

Science and Data Subcommittee
Vermont Climate Council
April 24, 2024 (9:00am – 11:00am)

Subcommittee Members in attendance: Breck Bowden, Jared Duval, Lesley-Ann Dupigny-Giroux, Tara Kulkarni, Claire McIlvennie, Ken Jones, David Grass, Collin Smythe, Julie Moore (partial)

State Staff/Contractors in attendance: Adam Jacobs, Alexander Newman, Matthew Bakerpoole

Others in attendance: Elizabeth Kopits (EPA), Al McGartland (EPA), Bryan Parthum (EPA), David Smith (EPA), Charles Griffiths (EPA), Evelyn Hatem, Alex, Lena Stier

Meeting Summary

Subcommittee approved minutes from April 5, 2024 meeting.

Presentation by Elizabeth Kopitz (Senior economist at National Center for Environmental Economics at EPA) on update report on Social Cost of Greenhouse Gases published in November 2023, which was issued as part of an oil and gas rulemaking.

What is the social cost of carbon?

- Monetized present value of global net damages from emitting a ton of CO₂ into the atmosphere in a particular year (and conversely, the benefits from a ton decrease)
- In principle trying to estimate all way human welfare is impacted by climate change but in practice all of estimates are partial due to data and model limitations.
- Estimates trying to provide estimates of incremental or marginal benefits of abatement. Effect of changing emissions by a small amount (how to value benefits of reducing a specific amount of CO₂).
- Carbon price derived by an environmental target (e.g. capping emissions) is different and is based on marginal cost of abatement. Implicitly requires a valuation of damages when setting the constraint but not explicitly modeling or estimating that.
- Are values for other gases besides CO₂ so incorporation of those equates to social cost of greenhouse gases (SC-GHGs) rather than just of social cost of carbon.

Most Integrated Assessment Models (IAMs)

- Models that try to integrate climate processes with the global economy
- Models generally used for SC GHGs are reduced IAMs
- Generally models take four steps:

- Future economies and emissions
 - Future climates and earth systems
 - Future economic impacts (\$/year)
 - Discounting
- Trying to monetize damages and aggregate them up into the future
 - Comparing a modeled baseline with impacts from annual pulses of emissions

Federal rulemaking process requires a rigorous benefit-cost analysis

Use of SC-GHGs is increasing in Federal regulatory and non-regulatory estimates. CA starting to use EPA's updated SC-GHG numbers and Canada has adopted the EPA updated values.

EPA has been working on this, and updating with new science, for a long time.

- Some aspects of methodology has changed over time, but the underlying methodology has remained pretty consistent.
- Update was in response to National Academies of Science Engineering and Medicine (NASEM) recommendations.
- Updated estimates are larger than what EPA previously used in analyses
 - Updated central SC-CO₂ is \$190/ton CO₂ for 2020 emissions
- Still does not capture many categories of climate impacts and damages

Modular framework

- Socioeconomic module
- Climate module (updated)
- Damages module (3 separate damage functions)
 - 5 sectors/impact categories
- Discounting module (shift from constant discount rate to dynamic discounting approach)

EPA created spreadsheet to apply SC-GHG values to a stream of estimated emissions changes:
https://www.epa.gov/system/files/documents/2024-03/epa-sc-ghg-workbook_1.0.1.xlsx

Charles Griffiths (EPA) provided a walkthrough of the tool online.

Subcommittee questions and discussion:

Ken Jones – Note that one of the categories not included in the costs is flooding. Important for us in VT to remember and note that when using these values.

Jared – striking how many damages are not included in the totals, and speaks to how conservative the estimates are.

Elizabeth Kopits (EPA) – will continue to try to incorporate ongoing research into modules going forward.

Breck Bowden – Looked up the FaIR model and appears like there is a newer version.

Bryan Parthum (EPA): Version 2.0 was still under development.

Breck Bowden – if I admit a metric ton of carbon this year it will have impacts for 300 years, and if I emit one ton next year it will have impacts for 300 years. Are these totals additive, and if not, how are they accounted for?

Bryan Parthum (EPA): It is a marginal effect, and so is additive, but do have an increase in the damage function because of additional CO₂ in the baseline.

Lesley-Ann Dupigny-Giroux: How much crosswalk was going on between the development of the report and the National Climate Assessment?

Elizabeth Kopits (EPA) – not much overlap or crosswalk.

Lesley-Ann Dupigny-Giroux: Could you speak to some of the unshaded circles in the damage functions?

Elizabeth Kopits (EPA) – Some movement in wildfire realm and some work in the ecosystem services space to develop global functions.

Al McGartland (EPA) – may need to move away from global damage functions to a more national level incorporation where datasets and research are more robust.

Lesley-Ann Dupigny-Giroux: Nice to see how National Academies of Science Engineering and Medicine (NASEM) consensus reports are being used and how responsive EPA is being to the recommendations.

Jared Duval – Note – as we look to update the SC-GHG in next Climate Action Plan wondering about the set of ranges for discount rates. Previous work from New York was 1%, 2%, 3% and the updated values from EPA were 1.5%, 2%, 2.5%.

Charles Griffiths (EPA): Discounts range over time and changes was related to use of Ramsey Discounting Equation.

Public Comment

- No public comment delivered.

Jared Duval – What are next steps with this SC-GHG information? Timeline and process for making a recommendation for updating the SC-GHG to go to full council for consideration as we begin process of updating the Climate Action Plan.

Work and discussion to set up dates and times for meetings. Difficult to find a time that works for everyone. Suggestion that with new subcommittee members we should ask everyone. New scheduling poll is to be sent out to determine availability going forward.

Ken Jones – is there a progress report schedule that we can use to sort things out?

Likely topic for next meeting is to have a presentation on some of the GHG Inventory methodology and data updates for the upcoming 1990 – 2021 GHG Emissions Inventory.

Claire McIlvennie – Would be helpful to have a workplan for what this subcommittee will be working on for the rest of the year.

Jared Duval – Hoping for a schedule of existing contracts with timelines would be helpful to see where subcommittee members can engage in these processes.

Collin Smythe – will work to put together.

Lesley-Ann Dupigny-Giroux – Good opportunity to explore cross-cutting areas where Science and Data members can provide expertise to other subcommittees.

Jared Duval – would make sense to follow up on the presentation from this meeting with a recommendation for an update to the social cost of GHG. Jared Duval, Collin Smythe, and Breck Bowden volunteered.

Public Comment

There was no public comment.

Meeting was adjourned.