Ms. Mabel Echols  
NEOB, Room 10202  
725 17th Street, N.W.  
Washington, D.C. 20503  

Re: OMB request for public comments (“Request for Comments”)  

Dear Ms. Echols:

OMB’s Request for Comments states a particular interest in comments on:

> The selection of the three IAMs for use in the analysis and the synthesis of the resulting SCC estimates, as outlined in the 2010 [Technical Support Document] TSD, the model inputs used to develop the SCC estimates, including economic growth, emissions trajectories, climate sensitivity and intergenerational discounting;

The present Comment focuses solely on Climate Sensitivity, which is obviously the most important parameter in the SCC analysis process as currently defined, and about which there has been much debate.

In the Request for Comments, OMB makes several statements describing how its SCC estimates were derived, and that therefore inform this Comment. Among those statements are the following:

> The current estimate of the social cost of CO₂ emissions (SCC) has been developed over many years, using the best science available, and with input from the public. . . .

> Recognizing that the models underlying the SCC estimates would evolve and improve over time as scientific and economic understanding
increased, the Administration committed in 2010 to regular updates of these estimates.

The TSD (Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, Interagency Working Group on Social Cost of Carbon, United States Government, February 2010), at page 4, gives information on the key assumptions from which the SCC estimates were derived. It states that:

**III. Approach and Key Assumptions**

It is important to recognize that a number of key uncertainties remain, and that current SCC estimates should be treated as provisional and revisable since they will evolve with improved scientific and economic understanding. The interagency group also recognizes that the existing models are imperfect and incomplete.

The U.S. Government will periodically review and reconsider estimates of the SCC used for cost-benefit analyses to reflect increasing knowledge of the science and economics of climate impacts, as well as improvements in modeling. In this context, statements recognizing the limitations of the analysis and calling for further research take on exceptional significance. The interagency group offers 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.

At page 5, the TSD then describes the methodology by which the SCC estimates were derived:

**A. Integrated Assessment Models**

We rely on three integrated assessment models (IAMs) commonly used to estimate the SCC: the FUND, DICE, and PAGE 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. There is currently a limited amount of research linking climate impacts to economic damages, which makes this exercise even more difficult. Underlying the three IAMs selected for this exercise are a number of simplifying assumptions and judgments reflecting the various modelers’ best attempts to synthesize the
available scientific and economic research characterizing these relationships.

The three IAMs translate emissions into changes in atmospheric greenhouse concentrations, atmospheric concentrations into changes in temperature [emphasis added], and changes in temperature into economic damages. These emissions are translated into concentrations using the carbon cycle built into each model, and concentrations are translated into warming based on each model’s simplified representation of the climate and a key parameter, climate sensitivity. Each model uses a different approach to translate warming into damages. Finally, transforming the stream of economic damages over time into a single value requires judgments about how to discount them.

From the direct quotes above, it is clear that the SCC values that are derived from this process are critically dependent on “a key parameter, climate sensitivity” the value of which in turn is completely unknown. To illustrate, uncertainty about even the expected value of this parameter was still so high that, in late 2013, no “best estimate” could even be made. In fact, the current Request for Comments states that it relies on information from the most recent IPCC Report, AR5 of October 2013:

The revised Technical Support Document that was issued in November, 2013 is based on the best available scientific information on the impacts of climate change. We will continue to refine the SCC estimates to ensure that agencies are appropriately measuring the social cost of carbon emissions as they evaluate the costs and benefits of rules. (Printed October 2013 by the IPCC, Switzerland. Electronic copies of this Summary for Policymakers are available from the IPCC website www.ipcc.ch and the IPCC WGI AR5 website www.climatechange2013.org, or http://www.climatechange2013.org/images/uploads/WGI_AR5_SPM_brochure.pdf © 2013 Intergovernmental Panel on Climate Change)

However, the very IPCC Report being relied on concedes at footnote 16 on page 14 that “No best estimate for equilibrium climate sensitivity can now be given . . . .” From page 14 of Climate Change 2013, The Physical Science Basis, Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policymakers:

The equilibrium climate sensitivity quantifies the response of the climate system to constant radiative forcing on multi-century time scales. Equilibrium climate sensitivity is likely in the range 1.5°C to 4.5°C (high
confidence), extremely unlikely less than 1°C (high confidence), and very unlikely greater than 6°C (medium confidence). 16

Footnote16: No best estimate for equilibrium climate sensitivity can now be given because of a lack of agreement on values across assessed lines of evidence and studies. (Emphasis added.)

This footnote 16 literally means that as recently as late last year, given the scientific information available, the IPCC did not deem it possible to develop a credible “best estimate for equilibrium climate sensitivity.” This statement is extremely relevant in that this climate sensitivity parameter is obviously the most important parameter to the entire SCC analysis. Mathematically speaking, what does not being able to provide a Best Estimate for the equilibrium climate sensitivity imply? First, it means that IPCC is clear that it has not been able to develop a credible subjective probability density function for the equilibrium climate sensitivity parameter. Second, it means that the IPCC admits that it does not have a credible mean, mode or median value of the equilibrium climate sensitivity parameter. In the mathematics of Decision Theory, this situation is called Complete Ignorance Uncertainty.

