12, 2013 by the Associations on DOE's Proposed *Energy Conservation Standards for Metal Halide Lamp Fixtures* (77 Fed. Reg.51,563 (Aug. 20, 2013)); Comments submitted November 12, 2013 by the Associations on DOE's Proposed *Energy Conservation Standards for Walk-In Coolers and Freezers* (78 Fed. Reg. 55,782 (Sept. 11, 2013)); Comments submitted October 12, 2013 by the Associations on DOE's Proposed *Energy Conservation Standards for Commercial Refrigeration Equipment* (78 Fed. Reg. 55,890 (Sept. 11, 2013)); Comments submitted January 23, 2014 by Associations on Notice of Proposed Rulemaking for Energy Conservation Standards for Residential Furnace Fans 78 Fed. Reg. 64,067 (Oct. 25, 2014)); and Petition for Reconsideration filed by Associations on September 16, 2013 of Standards for Standby Mode and Off Mode for Microwave Ovens (78 FR 36316 (June 17, 2013)). These comments are attached (Attachment 5) and hereby incorporated by reference.

[79] OMB Circular A-4 at 38.

[80] *Id.* at 40.

[81] *Id.* at 40.

[82] November 2013 TSD at 21, Table A5.

Table A5: Additional Summary Statistics of 2020 Global SCC Estimates

Discount rate:	5.0%				3.0%				2.5%			
Statistic:	Mean	Variance	Skewness	Kurtosis	Mean	Variance	Skewness	Kurtosis	Mean	Variance	Skewness	Kurtosis
DICE	12	26	2	15	38	409	3	24	57	1097	3	30
PAGE	22	1616	5	32	71	14953	4	22	101	29312	4	23
FUND	3	560	-170	35222	21	22487	-85	18842	36	68055	-46	13105

While the differences in the "average" values between the models (a factor of ~3.5 between $21/ton from the FUND model to $71/ton from the PAGE model) are problematic enough, the predicted model variances are even more striking, as shown in the table above. For example, it is simply meaningless to predict a "mean" of $21/ton based on FUND, when the corresponding variance is predicted to be $22,487. The same is true for each of the other predictions.

This broad range reflects not only the effects of the various inputs and model structure uncertainties, but also the impact of taking the *average* of the three models for the five climate change scenarios at the four discount rates used in the SCC development analysis. The average values are much higher than the 50th percentiles for all three models, but are particularly higher than the 50th percentile figure in the case of the PAGE model.

Using the 3% discount rate as an example, the average values per ton versus the 50th percentile values per ton for the PAGE, DICE, and FUND models are $71/$27, $38/$34, and $21/$17, respectively. Therefore, for the PAGE, DICE, and FUND models, the value used to derive the final SCC figure of $43/ton at the 3% discount rate is the 75th percentile value for the PAGE model and the overall SCC value of $43.1 per ton corresponds to the 68th percentile. Thus, the high-end tail of the distribution of the PAGE model has an important influence on the final SCC Estimates. These final SCC Estimates should not be viewed as central figures, but rather as skewed toward the upper tail of the distribution of SCC values. Indeed, there is no rational basis for "averaging" the results, on an equally-weighted basis, from the three IAM models, which differ significantly in the assumptions they use to estimate SCC. Rather than make an effort to determine which of the three models provides the best estimates, the government instead combines all of the estimates and divides to obtain a simple average.

OMB must adhere to the directives it imposes on other agencies and executive offices with respect to providing accurate information. It has not done so with the SCC Estimates. The IWG and OMB have failed to disclose and quantify key uncertainties and to inform fully decision makers and the public of those uncertainties as required by OMB. Consistent with OMB Guidelines for Economic Analysis, the 2013 TSD must be withdrawn and amended to include a separate section that identifies the key sources of uncertainty in the derivation of the SCC. This section should include a qualitative assessment of the impact of key factors on the final SCC values and, to the extent feasible, a quantitative assessment of these factors.

B. By Presenting Only Global SCC Estimates, The IWG Severely Limits The Utility Of The Estimates For Use In Cost-Benefit Analysis And Policymaking

OMB's IQA Guidelines require that information disseminated by agencies meet the standard of utility. This part of the IQA requires agencies to assess the usefulness of the information to its intended users, including the public. For the 2013 Estimates, by presenting only global SCC estimates, and excluding domestic SCC estimates altogether, the IWG severely limits the utility of the SCC Estimates for use in cost-benefit analysis.

Further, OMB Circular A-4 mandates calculation of a domestic cost-benefit estimate in federal rulemakings, with non-U.S. estimates considered as *optional* – the reverse of the presentation published by IWG/OMB. Moreover, neither the May 2013 TSD, nor the November 2013 TSD mention the global nature of the values or note that the domestic SCC is a small fraction (7-23%) of the global SCC. Thus, policymakers who apply the SCC values from this table and have not read the previous 2010 TSD may be unaware that a large percentage of the economic benefits they are estimating from their rule will occur outside the United States.[83]

The IWG's recommendation that rule writers and policymakers use only the global SCC in cost-benefit analysis results in a significant misalignment of costs and benefits. For this reason, we strongly recommend presenting both the domestic and global SCC figures in RIAs, with a preference for use of the domestic values. This approach would allow risk managers to more readily align the costs with the benefits. Consistent with OMB guidance, the costs of a rule for entities in the United States should be presented in comparison with the benefits occurring in the United States. The benefits using the global SCC should be presented separately. Along with the global SCC benefits, federal agencies proposing a rule should be encouraged to present at least a qualitative accounting of similar regulatory efforts underway or proposed in other countries for the specific type of problem their rule is proposed to address. This approach would meet the goal of Executive Order 13609 that federal agencies evaluate how rules they are proposing differ from requirements for key United States trading partners.

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[83] For example, the 2010 TSD states:

> As an empirical matter, the development of a domestic SCC is greatly complicated by the relatively few region- or country-specific estimates of the SCC in the literature. One potential source of estimates comes from the FUND model. The resulting estimates suggest that the ratio of domestic to global benefits of emission reductions varies with key parameter assumptions. For example, with a 2.5 or 3 percent discount rate, the U.S. benefit is about 7-10 percent of the global benefit, on average, across the scenarios analyzed. Alternatively, if the fraction of GDP lost due to climate change is assumed to be similar across countries, the domestic benefit would be proportional to the U.S. share of global GDP, which is currently about 23 percent.
>
> On the basis of this evidence, the interagency workgroup determined that a range of values from 7 to 23 percent should be used to adjust the global SCC to calculate domestic effects. Reported domestic values should use this range.

2010 TSD at 11.

We note that the approach of presenting only a global benefit value while comparing it to a domestic cost value is inconsistent with policies used in the United States to perform cost-benefit analysis for rules intended to address other significant environmental issues that are global in scope. For example, ground level ozone is now recognized by many as a health and environmental issue that is global in nature. Recent studies clearly demonstrate that emissions from the Asia Pacific region affect compliance with the United States NAAQS for ozone.[84] However, the current approach of performing cost-benefit analysis of air rules for NAAQS compliance purposes does not consider the global nature of the issue. Rather, the costs to comply with the NAAQS are borne entirely by entities in the United States and the damages of ozone are estimated without any recognition of the impact of the emissions from outside the continental United States.

The IQA Petition filed with OMB raised substantially similar concerns on the TSD's presentation of global impacts, to which the OMB IQA Response simply quoted from the 2010 TSD the justification for its presentation of global impacts.[85] OMB's recital of its earlier justification for its presentation of global impacts was not altogether responsive. The Associations are aware of the justification provided in the 2010 TSD, but disagree with it, find it inconsistent with OMB Circular A-4 and analogous regulatory actions with potential global impacts, and misleading to risk managers. We are herein requesting that OMB change this presentation.

VI. ADMINISTRATIVE PROCEDURE ACT

The Administrative Procedure Act's ("APA") broad definition of a "rule" includes "an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy," such as "the approval or prescription of . . . valuations, costs, or accounting."[86] When promulgating a substantive rule, an agency must comply with the APA's procedural requirements by providing notice of proposed action describing its substance and the legal authority under which it is proposed, by allowing for public comment, and by including in the rule a description of its basis and purpose.[87] Agency rules are subject to judicial review and may be set aside if they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."[88]

At the outset, we note that OMB identifies no authority under which it can adopt the SCC Estimates as a rule, or the statutory or regulatory basis for this proceeding. OMB's exercise of regulatory discretion without identifying explicit direction from Congress therefore raises serious

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[84] Cooper O.R., et al. (2010). Increasing springtime ozone mixing ratios in the free troposphere over western North America. Nature 463(21): 344-348.

[85] OMB IQA Response at 6-7.

[86] 5 U.S.C. § 551(4); *see also Avoyelles Sportsmen's League, Inc. v. Marsh*, 715 F.2d 897, 908 (5th Cir. 1983) ("rule" includes "virtually every statement an agency can make").

[87] 5 U.S.C. § 553; *see id.* § 553(b) (only certain non-substantive rules exempted from procedural requirements).

[88] 5 U.S.C. § 706(2)(A).

constitutional concerns, including concerns about breaching the separation of powers between the legislative and executive branches and violating the non-delegation doctrine. If OMB nonetheless adopts the SCC Estimates presented in the TSD absent identification of clear statutory authority to do so, its action will be subject to challenge as unlawful rulemaking. In this regard, according to statements made by OMB, the SCC Estimates are intended to "prescribe law or policy" by specifying "valuations, costs, or accounting" to govern federal agencies' analyses of the costs and benefits of their regulatory actions.[89] Indeed, many federal programs require that agencies consider the direct and indirect costs of proposed actions. For example, Exec. Order No. 12,866 states that agencies must "propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs." And prior SCC estimates adopted by OMB have already influenced agencies' consideration of regulatory costs, as was the case with the microwave oven efficiency standards and other rules. Because the SCC Estimates in this TSD are designed to constrain agency decision-making regarding how carbon costs are to be evaluated in future agency proceedings and because, once finalized, they are to be imposed across the federal government as a common cost valuation for carbon, this proceeding represents unlawful rulemaking. For these reasons and those discussed below, the proposed TSD fails to comply with the APA's procedural and substantive requirements.

