February 26, 2024

Submitted via-regulations.gov

Office of the Associate Chief Counsel (Passthroughs and Special Industries)
CC:PA:LPD:PR (REG–117631–23)
Room 5203
Internal Revenue Service
P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

RE: Comments with respect to proposed regulations implementing Section 45V as amended by the Inflation Reduction Act of 2022 (IRS REG-117631-23)

Dear Sir or Madam:

Lewis County Public Transportation Benefit Area, d/b/a Lewis County Transit ("LC Transit") respectfully submits comments to the U.S. Department of the Treasury ("Treasury") regarding the proposed regulations under Code[1] Section 45V (the "PTC") published on December 26, 2023 at 88 Fed. Reg. 89220 (generally, the "Proposed Regulations"). The Proposed Regulations interpret certain provisions of the Code, as amended by Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 ("IRA").[2]

LC Transit urges Treasury to recognize that small hydrogen production facilities have a unique ability to decarbonize transportation now, long before the large production facilities we all hope for in future. However, small production facilities cannot access the same resources as large hydrogen production facilities. Therefore, Treasury should provide for an exception to the greenhouse gas ("GHG") emissions scoring requirements for low-temperature electrolysis that uses less than 5 MWac of electricity.

Further, LC Transit urges Treasury to provide in final regulations an exception to the GHG scoring requirements for electrolytic hydrogen producers located in states such as Washington that have laws that prohibit new GHG emitting electricity generation.

Finally, LC Transit urges Treasury to provide in final regulations for a de minimis exception to changes in a hydrogen producer's GHG score when the change results solely from the issuance of a new 45VH2-GREET ("GREET") model.

The IRA is the United States Congress's greatest commitment to addressing climate change. [3] Most of these commitments come from the IRA's tax title, which enhances and expands previously enacted provisions and provides new incentives for clean and renewable energy production.[4] The credit for production of clean hydrogen under Code Section 45V was established to incentivize the

[1] All references to the "Code" herein are to the Internal Revenue Code of 1986, as amended and restated, including by IRA.
[2] Inflation Reduction Act of 2022 (IRA), H.R. 5376, 117th Cong. (2022).
[3] *Id.*
[4] *Id.* § 13101–13903.

United States energy transition to a renewable fuel source. The Proposed Regulations, however, would effectively deny the PTC to the small facilities that are spearheading the transition to clean hydrogen.

We respectfully request that Treasury and the IRS promptly revisit the Proposed Regulations to account for small-scale hydrogen producers, allow for a general exception to GHG emissions scoring based on state law, and allow a grace period for hydrogen producers when a producer's GHG emissions rate increases solely due to a change in the GREET model.

1. Background

a. LC Transit

LC Transit is a public transit system formed under RCW 81.112 to serve the public of Lewis County and portions of Thurston County, Washington. We offer five intra-county bus routes that serve Centralia and Chehalis and two inter-county routes along the I-5 corridor, serving residents in Grand Mound, Tumwater, Olympia, Kelso, and Morton. Much of the area where LC Transit operates is an energy community by reason of the phased termination of the coal-fired electricity generation facility in Centralia, Washington.

In recent years, LC Transit attempted to achieve its goals of providing low-carbon public transportation by purchasing battery electric vehicles to service its shorter routes.[5] However, these vehicles, like many other battery electric transit fleet vehicles, were plagued with operational malfunctions. Recently, LC Transit made the difficult decision to return these busses to their manufacturer long before the end of the useful life that the busses were supposed to have.

However, LC Transit remains committed to its goals. For the last several years, LC Transit has been gathering financial resources and developing a small low-temperature electrolysis hydrogen production facility to produce just enough hydrogen to operate five to eight hydrogen FCEV busses. For that reason, it is widely recognized as a first mover in the Pacific Northwest and among small transit agencies nationwide in the use of hydrogen fuel cell electric vehicles ("FCEV") for mass transit.

Nonetheless, it will be difficult for LC Transit to achieve its goal. The nearest major producer of hydrogen is located in Sacramento, California, 665 miles away from LC Transit's hub in Chehalis, Washington. Not only is that hydrogen produced using natural gas and a steam methane reformer, but it would also be absurdly carbon intensive and expensive to transport the hydrogen to Chehalis. These factors, combined with the significant capital expenditures needed to procure hydrogen FCEV vehicles from the two American manufacturers remaining and to build fueling infrastructure and enough hydrogen storage to maintain stable operations, have led LC Transit to the conclusion that it must produce its own hydrogen using small, modular electrolyzers. To make this project work for the residents of Lewis and Thurston Counties, it is essential that this facility qualify for the maximum PTC.

