Clean Heat Standard Technical Advisory Group

Subgroup on Emission Factors

September 11, 2024 Meeting Minutes

Attendees

- Members of the Subgroup present
  - Matthew Bakerpoole, Vermont Department of Public Service
  - Ken Jones, individual
  - Casey Lamont, Burlington Electric Department
  - Sam Lehr, Coalition for Renewable Natural Gas
  - Emily Levin, NESCAUM
  - Floyd Vergara, Clean Fuels Alliance America
  - Rick Weston, individual
  - Patrick Wood, Ag Methane Advisors
  - Brian Woods, Vermont Agency of Natural Resources

Agenda & Actions

- Opening the Meeting

[Meeting commenced at 12:30 pm ET.]

- Discussion

[Group discussed Opinion Dynamics deliverables (emissions table and characterization of clean fuels) and developed the first round of feedback and questions for OD. Chair Rick Weston prepared the resulting memo (attached) to share with Opinion Dynamics in advance of Thursday's discussion.]

- Closing the Meeting

[The meeting adjourned at 2:52 pm ET.]

Meeting Recording:
https://www.youtube.com/watch?v=t5fcFL77Rng&list=PLm7FHMU9GY9R_zhQEp6UJf8imn92o7Srd&index=35

To: Deirdre Morris, Vermont Public Utility Commission
From: Rick Weston, Chair, CHS Technical Advisory Group
Date: 17 September 2024

Re: CHS Measure Characterizations—Questions from the TAG for Opinion Dynamics

Last week, an ad hoc subgroup of the Clean Heat Standard (CHS) Technical Advisory Group (TAG) met to discuss two recent submissions from Opinion Dynamics (OD, the PUC's consultant on clean heat measure characterizations): OD's 29 August memo with "Draft Vermont Clean Heat Standard Lifecycle Emissions Rate Schedule" and OD's 9 September "Draft Vermont Clean Heat Standard Fuel Measure Characterizations". This memo catalogues (from my notes of the meeting) an initial, but by no means comprehensive, set of questions that TAG members have about these documents. I'm sending them along now to help OD prepare for its discussion with the TAG this coming Thursday, 19 September.

CHS Lifecycle Emissions Rate Schedule

- Why are avoided methane emissions excluded?
    - 30 VSA Section 8127(g)(2) states: "For each fuel pathway, the schedule shall account for greenhouse gas emissions from biogenic and geologic sources, including fugitive emissions and loss of stored carbon. . .".
    - Will they be included in the final report and will they be differentiated by type (e.g., landfill, dairy, etc.)?
- Is there a detailed workbook that provides underlying assumptions, formulas, etc. that underpin the emissions rate schedule?
- In certain instances, OD assigns carbon intensities (CIs) that differ from those used by NV5 for its potential study:
    - Renewable diesel, biodiesel, biomethane, and landfill gas differ from those of NV5. Where there are negative values, the differences are significant.
    - What are the reasons for these differences? Please provide any source documentation used for the carbon intensities.
- Table 1:
    - There are no nitrogen oxides shown for hydrogen combustion. This seems odd. Does it not produce any?
- OD did not recognize upstream land-use impacts from the production of certain biofuels. Why not? Should they be accounted for? Is there a question of "additionality" in agricultural associated with Vermont's demand for crop-based fuels?
- "Step-downs" in carbon intensities in 2030 and 2050:
    - OD assumes that the CIs of biofuels drops in 2030 and stays flat until 2049. Is this a reasonable assumption? The legislation says that the PUC will "publish the rate at which carbon intensity values shall decrease annually for liquid and gaseous clean heat measures. . ." (8127(f)(2). Should the CIs decline during this period?

Draft Vermont Clean Heat Standard Fuel Measure Characterizations

- OD assumes that biomethane and other feedstocks sourced outside the United States will not be eligible as clean heat measures (page 6). Why? The legislation does not impose geographic limitations on sources of clean fuels.
- Why is biomethane assumed to be delivered only through pipelines (pp. 6-7)?
- Renewable propane is not characterized? Why not? It's an eligible measure, is it not?

- Biomethane used to produce electricity is not recognized as a clean fuel measure (p. 7). Why not? Should it be? Should biomethane as a material feedstock in an industrial facility be an eligible clean heat measure (p. 7)?
- Are there any feedstocks not listed in the legislation that should be included as clean fuel measures?
- Why is only renewable diesel delivered by truck considered eligible?
- Wood:
    - Why are only firewood production pathways in the Northeast eligible for this measure?
    - Is the assumption that the emissions associated with the delivery of wood fuels is equivalent to that of fuel oil and propane reasonable, in given the differences in distances travelled?

I might not have captured my colleagues' questions as faithfully as possible. We'll clear up any confusion on Thursday. We look forward to the discussion.