RENEWABLE HYDROGEN ALLIANCE

February 22, 2024

VIA ONLINE PORTAL

https://www.regulations.gov/commenton/IRS-2023-0066-0001

CC:PA:LPD:PR (REG-117631-23)
Room 5203
Internal Revenue Service
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

RE: Renewable Hydrogen Alliance (RHA) Comments on Proposed Rule 88 FR 89220 26 CFR 1; Docket REG-117631-23

To Whom It May Concern:

Thank you for the opportunity to submit comments on the proposed rules for the Section 45V Credit for Production of Clean Hydrogen.

RHA is a non-profit trade association based in Portland, Oregon focused on the use of renewable energy to produce hydrogen and other carbon neutral fuels. Our scope is the Pacific Northwest region and we advocate for beneficial renewable hydrogen policy in both Washington and Oregon state capitols. Our membership includes manufacturers, utilities, hydrogen and renewable energy project developers, labor unions, independent power producers and others involved in all points of the hydrogen value chain.

RHA supports and appreciates Inflation Reduction Act's inclusion of production and investment tax credits for the hydrogen industry. Like tax incentives extended to the solar and wind industry, RHA believes that these incentives could be instrumental in facilitating the clean hydrogen ecosystem (production, distribution, storage and end use) to reach a scale of development that will lower costs, increase both supply and demand, and enable accessible and feasible decarbonization of several economic sectors.

While the draft rules include very strict proposed requirements for qualified clean hydrogen, RHA appreciates the Treasury Department's willingness and openness to considering alternative methodologies and pathways to ensure that the clean hydrogen produced does not contribute to higher rates of carbon emissions. As the largest regional trade association in the US whose mission is to promote the use of renewable hydrogen to transition the Pacific Northwest's economy off of fossil fuels, we share the Treasury Department's and the Biden/Harris Administration's goals incentivizing only that hydrogen production that

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will result in lower emissions across multiple sectors of our economy, provide good paying clean energy jobs and reduce the burden of climate change on the most vulnerable segments of our population.

However, the draft rules as currently proposed will not enable the renewable hydrogen sector to successfully launch and thrive in the Pacific Northwest. Therefore, as requested, and on behalf of our members, RHA offers the following comments, requests for clarification and suggestions for changes to the draft rules to ensure that they enable a hydrogen sector that can provide all of the benefits noted above.

Our comments focus primarily on the draft rules provisions related to incrementality, temporal matching and deliverability requirements for Energy Attribute Certificates (EACs)(S. 1.45V-4).

1) General Comments

RHA and our members agree with many others who are commenting on these draft rules that they will stifle the clean electrolytic hydrogen sector and may cause a failure to launch the industry, thereby maintaining the status quo of our country's reliance on dirty electricity generation, dirty transportation fuels and dirty industrial heat processes. This is a counterintuitive and unproductive approach to implementing the boldest clean energy and zero emission fuel agenda ever put forward and passed by any Presidential Administration in this nation's history.

First, the draft rules only address one side of the carbon ledger, induced emissions, and completely ignore the other side of the ledger, avoided emissions from the displacement of fossil fuels for transportation, energy generation and industrial heat with non-carbon emitting clean hydrogen. And the concern regarding induced emissions in the Pacific Northwest is not valid due to climate policies already in place for years before the passage of the Inflation Reduction Act.

Furthermore, in the December 20, 2023 letter from Environmental Protection Agency Administrator Regan, the agency admits that it has not looked at potential induced emissions from the production of electrolytic hydrogen: "The EPA emphasizes that it has not analyzed the lifecycle greenhouse-gas emissions associated with or conducted a lifecycle analysis for electrolytic hydrogen production. Nor has it interpreted CAA 211(o)(1)(H) in the context of hydrogen production."