Additionally, use of the SCC Estimates in subsequent rulemakings will result in agency violations of the APA. Under the APA, a court will look to ensure that the information collection and analysis process is lawful and reasonably coherent, and that the ultimate agency action which results from use of that information is not arbitrary and capricious.[90]

From a substantive perspective, an agency engaged in rulemaking must examine the relevant data and articulate a satisfactory explanation for its action, including a "rational connection between the facts found and the choice made."[91] Agency action is arbitrary and capricious "if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."[92]

Use of the SCC Estimates in rulemaking will violate the APA. For instance, the record does not show what roles each of the IWG participating agencies actually played in developing the estimates. The record does not show which staff from the participating agencies participated in the process. The record does not show how the three models that underlie these estimates were selected (from the universe of similar available models). The record does not show who ran the models (agency staff? contractors?) or their qualifications or level of expertise. The

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[89] *See, e.g.*, 78 Fed. Reg. at 70,586 (Through the SCC, OMB will "ensure that agencies are appropriately measuring the social cost of carbon emissions as they evaluate the costs and benefits of rules."); OMB IQA Response (OMB seeks "public comment on the SCC through the formal public comment process that applies to all Federal rulemakings.").

[90] *See Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402 (1971).

[91] *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

[92] *Id.*

record does not show who developed the inputs for the model runs, including both policy as well as technical choices, and it is not clear how such inputs were developed. The record does not show how the various statistical Monte Carlo analyses actually were implemented (which inputs were held constant and why, which inputs were selected to be variable and why, and the assumptions regarding the assumed distribution functions for the latter variable inputs, *etc.*). These are but a few of the flaws, uncertainties, and unknowns that should preclude the use of the SCC Estimates/TSD.

Each of these failures violates fundamental precepts of administrative procedure and the scientific method – and none credibly can be stated to be the result of a difference of opinion, interpretation, or Agency expertise. To the contrary, these are examples where the Administration drove its conclusions far beyond the capacity of sound science and modeling. Even if the three models themselves were entirely sound, the non-public inputs into those models most certainly render the model output (*i.e.*, the SCC Estimates) arbitrary and capricious.

APA's decision-making standards also demand compliance with the IQA, including requirements for complete, unbiased analysis grounded in accepted methods. "Determination of whether the agency complied with prescribed procedures requires a plenary review of the record and consideration of applicable law."[93] More specifically, the APA requires that agencies relying on SCC Estimates in rulemaking review all credible relevant information, utilize unbiased peer review, and make Agency assumptions, methods, and models transparent and reasonably reproducible and understandable in response to an appropriate request for information. If OMB allows or directs other agencies to use the SCC Estimates, any agency that bases a rule on these estimates would violate the IQA and the APA, and the legality of such regulation would be called into question. The ultimate rationality of subsequent agency action depends in part on whether it has thoroughly complied with applicable procedural requirements, including those set forth in the IQA.[94]

VII. CONCLUSION

The Associations appreciate the opportunity to comment on the SCC Estimates. However, without the benefit of any of the information underpinning the SCC Estimates or any indication that OMB intends to actually consider comments, this process does little more than suggest, incorrectly, the appearance of transparency and collaboration. Given the significant process shortcomings, lack of peer review, and weaknesses and uncertainties in the modeling systems highlighted in these comments and related IQA Petition, the undersigned Associations

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[93] *See Olenhouse v. Commodity Credit Corp.*, 42 F.3d 1560, 1574 (10th Cir. 1994).

[94] Even if a particular statute, such as the IQA, does not provide for judicial review, "the agency's decision may still be overturned because of an analysis so defective as to render its final decisions unenforceable, or, in the absence of any analysis, because of a failure to respond to public comment concerning" the legal infirmities identified pursuant to that statute. *Michigan v. Thomas*, 805 F.22176, 188 (6th Circuit 1986); *Thompson v. Clark, 741 F.2d 401, 405 (D.C. Circuit 1984.)* (The flawed rule "is set aside,... not because the regulatory flexibility analysis [not subject to direct judicial review] was defective, but because the mistaken premise reflected in the regulatory flexibility analysis deprives the rule of its required rational support ....").

urge OMB and the IWG to withdraw the 2010 and 2013 Technical Support Documents, pending correction through an informed, transparent, and public process. OMB's November 26, 2013 solicitation of comments certainly is not such an informed, transparent, and public process. As such, we further ask OMB to refrain from using the SCC Estimates and to direct publicly other executive branch agencies not to utilize the SCC Estimates as part of any regulatory action or policymaking. Finally, as per the February 24, 2014 Request for Reconsideration of the OMB IQA Response filed by many of the Associations, and for the reasons noted throughout these comments, the Associations request that OMB reconsider its denial of the September 4, 2013 Petition calling on OMB to ensure that the SCC Estimates and TSD comply with IQA guidelines.

We appreciate the opportunity to submit the foregoing comments. If you have any questions or need any further information about these comments, please contact our counsel Wayne D'Angelo at 202.342.8525 or WDAngelo@Kelleydrye.com.

Respectfully submitted,

American Chemistry Council

American Coalition for Clean Coal Electricity

American Exploration & Production Council

American Forest & Paper Association

American Fuel & Petrochemical Manufacturers

American Iron and Steel Institute

American Petroleum Institute

America's Natural Gas Alliance

Brick Industry Association

Council of Industrial Boiler Owners

The Fertilizer Institute

Independent Petroleum Association of America

National Association of Home Builders

National Association of Manufacturers

Natural Gas Supply Association

National Mining Association

National Oilseed Processors Association

Portland Cement Association

U.S. Chamber of Commerce

Cc: Mabel Echols

Attachment 1
Statements of Interest

The American Chemistry Council: The American Chemistry Council ("ACC") represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $770 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for twelve percent of all U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.

The American Coalition for Clean Coal Electricity: The American Coalition for Clean Coal Electricity ("ACCCE") is a trade association of more than 30 companies associated with the production of electricity from coal. ACCCE's members span the production, transportation, and consumption of coal that has provided nearly half of the reliable electricity Americans depend upon each and every day over the past decade. ACCCE supports policies that will ensure affordable, reliable, domestically produced energy, while supporting the development and deployment of advanced technologies to further reduce the environmental footprint of coal-fueled electricity generation.

The American Exploration & Production Council: American Exploration & Production Council ("AXPC") is a national trade association representing 32 of America's largest and most active independent oil and natural gas exploration and production companies. AXPC members are "independent" in that their operations are limited to exploration for and production of oil and natural gas. Moreover, our members operate autonomously, unlike their fully integrated counterparts, which operate in additional segments of the energy business, such as downstream refining and marketing. AXPC members are leaders in developing and applying the innovative and advanced technologies necessary to explore for and produce oil and natural gas, both offshore and onshore, from unconventional sources.

The American Forest & Paper Association: The American Forest & Paper Association ("AF&PA") serves to advance a sustainable U.S. pulp, paper, packaging, and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative - Better Practices, Better Planet 2020. The forest products industry accounts for approximately 4.5 percent of the total U.S. manufacturing GDP, manufactures approximately $200 billion in products annually, and employs nearly 900,000 men and women. The industry

meets a payroll of approximately $50 billion annually and is among the top 10 manufacturing sector employers in 47 states.

The American Fuel & Petrochemical Manufacturers: The American Fuel & Petrochemical Manufacturers ("AFPM") is a national trade association of more than 400 companies, including virtually all U.S. refiners and petrochemical manufacturers. AFPM members operate 122 U.S. refineries comprising approximately 98% of U.S. refining capacity. AFPM petrochemical members make the chemical building blocks which go into products ranging from medical devices, cosmetics, furniture, appliances, TVs and radios, computers, parts used in every mode of transportation, solar power panels and wind turbines. As an energy intensive industry, AFPM members are directly impacted by the government's calculation of the social cost of carbon.

The American Iron and Steel Institute: The American Iron and Steel Institute ("AISI") is a non-profit, national trade association headquartered in the District of Columbia. AISI serves as the voice of the North American steel industry in the public policy arena and advances the case for steel in the marketplace as the preferred material of choice. AISI represents member companies accounting for more than three quarters of U.S. steelmaking capacity.

The American Petroleum Institute: The American Petroleum Institute ("API") is a national trade association representing over 500 member companies involved in all aspects of the oil and natural gas industry. API's members include producers, refiners, suppliers, pipeline operators, and marine transporters, as well as service and supply companies that support all segments of the industry. API and its members are dedicated to meeting environmental requirements, while economically developing and supplying energy resources for consumers.

America's Natural Gas Alliance: Representing North America's largest independent natural gas exploration and production companies, America's Natural Gas Alliance (ANGA) works with industry, government and customer stakeholders to promote increased demand for our nation's abundant natural gas resource for a cleaner and more secure energy future and to ensure its continued availability.

The Brick Industry Association : Founded in 1934, the Brick Industry Association represents the U.S. clay brick industry, which includes 270 manufacturers, distributors, and suppliers that provide employment for nearly 200,000 Americans in 44 states and historically generate approximately $9 billion to the U.S. economy annually. Our members and our industry could potentially be needlessly harmed by this rulemaking. Given the large number of small businesses affected by this rule, including in the brick industry, additional time is justified.

The Council of Industrial Boiler Owners: The Council of Industrial Boiler Owners ("CIBO") is a broad-based association of industrial boiler owners, architect-engineers, related equipment manufacturers, and University affiliates with members representing 20 major industrial sectors. CIBO members have facilities in every region of the country and a representative distribution of almost every type of boiler and fuel combination currently in operation. CIBO was formed in 1978 to promote the exchange of information within the industry and between industry and

government relating to energy and environmental equipment, technology, operations, policies, law and regulations affecting industrial boilers. Since its formation, CIBO has been active in the development of technically sound, reasonable, cost-effective energy and environmental regulations for industrial boilers. CIBO supports regulatory programs that provide industry with enough flexibility to modernize -- effectively and without penalty - the nation's aging energy infrastructure, as modernization is the key to cost-effective environmental protection.

The Fertilizer Institute: The Fertilizer Institute ("TFI") represents the nation's fertilizer industry including producers, importers, retailers, wholesalers and companies that provide services to the fertilizer industry. TFI members provide nutrients that nourish the nation's crops, helping to ensure a stable and reliable food supply. TFI's full-time staff, based in Washington, D.C., serves its members through legislative, educational, technical, economic information and public communication programs.

The Independent Petroleum Association of America: The Independent Petroleum Association of America (IPAA) is the national trade organization representing thousands of American oil and natural gas explorers and producers, as well as the service and supply industries that support their efforts. These businesses will be significantly affected by the proposed actions in this regulatory framework. IPAA member companies drill about 95 percent of American oil and natural gas wells, produce about 54 percent of American oil, and more than 85 percent of American natural gas.

The National Association of Home Builders: The National Association of Home Builders ("NAHB") is a nationwide federation of more than 850 state and local home builder associations representing more than 140,000 members including individuals and firms engaged in land development, single and multifamily construction, multifamily ownership, building material trades, and commercial and industrial projects. More than 80 percent of NAHB members are classified as "small businesses" and meet the federal definition of a "small entity," as defined by the U.S. Small Business Administration. The use of the Social Cost of Carbon report as a basis for future rulemakings will have a profound impact on the way homes and communities of the future will be built.

