Clean Heat Standard Technical Advisory Group

Subgroup on Draft TRM

December 5, 2024 Meeting Minutes

Attendees

- Members of the Subgroup present
  - Matthew Bakerpoole, Vermont Department of Public Service
  - Matt Cota, Meadow Hill Consulting
  - Ken Jones, individual
  - Michelle Keller, Fraktalas Energy
  - Sam Lehr, Molecule Group
  - Emily Levin, NESCAUM
  - Emily Roscoe, Efficiency Vermont
  - Floyd Vergara, Clean Fuels Alliance America
  - Rick Weston, individual
  - Brian Woods, Vermont Agency of Natural Resources

Agenda & Actions

- Opening the Meeting

[Meeting commenced at 10:30 am ET.]

- Discussion

[Group discussed Opinion Dynamics second draft deliverables (emissions table, characterization of clean fuels and installed measures) and developed feedback and questions for OD. The meeting resulted in the attached memo to share with Opinion Dynamics.]

- Closing the Meeting

[The meeting adjourned at 12:30 pm ET.]

Meeting Recording: https://www.youtube.com/watch?v=GPzoARFShUo

To: Deirdre Morris, Vermont Public Utility Commission
From: Rick Weston, Chair, CHS Technical Advisory Group
Date: 6 December 2024
RE: Opinion Dynamics' VT CHS Technical Resource Manual, Draft of 19 November 2024

Below are a set of questions that members of the TAG have raised after their initial review of OD's latest draft of the TRM. We're sending them along to help OD prepare for its meeting with the TAG next week (12 December). Undoubtedly, more questions will come up during the discussion, for which we're allocating 45 minutes.

1. **Advanced wood heat**
   o The TRM appears to assume that advanced wood heat systems in residences will be replacing only conventional wood heating systems. Is this the case? If so, it seems unrealistic and probably understates the emissions reductions. Shouldn't the baseline for comparison be the statewide fuel mix?
   o Is there confusion here as to how advanced wood heat is characterized, i.e., as both an appliance and a delivered fuel? Treating wood as a delivered fuel is likely to complicate credit calculations and compliance.

2. **Biofuel and renewable diesel from distillers' corn oil**
   o OD's treatment is significantly different from how the western states treat these fuels. This relates to the allocations of ethanol and corn oil. Please explain.

3. **Hydrogen**
   o It appears that the only application is where gray hydrogen is replaced by green hydrogen; but is it not more likely that green hydrogen will replace natural gas or another fuel?
   o OD assumes that green hydrogen will be delivered by truck. Is not on-site production likely too?
   o OD's CI scores for fuels generally decrease over time (see below), but not in the case of green hydrogen from dedicated renewables. It remains constant except for changes in leakage rates. Is this reasonable?
      ▪ Note that, in contrast, the CI for gray hydrogen decreases over time. Please explain.

4. **RNG**
   o Food waste is not listed as feedstock. Arguably, it is a more likely feedstock than wastewater and there are environmental co-benefits associated with its use. Why is it not included?

5. **CI scores for biofuels**
   o Please explain why certain CI scores are not the same as or similar to those we're seeing in other jurisdictions. LFG is lower than expected. Animal waste seems high. (Is this due to the 60% flaring assumption, which is much higher than current practice and which Argonne is likely to change in the GREET model?).

6. **Declining CI scores over time**
   o OD predicts the reduction in the CIs of some fuels and technologies over time, which seems reasonable. It would be helpful understand what the drivers of these reductions are, e.g., is it the CI of electricity as an input or of fossil fuels as an

input. (This also relates to the questions above about green and gray hydrogen and renewable propane below.)

7. **Advanced thermostats**
   o OD assumes that advanced thermostats will reduce fuel use by 7%. This seems overly optimistic. Actual savings will depend on how they are used. Should expectations be adjusted for the likelihood that not all thermostats will be optimally operated? (We don't want to improperly incentivize their installation.)

8. **Renewable propane**
   o Renewable propane, which is derived from renewable diesel, has a constant CI, whereas renewable diesel has a declining CI. Shouldn't renewable propane see the same declines in CI as renewable diesel?

9. **Electric portfolio resource mix**
   o OD assumes a Vermont electric resource portfolio that differs from the portfolio that recent compliance filings by the state's utilities describe (for example, with respect to purchases from HydroQuebec, which are expected to be greater than OD assumes). The Department of Public Service will provide updated information directly to OD.
   o OD's electricity emissions factors are not consistent with those of the Agency of Natural Resources.
      ▪ ANR's inventory method is based on contracted electricity mix, including system mix, a portion of which in non-renewable. ANR uses NEPOOL emission factors for system mix, but OD uses emission factors from EPA.
      ▪ Are the differences meaningful and, if so, shouldn't OD adopt the ANR factors?

10. **Emissions factors schedule** (which includes upstream and combustion emissions only)
    o The schedule appears to assume that all equipment delivers heat with the same level of efficiency. Shouldn't the factors be based on deemed average efficiencies? If so, this will likely increase the CIs.

11. **Insulation and air infiltration**
    o The TRM assumes that credit values of these measures will all be customized. Is this reasonable?
      ▪ Concerns were raised about how this could have a deleterious impact on the delivery of these measures. Is it not possible to develop deemed savings (based on square footage, numbers of windows, etc.) for them?

Thank you.