It should be obvious that no SCC estimates should be published until a credible climate sensitivity probability distribution is developed. This multi-agency effort has relied on the IPCC work, but IPCC’s own results imply that the U.S. government should stop publishing any estimates of SCC until such a credible distribution exists.

Furthermore, the U.S. should base its SCC on its own estimates of this critical parameter. In its finding, EPA relied on the claim by IPCC of 90-99% certainty that observed warming in the latter half of the twentieth century resulted from human activity. EPA bases its own 2009 Endangerment Finding on what it calls three “lines of evidence,” all derived from IPCC work. 74 Fed. Reg. 66518. However, each of these three lines of evidence has been shown to be invalid by empirical data cited in a recently submitted merit stage Amicus submitted to the Supreme Court in case UARG v. EPA. This Amicus can be found at

http://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v2/12-1146_amicus_pet_scientists.authcheckdam.pdf

Three quotes from this brief regarding each of the three Lines of Evidence are in order:

There is no longer any doubt that the purported tropical “hot spot” simply does not exist. Thus, EPA’s theory as to how CO₂ affects global average surface temperature—EPA’s first line of evidence—has been falsified.

Those data thus demonstrate that EPA’s second line of evidence—the claim that there has been unusual warming on a global, this is, worldwide, basis over the past several decades—is invalid.
The models EPA relied on as its third line of evidence are invalid. That is not surprising because EPA never carried out any published forecast reliability tests. And, as discussed above, EPA’s assumed Greenhouse Gas Fingerprint Theory simply does not comport with the real world. Thus, models based on that theory should never have been expected to be valuable for policy analysis involving an Endangerment Finding that so critically affects American energy, economic, and national security.

With each of EPA’s three Lines of Evidence purporting to support their Endangerment Finding shown to be invalid, EPA has no proof whatsoever that CO₂ has a statistically significant impact on Global Temperatures. In fact, many scientists feel no such proof exists. A Cert Stage Amicus brief to the Supreme Court also regarding UARG v. EPA stated as follows (at pp. 20-21; http://sblog.s3.amazonaws.com/wp-content/uploads/2013/07/GW-Amicus-2013-05-23-Br-of-Amici-Curiae-Scientists-ISO-Petitions-for...2.pdf)

Amici believe that no scientists have devised an empirically validated theory proving that higher atmospheric CO₂ levels will lead to higher GAST. Moreover, if the causal link between higher atmospheric CO₂ concentrations and higher GAST is broken by invalidating each of EPA’s three lines of evidence, then EPA’s assertions that higher CO₂ concentrations also cause sea-level increases and more frequent and severe storms, floods, and droughts are also disproved. Such causality assertions require a validated theory that higher atmospheric CO₂ concentrations cause increases in GAST(2). Lacking such a validated theory, EPA’s conclusions cannot stand. In science, credible empirical data always trumps proposed theories, even if those theories are claimed to (or actually do) represent the current consensus.

Footnote 2: Indeed, empirical data also shows that the claim that there have been such phenomena is itself invalid. Brief of Amici Curiae Scientists in Support of Petitioners Supporting Reversal, at 22-26, Coalition for Responsible Regulation, Inc. v. Environmental Protection Agency, No. 09-1322 (CADC June 8, 2011), ECF No. 1312291.

In fact, EPA has ignored this and earlier warnings that an Endangerment Finding could be flawed. On October 7, 2009, thirty-five very well regarded scientists put a letter to EPA in its associate docket. See 74 Fed. Reg. 18886 (Apr. 24, 2009). Its recommendation was as follows:

**Recommendation**

We feel strongly that the EPA must not only rigorously address all four of the additional questions outlined at the outset, but also deal with at least the 18 supporting issues. As can be clearly seen by an analysis of the different fields of knowledge and academic skills required to answer the 18
detailed questions listed above, no one scientist should feel comfortable answering each and every question. And yet, without thoughtful, fully-informed judgments on all of the questions by the scientists who are expert in the particular issue area, the EPA should not feel comfortable issuing an Endangerment Finding in support of CO2 regulation. Because of the need to have only those highly qualified to provide answers to each of the questions outlined above, we strongly suggest that the EPA grant the U.S. Chamber of Commerce Petitions, and in particular, adopt its recommendation regarding the use of the an on-the-record hearing conducted pursuant to 5 U.S.C. §§ 556-57.

While following such an analysis process may well be more arduous than planned, the implications of ill-founded CO2 regulation could be truly catastrophic. Hardly a day goes by without another prominent scientist joining the ranks of those who reject the conclusion of the IPCC that the primary driver of the Earth’s climate system is CO2 emissions from human use of fossil fuels rather than other natural forces. The EPA has the authority to hold on-the-record hearings under the Clean Air Act using procedures based on 5 U.S.C. §§ 556-57. As the Administrative Conference of the United States said, such authority should be exercised whenever (a) the scientific, technical, or other data relevant to the proposed rule are complex, (b) the problem posed is so open-ended that diverse views should be heard, and (c) the costs that errors may impose are significant. See 1 C.F.R. § 305.76-3(1) (1993). The Chamber noted in its petition that “it is hard to imagine a situation where each part of this test is more easily met.” We concur and urge the EPA to hold a formal, on-the-record hearing before proceeding with any proposed Endangerment Finding.