The National Association of Manufacturers: The National Association of Manufacturers ("the NAM") is the largest industrial trade association in the United States, representing over 12,000 small, medium and large manufacturers in all 50 states. NAM is the leading voice in Washington, D.C., for the manufacturing economy, which provides millions of high wage jobs in the U.S. and generates more than $1.6 trillion in GDP. In addition, two-thirds of NAM members are small businesses, which serve as the engine for job growth. NAM's mission is to enhance the competitiveness of manufacturers and improve American living standards by shaping a legislative and regulatory environment conducive to U.S. economic growth.

The National Mining Association: The National Mining Association ("NMA") is a national trade association whose members produce most of America's coal, metals, and industrial and agricultural minerals. Its membership also includes manufacturers of mining and mineral

processing machinery and supplies, transporters, financial and engineering firms, and other businesses involved in the nation's mining industries. NMA works with Congress and federal and state regulatory officials to provide information and analyses on public policies of concern to its membership, and to promote policies and practices that foster the efficient and environmentally sound development and use of the country's mineral resources.

The National Oilseed Processors Association: The National Oilseed Processors Association ("NOPA") is a national trade association that represents 13 companies engaged in the production of vegetable meals and vegetable oils from oilseeds, including soybeans. NOPA's member companies process more than 1.6 billion bushels of oilseeds annually at 63 plants located in 19 states, including 57 plants that process soybeans.

The Natural Gas Supply Association: The Natural Gas Supply Association ("NGSA"), established in 1965, represents integrated and independent companies that produce and market approximately 40 percent of the natural gas consumed in the United States. NGSA encourages the use of natural gas within a balanced national energy policy and promotes the benefits of competitive markets to ensure reliable and efficient transportation and delivery of natural gas and to increase the supply of natural gas to U.S. customers.

The Portland Cement Association: The Portland Cement Association ("PCA") is the national trade association for the United States cement manufacturing industry. PCA's 26 member companies operate 79 manufacturing plants in 34 states, accounting for almost 80 percent of domestic cement manufacturing capacity. In 2011, the cement manufacturing and related industries generated nearly $44 billion in annual revenues and supported more than 150,000 high quality manufacturing jobs in the United States.

The U.S. Chamber of Commerce: The U.S. Chamber of Commerce ("the Chamber") is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system.

APPENDIX C

U.S. CHAMBER OF COMMERCE

September 4, 2013

Data Quality Coordinator
Assistant Director for Administration
Office of Management & Budget
Washington, D.C. 20503
correction@omb.eop.gov
Fax: 202.395.3888

Re: Petition for Correction: Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866 (February 2010) and Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866 (May 2013).

Dear Sir/Madam:

America's Natural Gas Alliance, the American Chemistry Council, the American Petroleum Institute, the National Association of Home Builders, the National Association of Manufacturers, the Portland Cement Association, and the U.S. Chamber of Commerce respectfully submit to the Office of Management and Budget ("OMB"), pursuant to the

Information Quality Act[1] (IQA), this Petition for Correction of the Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (February 2010) ("2010 Estimate") and Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013) ("2013 Estimate") (collectively, the "SCC Estimates").[2] As described in this petition, the Technical Support Documents and SCC Estimates should be withdrawn and not used in rule-making and policy-making for the following reasons:

1. The SCC Estimates fail in terms of process and transparency. The SCC Estimates fail to comply with OMB guidance for developing influential policy-relevant information under the Information Quality Act. The SCC Estimates are the product of an opaque process and any pretensions to their supposed accuracy (and therefore usefulness in policy-making) are unsupportable.

2. The models with inputs (hereafter referred to as "the modeling systems") used for the SCC Estimates and the subsequent analyses were not subject to peer review as appropriate.

3. Moreover, even if the SCC Estimate development process was transparent, rigorous, and peer-reviewed, the modeling conducted in this effort does not offer a reasonably acceptable range of accuracy for use in policy-making.

4. The Interagency Workgroup ("IWG") has failed to disclose and quantify key uncertainties to inform decision makers and the public about the effects and uncertainties of alternative regulatory actions as required by OMB.

5. By presenting only global SCC estimates and downplaying domestic SCC estimates in 2013, the IWG has severely limited the utility of the SCC for use in benefit cost analysis and policy-making.

Given these significant issues described herein, we are submitting this Petition for Correction to urge OMB and the IWG to withdraw the 2010 and 2013 Technical Support Documents, pending correction through a transparent, public process. Furthermore, we ask OMB to not utilize either the 2010 or 2013 SCC Estimates and to publicly direct other executive branch agencies not to utilize the 2010 and 2013 SCC Estimates for any regulatory action or policy-making.

I. INTEREST OF PETITIONERS

Representing North America's largest independent natural gas exploration and production companies, America's Natural Gas Alliance (ANGA) works with industry, government and customer stakeholders to promote increased demand for our nation's abundant

[1] P.L. 106-554, §515, 144 Stat. 2763 (2001).

[2] As the SCC Estimates were developed in conjunction with the Interagency Working Group on the Social Cost of Carbon ("IWG"), we are simultaneously providing copies of this Petition for Correction to the Data Quality Coordinators for each agency and entity that participated in the IWG.

natural gas resource for a cleaner and more secure energy future and to ensure its continued availability.

The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $770 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for twelve percent of all U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.

The American Petroleum Institute (API) is a national trade association representing over 500 member companies involved in all aspects of the oil and natural gas industry. API's members include producers, refiners, suppliers, pipeline operators, and marine transporters, as well as service and supply companies that support all segments of the industry. API and its members are dedicated to meeting environmental requirements, while economically developing and supplying energy resources for consumers.

The National Association of Home Builders (NAHB) is a nationwide federation of more than 850 state and local home builder associations representing more than 140,000 members including individuals and firms engaged in land development, single and multifamily construction, multifamily ownership, building material trades, and commercial and industrial projects. More than 80 percent of NAHB members are classified as "small businesses" and meet the federal definition of a "small entity," as defined by the U.S. Small Business Administration. The use of the Social Cost of Carbon (SCC) report as a basis for future rulemakings will have a profound impact on the way homes and communities of the future will be built.

The National Association of Manufacturers (NAM) is the largest industrial trade association in the U.S., representing over 12,000 small, medium and large manufacturers in all 50 states. NAM is the leading voice in Washington, D.C., for the manufacturing economy, which provides millions of high wage jobs in the U.S. and generates more than $1.6 trillion in GDP. In addition, two-thirds of NAM members are small businesses, which serve as the engine for job growth. NAM's mission is to enhance the competitiveness of manufacturers and improve American living standards by shaping a legislative and regulatory environment conducive to U.S. economic growth.

The Portland Cement Association (PCA) is the national trade association for the United States cement manufacturing industry. PCA's 26 member companies operate 79 manufacturing plants in 34 states, accounting for almost 80 percent of domestic cement manufacturing capacity. In 2011, the cement manufacturing and related industries generated nearly $44 billion in annual revenues and supported more than 150,000 high quality manufacturing jobs in the U.S.

The U.S. Chamber of Commerce is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system.

Our members may be impacted by this proposal because many of them manufacture products that, when combusted, result in greenhouse gas ("GHG") emissions (including carbon dioxide ("CO_2"), and because, in the course of their business, they emit CO_2. Should this Administration, or any subsequent one, promulgate further regulation of these products or emissions, such proposals and rules could potentially be based, in large part, on the SCC Estimates. Our members, therefore, have a direct and meaningful interest in ensuring that any SCC Estimates are based on transparent processes, accurate information, rational assumptions, and are within the reach of the current scientific understanding and impact models. To be clear, we are not herein discussing the existence or potential causes of climate change. Instead, we are questioning the IWG's estimates of the social cost of carbon, based on complex economic impacts hundreds of years in the future, which in turn are based on present day understanding of current and future carbon emissions.

II. GOALS AND IMPORTANCE OF INFORMATION QUALITY ACT GUIDELINES

The IQA requires that federal agencies take steps to maximize the quality, objectivity, and integrity of the information they disseminate, and to provide a mode of redress to correct flawed or incomplete information. Consistent with its directive to other agencies and entities, OMB developed its own guidelines ("IQA Guidelines") that require that the information it disseminates meets standards for objectivity, utility, and integrity.[3] The "objectivity standard" focuses on whether the information is "accurate, reliable, and unbiased and whether the information is presented in an accurate, clear, complete, and unbiased manner."[4] The "integrity standard" refers to information security, such as protection of information from unauthorized access or revision, while the "utility standard" refers to the usefulness of the information for the intended audience's anticipated purposes.[5]

OMB's Guidelines require it to maximize the quality of disseminated information that it classifies as influential. "Influential information" generally refers to information that "will have a clear and substantial impact on important public policies or important private sector decisions."[6] Without question, the SCC Estimates, upon which numerous agencies may base billions, if not trillions, of dollars of regulation, are influential information that will have a clear and substantial impact on important public policies and important private sector decisions.[7]

Further, under OMB Guidelines, such influential information must meet a higher level of "transparency."[8] According to OMB, transparency requires that its findings be reproducible,

[3] Office of Management & Budget Information Quality Guidelines (Oct. 1, 2002).
[4] *Id.* at 8.
[5] *Id. at 1.*
[6] *Id.* at 8.
[7] *Id.*
[8] *Id.* at 2.

within an acceptable range of imprecision, by third parties.[9] Influential information must also be transparent with respect to: (1) the source of the utilized data; (2) the various assumptions employed; (3) the analytic methods applied; and (4) the statistical assumptions employed.[10] All these transparency elements are important considerations in any objective, third-party review and analysis of Agency information.

OMB imposes these guidelines on itself as well as on the information on which it relies. It requires OMB staff, and the working groups it oversees, to acquire relevant information by acceptable and unbiased methods.[11] Further, information collected must generally display indicia of reliability such as being subjected to peer review or being founded on transparent and reproducible methods.

OMB's obligations under the IQA are significant. These obligations were put in place by Congress and are supported by an Administration-wide effort to make informed and transparent decisions based on sound science.[12] The IQA guidelines, peer review guidelines, and internal protocols that OMB uses to ensure the Administration's disseminations are objective, unbiased, and robust. Importantly, OMB, as the entity that developed and oversees the IQA's guidelines to agencies, has a profound and unique interest in ensuring those guidelines are followed to the greatest extent possible in its own regulatory decision-making. As discussed below, OMB failed to follow these guidelines.

III. REQUEST FOR CORRECTION

1. The IWG Estimation Process was Not Transparent

In his March 9, 2009 "Memorandum for the Heads of Executive Departments and Agencies" on "Scientific Integrity" ("Scientific Integrity Memo"), President Obama called on his Administration to commit to procedures and a code of conduct that ensures scientific integrity and builds public trust. President Obama's opening line of that memorandum could not be more relevant and directly applicable to the SCC Estimates and the processes which underlie them:

> Science and the scientific process must inform and guide decisions of my Administration on a wide range of issues, including improvement of public health, protection of the environment, increased efficiency in the use of energy and other resources, mitigation, and protection of national security. The public must be able to trust the science and the scientific process informing public policy decisions.

