## Review of "Treatment of Risk and Uncertainty in the US Social Cost of Carbon for Regulatory Impact Analysis"

I find this to be a good paper with a substantive and interesting content, and well written and well organized.

I have two comments with regard to the substance of the argument.

- 1) The second full paragraph on page 3 offers, in effect, a defense for discussing the social cost of carbon given that "the reality of carrying out benefit-cost analysis of federal regulations falls short of best practice, and it does not appear to be having a significant impact on many regulatory decisions, except higher-profile cases." I would say that, in a larger sense, the reluctance of the US Congress to enact climate change legislation reflects a general perception that, for the US itself, the damages from climate change (both in total and at the margin) are much smaller than the costs of mitigation. I believe that this assessment is incorrect, but it is a widely held view, reflecting the influence of DICE (and FUND) on US opinion-makers over the past 15+ years. While this assessment is not based on a fine-grained cost-benefit analysis, it is certainly an informal cost-benefit analysis. Hence, this paper is undoubtedly relevant for US policy.
- 2) My second comment concerns the discussion in the middle of page 9 regarding the case for setting a quantitative long-run emission target, so that, to the extent that prices are used as part of the policy process, they are based on the marginal cost of abatement rather than the marginal social cost of carbon. Dietz correctly observes that the choice between an approach based on an emissions target and an approach based on an emissions tax can be decided with reference to Weitzman's analysis of price versus quantity, as extended from flow pollutants to stock pollutants by Hoel and Karp and by Pizer. The fact that the UK and other EU countries see some urgency in taking action to limit carbon emissions and favor a quantitative target, while the US lacks a sense of urgency and favors (at least, the mainstream economists in the US favor) a carbon tax (with cap-and-trade accepted as a politically more realistic substitute) aligns with the Weitzman analysis: the EU sees the marginal damage curve as increasing quite sharply as emissions increase, justifying the preference for an approach based on an emissions target, while the conventional economic wisdom in the US is that the marginal damage curve is flat, justifying the preference for setting a price on carbon rather than setting a quantity limit. In consequence, the EU is acting as though the SCC is high, contrary to the assessment of the US Interagency Working Group.

In fact, Pizer's analysis (based on the DICE model) finds that the marginal damage function is both low and utterly flat over a very wide range of global emissions. If Pizer is right about the marginal damage function (essentially, the marginal social cost of carbon function), both Dietz's argument about a high SCC and his proposal for an emission target are misplaced. And if Dietz's argument about a high SCC and his policy proposal are correct, then there has to be something profoundly wrong with Pizer's marginal damage curve – and, hence, with the damage function in DICE from which it is derived. (My own analysis of DICE supports the latter conclusion.)

So, it seems to me that in both sections of his paper, Dietz is taking aim at not just the Interagency Working Group but also the conventional wisdom in the US as represented, for example, by Nordhaus and Pizer. (I should emphasize that I admire both of them greatly as economists; this is just a disagreement about one facet of their work, namely the damage function).

Dietz seems to me to finesse this point by characterizing Pizer's analysis as involving a "short-run marginal benefit (damage) function" and characterizing Pizer's position as being to "recommend price instruments in the short run" while his own position in favor of an emissions target is based on a long-run analysis in which the long-run marginal damage is "steeply increasing upon reaching some stock of CO2." In my reading of Pizer, he does *not* present his analysis as a *short-run* analysis, based on a short-run marginal damage function, and generating a short-run policy prescription. Dietz may well be right in saying that the damage function used by Pizer – and the damage function in DICE, from which it is derived – should be seen as short-run functions rather than long-run functions, but this is a novel interpretation, and it is not how those functions are generally seen in the literature.