Therefore, the draft guidance relies on work not yet done by the lead national environmental agency, only on modeling done under presumed conditions. In effect, we don't actually know and cannot reliably predict what the emission impacts will be because no one is producing clean hydrogen at any significant scale yet. Treasury is developing some of the most consequential tax rules using assumptions plugged into data models based on a clean hydrogen sector that doesn't yet exist.

The draft rules for electrolytic hydrogen as proposed are also fraught with potential unintended consequences. These include severely hobbling the USDOE Hydrogen Hub program, violating agreements

with one of our key trading partners – Canada, and propping up the electrolyzer manufacturing industry of an adversarial trading partner – China. China is a country with a long documented record of violating trade agreements with the US, including dumping solar panels manufactured in coal powered factories with forced labor, into the US market.[i] According to a report by Bloomberg NEF in 2022, Chinese electrolyzer manufacturers were already leading the global market in annual manufacturing capacity and selling their electrolyzers for 75% less than their US and European competitors[ii]. This is in addition to China's control of the international supply chain for lithium-ion batteries, rare earth minerals and other key materials used in electricity grid and transmission components. The US has an opportunity to preserve our competitive edge in electrolyzer technologies, but we won't if it becomes too expensive to produce electrolytic hydrogen due to an overly restrictive and inaccessible hydrogen production tax credit.

Starting out of the gate with the most stringent requirements for qualifying clean hydrogen fails to recognize that the relevant regulatory agencies have tremendous statutory authority to change the rules if there are unintended environmental or other consequences of a less stringent program or policy. Regulatory authorities at all levels of government have been engaging in the fluid process of updating and modifying rules for decades in power generation, transportation, food, chemical and consumer product safety, among countless others. It seem unreasonable to assume the clean hydrogen production sector will commit high environmental crimes and misdemeanors when it has not even launched yet. These draft rules go beyond thoughtful preventative measures and veer into sector disablement. It is for this reason that we suggest in our detailed comments various timeline adjustments, exemptions and other modifications.

2) Specific Comments

A) 1.45V-4 Use of the Most Recent GREET Model.

RHA Position: *Clean hydrogen producers should be able to use the 45VH2-GREET model available for the taxable year in which the project commences final investment decision (FID), and allow clean hydrogen producers to lock that level in as the baseline GREET model for the life of the full 10 year tax credit claiming period.*

In addition, producers should have the flexibility to adopt a later edition of the 45VH2-GREET model only if preferred, such as the date the project began construction or the date of commissioning. This would allow certainty for clean hydrogen producers that require it, as well as allow for improvements based on subsequent calculations if that makes sense for that specific facility.

B) Section 1.45V-4 Incrementality

RHA Position: *For purposes of determining if a producer is eligible for the 45V production tax credit, the Treasury Department should deem hydrogen projects in states that have statutory mandated clean energy and clean fuel climate policy to have met the incrementality requirement.*

If such a waiver is not granted, first mover projects that began construction prior to January 1, 2033 should receive a grandfathered exemption from incrementality requirements. This timeline aligns with expected construction timelines for the Pacific Northwest (PNW) DOE Regional Clean Hydrogen Hubs. This timing would allow all first movers, including those in the PNW Hydrogen Hub, to qualify for the 45V PTC providing critical support for scale-up of this nascent market and acceleration of broader decarbonization across the region's economy.

Another option to consider is the exemption of existing and new clean hydrogen production projects that are 5MW or below.

The proposed rule also seeks comment on several alternative approaches for how to apply an incrementality requirement for existing clean hydrogen producers, such as nuclear and hydropower. These alternatives include: avoided retirements; zero or minimal induced grid emissions; formulaic approach; and uprate.

Short of an exemption or grandfathering as described above, all of these approaches should be available to meet the incrementality requirement. The Department requests further detail on how to implement these approaches and we suggest the following:

Avoided Retirements: RHA has no additional comment on this approach.

