

June 7, 2024

Mr. Adam Saul
Clean Fuels Program
Washington State Department of Ecology

Dear Mr. Saul:

During Ecology's May 2 and May 8 public meetings, you emphasized the department's interest in receiving comments on "Considering allowing zero-CI electricity to be claimed for producing electrolytic hydrogen for SAF using book-and-claim." (Slide 14)

Hammerschlag LLC recommends against this special support for SAF for the following reasons.

1. **"Zero"-CI electricity does not really have a zero CI.** WAC 173.424.630(6) states "the carbon intensity of solar, wind, geothermal, hydropower, and ocean power renewable electricity is deemed to be zero." Yet, the Clean Fuels Program law requires Clean Fuels Program rules to consider "greenhouse gas emissions attributable to the transportation fuels throughout their life cycles, including but not limited to emissions from the production, storage, transportation, and combustion of transportation fuels and from changes in land use associated with transportation fuels and any permanent greenhouse gas sequestration activities." (RCW 70A.535.030) Emissions induced by manufacture, operations, and maintenance of wind turbines, photovoltaic panels, batteries, or transmission & distribution infrastructure, though low, are not zero.¹ Land use change, likewise, is low but nonzero.

2. **Book-and-claim rules evade additionality.** Most book-and-claim systems for electricity depend on retirement of a renewable energy credits (RECs), each representing generation of 1 MWh of electricity generated from a qualifying renewable resource. The existence of the REC (whether retired or not) does not mean that a claiming consumer such as a hydrogen electrolysis facility caused the deployment of the resource that booked the REC.² Indeed, it is more than likely that the resource that booked the REC exists because a regulatory program, or electric market forces generally, made it profitable to build. There is no positive demonstration that the electrolysis facility caused renewable electricity to be generated, so its claim to the associated zero-CI electricity is very weak. Indeed, academic research has demonstrated that the effective emissions rate of electricity represented by RECs is essentially unknowable.³

¹ Daniel Weisser, "A Guide to Life-Cycle Greenhouse Gas (GHG) Emissions from Electric Supply Technologies," *Energy* 32, no. 9 (September 2007): 1543–59, <https://doi.org/10.1016/j.energy.2007.01.008>.

² Michael Wayne Gillenwater, "Redefining RECs: Additionality in the Voluntary Renewable Energy Certificate Market" (PRINCETON UNIVERSITY, 2013), http://dataspace.princeton.edu/jspui/bitstream/88435/dsp011r66j1208/1/Gillenwater_princeton_0181D_10533.pdf.

³ Matthew Brander, Michael Gillenwater, and Francisco Ascui, "Creative Accounting: A Critical Perspective on the Market-Based Method for Reporting Purchased Electricity (Scope 2) Emissions," *Energy Policy* 112 (January 2018): 29–33, <https://doi.org/10.1016/j.enpol.2017.09.051>.

3. Booked-and-claimed zero-CI electricity is a special privilege. The true CI of electricity powering a fuel manufacturing facility can only be known if the electricity is additional due to the facility, and if a complete life-cycle inventory of the associated greenhouse gases is conducted. Hence, the assignment of zero CI to certain resources via book-and-claim grants the associated process a special privilege by law, rather than measuring an advantage through science.

4. Hydrogen-enabling SAF pathways do not merit a special privilege. WSU’s Sustainable Aviation Biofuels Workgroup stated, correctly, that SAF “[e]fforts should focus on the early-action pathways to decarbonize the energy sector and should not prioritize any particular feedstocks, process technologies, or fuel type over others.”⁴ There are multiple pathways available for producing SAF, and even among the subset of pathways that utilize hydrogen as a feedstock there are multiple methods available for producing the hydrogen. A specially-assigned advantage of zero-CI electricity through book-and-claim accounting prioritizes a particular feedstock, and prioritizes a process technology, and prioritizes a fuel type over others, in perfect opposition to WSU’s suggestion.

5. Ecology is not required to award the special privilege. RCW 70A.535.030(6) only requires credit assignment “at minimum” to support residential electric vehicle charging. Ecology has been required by the Legislature only to grant the special privilege to this narrow subsector, and there is no need to extend it to one subset of possible SAF pathways at this early stage in SAF development when all technologies should still be competing on a level playing field.

Sincerely,



Roel Hammerschlag
Principal

⁴ WA Department of Ecology, “Claiming Utility-Specific Carbon Intensities for Electricity Used to Produce Sustainable Aviation Fuel,” Interpretive Statement, January 4, 2024. (p3, Note 1)