[5] Battery electric vehicles are not suitable for the longer routes that LC Transit operates to provide its more rural neighbors with the essential transit services they depend on.

LC Transit is not only a first mover, it is a leader. Other public agencies, including transit and others, are at various stages of following in LC Transit's footsteps. LC Transit is confident that if it can successfully implement hydrogen FCEVs into its fleet and cost-effectively produce electrolytic hydrogen to fuel those busses, many other transits in Washington and elsewhere will follow. To share the knowledge and experience, LC Transit is in the process of forming an interlocal cooperation agreement and entity that will allow these public agencies to dramatically reduce transportation-related greenhouse gas emissions[6] and bring public transit and other fuel users into the hydrogen age.

2. Treasury should provide small-scale hydrogen producers a de minimis exception to the lifecycle greenhouse gas emissions rate requirements to receive 100% of the PTC.

a. Obtaining the maximum PTC rate is crucial for small production facilities

Ensuring that a hydrogen production facility satisfies the lowest lifecycle GHG emissions rate is critical when determining whether a hydrogen production facility, particularly a small production facility, should be built.

Producing hydrogen at a local, small facility reduces distribution costs and increases energy independence and security.[7] These benefits are particularly important for transit agencies, which typically serve the most vulnerable populations. However, electrolyzers are expensive and there are very few manufacturers who produce small, modular units that are useful for smaller use cases. Accordingly, small electrolyzer facilities usually have higher capital costs per kilogram of hydrogen due to a lack of economy of scale.[8] Operational costs are also relatively higher on a per-kilogram basis.[9] In addition, it may not be possible to negotiate a favorable electricity cost because the demand would generally be too low to make negotiation worth the distribution utility's effort.

The PTC has the potential to be a game changer for small production facilities like LC Transit's. The GHG emissions threshold for obtaining the crucial $3/kg rate of PTC is 0.45 kg of CO2e per kg of hydrogen, but LC Transit's local grid, operated by Lewis County Public Utility District ("Lewis County PUD"), is typically very clean. In 2020, its average emissions rate was 0.018 metric tons of CO2e per MWh of electricity,[10] or approximately 0.9 kg of CO2e per kg of hydrogen using a low-temperature electrolytic process. However, since IRA was enacted, LC Transit has

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[6] Transportation is the largest contributor to greenhouse gas emissions in Washington State. State of Washington, Department of Ecology, Washington's Greenhouse Gas Inventory, available at https://ecology.wa.gov/air-climate/reducing-greenhouse-gas-emissions/tracking-greenhouse-gases/ghg-inventories

[7] https://www.energy.gov/eere/energy-independence-and-security

[8] https://www.hydrogennewsletter.com/unlocking-the-potential-of-small-scale-hydrogen-production-cost-effective-strategies-and-opportunities-for-localized-green-energy-solutions/

[9] *Unlocking the Potential of Small-Scale Hydrogen Production: Cost Effective Strategies and Opportunities for Localized Green Energy Solutions*, HYDROGEN NEWSLETTER (Apr. 4, 2024), https://www.hydrogennewsletter.com/unlocking-the-potential-of-small-scale-hydrogen-production-cost-effective-strategies-and-opportunities-for-localized-green-energy-solutions/.

[10] Washington State, Department of Commerce, Utility Greenhouse Gas Emissions Report – CY 2020, available at https://www.commerce.wa.gov/wp-content/uploads/2022/04/Utility-GHG-Emissions-Report-2020.xlsx

been exploring—and rejecting, largely because of cost or impracticability—a variety of options to reduce the GHG emissions rate of its electricity.

The Proposed Regulations put LC Transit almost back at square one because:

- The GREET model requires that LC Transit look to all of the Western Electricity Coordinating Council ("WECC") generation area to calculate its grid electricity GHG emissions rate. WECC's GHG emissions are much, much higher than Lewis County PUD's.

- While the Proposed Regulations permit LC Transit to purchase electricity attribute certificates ("EAC") to reduce the deemed GHG emissions rate of its power, small producers will never be in a position to do so efficiently. Rather, small producers will generally be relegated to the open market where they have no ability to negotiate price, availability, or term. Not only is this process largely manual, after the change to hourly matching in 2028, it will have to be done continually because the markets offers no ability to foresee when or if a small producer will be able to continue to buy EACs.

b. Small production facilities are extremely important to progress the transition to clean transportation

As discussed above, today's battery electric busses do not work for public transit. Not only are they incapable of servicing long routes, many of the public transit agencies in the United States have had very negative experiences with them. Clean hydrogen FCEVs are *the future* of transit.