Minimal induced emissions approach:
(i) The circumstances in which it should be available and the criteria that are appropriate to evaluate and determine whether those circumstances occur – As stated above, the circumstances include existence of robust climate policy in a state or multiple states where hydrogen production projects are being developed. Such climate policy is defined as the existence of economy-wide or multi-sector carbon emissions reduction targets by specific dates. Statutory requirements such as 100% clean energy by 2045, renewable portfolio standards, cap and trade, and regulatory programs such as "Advanced Clean Cars" and "Advanced Clean Trucks" that require the eventual phase out of the sale of internal combustion engines, all create a definitive multi-sector pathway for transitioning off of fossil fuels with penalties for non-compliance. When such requirements are accompanied by voluntary incentive programs such as Low Carbon Fuel Standards, a legal, regulatory, economic and social license environment is created that automatically makes clean hydrogen production imperative, critical, no regrets, bankable, and verifiable. Furthermore, and most importantly, it makes unabated fossil electrolytic or feedstock hydrogen production impossible regardless of the availability of a federal tax credit.

The only place in the United States where all of these GHG emission and pollution reduction elements are in place is the West Coast states from the border with Canada to the border with Mexico.

(ii) Who should apply under this approach, the electricity generation facility, the hydrogen producer, or both – RHA does not have a strong position on this other than in the case of 100% clean energy requirements, demonstration of compliance is the responsibility of the utility. Compliance mechanisms include submission of reports to the respective utility commissions or other governing body on a regular basis showing progress towards meeting clean energy goals, reducing generation portfolio emissions, procuring near and long term clean energy resources, data modeling, etc. Emissions profiles of electricity generation are annually reported to, and published by, state energy departments for each utility in Oregon and Washington. For 45V tax compliance and verification reporting purposes, this information could be obtained and provided by either the utility or the hydrogen producer utility customer.

(iii) What data or modeling should be submitted – See answer in (ii) above.

(iv) Best practices for making such demonstrations, including for ensuring the impartiality and replicability of calculation approaches – As described above under (ii), utilities in Oregon and Washington are required by law to report progress on clean energy generation, procurement and emissions and this information is publicly available (as an example, see Oregon Department of Environmental Quality's annual Greenhouse Gas Emissions from Electricity Use report). A utility can provide the emissions rate of its generation mix to a hydrogen producer utility customer for purposes of calculating the carbon intensity of the hydrogen produced.

(v) How an administrator of such a program would validate the accuracy of applicant submissions – see answer in (iv) above where emissions values are published by state agencies.

(vi) Under what circumstances, if any, it would be appropriate to deem generation to satisfy the incrementality requirement without modeling, and what documentation should be provided in these cases – RHA believes that the location of the hydrogen producer in a state or states with the climate policy and emissions reductions programs enshrined into law as described in (i) above, along with the emissions profile of the serving utility as published by the relevant state agency should be sufficient to satisfy the incrementality requirement without modeling.

(vii) The process by which eligibility for this approach should be determined and any related administrability considerations – see answers above.

(viii) The period during which any determination of incrementality would be maintained before a new showing would be required – For the full duration of tax credit eligibility period.

(ix) The circumstances and capability of EACs and tracking systems to track and verify energy attributes from such sources – No specific recommendation other than to utilize tracking systems for instruments such as Renewable Energy Certificates (RECs) that are already in place.

Formulaic Approach: If this approach were adopted, RHA believes the upper bound of 10% should be allowed for a fixed percentage of electricity from all existing clean power generators to qualify for hydrogen production based on expected curtailment rates. The analysis included in the draft rules calls out negative pricing as the primary reason for curtailment, but curtailment happens for a variety of other reasons including the need for critical load balancing (preventing brownouts due to overloaded transmission systems), preservation of system reliability per NERC requirements, public safety power shutoffs (e.g., under conditions of extreme wildfire risk), and specific power supply contractual obligations. RHA also supports applying the 10% to all existing minimal-emitting electricity generators in all locations where there are statutory climate policies.

Uprate: Uprate could be verified by the utility or a third party engineer, and capacity changes due to installation of more efficient turbines or other modifications have to be reported by the utility owner of the hydropower facility to the Federal Energy Regulatory Commission or, in the case of some hydropower facilities, the Army Corps of Engineers, in the normal course of business.

