

Discussion – Step Down of Biofuel Carbon Intensities 2031-2050

October 17, 2024

Question for TAG Consideration:

How should carbon intensity (CI) threshold values for liquid and gaseous biofuels decline from below 60 in 2030 to below 20 in 2050?

- Option 1: Linear annual decline in CIs from 2030 to 2050.
- Option 2: Step down in CIs from below 60 in 2030-2049 to below 20 in 2050.
- Option 3: An alternative rate of decline, to be determined. One alternative, for instance, is a step function defined by multiples of years (e.g., three, five, or seven) and informed by expectations of technological change.

The table below illustrates how the carbon intensity value relative to No. 2 fuel oil would decline from 2025 to 2050 under Options 1 and 2.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Linear Decline (Option 1)	80	80	80	80	80	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32	30	28	26	24	22	20
Step Down (Option 2)	80	80	80	80	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	20

Relevant Sections of CHS Statute for Reference:

30 V.S.A. § 8127(f) requires the Commission to establish and publish maximum allowable carbon intensity values (relative to No. 2 fuel oil in 2023) for eligible clean heat fuels. It reads in full as follows:

(f) Carbon intensity of fuels.

(1) To be eligible as a clean heat measure, a liquid or gaseous clean heat measure shall have a carbon intensity value as follows:

(A) below 80 in 2025;

(B) below 60 in 2030; and

(C) below 20 in 2050, provided the Commission may allow liquid and gaseous clean heat measures with a carbon intensity value greater than 20 if excluding them would be impracticable based on the characteristics of Vermont's buildings, the workforce available in Vermont to deliver lower carbon intensity clean heat measures, cost, or the effective administration of the Clean Heat Standard.

(2) The Commission shall establish and publish the rate at which carbon intensity values shall decrease annually for liquid and gaseous clean heat measures consistent with subdivision (1) of this subsection as follows:

(A) on or before January 1, 2025 for 2025 to 2030; and

(B) on or before January 1, 2030 for 2031 to 2050.

(3) For the purpose of this section, the carbon intensity values shall be understood relative to No. 2 fuel oil delivered into or in Vermont in 2023. Carbon intensity values shall be measured based on fuel pathways.

Background:

The May 29, 2024, PUC Straw Proposal on Pacing proposed that, on January 1, 2025, the Commission will adopt a step change in carbon intensity values – adopting the threshold limit of “below 80 in 2025” and “below 60 in 2030” with no rate of decline in in-between years. The PUC proposal did not take a position on how carbon intensity values for liquid and gaseous fuels should decline from 2031-2050: “In preparation for establishing carbon intensity values on January 1, 2030, for the years 2031-2050, the Commission will offer an opportunity for public input to help inform the step change or rate of decline proposed during that period.”

On June 26, 2024, the TAG submitted comments on the May 29 PUC Staff Proposal on Pacing. The TAG supported the step change for declining carbon intensity from 2025 to 2030, noting that it “provides a simple and predictable target for the marketplace.” The TAG did not take a position on how carbon intensity values for liquid and gaseous fuels should decline from 2031-2050.

Discussion:

A plain reading of the statutory language suggests that it calls for annual decreases in the maximum carbon intensities of eligible clean heat fuels and that, therefore, something along the lines of Option 1 is appropriate. However, given that improvements in technology are rarely gradual in nature, it’s reasonable to conclude that the legislature did not intend to constrain the PUC’s discretion in this fashion, but rather wants it to develop a long-term trajectory for reducing the carbon intensities of eligible fuels that will do most to induce technological improvement and minimize economic harm. A rate of change can be negative, positive, or zero and it can change from year to year.

In this light, Options 2 and 3 are also consistent with legislative intent. Option 2 is less complex, administratively, than Option 1 and likely to be less complex too than an as-yet unknown alternative under Option 3, but complexity is only one of many considerations that the PUC will need to juggle.

The choice of trajectory for reductions in target CIs could have a meaningful impact on which liquid and gaseous biofuels are eligible for clean heat credits in the 2031-2049 period. The filings of several interested parties to the rulemaking have catalogued a range of possible effects, from no disqualifications of eligible fuels until 2050 to a series of disqualifications in the second decade of the period. These depend, of course, on assumptions about the initial carbon intensities of the fuels, about which there is still debate.

Lastly, a relevant consideration to the choice of a CI trajectory for eligible clean heat fuels will be the contribution of emissions from the combustion of those fuels to Vermont’s Greenhouse Gas Emissions Inventory—or, more accurately, their contribution to achievement of the emissions reduction targets of the Global Warming Solutions Act (GWSA). It was noted during TAG discussion that the second option appears to offer the least assistance to emissions reductions of the three.