However, there are very few hydrogen production facilities in the United States that produce hydrogen for transportation uses.[11] Moreover, the major hydrogen producing states are California, Louisiana, and Texas.[12] Therefore, in order to supply transportation vehicles with hydrogen, the hydrogen typically must be shipped long distances. Further, even when hydrogen is available, it is generally not clean hydrogen.

It takes years to develop a large clean hydrogen production facility. Once financing is secured, it takes *months* to develop a small low-temperature electrolytic facility. Based on current supply chain and development timelines, LC Transit will be producing electrolytic hydrogen later this year and several more Washington transit agencies will be producing electrolytic hydrogen within the next 24 to 36 months. However, it will be several years before any of the clean hydrogen production facilities planned in Washington State will produce their first kilogram. Even then, there is no guarantee that those facilities will sell hydrogen into the open market because it is much better for them (and their financiers) to sell all of a facility's production to one or a handful of dedicated buyers.

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[11] U.S. Department of Energy, *Alternative Fuels Data Center: Hydrogen Production Distribution*, https://afdc.energy.gov/fuels/hydrogen_production.html#:~:text=The%20major%20hydrogen%2Dproducing%20states,California%2C%20Louisiana%2C%20and%20Texas (last visited Feb. 26, 2024).

[12] *Id.*

c. A small producer exception would not be subject to abuse

Approximately 5 MWac of electricity is sufficient to produce enough hydrogen for LC Transit to use 25 to 40 hydrogen FCEV busses on daily routes. This would allow LC Transit and other small transit agencies to serve *all* of their riders and would allow even large transit agencies to serve a material amount of their riders, in each case, without adding emissions to American skies. Moreover, 5 MWac of electricity is such a small load that many transit agencies will not even need to specially procure additional power to serve it. Accordingly, 5 MWac of electricity generally will not create significant additional emissions.

There is additional merit in a 5 MWac electricity input when you consider the bonus credits that Congress provided for in Code Section 48(e). In that provision, Congress included a specific additional bonus credit for small wind and solar energy property in certain locations that could particularly benefit from renewable electricity. Like the GHG emissions rate requirement in Code Section 45V, the electricity credits were designed to serve a particular policy goal. While Congress did not create a similar bonus credit for small hydrogen production facilities, Treasury has the regulatory latitude to provide small facilities for relief from some of the onerous requirements in an exception in the regulations promulgated pursuant to Code Section 45V.

d. Proposed text

Treasury should use its authority to interpret Code Section 45V to provide for a small-producer exception to the GHG emissions rate requirements. This exception should be placed in the final regulations and read as follows:

> A single low-temperature electrolysis facility that uses 5 MWac or less electricity to produce hydrogen shall be deemed to have an emissions rate of less than 0.45 kg of CO2e per kg of hydrogen.

We note that the definition of "facility" at Proposed Regulations Section 1.45V-1(a)(7) is restrictive and should be interpreted to disallow this presumption in the case of multiple small facilities at the same location that are operated together or in parallel.

3. Treasury should provide an exception for hydrogen produced in a state that has local laws that prohibit additional non-renewable generation or otherwise require that all additional generation is renewable

The Proposed Regulations require hydrogen production facilities to use the local regional reliability entity, e.g., WECC, to determine its grid GHG emissions rate. This approach adversely impacts hydrogen production facilities located in states that have a comparatively clean grid.[13]

Individual states have a unique ability to regulate electricity in the state and can significantly impact the emissions makeup of the grid. For example, Washington has made extraordinary progress toward a cleaner grid. Washington's 2019 Clean Energy Transformation Act ("CETA") committed all electric utilities serving retail customers in the state to eliminate coal-fired

[13] U.S. Department of Energy, *National Transmission Needs Study*, at 13 (October 2023), https://www.energy.gov/sites/default/files/2023-10/National_Transmission_Needs_Study_2023.pdf.

generation by 2025,[14] provide carbon-neutral electricity by 2030,[15] and by 2045, provide 100% clean (renewable or non-emitting) electricity.[16] Because CETA applies at the utility level, these requirements apply whether the utility produces the electricity itself or buys it from another generator, regardless of where that generator is located.[17] As a consequence, utilities in Washington are already generally not attempting to procure new sources of fossil fuel-based power and are aggressively procuring new renewable electricity from existing and augmented hydropower, solar, and wind and installing more and more energy storage.[18]

It is unfair to states like Washington that have invested heavily and effectively in achieving a near-term clean grid to be forced to use the GHG emissions rate for a vast region. Moreover, this penalty is magnified given that the cost of electricity is generally already higher in states with a cleaner grid because of prior investments in renewable electricity.[19] Hydrogen production facilities located in those states should benefit from those investments.