B) Section 1.45V-4 Temporal Matching

RHA Position: *For purposes of determining if a producer is eligible for the 45V production tax credit, the Treasury Department should deem hydrogen projects in states that have statutory mandated clean energy and clean fuel climate policy to have met the temporal matching requirement.*

The proposed rule seeks comment on whether 2028 is an appropriate date to begin implementation of a time-matching requirement based on current industry practices, predicted timelines for development of hourly tracking mechanisms, and predicted timeline for development of hourly EACs.

As can be inferred from RHA's stated position on this requirement, RHA does not believe that 2028 is an appropriate date by which to implement hourly matching. If the waiver requested by RHA is not granted, first mover projects that began construction prior to January 1, 2033 should receive a grandfathered exemption allowing them to retain annual matching for the life of the PTC.

The Department should only apply an hourly matching requirement if and when the technology and processes for standing up an hourly EAC market are appropriately developed and commercially available at a reasonable rate for clean hydrogen production. In states where climate policy as described earlier is in place, hourly matching increasingly becomes unnecessary as less and less fossil generation is on the grid.

To illustrate, the average proportion of renewable energy that constitutes Oregon and Washington's electricity grid mix is 71.5%. In 2022, Washington was second in the nation, after Texas, in utility-scale renewable generation from all sources[iii] producing 73% of its energy from renewable sources.[iv] In the same year, Oregon produced 70% of its energy from renewable resources.[v]

Many commenters on the draft 45V rules will be able to provide much more detailed economic analysis of the cost impacts of an hourly matching requirement than RHA can. However, suffice it to say, there is much evidence that points to an hourly matching requirement significantly increasing costs of electrolytic hydrogen production and disabling or dramatically slowing the pace that projects are brought online and the produced hydrogen can start to be used to reduce emissions. In a recent analysis of hourly matching vs. annual matching published by the American Council on Renewable Energy (ACORE) and the economic consultancy E3 (see link to study under Links & Resources at the end of this letter), the authors looked at the clean energy, emissions, and cost implications of annual matching requirements relative to hourly matching requirements using simulated electricity market operations for four markets – the Electric Reliability Council of Texas (ERCOT), the Midcontinent Independent System Operator – North (MISO-North), the PJM Interconnection (PJM), and the Southwest Power Pool (SPP) – in 2025 and 2030. It is important to note that these markets have much lower penetrations of renewable energy than the market that Oregon and Washington are part of which is the Western Energy Coordinating Council (WECC), and is served by a 52% renewable and non-emitting energy (3% nuclear)[vi] generation portfolio. In contrast, MISO is at about 20%[vii] renewables and ERCOT is about 26%[viii].

Despite these lower percentages of renewable generating assets, the ACORE study found that in all scenarios: 1) hydrogen production costs under an hourly approach are 14% to 108% higher than under an annual approach with the same renewable generation portfolio; and 2) CO2 emissions are lower under the annual matching approach than the hourly matching approach for 25 out of 40 scenarios, and less than the minimum value of 0.45 kg CO2e / kg H2 for 34 out of 40 scenarios.

Finally, at a minimum, clean hydrogen producers should be given the ability to bifurcate their clean hydrogen production into qualified and nonqualified quantities for purposes of claiming the 45V PTC. In other words, allow clean hydrogen producers to apply the proportion of renewable electricity sourced to the proportion of clean H2 produced. For example, if the electricity supplied to the electrolyzer is 50% wind/solar and 50% other (i.e., "unspecified" as defined in Washington's Clean Energy Transformation Act), a project should be able to claim half of its hydrogen production as 45V eligible. The capex amortization requires maximum runtime of the electrolyzer at the early stage of this market, not just when the renewable energy is available.