[9] *Id.*
[10] 67 Fed. Reg. 369, 374 (Jan 3, 2002).
[11] *Id.* at 23.
[12] See President Obama's Memorandum for the Heads of Executive Department and Agencies: Transparency and Open Government (74 Fed. Reg. 4685 (Jan. 21, 2009) ("My Administration is committed to creating an unprecedented level of openness in Government."); see also President Obama's Memorandum for the Heads of Executive Department and Agencies: Scientific Integrity. ("Science and scientific processes must inform and guide decisions of my Administration on a wide range of issues.")

In furtherance of important goals, President Obama instructed "[t]o the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking." These transparency issues are at the core of the OMB's IQA reproducibility standards required for influential information.

Under OMB's IQA Rule, such influential information must meet a higher level of "transparency."[13] According to OMB, transparency requires that the OMB/IWG findings be reproducible, within an acceptable range of imprecision, by third parties.[14] Influential information must also be transparent with respect to: (1) the source of the utilized data; (2) the various assumptions employed; (3) the analytic methods applied; and (4) the statistical assumptions employed. All these transparency elements are important considerations in any objective, third-party review and analysis of the SCC Estimate.[15]

According to OMB in the IQA Rule:

> [t]he primary benefit of public transparency is not necessarily that errors in analytic results will be detected, although error correction is clearly valuable. The more important benefit of transparency is that the public will be able to assess how much an agency's analytic results hinge on the specific analytic choices made by the agency. Concreteness about analytic choices allows, for example, the implications of alternative technical choices to be readily assessed. This type of sensitivity analysis is widely regarded as an essential feature of high-quality analysis, yet sensitivity analysis cannot be undertaken by outside parties unless a high degree of transparency is achieved.[16]

OMB, as the disseminator of the SCC Estimates, and the overseer of the IWG, has a duty to shed light on the IWG estimation process. That duty has not been met. The public knows nothing about the IWG other than the identity of the agencies and entities that make up the IWG and the fact that they estimated the SCC in 2010 and 2013.

OMB has not revealed the identity of the participants or any information from which to make an assessment as to the participants' expertise or their qualification to participate in a group tasked to estimate the SCC. According to OMB Circular A-4's directive to agencies and presumably OMB itself, "You should also disclose the use of outside consultants, their qualifications, and history of contracts and employment . . . ."[17] The public does not even know whether all the IWG's listed agencies and entities provided personnel or what levels of engagement each of the agencies actually had in the development of the SCC Estimate. The public does not know whether or how government contractors were used in the development

[13] OMB IQA Guidelines at 2.
[14] 67 Fed. Reg. at 378.
[15] 67 Fed. Reg. at 374.
[16] 67 Fed. Reg. at 374.
[17] OMB Circular A-4, p. 17 (2003).

process. Further, OMB has not revealed how these unidentified individuals collaborated. The public does not know whether, or how often, they met, what was discussed, what information was considered, what information was rejected, or how decisions were made.

OMB has failed to comply with the transparency policies that it drafted for developing influential policy-relevant information under the Information Quality Act and imposes on other agencies and executive offices. The SCC Estimates are the product of an opaque process, are fraught with uncertainties, and any pretensions to their supposed accuracy (and therefore usefulness in policy-making) are unsupportable.

2. The Modeling Systems (Models with Inputs) and the Subsequent Analyses were Not Subject to Peer Review as Appropriate

OMB and the IWG masked the inherent flaws and limitations of the SCC Estimates by shielding the modeling systems (the models with the inputs with which they were run), and the SCC Estimates themselves from peer review. As OMB's Final Information Quality Bulletin for Peer Review ("Peer Review Bulletin") states, "[p]eer review is one of the most important procedures to ensure that the quality of published information meets the standards of the scientific and technical community."[18] Further, President Obama's 2009 Scientific Integrity Memo states that "[w]hen scientific or technical information is considered in policy decisions, the information should be subject to well established scientific processes, including peer review . . ."

OMB's IQA Guidelines recognize the critical importance of peer review in government decision-making, and point to the existence of peer review as providing a presumption of objectivity.[19] Similarly, EPA, which will likely utilize the SCC Estimates more than most agencies, recognizes that the hallmark of scientific integrity is a robust and independent peer review process.[20] According to EPA guidance, "[p]eer review is conducted by qualified individuals (or organizations) who are independent of those who performed the work, and who are collectively equivalent in technical expertise (i.e., peers) to those who performed the original work. Peer review is conducted to ensure that activities are technically supportable, competently performed, properly documented, and consistent with established quality criteria."[21]

Further, EPA has recognized in its peer review guidance that, particularly when reviewing influential findings such as the SCC Estimates, a peer reviewer must be independent in order to be credible, defensible, and unbiased.[22] Indeed, peer review and adherence to sound scientific methods are required by EPA's guidelines implementing the IQA.[23]

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[18] Memorandum for Heads of Departments and Agencies from Josh B. Bolton, Director, OMB "Issuance of OMB's 'Final Information Quality Bulletin for Peer Review'" (Dec. 16, 2004) p. 2.

[19] 67 Fed. Reg. at 377.

[20] *Peer Review Handbook, 3rd Edition, Prepared for the U.S. Environmental Protection Agency by Members of the Peer Review Advisory Group for EPA's Science Policy Council,* EPA/100/B-06/002.

[21] *Id.* at 12.

[22] *Id.* at 13.

[23] *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency*, EPA/260R-02-008 (Oct. 2002).

Despite the fact that OMB's IQA Rule and Guidelines, as well as its Peer Review Bulletin, recognize the critical need for peer review in administrative decision-making and in support of administrative findings, neither OMB nor the IWG subjected the final SCC Estimates, or their key foundations, to peer review. This failure is a critical flaw and undermines the credibility of this estimate.

Significantly, that the IWG utilized models that are generally available to the public does not sufficiently demystify the IWG process. There is no discussion, for example, of the limitations of each of the models used. The class of models from which the three that the IWG used were selected is still in its infancy, from a developmental standpoint. While such models attempt to predict the near and far future, they all rely on numerous assumptions – including many that are decades old, and others that simply cannot be calibrated or verified. Yet one of the models used supposedly has the capacity to predict climate impacts till the year 2595.[24] Further, it is not clear if and/or how modest changes to the inputs to the FUND, DICE, and PAGE models could drastically change the SCC Estimates (*i.e.*, the sensitivity of inputs to model outcomes is not transparent). Without any information as to the hundreds of model inputs (or the people or processes that selected and/or developed them), and their sensitivities, expertise, or biases, it is impossible to call the SCC Estimates rational or supportable. On July 18, 2013, Administrator Howard Shelanski of OMB's Office of Information and Regulatory Affairs ("OIRA") suggested in testimony before the House Committee on Oversight and Government Reform Subcommittee on Energy Policy, Healthcare, and Entitlements that peer review was unnecessary because the FUND, DICE, and PAGE models were all peer reviewed. This suggestion is incorrect, or at least misleading, for several reasons as will be described below. The SCC Estimates are not just the product of the models (flawed or limited as they may be) – they are the product of the data (and/or policy choices) that were inherent in the model input data selection. Other than for a few of the hundreds of variables that comprise the input data set for the three models used, the public has no idea of what the inputs are or how they were determined. This critical data gap – or black box – includes not only the deterministic inputs (*i.e.*, assumed values for those inputs held constant), but also, importantly, the stochastic inputs (*i.e.*, those inputs that were selected to be variable) that supported the Monte-Carlo analysis.[25] Model inputs, and the judgments, principles, and processes that generated them, are critical to the model output. As the developer of the FUND model prominently and candidly disclaims on the website for accessing the FUND model:

> It is the developer's firm belief that most researchers should be locked away in an ivory tower. Models are often quite useless in unexperienced hands, and sometimes misleading. No one is smart enough to master in a short period what took someone else years to

[24] For context, consider the technological and societal changes that occurred in the last 582 years and question whether and to what extent those changes were predictable. A technology expert in 1950 probably could not have predicted the internet or the iPhone, much less someone who lived before Christopher Columbus sailed to America.

[25] Consider, for instance, the selection of discount rates for one of the few model inputs that was disclosed. If a discount rate of 7% were utilized, per OMB Circular A-4 (p. 12), the SCC Estimate could be closer to zero and even demonstrate benefits. We raise this issue, not to advocate for a particular discount rate, but to highlight that even a single model input of the hundreds can materially affect the outcomes of the models.

> develop. Not-understood models are irrelevant, half-understood models treacherous, and mis-understood models dangerous.[26]

The SCC Estimates are as much a product of the inputs to the models as they are the product of the models themselves. The inputs that drive both the 2010 and 2013 SCC Estimates were never peer reviewed – nor are the majority of them even known. Further, the final 2010 and 2013 Estimates (*i.e*., the products of these opaque models and these inputs) were never peer reviewed. This fact is critical, as the output of these models was further manipulated by IWG through averaging that may be inappropriate and misleading (discussed below). That versions of the models were peer reviewed does not absolve OMB and the IWG from the need to subject the current SCC Estimate to peer review. Indeed, it reinforces the need to conduct peer review on all subsequent model changes and inputs, which alter the estimates coming out of the models. After all, ***the 2013 SCC Estimate is 60% higher than even the one developed just three years ago***. Unfortunately, OMB and the IWG have sheltered the model choices, models, data inputs, and analyses from peer review.

3. The SCC Estimate Modeling Systems Do Not Demonstrate an Acceptable Range of Accuracy

Predicting the future, as one might expect, is a massively imprecise exercise reliant on assumptions, hypotheses, and judgments about future technological advances, principles, and decisions that directly impact emissions scenarios, mitigation, and adaptation. While the Petitioners support the use of economic modeling and often rely on models for our own analyses, there are limits to the effectiveness of certain modeling techniques. For instance, the imprecision inherent in modeling assumptions, hypotheses, and judgments are significantly magnified when impacts (and costs) are projected over a long time period. While certainty is not a characteristic of any modeling effort, OMB and the IWG cannot push prognostications so far beyond the capabilities of current science and economic modeling that the estimates become little more than indefensible guesses. There is a threshold beyond which uncertainties become so profound, widespread, and compounded that, when further undermined by data limitations and the models' lack of complexity, render the ultimate estimate flawed and unusable. Even the IPCC limits its future climate predictions and presents a range of possible scenarios (more on that below). That the 2013 SCC Estimate changed by 60% the 2010 SCC Estimate developed just a few years ago using the same set of models demonstrates that this exercise is massively uncertain and not robust enough for policy-making. Such variability over such a short term should have given OMB and the IWG pause and a heightened concern that estimating the SCC with accuracy is perhaps beyond the capabilities of the model systems utilized.

