Caiazza Comments on the Key Considerations Raised at the July 24, 2020 Public Webinar on the Value of Carbon

Introduction

I am following the implementation of the Climate Leadership and Community Protection Act (Climate Act) because I believe it will affect the affordability and reliability of New York's energy. I am submitting comments on the Key Considerations Raised at the New York State Department of Environmental Conservation (DEC) July 24, 2020 Public Webinar on the Value of Carbon because I have spent considerable time addressing this metric and its use as a carbon pricing mechanism.

I am a retired utility meteorologist with nearly 40-years experience analyzing the effects of environmental regulations on electric and gas operations. The opinions expressed in this post do not reflect the position of any of my previous employers or any other company I have been associated with, these comments are mine alone.

General Comments

I have a few general comments to make before I respond to the considerations raised during the webinar. DEC explained that the response to the Climate Act mandate would be in the form of a guidance document. I have two concerns about that approach. There also is a problem with the way NYSERDA is using the Social Cost of Carbon (SCC).

I agree that guidance rather regulation makes more sense. However, the regulatory requirements mandate published responses to comments whereas I believe guidance documents don't have that mandate. In general, I think this guidance should be comprehensive and inclusive and that suggests that even if it is not required that some sort of response to comments documentation be developed.

My second concern is that I believe that this document should not only provide the guidance required by the Climate Act but should also include a primer for the public and policy makers who need to understand how the recommended metrics are used and the basis for the recommendations made. The webinar provided a good overview but still needs to be distilled down so a layperson can understand the State commitments. The Climate Act is a transformational driver of change so the public needs to know the underlying rationale for it.

I recommend that the guidance document cover the full range of SCC estimates. SCC values range widely depending on assumptions. For example, if you use a discount rate of 3% and consider global benefits like the Interagency Working Group did then the 2020 SCC value is $50. On the other hand, the current Administration interim SCC value is $7 for a 3% discount rate that represents only benefits to the United States. The General Accounting Office (GAO) published a report to Congressional requesters, Social Cost of Carbon: Identifying a Federal Entity to Address the National Academies' Recommendations Could Strengthen Regulatory Analysis, that provides good background information on the current controversy regarding those differences and I recommend that it be referenced and discussed in the guidance document. Other estimates could also be discussed. Institute for Policy

Integrity report "Expert Consensus on the Economics of Climate Change" projected a higher 2020 SCC value of ~$140 based on a survey of experts. A 2015 paper in Nature Climate Change "Temperature impacts on economic growth warrant stringent mitigation policy" suggest that the SCC value should be $220.

Once the full range of estimates are described then I suggest that the report include a layman's summary of the implications of the choices used for the different values. This is particularly important for the discount rate. I believe that the public will only understand your recommendations for the SCC values if they have this background information.

There is one relevant SCC issue that the authors of this guidance report should address. NYSERDA is calculating "lifetime" SCC benefits where the lifetime reductions of a particular action are summed and multiplied by the SCC value in their cost-benefit reports. See, for example, their Clean Energy Dashboard website. In addition, the July 21, 2020 press release for the largest combined solicitation for renewable energy stated that "Together, taking into account the value of avoided carbon emissions, these solicitations are expected to deliver a combined $3 billion in net benefits over the 20- to 25-year life of the projects" which I suspect does the same thing.

I believe that calculating lifetime SCC benefits is wrong. The SCC is the present-day value of projected future net damages from emitting a ton of CO2 today so claiming benefits from lifetime reductions is similar to calculating the cost savings from an energy efficiency project at the start of the project for the expected life-time and then repeating the calculation for every other year in the expected life-time. When it comes to the SCC, I believed that it was inappropriate to consider lifetime savings but could not find anything specific in the literature to validate my belief. Dr. Richard Tol is Professor of the Economics of Climate Change at Vrije Universiteit Amsterdam and a Professor of Economics at the University of Sussex and has direct experience estimating the social cost of carbon. I contacted Dr. Tol and asked the following question:

> There is a current proceeding where NYSERDA is claiming that their investments are cost-effective but they use life-time benefits. I concede that the ratepayer cost-benefit calculation should consider the life-time avoided costs of energy and can see how that reasoning might also apply to the social cost of carbon. However, in the following definition, SCC is the present-day value of projected future net damages from emitting a ton of CO2 today, I can interpret that to mean that you shouldn't include the lifetime of the reduction. Am I reading too much into that?

He graciously responded that the use of life-time savings or costs is inappropriate in the following:

> Dear Roger,
>
> Apples with apples.
>
> The Social Cost of Carbon of 2020 is indeed the net present benefit of reducing carbon dioxide emissions by one tonne in 2020.