C) Section 1.45V-4 Deliverability

RHA Position: *For purposes of the geographical region to determine qualifying EACs, RHA supports alignments with NERC regions that Treasury is recommending for qualifying grid electricity. One of these regions is the WECC which has been the organized transmission region in the West for decades. It should be used for deliverability.*

It is not clear why the location of an electricity generation resource and the location of a hydrogen production facility would be based on the NERC region within which it is electrically interconnected, but

EACs have to come from generating facilities in the smaller NERC transmission study areas. Using NERC transmission study areas for EACs would completely disqualify huge amounts of excess solar energy from California for Oregon and Washington hydrogen projects, as well as disqualify Canadian hydropower.

To this latter point, RHA is concerned about the impacts of this provision on existing hydropower market agreements with Canada, notably the Columbia River Treaty. Canada has been an extremely important energy trading partner in the WECC for decades. The Columbia River Treaty is an international agreement between the United States and Canada, signed in 1961 that governs and establishes coordination obligations between the countries for flood risk management and hydroelectric energy production.[ix] The Treaty expires this year and the U.S. Department of State is currently in negotiations with Canada to develop an updated Treaty regime. Key objectives of the negotiations include "continued, careful management of flood risk; ensuring a reliable and economical power supply; and improving the ecosystem..."[x] in the Columbia basin where the Treaty projects, or dams, are located.

For purposes of raising awareness, RHA and other stakeholders in the Pacific Northwest are concerned that any attempt to modify, restrict, or "discriminate" against Canadian hydropower serving a specific load in the US such as electrolysis, i.e., through stringent requirements of incrementality, temporal matching and deliverability, or Canada's ability to market hydropower to the US under the terms of the Treaty, runs the risk of negatively impacting current negotiations and/or future coordination on highly beneficial power supply between the two nations.

D) Expand Eligible Electrolytic and Other Clean Hydrogen Production Methods

Oregon and Washington have statutory definitions of "renewable" and "green electrolytic" hydrogen. Green electrolytic hydrogen is generally defined as hydrogen produced with an electricity grid mix that does not exceed a given carbon intensity. Renewable hydrogen is defined as the production of hydrogen from sources that qualify as renewable under each state's renewable portfolio standard, such as renewable natural gas, wastewater and biomass.

However, the current 45VH2-GREET limits electrolysis to just two categories of low temperature or high temperature which may fail to capture the full range of electrolysis technologies currently available. RHA believes that the final 45V rules and the Lifecyle Analysis toolkit used to support that guidance should explicitly include a wider variety of commercially viable hydrogen production technologies.

We request that Treasury work alongside DOE to expand coverage of feedstock energy sources in 45VH2-GREET to include:

- municipal solid waste;
- wastewater;
- renewable natural gas; and
- a wider selection of woody biomass and energy crop feedstocks.

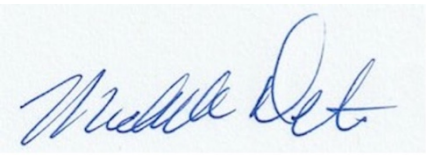
E) Conclusion

RHA believes Congress was clear in the Inflation Reduction Act that output from existing resources should qualify for 45V. Requiring overly restrictive policies on an industry that is just beginning to emerge will introduce additional risks and costs into clean hydrogen production projects, prevent achieving the Administration's Hydrogen Shot goal ($1/kg), and limit hydrogen market liftoff and the resultant decarbonization of our economy.

In addition, to accelerate technological breakthroughs that will bring down costs and increase access to clean hydrogen throughout our region, we need projects in the Pacific NW Hydrogen Hub to move forward at full capacity. We strongly urge the U.S. Treasury Department to reconsider and revise its proposed guidance on the hydrogen production tax credit. It is essential to strike a balance that encourages the growth of the clean hydrogen industry, protects jobs, preserves environmental gains, and fosters opportunities for disadvantaged communities, while reducing the disproportionate burden on those communities of climate change and air pollution.