OMB and the IWG rely on three models which purport to predict the ultimate costs of a long chain of impacts stemming from the emission of GHGs (*i.e*., the impact of temperature on sea-level rise, the impact of sea-level rise on a waterside cities, the monetization of the impacts on the waterside cities, *etc*.). The following subsections provide a nonexclusive list of the uncertainties that demonstrate the modeling conducted does not offer a reasonably acceptable range of accuracy for use in policy-making.

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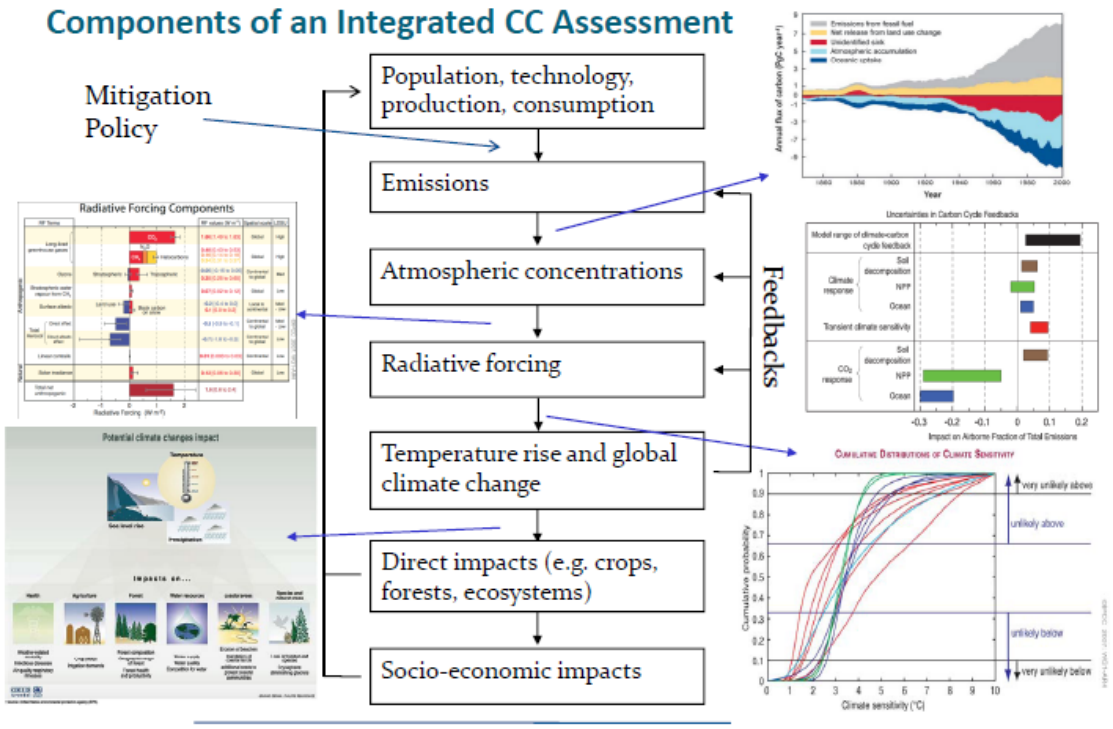
[26] http://www.fund-model.org/ (accessed 7/26/2013)

i. Model(s) Structure

Both the 2010 and 2013 SCC Estimates rely on three Integrated [Climate Change] Assessment Models ("IAMs") in order to develop its estimates – DICE (Dynamic Integrated model of Climate and Economy), FUND (Framework Uncertainty, Negotiation and Distribution), and PAGE (Policy Analysis for the Greenhouse Effect).[27] These models have a similar "stacked" structure, shown in the figure below.[28] The final socio-economic impact prediction at the end relies on the cascading series of inputs in the prior steps. Model uncertainty, at any stage, is affected by all of the uncertainties in the prior steps (including model input uncertainties, as well as model structure uncertainties), and the uncertainties associated with that particular step. This is especially true if such socio-economic outputs are predicted over very long time periods, as they are in the SCC Estimates.



Based in part on these compounded uncertainties, in the 2010 Estimate the authors noted that the IWG offered the new SCC values "with all due humility" about the uncertainties embedded in them and with a "sincere promise to continue work to improve them."[29] In contrast, the 2013 SCC Estimate has scant discussion of uncertainties. Only a small paragraph on "research gaps" is provided on the last page of the 2013 SCC Estimate. Other than a brief reference back to the 2010 SCC Estimate, the "humility" with which the estimates were originally provided seems to have been lost. It is our belief that modeling science has not made any quantum leaps in the intervening three years to merit this loss of humility. The meager

[27] DICE (W. Nordhaus, Yale University), PAGE (C. Hope, University of Cambridge UK), and FUND (R. Tol, Ireland Economic and Social Institute and Carnegie Mellon University.).
[28] Taken from a presentation by Traeger, C., The Economics of Climate Change.
[29] 2010 Estimate at 29.

discussion of uncertainty in most recent SCC Estimates promotes the unsupported and misleading idea that the updated SCC values are highly accurate figures.

That there are key and substantial differences in the IAMs is not in dispute. Consider, for example, the degree to which catastrophic events, i.e. temperature changes of, for example, 4.5° to 6° C due to climate change, are included in the various models. FUND does not consider this possibility, whereas the other two models do. Or, consider adaptation. Again, FUND assumes a higher degree of adaptation than the other two models. Whether and to what extent these key variables are considered matters to the outcome of the model. These key differences in the data that the models consider further evince the uncertainty inherent in climate modeling.

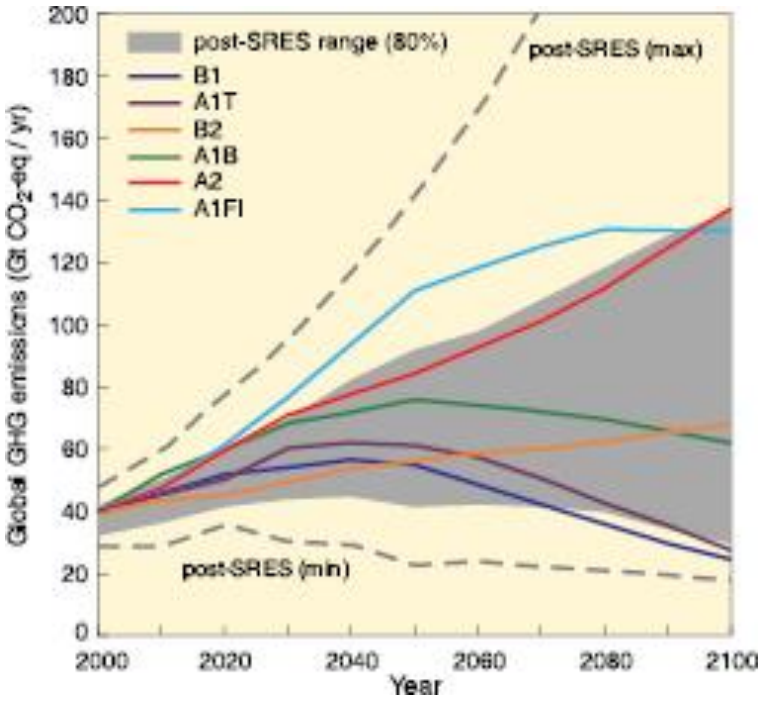
ii. Model Time Horizons

The 2010 and 2013 SCC Estimates are ambitiously projected for very long time horizons – namely until 2300.[30] The 2013 Estimate notes that the DICE model, for example, can be run for an even longer time horizon – until 2595. The ability of any of these models (and their input assumptions) to hold over even the 2300 time horizon is not clear and certainly not verifiable. The fact that the SCC estimates increased 60% in three years provides sufficient evidence to question the viability and usefulness of modeling that purports to render predictions 300+ years into the future. Incorporation of climate-affecting inputs such as populations, economic development, consumption patterns (regionally and globally), technological advancements (including role of innovation, including disruptive technologies) for mitigation, as well as material stochastic variables such as volcanic eruptions that can affect the underlying climate forcing functions such as GHG concentrations and temperature rise over these time frames rely on empirical relationships imbued with significant uncertainties.

Based on the these key variables and uncertainties, the Intergovernmental Panel on Climate Change ("IPCC") does not attempt predictions beyond the year 2100, even in its long-term predictions.[31] Among other reasons, this constraint is due to the widely predicted variances in critical inputs such as predicted model emissions. For example, the figure below, taken from the most recent IPCC work, shows just how wide the emissions from the various scenarios are, just through the year 2100. Clearly, attempting to further extrapolate this (and many other similar critical inputs) to 2300 is simply too speculative and uncertain for use in policy-making.

[30] 2013 Estimate at 7.

[31] http://www.ipcc.ch/publications_and_data/ar4/syr/en/mains3.html. The petitioners have large and diverse memberships, including members that do not endorse IPCC's conclusions. As such, this reference should not be viewed an endorsement of the IPCC's conclusions. It is merely a reference point from which to compare the three models used in the SCC Estimates.



iii. Damage Functions

Consider, for example, the critical role played by "damage functions" in these IAMs. These damage functions translate variables, such as projected sea level rise, to estimated economic damages. By their nature, we know very little about the correct functional form of damage functions. According to a well-known economist, " …developers of IAMs can do little more than make up functional forms and corresponding parameter values. And that is pretty much what they have done."[32] Furthermore, "The bottom line here is that the damage function used in most IAMs are completely made up, with no theoretical or empirical foundation."[33] The author of the DICE model similarly stated: "Equation (5) involves the economic impacts of climate change, which is the thorniest issue in climate-change economics. These estimates are indispensable for making sensible decisions about the appropriate balance between costly emissions reductions and climate damages. However, providing reliable estimates of the damages from climate change over the long run has proven extremely difficult."[34]

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[32] Pindyck, R.S., "Climate Change Policy: What Do the Models Tell Us?," NBER Working Paper Series, WP 19244, July 2013, p 11.

[33] Id., p 13.