We respect Treasury's clear concern in the preamble to the Proposed Regulations that an exception based on state law could be abusive. However, it is possible to set boundaries around the types of law that would qualify producers in certain states for this exception and to provide for a process that allows Treasury to review the laws in question to ensure that the additional electricity generated or procured in that state is truly clean.

To account for situations like Washington's, Treasury should include in the final regulations a clear exception that hydrogen production facilities that are located within and consume electricity from states that have demonstrated near-term commitments to eliminate coal-fired resources and have specific benchmarks to achieve 100% renewable electricity in the state by 2050 or earlier shall be entitled to elect to use a GHG emissions rate based on the CO2e score of the state in which the hydrogen production facility is located rather than the score determined by the local regional entity.

In determining whether a state program shall be eligible for hydrogen production facilities within the state to quality for this exception, the Secretary shall consider the following criteria in the state's laws and policies: (1) the near-term timeframe in which the state commits its electric utilities to require all electricity sold to be from 100% clean (renewable or non-emitting) energy

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[14] RCW 19.405.030(1).
[15] RCW 19.405.040(1).
[16] *Id.*
[17] *See* RCW 19.405.070 (greenhouse gas content calculation); RCW 19.29A.060 (requiring utilities to disclose fuel characteristics, including the percentage of the total electricity from coal, hydroelectric, natural gas, nuclear, solar, wind, or "other generation"); *see also* RCW 19.405.090 (compliance requirements); RCW 19.405.080 (periodic reporting).
[18] *See* U.S. Energy Information Administration, Washington State Profile Analysis, https://www.eia.gov/state/analysis.php?sid=WA. In 2022, hydroelectric power accounted for 67% of Washington's total electricity net generation from both utility-scale and small-scale facilities and accounted for 31% of the nation's total hydroelectric generation. *Id.* Renewable resources other than hydroelectric power accounted for another 9% of Washington's total electricity generation. *Id.* By contrast, natural gas accounted for 12% of the State's total electricity generation and coal accounted for only 3%. *Id.*
[19] Western Electricity Coordinating Council, *State of the Interconnection 2023*, at 4 (Mar. 24, 2023), https://www.wecc.org/Administrative/State%20of%20the%20Interconnection.pdf.

sources; (2) any stated intermediate compliance deadlines eliminating coal-fired resources from the allocation of electricity generated or sold, and/or committing electric utilities to provide greenhouse gas neutral electricity; (3) any specific enforcement provisions outlining penalties for noncompliance and deadlines for compliance, including, but not limited to, interim compliance deadlines for partial off-setting of non-renewable energy sources verified by state or federal law, or promulgated renewable portfolio standards; (4) any specific periodic reporting provisions requiring electric utilities to disclose greenhouse gas emissions, allocation of financial costs of compliance, evaluations of new technologies, and assessments of costs on electric customers, among others; (5) any specific greenhouse gas content calculations or renewable portfolio disclosures required under state law; and (6) any other factors or criteria the Secretary deems necessary for review.

After the Secretary determines a state program to be eligible based on review of these criteria, hydrogen production facilities located within that state may elect to use a state- specific GHG emissions rate rather than a regional rate.

4. **Treasury should not penalize hydrogen producers for changes in a facility's GHG emissions rate resulting only from changes in the GREET model or its background data.**

Fundamental tax policies should always be followed by the Treasury when interpreting the Code. One of the most important tax policy points is foreseeability. In tax, foreseeability relates to the ability of a taxpayer to plan and make strategic decisions based on certain outcomes. For example, a taxpayer knows that if they hold a capital asset for more than one year before selling it for a gain, it will be classified as a long-term capital gain[20] and be taxed at a preferential rate.

The GREET model, as used under Code Section 45V and interpreted by Treasury in the Proposed Regulations, provides taxpayers with very little foreseeability. This subjects taxpayers to significant economic risk and will depress the rate at which taxpayers pursue investments in hydrogen production facilities in the United States. Code Section 45V requires that a producer of hydrogen use the "most recent" GREET model. This term could mean a variety of things, from most recent GREET model as of when construction of the facility began to the most recent GREET model published relative to when a kilogram of hydrogen was produced.

