BayoTech™

Re: Washington State 173-424 WAC, Clean Fuels Program Rule – Draft Carbon Intensity Lookup Table

April 28, 2022

BayoTech Hydrogen appreciates the Washington Department of Ecology's work in developing these proposed pathways for the Clean Fuel Standards, providing guidance and direction on the modeled carbon intensity of various types of alternative fuels.

We would like to express concern regarding a number of points, related to the information provided in the Washington CFS Lookup Tables draft document.

- Page 3 on Table 4 there does not appear to be a specific pathway that recognizes the use of RNG sourced from Dairy and Swine biomethane, instead only recognizing landfill gas, or traditional fossil natural gas, which have significantly higher carbon intensity values.
- Page 10, Table 9 indicates Dairy/Swine biomethane, with a -150 CI value, but does not include a pathway for use in Hydrogen production. Additionally, the -150 CI value is lower than reported by other Dairy and Swine RNG facilities across the US (ranges are typically -200 to -350 CI.) Rationale for this "lower" CI value would be helpful.
- The inclusion of a default pathway for hydrogen production via SMR, using fossil natural gas, and Carbon Capture technology (90 - 95% capture rate) would provide additional flexibility, encourage innovation and ensure cost effective options for hydrogen production.
- The listed EER values noted on pages 5 and 6 in Table 7, do not include consideration of a number of additional hydrogen related pathways:
    - Hydrogen Fuel Cell cargo handling equipment (e.g., reach stacker, yard truck, RTG Crane)
    - Hydrogen fuel cell TRU
    - Hydrogen fuel cell rapid charging of BEV
    - Hydrogen Fuel cell diesel generator replacement
    - Hydrogen fuel cell to power for Ocean Going Vessels

We strongly recommend clarification and inclusion of a pathway for the use of various sources of biomethane (RNG) from Dairy, Swine, and waste water treatment facilities as part of the hydrogen SMR production process, as this can provide a highly cost effective means of reducing or eliminating carbon emissions from the produced H2.

Additionally, we recommend consideration or allowance of pathway applications for small, modular, non-centralized SMR production, that may effectively avoid the need for long distance transportation, liquefaction and large-scale H2 storage associated with centralized facilities.

Finally, the specific methodology and process based CI impacts included in the numbers listed in this draft document should be clearly explained, as the assumptions involved in each step of the fuel production process can have significant effects on the total carbon intensity value.

We appreciate the opportunity to participate in the development of the Washington CFS program.

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About BayoTech

BayoTech is a full-service hydrogen production, delivery, and storage technology company, headquartered in Albuquerque, New Mexico. BayoTech is disrupting the established centralized hydrogen supply chain with a new, highly efficient model of local hydrogen production hubs. Producing on a small scale with our unique technology, BayoTech is making reliable, cost-effective, low-carbon hydrogen accessible today.