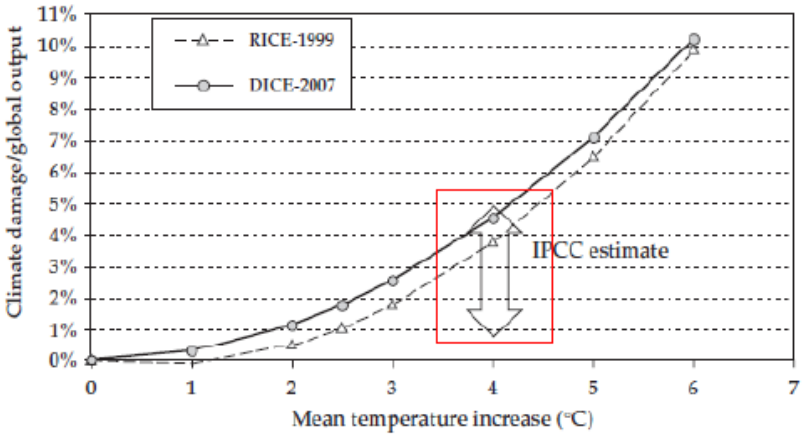
[34] Nordhaus, W, et. al., "DICE 2013: Introduction and User's Manual," May 2013. p. 10. Equation 5 refers to the damage function in the DICE model.

The arbitrariness of damage functions are clearly demonstrated by the following example. In the DICE model, discussed above, a quadratic damage function[35] is specified in which the socioeconomic damage is related to the extent of climate change in a non-linear manner such that this damage is assumed to accelerate much faster as the extent of predicted climate change increases. In doing so, DICE relies on estimates of monetized damages from the Tol (2009) survey as the starting point for its damage function. It then enhances the damage function, however, to account for factors such as biodiversity loss, ocean acidification, sea-level rise, changes in ocean circulation, and even political reactions to climate change by adding a further 25 percent upward adjustment, recognizing that this adjustment is purely "judgmental."

Such subjective (i.e., arbitrary) "adjustments" in monetary value (made by William Nordhaus) are troubling because those adjustments have significant impacts on the output from the models. Even expert judgments have to be supported. For example, compare the DICE damage function with that estimated by the IPCC, as shown in the figure below.[36]

Aggregate Damage Estimates DICE-2007

- Adding estimates for catastrophic damages and
- Aggregating over Regions and
- Extrapolating for temperature changes other then 2.5°C yields Damage



Source: Nordhaus (2007), Figure 3-3, Damage function in DICE-2007 versus earlier model (RICE-1999) and estimated range from IPCC AR4, which reports that "global mean losses could be 1–5% GDP for 4°C of warming".

For an assumed 4° C increase in global mean temperature rise, as the figure shows, DICE predicts "damage" at the very high-end of the range that the IPCC projects. Therefore, the inputs from DICE into the predicted SCC Estimates are biased extremely high relative to the IPCC range of damages.

[35] Traeger, C. (2009). The Economics of Climate Change. Presented at UC Berkeley; Part 6.
[36] Id.

4. Uncertainty is not Addressed Appropriately

While there is no requirement that the SCC Estimates be absolutely precise and accurate, OMB's Circular A-4 requires key uncertainties to be disclosed and quantified to the extent possible "to inform decision makers and the public about the effects and uncertainties of alternative regulatory actions."[37] Circular A-4 requires uncertainties to be analyzed qualitatively and quantitatively, delineated, and disclaimed.[38] Further, OMB's Circular A-4 admonishes agencies and presumably itself that:

> Your estimates cannot be more precise than their most uncertain component. Thus, your analysis should report estimates in a way that reflects the degree of uncertainty and not create a false sense of precision. Worst-case or conservative analysis are [sic] not usually adequate because they do not convey the complete probability distribution of the outcomes, and they do not permit calculation of an expected value of net benefits.[39]

Far from appropriately quantifying and disclaiming the profound speculative nature of the SCC Estimates, the IWG downplays the wide variability in the three models' outputs through averaging. Similar to the 2010 Estimates, the 2013 Estimates are based on the average outputs of the three models. Individual model predictions, however, vary significantly. For example, at the 3% discount rate, the cost per ton varies from a high of $71/ton for PAGE to $21/ton for FUND, with the DICE estimate in between at $38/ton. This is shown in the table below, taken from page 21 of the 2013 Technical Support Document.

Table A5: Additional Summary Statistics of 2020 Global SCC Estimates

Discount rate:	5.0%				3.0%				2.5%			
Statistic:	Mean	Variance	Skewness	Kurtosis	Mean	Variance	Skewness	Kurtosis	Mean	Variance	Skewness	Kurtosis
DICE	12	26	2	15	38	409	3	24	57	1097	3	30
PAGE	22	1616	5	32	71	14953	4	22	101	29312	4	23
FUND	3	560	-170	35222	21	22487	-85	18842	36	68055	-46	13105

While the differences in the "average" values between the models (almost a factor of 3.5 between the $21/ton from the FUND model to the $71/ton from the PAGE model) are problematic enough, the predicted model variances are even more striking as shown in the table above. For example, it is simply meaningless to predict a "mean" of $21/ton based on FUND, when the corresponding variance is predicted to be $22,487. The same can be said for each of the other predictions as summarized in the table above.

This broad range reflects not only the effects of the various inputs and model structure uncertainties, but also the impact of taking the *average* of the three models for the five climate change scenarios at the four discount rates used in the SCC development analysis. The average values are much higher than the 50th percentiles for all three models, but are particularly higher than the 50th percentile figure in the case of the PAGE model.

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[37] OMB Circular A-4 at 38.
[38] Id. at 40.
[39] Id. at 40.

Using the 3% discount rate as an example, the average values versus the 50th percentile values per ton for the PAGE, DICE, and FUND models are $71/$27, $38/$34, and $21/$17, respectively. Therefore, for the PAGE, DICE, and FUND models, the value used to derive the final SCC figure of $43/ton at the 3% discount rate is the 75th percentile value for the PAGE model and the overall SCC value of $43.1 per ton corresponds to the 68th percentile. Thus, the high end tail of the distribution of the PAGE model has an important influence on the final SCC Estimates. These final SCC Estimates should not be viewed as central figures, but rather skewed toward the upper tail of the distribution of SCC values.

OMB must adhere to the directives it imposes on other agencies and executive offices with respect to providing accurate information in its disseminations. They have not done so here. The IWG has failed to disclose and quantify key uncertainties and to fully inform decision-makers and the public of those uncertainties as required by OMB. Given these uncertainties, OMB and the IWG should grant this petition for correction before the SCC Estimates are utilized for any regulatory action or policy-making.

5. By Presenting Only Global SCC Estimates and Excluding Domestic SCC Estimates Altogether in 2013, the IWG has Severely Limited the Utility of the SCC for Use in Benefit-Cost Analysis and Policy-making by Executive Branch Agencies

OMB's IQA Guidelines require that information disseminated by Agencies meet the standard of utility. This part of the IQA requires Agencies to assess the usefulness of the information to its intended users, which includes the public. In 2013, by presenting only global SCC estimates and excluding domestic SCC estimates altogether, the IWG has severely limited the utility of the 2013 SCC recommended for use in benefit cost analysis.

The manner in which the final SCC values are presented in Table 2 of 2013 TSD is also misleading to risk managers and the public, further limiting the utility of the SCC. The table does not mention the global nature of the values or note that the domestic SCC is a small fraction (7-23%) of the global SCC. Thus, policy-makers who apply the SCC values from this table and have not read the previous 2010 TSD may be unaware that a large percentage of the economic benefits they are estimating from their rule will occur outside the United States.

The recommendation to use only the global SCC in benefit cost analysis results in a significant misalignment of costs and benefits. For this reason, *if and when reliable estimates of the SCC become available*, we strongly recommend presenting both the domestic and global SCC figures separately.

This approach, while recognizing the global nature of climate change, would allow risk managers to align the domestic costs with the domestic benefits. Consistent with OMB guidance, the costs of a rule for entities in United States would be presented in comparison with the benefits occurring in the United States. The benefits using the global SCC would be presented separately.

IV. ADMINISTRATIVE PROCEDURE ACT

Use of the 2010 and 2013 SCC Estimates in rulemaking will subsequently cause agencies that rely on the SCC Estimates to violate the Administrative Procedure Act ("APA").[40] The APA requires a court to set aside agency actions, findings, and conclusions that are found to be arbitrary, capricious, abuses of discretion, not in accordance with law, or without observance of procedure required by law.[41] In determining the SCC Estimates' legal sufficiency, a court will require that the processes by which information is collected are lawful and reasonably coherent and that the ultimate agency action which results from use of that information is not arbitrary and capricious.[42]

From a substantive perspective, an agency engaged in rulemaking must examine the relevant data and articulate a satisfactory explanation for its action including a "rational connection between the facts found and the choice made."[43] Agency action is arbitrary and capricious "if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."[44]

Use of the SCC Estimates in rulemaking will not meet the requirements of the APA as interpreted and developed by the courts. For instance, it is not clear what roles each of the participating agencies in the IWG that developed these estimates actually played in developing the estimates. It is not clear which staff from these agencies participated in the process. It is not clear how the three models that underlie these estimates were selected (from the universe of similar models). It is not clear who ran the models (agency staff? contractors?) or their qualifications or level of expertise. It is not clear who developed the inputs for the model runs, including both policy as well as technical choices, and it is not clear how such inputs were developed. It is not clear how the various statistical Monte-Carlo analyses were actually implemented (which inputs were held constant and why, which inputs were selected to be variable and why, and the assumptions regarding the assumed distribution functions for the latter variable inputs, *etc*.). These are but a few of the flaws, uncertainties, and unknowns that should preclude the use of both the 2010 and 2013 SCC Estimates. Each of these failures violates fundamental precepts of administrative procedure and the scientific method – and none can be credibly stated to be the result of a difference of opinion, interpretation, or Agency expertise. To the contrary, these are examples where the Administration drove its conclusions far beyond the capacity of sound science and modeling. Even if the three models themselves were entirely sound, the inputs into those models most certainly render the model output (*i.e*., the SCC Estimates) arbitrary and capricious.

APA's decision-making standards also demand compliance with the information quality procedures of the IQA, including IQA requirements for complete, unbiased analysis grounded in accepted methods. "Determination of whether the agency complied with prescribed procedures

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[40] 5 U.S.C. § 706.
[41] *Id.*
[42] *See Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402 (1971).
[43] *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co*., 463 U.S. 29, 43 (1983).
[44] *Id.*

requires a plenary review of the record and consideration of applicable law."[45] More specifically, the APA requires that agencies relying on SCC Estimates in rulemaking review all credible relevant information, utilize unbiased peer review, and make Agency assumptions, methods, and models transparent and reasonably reproducible and understandable in response to an appropriate request for information. If OMB does not direct other agencies to not use the 2010 and 2013 SCC Estimates, any agency that bases a rule on these estimates would violate the IQA and the APA, and the ultimate rationality of such regulation would be called into question. The ultimate rationality of subsequent agency action depends in part on whether it has thoroughly complied with applicable procedural requirements, including those set forth in the IQA.[46]

Further, while it is not an issue we are raising within this Petition for Correction, we believe the 2010 and 2013 SCC Estimates violate the APA for failure to provide stakeholders notice and an opportunity to comment on proposed SCC Estimates and because they are arbitrary, capricious, and not in accordance with the law. While we hope that OMB complies with the requests contained in this petition, we specifically reserve the right to bring legal action under the APA, and other authorities, to enforce mandated procedures.

