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From: **Roger Caiazza** <roger.caiazza@gmail.com>

Date: Wed, Feb 10, 2021 at 2:27 PM

Subject: Value of Guidance Document Emission Reduction Benefit Calculation Example

To: <maureen.leddy@dec.ny.gov>

Cc: <Carl.Mas@nysenrda.ny.gov>, Hagell, Suzanne E (DEC) <suzanne.hagell@dec.ny.gov>, dec.sm.climate.regs <climate.regs@dec.ny.gov>

I am writing to alert you to a problem with the New York State guidance document [Establishing a Value of Carbon, Guidelines for Use by State Agencies](#) (the "Guidance"). In particular the Guidance includes a recommendation how to estimate emission reduction benefits for a plan or goal. I believe that the guidance approach is wrong because it applies the social cost multiple times for an emission reduction. I recommend that the Guidance be revised.

I am submitting this comment as a private citizen in the retired, fixed income demographic. The opinions expressed here 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.

During the January 19, 2021 Climate Action Council meeting it appeared to me that the plan is to use the value of carbon guidance to calculate the benefits of CLCPA emissions reductions. For example, if the Part 496 1990 emissions are multiplied by the 2020 values of carbon specified in the guidance document the benefits of completely eliminating those emissions equals \$668 billion as shown below.

Recommended Value of GHG Emission Reduction Benefits (millions)

Discount	CO ₂	CH ₄	N ₂ O	PFCs	HFCs	SF ₆	NF ₃	Total
2%	\$33,100	\$373,317	\$260,758	\$113	\$6	\$501	\$0	\$667,795

In the Guidance section entitled "Estimating the emission reduction benefits of a plan or goal" an example is included that states:

The net present value of the plan is equal to the cumulative benefit of the emission reductions that happened each year (adjusted for the discount rate). In other words, the value of carbon is applied to each year, based on the reduction from the no action case, 100,000 tons in this case. The Appendix provides the value of carbon for each year. For example, the social cost of carbon dioxide in 2021 at a 2% discount rate is \$127 per metric ton. The value of the reductions in 2021 are equal to \$127 times 5,000 metric tons, or \$635,000; in 2022 \$129 times 10,000 tons, etc. This calculation would be carried out for each year and for each discount rate of interest.

The IWG damages approach value is the net present benefit of reducing carbon dioxide emissions by one ton. The calculation methodology determines that value from the year of the reduction out to 2300. It is inappropriate to claim the benefits of the annual reduction over any lifetime. Consider that in this example, if the reductions were all made in the first year the value would be 50,000 times \$127 or \$6,350,000, but the guidance approach estimates a value of \$37,715,000 using this methodology.

In the Part 496 example, if 1990 emissions were reduced in one year the benefits of completely eliminating those emissions equals \$668 billion. If we assume that the emissions are reduced to zero in

2050 by reducing emissions each year by the same amount, the annual reduction times that year's social cost sums to \$886 billion. However, if the social costs are multiplied by the cumulative reductions the costs sum to \$15.373 billion, nearly twice as much as summing the annual values. Furthermore, the cumulative reduction approach is over 23 times higher than if the reductions were all achieved in one year. My final argument that it is inappropriate is: if the social costs were calculated out to 2300, then when do you stop calculating cumulative reductions for the social cost benefits for permanently retiring a source of greenhouse gas emissions?

Unfortunately, I did not pick up on this error in the draft guidance document so I did not call it out in my comments. However, in my comments on the stakeholder webinar I made the comment that the NYSERDA practice of calculating lifetime savings in a similar fashion was incorrect. In order to verify my understanding, I contacted Dr. Richard Tol, Professor of the Economics of Climate Change at Vrije Universiteit Amsterdam and a Professor of Economics at the University of Sussex who has direct experience estimating the social cost of carbon. I 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

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In conclusion, I believe that the Value of Carbon guidance example methodology in the Guidance section "Estimating the emission reduction benefits of a plan or goal" inappropriately considers lifetime

benefits. That is inconsistent with social cost damages approach methodology used to derive the social costs so it should be revised.

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