However, Treasury has interpreted this in the Proposed Regulations as requiring that a producer use the most recently published GREET model as of January 1 of each year in which hydrogen is produced and the PTC may be available. The GREET model is expected to be updated annually.[21] This means that a producer's GHG emissions rate could change annually, *whether or not the producer's operations have changed*. Thus, the producer will have no way to know whether it will suddenly be required to procure additional EACs or change its operating hours year to year in order to avoid losing the tax credits it needs to remain viable, in each case *solely because the GREET*

[20] I.R.C. § 1222(3).

[21] U.S. Department of Energy, *Guidelines to Determine Well-to-Gate Greenhouse Gas (GHG) Emissions of Hydrogen Production Pathways using 45VH2-GREET 2023*, at 7, 25 (December 2023), https://www.energy.gov/sites/default/files/2023-12/greet-manual_2023-12-20.pdf.

model could change. It only adds insult to injury that the resulting change in PTC could be up to 100% of what the facility qualified for before the GREET model was changed.

This dynamic fundamentally challenges Congress' clear intent to use the PTC to encourage the production of clean hydrogen. A realistic potential for sudden, unpredictable changes in operating costs will *discourage* investment in clean hydrogen production facilities. Taxpayers already have enough potential for change to account for given that the cost of EACs already varies significantly. The vast majority of hydrogen producers in the United States will be required to purchase EACs to obtain a GHG emissions rate low enough to qualify for a meaningful amount of PTC. The availability and cost of those EACs is inherently variable, even for parties that agree to buy EACs from a single project.[22]

For public entities, like LC Transit, any change to the GREET model could significantly change whether a clean hydrogen production facility is viable and whether public transportation can be provided on an uninterrupted basis. For example, if LC Transit needed to substantially lower its GHG emissions due solely to a change in the GREET model, it would have to buy EACs on the marketplace. The cost of these EACs alone could destroy the feasibility of the entire project and result in a failure of service if alternative cost-effective hydrogen cannot be obtained quickly.

Treasury can solve this problem very easily by providing for a "no fault" exception to changes in the GHG emissions rate for an operating facility when that change is attributable solely to changes in the GREET model that impacts the applicable pathway.

We propose that Treasury provide the following "no fault" exception in the final regulations:

> Any increase in a qualified clean hydrogen's GHG emissions rate that results solely from a change in the 45V H2 GREET model or any background data used in the 45V H2 GREET model shall be disregarded for purposes of determining the GHG emissions rate of that facility.

Failing a complete recognition that it is impractical and uneconomic for taxpayers to operate when they cannot foresee changes in the GREET, Treasury should at least provide for a de minimis "no fault" exception in the final regulations. For this purpose, we suggest that Treasury consider the following language:

> An increase in a qualified clean hydrogen facility's GHG emissions rate of no more than 0.25 kg CO2e per kg of hydrogen shall be disregarded for purposes of determining the GHG emissions rate of that facility, provided that such increase results solely from a change in the 45V H2 GREET model or any background data used in the 45V H2 GREET model.

5. Conclusion

[22] EACs are generally purchased on the market or using a virtual power purchase agreement, which functions essentially as a hedge. Consequently, truly firm pricing of EACs over a long period is generally not available.

Congress and President Biden worked together to enact IRA to address climate change, facilitate the American energy transition, and invest in American jobs. Hydrogen will play a pivotal role in this transitioning a major hard-to-decarbonize industry, but only if Treasury provides pragmatic exceptions to the rigid and impractical framework set forth in the Proposed Regulations.

- A deemed GHG emissions rate of less than 0.45 kg of CO2e per kg of hydrogen for small producers of hydrogen will contribute to the creation of a hydrogen economy by encouraging distributed hydrogen production for first movers like public transit;

- A deemed GHG emissions rate of less than 0.45 kg of CO2e per kg of hydrogen produced in states that meet legal criteria for mandatory additional clean generation of electricity will recognize the investments made by early adopters of clean electricity and comport with the reality of utility action on the ground; and

- A "no fault" exception for increases in GHG emissions rates due solely to changes in the GREET or its background data will provide the foreseeability that project developers need to obtain financing and hydrogen sales agreements.

We urge Treasury to adopt these measures as soon as possible.

Lewis County Public Transportation Benefit Area, d/b/a Lewis County Transit

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Joe Clark

General Manager