V. CONCLUSION

Given the significant process shortcomings, lack of peer review, and weaknesses and uncertainties in the modeling systems highlighted in this petition, the undersigned associations urge OMB and the IWG to withdraw the 2010 and 2013 Technical Support Documents, pending correction through a transparent, public process. Furthermore, we ask OMB to refrain from using both the 2010 and 2013 SCC Estimates and to publicly direct other executive branch agencies to refrain from utilizing both the 2010 and 2013 SCC Estimates as part of any regulatory action or policy-making.

America's Natural Gas Alliance

The American Chemistry Council

The American Petroleum Institute

The National Association of Home Builders

The National Association of Manufacturers

The Portland Cement Association

The U.S. Chamber of Commerce

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[45] *See Olenhouse v. Commodity Credit Corp.*, 42 F.3d 1560, 1574 (10th Cir. 1994).

[46] Even if a particular statute, such as the IQA, may not provide for—or even withholds—judicial review, "the agency's decision may still be overturned because of an analysis so defective as to render its final decisions unenforceable, or, in the absence of any analysis, because of a failure to respond to public comment concerning" the legal infirmities identified pursuant to that statute. *Michigan v. Thomas*, 805 F.22176, 188 (6th Circuit 1986); *Thompson v. Clark, 741 F.2d 401, 405 (D.C. Circuit 1984.)* (The flawed rule "is set aside,… not because the regulatory flexibility analysis [not subject to direct judicial review] was defective, but because the mistaken premise reflected in the regulatory flexibility analysis deprives the rule of its required rational support ….")

APPENDIX D

Comments of the American Public Power Association (APPA)

on

The Technical Support Document, *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order No. 12866*

Submitted Electronically to:

The Office of Management and Budget
Attention Docket OMB-OMB-2013-0007

February 26, 2014

Introduction and Background

The American Public Power Association (APPA) would like to thank the Office of Management and Budget (OMB) for the opportunity to comment on its Technical Support Document (TSD), *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order No. 12866*, which was produced by the Interagency Working Group on the Social Cost of Carbon (IWG).[1]

APPA appreciates that the OMB has made the updated TSD available. APPA and its member utilities remain dedicated to providing feedback to the OMB on its formulation of Social Cost of Carbon (SCC) estimates. APPA believes the OMB is endeavoring to ensure that SCC estimates are developed through a public, objective, and transparent interagency process. APPA hopes OMB will continue to ensure SCC estimates reflect the most up-to-date scientific literature, and are held to the same analytical and methodological standards as the rules reviewed by the Office of Information and Regulatory Affairs (OIRA).

The American Public Power Association is the national service organization representing the interests of the more than 2,000, not-for-profit publicly owned electric utilities that collectively provide electricity to approximately 47 million Americans. These utilities, or "public power" systems, are among the most diverse of the electric utility sectors, representing utilities in small, medium, and large communities in every state but Hawaii, and in the U.S. territories of the Virgin Islands, Puerto Rico, American Samoa, and Guam. Overall, public power accounts for about 16 percent of all kilowatt-hour sales to retail electricity consumers.

Created in 1940 as a non-profit, non-partisan organization, APPA's purpose is to advance the public policy interests of its members and their consumers, and to provide member services to ensure adequate, reliable electricity at a reasonable price with the proper protection of the environment. Seventy percent of public power systems are located in cities with populations of 10,000 or less. Public power utilities meet the definition and qualify for consideration as small businesses under the Small Business Act (SBA) and the Small Business Regulatory Enforcement and Fairness Act of 1996 (SBREFA).

Public power has made significant investments in modern emission controls for its power plants. Based on an analysis of the Energy Information Administration's most recent data, significant reductions in emissions of traditional air pollutants and greenhouse gases (GHGs) already have been, and will continue to be, made.[2] This important fact illustrates the ability of the power sector to improve efficiencies in a cost-effective, consumer-centered manner. Many of the energy-related political objectives set forth on a state-by-state basis include significant increases in renewable generation portfolios.[3] To that end, municipal utilities have made and continue to make significant investments in renewables energy in order to meet local, state, and national policy goals. Some cities have even used the inherent flexibility provided in the public power business model to implement their own renewable portfolio standard.

In addition, new federal environmental regulations addressing electricity generation, and conservation standards addressing products that use electricity, are imminent. These regulations, which will be subject to the requirements of Executive Order 12866, Regulatory Planning and Review, will be aimed at further reducing GHG emissions related to electricity generation and use. Consequently, APPA's members have an interest in the regulatory tools that will underpin these regulations.

[1] Where appropriate these comments reference both the 2010 TSD and the 2013 TSD.

[2] http://www.eia.gov/environment/emissions/carbon/

[3] http://www.dsireusa.org/documents/summarymaps/RPS_map.pdf

Within OMB, the OIRA provides neutral technical guidance to the Executive Office of the President on issues related to regulatory analysis. OIRA seeks to ensure analytical integrity and identify sources of potential bias. To APPA, this means OIRA has a role in ensuring data are objective and will not ignore or discount positions contrary to an individual agency's political objectives. The issues raised below are intended to provide OIRA with a set of analytically driven comments, which could be applied to enhance the credibility, objectivity, and analytic integrity of SCC estimates:

1. **The selection of the three integrated assessment models (IAMs) for use in the analysis and the synthesis of the resulting SCC estimates**

The interagency working group (IWG) should clearly address potential technical deficiencies in its selection of the three IAMs. APPA agrees with the Edison Electric Institute (EEI) that a more suitable distribution function should be sought for equilibrium climate sensitivity (ECS) models. ECS is defined as "the long-term increase in the annual global-average surface temperature from a doubling of atmospheric CO_2 concentration relative to pre-industrial levels" in the 2010 TSD at page 12. To estimate ECS, the IWG used the Roe-Baker distribution function as an input in all three of the IAMs.

In selecting the Roe-Baker function, the IWG compared four candidate ECS distribution functions: Roe-Baker, lognormal, gamma, and Weibull. The IWG's primary reason for selecting the Roe-Baker was that it: "is the only one of the four that is based on theoretical understanding of the response of the climate system to increased greenhouse gas concentrations. On the contrary, the other three distributions were arbitrarily chosen based on simplicity, convenience, and general shape.[4]" However, Roe-Baker is not the only ECS distribution model rooted in climate system theory.

The Roe-Baker distribution function determines the probability that positive or negative feedback loops, which represent the role of natural or anthropogenic forces on global temperatures, will be a certain strength or value. This is also known as the feedback factor. However, as Pindyck [5] points out:

> "[T]he physical mechanisms that determine climate sensitivity involve crucial feedback loops, and the parameter values that determine strength (and even the sign) of those feedback loops are largely unknown, and for the foreseeable future may even be unknowable."

Subsequent analyses of the Roe-Baker distribution indicate that it may be "fat-tailed," i.e., is skewed to one side of the mean, as opposed to normally distributed. There is debate among experts surrounding the impact of fat-tailed distributions on global warming abatement costs given probabilities of "rare events" beyond the 5^{th} and 95^{th} percentiles (Weitzman, 2009 at 2). Others have found this not necessarily to be the case, though they do not refute it as a potential outcome (Pindyck, 2011). In light of this, the reliance on the Roe-Baker distribution function may overstate the probabilities of extreme events occurring far into the future, thereby increasing the SCC estimates.

APPA believes the IWG should consider additional alternative models presented in more recent studies, such as one by Aldrin, *et al.*, presented in 2012, which is based on empirical observations of surface temperatures and global ocean heat contents and that is conditioned on estimates of historical radiative forcing (Aldrin, 2012), and others that were also grounded in an understanding of climate science (Lewis, 2013, and Otto, et al., 2013).

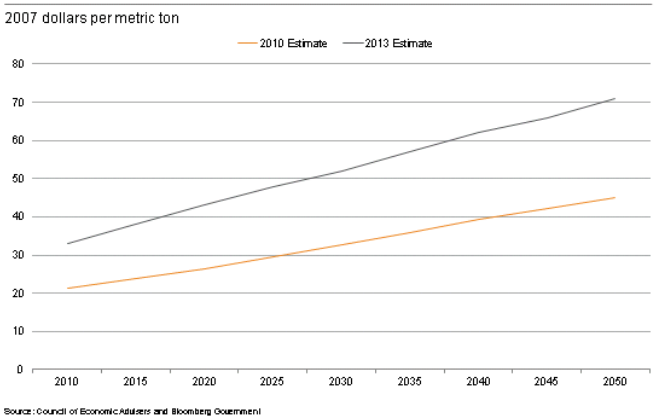
[4] See 2010 TSD at 14

[5] Robert S. Pindyck, Climate Change Policy: What Do the Models Tell Us, NBER Working Paper 19244, 8-9 (July 2013).

In considering alternative models, the IWG should also consider incorporating more up-to-date data. A number of recent studies offer ECS distributions that take updated data into account (Dayaratna, 2013). These studies find that the feedback factor may lie outside the lower end of the range of feedback factors assumed in current IAMs (Otto, et al., 2013). The central value of SCC has increased significantly from the 2010 to the 2013 TSD. The difference between 2010 and 2013 estimates can be seen illustrated in a presentation given by Bloomberg July 24, 2013. This result appears to be in part due to the selection of ECS distribution functions. In addition, the models do not appear to provide proper credit, or feedback, for the current state of declining CO_2 emissions.

THE SCC "CENTRAL VALUE": 2010 VS. 2013

The government's 2013 estimate for the SCC is nearly 60 percent above its 2010 estimate. The SCC varies by year; for example a reduction in 2013 is valued at $36, whereas a reduction in 2050 is valued at $71.



[6]

2. The strengths and limitations of the overall approach

Depending on its use and application, the SCC could have adverse impacts with significant economic consequences. The OMB invited comments regarding the model structure and inputs, the strength and limitations of the overall approach, and the proper use of the SCC estimates in regulatory impact analyses. APPA notes that profound modeling uncertainties contribute to the overall limitations of the approach, which strongly suggest that the use, and influence, of the estimates in regulatory impact analyses should be circumscribed.

The limitations of the overall approach stem from the enormity of the undertaking. Discerning how CO_2 emissions will affect climate and weather for decades to come and then translating those projected changes into monetized economic impacts are daunting tasks that truly challenge our current capabilities. This approach presumes that complicated, interrelated processes spanning the fields of chemistry, biology, meteorology, climatology, agricultural science, geography, physics, medicine, sociology and economics, can be accurately modeled. Given these challenges, APPA appreciates that the revised TSD includes a disclaimer, stating that SCC values are subject to "many uncertainties" and should be updated regularly as the IAMs are improved and new data come to light.