We appreciate your attention to this matter and your dedication to ensuring the success of clean energy initiatives in our nation. Thank you again for the opportunity to share our comments and recommendations with you. Please feel free to contact me with any questions or requests for additional information.

Sincerely,



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Links & Resources:

Greenhouse Gas Emissions Reduction Statutes, Regulations and Voluntary Programs in Oregon & Washington

1. Washington Clean Energy Transformation Act, Laws of 2019, Chapter 288 https://lawfilesext.leg.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/Senate/5116-S2.SL.pdf?q=20240216112910
2. Oregon Climate Protection Program: https://www.oregon.gov/deq/ghgp/cpp/pages/default.aspx
3. 3Washington Clean Vehicles Rule: https://apps.leg.wa.gov/wac/default.aspx?cite=173-423&full=true
4. Washington Clean Trucks Rule: https://app.leg.wa.gov/WAC/default.aspx?cite=173-423-081&pdf=true
5. Oregon Advanced Clean Cars II Rule: https://www.oregon.gov/deq/rulemaking/pages/cleancarsii.aspx
6. Oregon Clean Trucks Rule: https://www.oregon.gov/deq/rulemaking/pages/ctr2021.aspx
7. Washington Climate Commitment Act: https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act#:~:text=In%202021%2C%20Gov.,%2C%20schools%2C%20workers%20and%20more.
8. Washington Renewable Portfolio Standard (Energy Independence Act): https://www.commerce.wa.gov/growing-the-economy/energy/energy-independence-act/
9. Oregon Renewable Portfolio Standard: https://www.oregon.gov/energy/energy-oregon/pages/renewable-portfolio-standard.aspx
10. Oregon GHG Reporting Program: https://www.oregon.gov/deq/ghgp/Pages/GHG-Emissions.aspx
11. Washington GHG Reporting Program: https://ecology.wa.gov/air-climate/reducing-greenhouse-gas-emissions/tracking-greenhouse-gases
12. Oregon Clean Fuels Program (Low Carbon Fuel Standard)*: https://www.oregon.gov/deq/ghgp/cfp/Pages/default.aspx
13. Washington Clean Fuels Standard (Low Carbon Fuel Standard)*: https://ecology.wa.gov/air-climate/reducing-greenhouse-gas-emissions/clean-fuel-standard

Studies

Analysis of Hourly and Annual GHG Emissions – Accounting for Hydrogen Production, ACORE & E3: https://acore.org/wp-content/uploads/2023/04/ACORE-and-E3-Analysis-of-Hourly-and-Annual-GHG-Emissions-Accounting-for-Hydrogen-Production.pdf

*These are the only carbon emission reduction programs in WA & OR that are voluntary.

REFERENCES

[i] https://www.csis.org/analysis/dark-spot-solar-energy-industry-forced-labor-xinjiang accessed February 2, 2024

[ii] https://www.hydrogeninsight.com/electrolysers/chinese-companies-take-top-three-slots-in-bnefs-list-of-worlds-20-largest-hydrogen-electrolyser-makers/2-1-1355610 - accessed February 13, 2024

[iii] https://www.eia.gov/state/analysis.php?sid=WA – accessed February 19, 2024

[iv] https://choosewashingtonstate.com/why-washington/our-key-sectors/clean-technology/ - accessed February 19, 2024

[v] https://www.eia.gov/state/?sid=OR – accessed February 19, 2024

[vi] https://www.wecc.org/Administrative/State%20of%20the%20Interconnection.pdf – accessed February 19, 2024

[vii] https://www.misoenergy.org/ - accessed February 19, 2024

[viii] https://insideclimatenews.org/news/09032023/inside-clean-energy-texas-renewables/ - accessed February 19, 2024

[ix] https://www.nwd.usace.army.mil/CRWM/Columbia-River-Treaty/ - accessed February 19, 2024

[x] https://www.state.gov/wp-content/uploads/2018/12/The-Columbia-River-Treaty-Past-Present-and-Future.pdf - accessed February 19, 2024