It should be compared to the costs of reducing emissions in 2020.

The SCC should not be compared to life-time savings or life-time costs (unless the project life is one year).

Stay healthy,
Richard
Dr. Richard S.J. Tol MAE
Professor
Department of Economics, Room 281, Jubilee Building
University of Sussex, Falmer, Brighton BN1 9SL, UK

I recommend that this guidance directly address that inaccuracy and explain that it is inappropriate.

Key Considerations

The first key consideration "selecting discount rates" noted that public entities tend to choose lower discount rates and the Federal government reports multiple rates and then asked what range would be useful for NYS agencies? I have very little background in economics and despite my best efforts I am not comfortable I can explain the concept of the discount rate as it specifically relates to the SCC. As noted earlier this concept needs a better description for people like me and, more importantly the general public.

In order to justify using a low discount rate people have to know that the IWG SCC calculation methodology calculated cost impacts 300 years out. Proponents argue that because most of the warming caused by carbon dioxide emissions persists for many years, changes in carbon dioxide emissions today may affect economic outcomes for centuries to come. This is described as leaving the world a better place for our grand-children. But because the impacts of climate change will become more evident further in the future the benefits of reductions today will not become evident until further in the future. The IWG calculated benefits out 300 years and according to the internet there are 25.2 years in a generation which means that benefits are being calculated for twelve generations. It is important the guidance document explain the choice of discount rate in an understandable context like this example. Moreover, the discussion of a zero-discount rate should also include a simplified explanation of how economic growth is treated, what that means in practice and the implications for the values chosen.

The layman's summary should also address other assumptions that affect the SCC values. It is appropriate to discuss whether New York should address global impacts, nation-wide impacts, or for the sake of argument, just the benefits that would accrue to New Yorkers as a result of Climate Act emissions reductions. There is no doubt that because there are global impacts that looking at global impacts should be considered but what value is that to a New Yorker already on the edge of energy poverty. If the cost of energy goes up significantly, and other jurisdictions that tried to implement less

ambitious GHG emissions reductions programs has seen significant increases, then those New Yorkers least able to afford energy increases will be hit hard. Therefore, I think it is entirely appropriate to provide New Yorkers with benefits based on all three geographical coverages.

The next key consideration was "other greenhouse gases and other impacts" and it asked the question how should other greenhouse gases be valued? The IWG "Addendum Valuing Methane and Nitrous Oxide Emission Changes in Regulatory Benefit-Cost Analysis" argues that using directly calculated societal cost values for methane and other non-CO2 greenhouse gases rather than global warming potential values (i.e. converting them to CO2 equivalents) is more appropriate. I found their argument persuasive and recommend using those values despite their own issues.

My biggest concern with the IWG social cost of methane and nitrous oxide values is that they have received far less scrutiny than the CO2 social cost values. In 2016, when the IWG was preparing their analyses, they noted that "new estimates of the social cost of non-CO2 GHG emissions have been developed in the scientific literature, and a recent study by Marten et al. (2015) provided the first set of published estimates for the social cost of CH4 and N2O emissions that are consistent with the methodology and modeling assumptions underlying the IWG SC-CO2 estimates".

During an earlier iteration of the IWG work the US Environmental Protection Agency (EPA) realized that a social cost of gases other than CO2 were needed and found that there was a "paucity of peer-reviewed estimates of the social cost of non-CO2 gases in the literature". In response the EPA National Center for Environmental Economics developed estimates of the social cost of methane and nitrous oxide consistent with the methodology and modeling assumptions underlying the IWG SCC estimates. Their work was published in two papers: Marten, A.L., and S.C. Newbold. 2012. Estimating the social cost of non-CO2 GHG emissions: methane and nitrous oxide Energy Policy 51: 957-972 (paywalled) and Marten, A.L., Kopits, E.A., Griffiths, C.W., Newbold, S.C., and A. Wolverton. 2015. Incremental CH4 and N2O Mitigation Benefits Consistent with the U.S. Government's SC-CO2 Estimates. Climate Policy. 15(2): 272-298 (published online, 2014). (Paywalled)

I am suspicious when an agency prepares a study that forms the basis of the regulatory metric proposed by other agencies. I question the independence of the results in that approach. Ultimately, the work and findings of agency work go through political appointees before they are released and there is no question that process motivates particular outcomes. In anticipation of such cynicism the Addendum states:

> "The methodology and estimates described in this addendum have undergone multiple stages of peer review and their use in regulatory analysis has been subject to public comment. With regard to peer review, the study by Marten et al. (2015) was subjected to a standard double-blind peer review process prior to journal publication. In addition, the application of these estimates to federal regulatory analysis was designated as Influential Scientific Information (ISI), and its external peer review was added to the EPA Peer Review Agenda for Fiscal Year 2015 in November 2014. The public was invited to provide comment on the peer review plan, though

> EPA did not receive any comments. The external peer reviewers agreed with EPA's interpretation of Marten et al.'s estimates; generally found the estimates to be consistent with the approach taken in the IWG SC-CO2 estimates; and concurred with the limitations of the GWP approach, finding directly modeled estimates to be more appropriate. All documents pertaining to the external peer review, including a white paper summarizing the methodology, the charge questions, and each reviewer's full response is available on the EPA Science Inventory website."

I had no idea that the EPA Science Inventory website existed so I looked up this reference. According to the peer review plan: a contractor picked three reviewers, the public, including scientific or professional societies was not asked to nominate peer reviewers, no public nominations were allowed through the Peer Review Agenda, the Agency did not provide significant and relevant public comments to the peer reviewers before they conducted their review, the review was not a public panel, and public comments were not allowed at the panel review. The fact that no comments were received from the public suggests that this was not well publicized and I am annoyed that the papers are paywalled when my tax dollars paid for the work.

EPA asked the three external reviewers recommended by a contractor to provide comments: Karen Fisher-Vanden, Professor of Environmental and Resource Economics, Director, Institute for Sustainable Agricultural, Food, and Environmental Science (SAFES), and Co-Director, Program on Coupled Human and Earth Systems (PCHES) at Penn State College of Agricultural Sciences; John Reilly, Senior Lecturer, Sloan School of Management and Co-Director, MIT Joint Program on the Science and Policy of Global Change at the Massachusetts Institute of Technology; and Steven Rose, Energy and Environmental Analysis Research Group, Electric Power Research Institute. All three are well-qualified to review the work but I have this nagging concern that the reviewers from academia would be reluctant to provide negative feedback lest it affect review of future funding.

The request for peer review focused on the mechanics of vetting the Addendum. The Science Inventory includes a peer review report that describes the process. EPA developed a white paper, Valuing Methane Emissions Changes in Regulatory Benefit-Cost Analysis, that described the problem, the two different approaches for estimating societal valuation of impacts, the limitations of the global warming potential approach (GWP), and then developed its estimate of the direct estimation social costs. The reviewers were asked seven questions about the white paper and the primary Marten et al. reference. The peer review report includes the responses from the three reviewers and concludes with a summary and response description:

> "EPA recently conducted a peer review of the application of the Marten et al. (2014) non-CO2 social cost estimates in regulatory impact analysis (RIA). Three reviewers considered seven charge questions that covered issues related to the EPA's interpretation of the estimates, the consistency of the estimates with the social cost of carbo estimates used in RIAs, EPA's characterization of the limits of the alternative GWP approach to approximate the social cost of non-CO2 GHGs, and the appropriateness of using the Marten et al. estimates in RIAs. The

> reviewers agreed with EPA's interpretation of Marten et al.'s estimates; generally found the estimates to be consistent with the social cost of carbon estimates; and concurred with the limitations of the global warming potential approach, finding directly modeled estimates to be more appropriate."

In conclusion of this consideration I think these values are the best available despite their shortcomings.

The third consideration asked the question "How can state agencies use the damages-based value of carbon?" and gave two examples of its use. Section § 75-0113 of the Climate Act explicitly mandates how the value of carbon will be determined but does not explain how it will be used. The webinar slides explicitly stated "This is not a carbon price and will not impose any fees" but that will be the outcome if the NYISO carbon pricing proposal goes forward. I don't think that will be the only application that uses the SCC value as some sort of carbon pricing mechanism.

The webinar slides notes that the Federal government uses it in regulatory benefit-cost analyses and environmental reviews and I believe that it should be used the same way for the Climate Act. Someday the State is going to have to project costs for controls and the marginal GHG abatement costs approach would be ideal for that application. I think the damage SCC metric should be used to determine the value of particular control strategies. If the State's investments in a GHG emission reduction project does not provide reductions at a cost per ton removed less than the recommended SCC value shouldn't the project be re-evaluated?

The next consideration questioned "How can agencies use other values of carbon?" I don't understand whether this means other social cost of carbon values or social cost of non-carbon values. It is not clear why an agency would get to use a different value for the social cost of carbon than you recommend in your guidance. If it is the latter, then I recommend using the IWG values previously discussed.

The final question was what other considerations should be included? As I mentioned before I recommend that the guidance include a primer for the general public that explains what the choices used to determine the SCC values mean in real terms.

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