EPA never responded to this letter. One can only hope that this multi-agency effort steps back from its current approach of reliance on IPCC and other clearly biased parties and takes a hard look at whether there is truly any proof that, in the real world, rising atmospheric CO2 concentrations impact global temperatures to a measurable degree. At this point, there would appear to be no such proof. This implies that the SCC project should either be cancelled or at the least put on hold until this matter is resolved.

Regarding the importance of using unbiased parties, the September 26, 2011 EPA Inspector General’s Procedural Review of EPA’s Greenhouse Gases Endangerment Finding Data Quality Processes, which was also filed in Coalition for Responsible Regulation v. EPA, No. 09-1322, is highly relevant. This document catalogues the procedural deficiencies found by the EPA Inspector General regarding the EPA’s peer review and data review methodologies used in promulgating EPA’s December 15, 2009 Endangerment Finding on greenhouse gases including CO2 emissions. Like the October 7, 2009 scientists’ letter quoted above, this review suggested that the EPA could have used a Science Advisory Board mechanism to avoid such deficiencies. Specifically, it stated that:
EPA did not conduct a peer review of the TSD that met all recommended steps in the Peer Review Handbook for peer reviews of influential scientific information or highly influential scientific assessments. EPA’s peer review policy states that ‘for influential scientific information intended to support important decisions, or for work products that have special importance in their own right, external peer review is the approach of choice’ and that ‘for highly influential scientific assessments, external peer review is the expected procedure.’ According to the policy, external peer review involves reviewers who are ‘independent experts from outside EPA.’ The handbook provides examples of ‘independent experts from outside EPA,’ that include NAS, an established Federal Advisory Committee Act mechanism (e.g., Science Advisory Board), and an ad hoc panel of independent experts outside the Agency. The handbook lays out a number of procedural steps involved in an external peer review. Id. at 44.

It would certainly seem that this multi-agency effort should not proceed without delving into the facts involving climate sensitivity estimates and EPA’s Endangerment Finding. Over-reliance on the IPCC analysis must stop due to obvious inherent bias in keeping this wealth transfer mechanism alive.

To illustrate at Climate Day at the recent World Economic Forum in Davos, Switzerland, an annual policy-themed gathering of the global elite, a highlight was a panel focused on the link between climate change, economic growth and poverty reduction, featuring former Vice-President Al Gore, U.N. Secretary-General Ban Ki-moon, World Bank President Jim Yong Kim, Microsoft founder Bill Gates, Unilever CEO Paul Polman, Nigerian Finance Minister Ngozi Okonjo-Iweala and Norwegian Prime Minister Erna Solberg.

Not a single panelist noted that attempts at climate change mitigation through governments’ forcing curtailed use of fossil fuels could conflict with their poverty reduction efforts. To quote from the merit stage Amicus brief mentioned above:

Meanwhile the United States is on the cusp of an energy revolution of hydrocarbons from unconventional oil and natural gas sources that is having the effect of rapidly increasing the supply and decreasing the price of carbon-based energy. See, e.g., IHS, America’s New Energy Future: The Unconventional Oil and Gas Revolution and the U.S. Economy, Volumes I, II, and III, September 2013. IHS sees the energy revolution as adding millions of jobs and hundreds of billions of dollars annually to the U.S. economy, all based on burning carbon fuels and emitting CO2 into the atmosphere. EPA looks upon this prospect with horror, and the stationary source PSD permitting program is precisely the means it sees available to stop it before it can get too far.
Artificially raising the price of energy is the same thing as impoverishing the American people. It is shocking and disgusting that our government would intentionally pursue such a goal, particularly without any scientific basis whatsoever to do so . . . .

Finally, the currently calculated SCC estimates are being used to justify proposed EPA regulations, and also as input regarding proper carbon tax levels should a future Congress elect to move in this direction. Even assuming that the proposed climate sensitivity estimates were scientifically validated -- which has been shown above not to be the case – an appropriate U.S. carbon tax trajectory should not be based solely on what economists call externalities, even while ignoring direct effects on jobs and wealth generation. And, these SCC externality estimates are for the entire world, not just the U.S.

Clearly, America’s initial conditions in terms of its fossil fuel resources, its economic growth prospects, its debt levels, and so forth, matter, if the government is going to arbitrarily increase U.S. energy prices via such carbon taxes. And, it matters a great deal what other key countries are assumed to do as well in this regard. In short, for many reasons, the current SCC estimates are not only worthless; they are extremely dangerous to put forward by this task force as credible input to U.S. energy, economic and national security-related policy analyses.

Thank you for your consideration.

Very truly yours,

Francis J. Menton, Jr.