However, OMB should understand that these limitations are of great concern because SCC estimates might drive policies that lead to significant, adverse impacts on various sectors of the economy. For example, application of these highly uncertain results within the electricity sector might very well impose significant, direct costs on utility customers in the form of substantially higher electric rates, which can

[6] July 24, 2013 Bloomberg Presentation - The Social Cost of Carbon

also lead to additional indirect costs through negative impacts on electric intensive industries and technologies. The negative impacts might include lower industrial output, job losses and slower market penetration for environmentally beneficial electro-technologies, e.g., electric and hybrid vehicles.

To help alleviate these concerns, OMB should require that the TSD (and all future updates) specifically state that the SCC estimate is not to be used except in assessing the costs and benefits of federal regulations in the required Regulatory Impact Analyses, consistent with the requirements of Executive Order 12866. In particular, the TSD and related materials should make it clear that the SCC, which is a speculative assessment of the future costs of damages that might occur as a result of GHG emissions, is not an estimate of the current costs of reducing emissions. It is not a price on carbon. Accordingly, this disclaimer should be expanded to provide an illustrative list of scenarios in which it would be inappropriate to utilize the SCC estimate, including: state-level policy decisions (such as, comparing alternative fuel sources in electricity rate setting, determining pollution abatement technologies, or establishing emissions caps or the value of CO_2 allowances in regional cap-and-trade programs), federal regulatory proceedings in which costs to consumers or manufacturers/producers are computed, and environmental impact statements.

Some state regulators, environmental advocates and other parties are using (or proposing to use) SCC estimates to determine the stringency of federal standards; as an externality value for electric utility resource planning, affecting decisions on resource investments and retirements and the timing of those decisions; as an estimate of avoided environmental harms in establishing tariffs paid to owners of rooftop solar systems; and for other applications. The TSD should make clear that these uses are inapropriate.

For example, the tables below illustrate how imprudent use of the SCC estimates could impose substantial costs on electric utility customers. Table 1 shows the potential one-year rate impacts for a hypothetical utility, with characteristics reflecting average values for large public power entities.[7] The objective is to show how a particular application of the OMB SCC estimates will affect electric rates. In this case it is assumed that the estimated social cost for each unit of CO_2 emitted in the production of the utility's electric output is fully internalized into the cost of electricity.[8] Rates are shown before and after incorporation of the SCC estimates and the rate impacts are expressed as the percent change in rates between the cases. As described in more detail below, the rate increases brought about by use of the SCC estimates in this way range from 7.3% to 108.4%, depending on the SCC estimate used and the generation portfolio of the utility.

These summary results are made clear by a closer look at Tables 1 and 2. Each table has four columns and four rows. The entries in each column pertain to one of the four summary SCC values for a given year, as presented in the 2013 OMB report. These values appear in row one. The values from row one, expressed as \$/metric ton of CO_2 emitted, are shown in row 2 expressed on a \$/MWh basis.[9] The average (\$/kWh) electric rate before internalization of the social costs, which doesn't vary across the columns, is shown in row three. Electric rates after incorporation of the SCC values are provided in row four and the rate impacts are entered in row five.

[7] The average rate is \$.09/kWh, sales are 60,000 MWh and total cost of service is \$6.0 million. It is assumed that power cost, before internalization of SCC values, make up \$3.6 million, or 60%, of the \$6.0 million total cost of service. The supply portfolio contains 40% coal and 20 % gas, with non-fossil resources making up the rest.

[8] This could be achieved through a tax, a cap-and-trade program, or some other mechanism. Also, the estimates could be applied without full internalization. There is no single prescribed method for applying these values but full internalization as shown on the tables is one approach that would be consistent with the concept.

[9] Conversion is based on heat rates of 8.0 and 10.5 for gas and coal respectively. CO_2 content for gas is 120lbs/MBTU and 200lbs/MBTU for coal. Values reflect weighted averages based or assumed portfolio shares of 40% coal and 20% gas.

	$/Metric Ton	$/Metric Ton	$/Metric Ton	$/Metric Ton
OMB Estimate of SCC $/Metric ton[10]	**$14.00**	**$43.00**	**$67.00**	**$128.00**
OMB Estimate of SCC $/MWh	**$10.92**	**$33.54**	**$52.26**	**$99.85**
Average Rate Before CO2 Adder ($/kWh)	**$0.09**	**$0.09**	**$0.09**	**$0.09**
Average Rate After CO2 Adder ($/kWh)	**$0.10**	**$0.11**	**$0.12**	**$0.15**
Rate Impact %	**7.28%**	**22.36%**	**34.84%**	**66.56%**

Table 1: portfolio comprising 20% gas, 40% coal and 40 % non-fossil

In Table 1 the rate increases, which range from 7.3% to 66.6%, are clearly significant for each SCC estimate presented in the 2013 report. As troubling as these results are, the situation will be even worse for utilities that rely more heavily on coal than does the hypothetical utility depicted in Table 1, which has an assumed portfolio comprising 20% gas, 40% coal and 40% non-fossil. Table 2 shows the rate impacts for a hypothetical utility with a portfolio made up of 80% coal and 20% non-fossil. In this case the rate impacts range from 11.9% to about 108.4%.

	$/Metric Ton	$/Metric Ton	$/Metric Ton	$/Metric Ton
OMB Estimate of SCC $/Metric ton	**$14.00**	**$43.00**	**$67.00**	**$128.00**
OMB Estimate of SCC $/MWh	**$13.33**	**$40.95**	**$63.81**	**$121.90**
Average Rate Before CO2 Adder ($/kWh)	**$0.09**	**$0.09**	**$0.09**	**$0.09**
Average Rate After CO2 Adder ($/kWh)	**$0.10**	**$0.12**	**$0.14**	**$0.19**
Rate Impact %	**11.85%**	**36.40%**	**56.72%**	**108.36%**

Table 2: portfolio comprising 80% coal and 20% non-fossil

The rate impacts may be even greater than stated in the tables because the results presented implicitly assume that the fossil generators will continue to operate the same way after internalizing the estimated SCC values as they did before. However, this may not be the case, particularly for the coal plants. It is conceivable that under certain applications of the SCC concept, it may no longer appear to be economic to run these plants, causing them to be shut down, mothballed or retired. **Based on the potentially significant impact of the SCC as applied to rulemakings, or as used by planning agencies, APPA believes the TSD and all future updates should be peer reviewed and subject to a review and comment period.**

[10] OMB estimates for year 2015 inflated at 2% per year to derive estimated values in 2015 dollars.

APPA notes that the models, climate sensitivity distribution, and socio-economic scenarios employed by the IWG were subjected to the peer review process.[11] However, it is unclear whether the TSD was subject to the peer review process.

In 2005, OMB issued its *Final Information Quality Bulletin for Peer Review*, 70 *Fed. Reg*. 2664 (Jan. 14, 2005), which was part of a larger OMB effort to improve the scientific drivers of public policy. This *Bulletin* includes the following definition of a "highly influential" scientific assessment:

> A scientific assessment is considered 'highly influential' if the agency or the OIRA Administrator determines that the dissemination could have a potential impact of more than $500 million in any one year on either the public or private sector or that the dissemination is novel, controversial or precedent setting, or has significant interagency interest

In light of the fact that the TSD meets at least two of the criteria listed, OMB should designate them as "highly influential," and subject them to the strict peer review requirements reserved for "highly influential" scientific documents established in Section III of the *Bulletin* in order to ensure analytic and methodological quality.

The TSD should contain a concise clarification of appropriate and inappropriate uses of SCC estimates. As a preliminary matter, OMB should clarify what the SCC estimate is and for what uses it was developed. As the agency charged with managing this comment period and the interagency process in which the SCC estimate was derived, OMB has ultimate ownership for the TSD. Thus, this document should be viewed as an OMB guidance document for application solely within the Executive Branch. More specifically, the OMB should clarify that the SCC estimate is a regulatory tool designed only to be used when assessing the costs and benefits of federal regulatory actions. Any other use of the SCC estimate is inappropriate and clearly outside the scope of its intended purpose.

For example, The Department of Energy (DOE) inappropriately uses SCC estimates when determining the stringency of conservations standards for appliances. The Energy Policy and Conservation Act requires that DOE determine that any new appliance efficiency standard is designed to achieve significant additional conservation of energy and is technologically feasible and economically justified. *See* 42 U.S.C. 6295(a)(3)(B). As DOE makes these determinations, the Department is required, among other things, to consider, to the greatest extent practicable, the economic impact on the consumers of the affected product.

While the IWG notes that the SCC estimates should be treated as provisional and revisable, and are inherently uncertain, DOE uses these estimates in the various economic analyses that underpin energy conservation standards. This creates a false sense of precision as to the benefits associated with any standard. Moreover, it has the potential to obscure the costs to the actual consumers of appliances in the United States. This requires consumers to bear the cost of SCC uncertainty in their appliance purchases.

Forcing consumers to pay for uncertainty via SCC estimates illustrates a functional disconnect between cause and cost that persists in the TSD. The modeling process attempts to link domestic CO_2 levels and domestic damages to a global model when that nexus is only partially true. While some effort has been made to properly apportion the US percentage of CO_2 emissions, and therefore marginal costs, OMB should ensure more scientific effort is spent to determine the degree to which a CO_2 increase from a single source, or country, would have produced the demonstrated results in the presence of a larger foreign contribution.

[11] Based on the *Federal Register* notice and the TSD itself

Using the SCC estimate in state-level policy decisions, federal regulatory proceedings or environmental impact statements is inappropriate and raises serious concerns of false precision and in appropriate weighting of global and long-term benefits against local and near-term costs. Groups seeking to use the SCC estimate in such efforts are essentially employing the SCC estimate as if it were a proxy for a price on carbon. In fact, the SCC estimate is significantly higher than market prices for carbon, which are benchmarks for carbon reduction costs under current cap-and-trade programs. For example, European Emission Allowances were $5.71 per ton on July 19, 2013 and California Carbon Allowances were $14.30 per ton on July 19, 2013. Compounding this, the Energy Information Administration estimated that allowance prices would be $19 per ton in 2013 under Waxman-Markey.

The SCC estimate is not, and was not designed to be, a price on carbon, and its use as such is inappropriate. The SCC estimate has the potential to impose hardships on electric consumers, especially low income consumers. The IWG derived SCC estimates solely to facilitate uniform assessment of the value of GHG emissions reductions across federal agencies. OMB should clarify this in the TSD.

Thank you for your review and consideration of our comments.

Respectfully submitted,

AMERICAN PUBLIC POWER ASSOCIATION

By /s/

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