



SUBMITTED ELECTRONICALLY

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February 26, 2024

Commissioner Daniel Werfel
Internal Revenue Service
1500 Pennsylvania Ave NW
Washington, DC 20220

Re: Comments by Clean Energy Group regarding Proposed Rule Section 45V Credit for Production of Clean Hydrogen; Department of the Treasury Internal Revenue Service (IRS) Docket REG-117631-23

Dear Commissioner Werfel:

Clean Energy Group (CEG), a national nonprofit organization that works to provide innovative technical, economic and policy solutions to enable communities to participate equitably in the clean energy transition, is pleased to provide these comments in response to the Department of the Treasury Internal Revenue Service's (IRS) proposed rule governing the 45V tax credit for the production of clean hydrogen. These comments reflect the position of CEG and do not necessarily reflect the positions of CEG's partner organizations or funders.

For the past three years, CEG has worked extensively with environmental justice and community-based partners on hydrogen issues. Through its national Hydrogen Information and Public Education initiative, CEG is working to counter misinformation regarding hydrogen by developing a repository of research and information on the viability of and issues related to the production and use of hydrogen. In addition, through this initiative, CEG supports the work of frontline organizations to understand and critically evaluate how hydrogen production may benefit or harm their communities.

The implementation of the 45V tax credit has powerful implications for the development of a responsible hydrogen economy in the United States that will support vital decarbonization efforts, rather than hinder them, and minimize harm to environmental justice communities. CEG applauds the strict definition of zero-carbon hydrogen put forth by the IRS in the proposed rules and urges the Treasury to not reduce the rigor of these standards in the final rules. In addition, there are several potential emissions loopholes related to biomethane and fugitive methane that must be addressed in the final rules. If left in, these loopholes could be exploited to undermine any climate benefits of the hydrogen tax credit and subsidize harmful fossil fuel projects.

Addressing these potential risks and maintaining a strict standard of zero-carbon hydrogen will set a vital precedent for future hydrogen development that could either hinder decarbonization efforts or help them.

Maintaining the Three Pillars

The so-called “three pillars” approach to clean hydrogen production is the only way to ensure that electrolytic hydrogen, particularly hydrogen produced via grid-connected electrolysis, is truly zero-carbon. This approach, which is supported by a strong body of research,¹² requires that any hydrogen production consider: 1) the *additionality* of the clean electricity claimed by electrolyzers relative to the clean energy transition overall; 2) the *deliverability* of that claimed electricity to the actual point of electrolyzer use; and 3) the *hourly time-based matching* of electrolytic energy demand with renewable energy produced. Without these requirements in place, studies show that hydrogen produced from a grid-connected electrolyzer, even one connected to a relatively clean grid, could have roughly *double* the carbon-intensity of fossil hydrogen produced via steam methane reformation (SMR).³

The proposed rule currently does not require eligible clean hydrogen production facilities to begin implementing hourly matching of electricity supplied and electricity used until 2028. This timeline is concerning and unnecessarily long: Six of the seven energy attribute certificate (EAC) tracking systems organizations who responded to the IRS’s initial survey, as outlined in the proposed rule, stated they could administer hourly time matching by the end of the first year of the tax credit, in 2026. The seventh organization stated it could achieve hourly matching by the second year of implementation, in 2027, with strong state and federal buy-in.⁴ Waiting until 2028 leaves an opening for further calls for delay, particularly from legacy hydrogen producers who originally qualified for a more lax annual matching requirement and may wish to continue operating under this laxer requirement. Notably, one analysis conducted by Rhodium Group found that allowing for such an exception could increase greenhouse gas emissions by 145 million metric tons in a mid-electrolyzer-growth scenario, or by 685 million metric tons in a fast-growth scenario.⁵

In addition to the delayed implementation of a stricter hourly matching requirement, the proposed rule currently offers several proposed exemptions to the additionality requirement,

¹ Zeyen, Elisabeth, Iegor Riepin, and Tom Brown. “Hourly versus Annually Matched Renewable Supply for Electrolytic Hydrogen.” Zenodo, December 19, 2022. <https://doi.org/10.5281/zenodo.7457441>.

² Ricks, Wilson, Qingyu Xu, and Jesse D. Jenkins. “Minimizing Emissions from Grid-Based Hydrogen Production in the United States.” *Environmental Research Letters* 18, no. 1 (January 2023): 014025. <https://doi.org/10.1088/1748-9326/acacb5>.

³ Ibid.

⁴ Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property (REG-117631-23), pg 89233.

⁵ King, Ben, Galen Bower, and Nathan Pastorek. “How Clean Will US Hydrogen Get? Unpacking Treasury’s Proposed 45V Tax Credit Guidance.” Rhodium Group (blog), January 4, 2024. <https://rhg.com/research/clean-hydrogen-45v-tax-guidance>.

including one that would allow 5 to 10 percent of hourly energy generation from an existing facility powering the grid before 2023 to count as a new clean energy source. An initial analysis has found that this proposed exception, depending on the types of energy generation allowed, could lead to additional greenhouse gas emissions of over *one billion* metric tons.⁶

These scenarios highlight the need for swift and rigorous implementation of the three pillars approach to electrolytic hydrogen production. The 45V tax credit is meant to incentivize the buildout of a clean hydrogen economy, and relaxing any of the three requirements could have severe consequences for the emissions intensity of the clean hydrogen system and significantly jeopardize the ability of the United States to meet its climate commitments.

Closing the Methane Loophole

The final rule must include strong guardrails to prevent fossil hydrogen producers from obscuring their emissions via the use of methane biogas offsets. Even when offset systems have strict safeguards in place – none of which are in the proposed rule – they have repeatedly failed to truly achieve emissions reductions, in part due to the technical difficulties of properly accounting for production and use that are outlined in the proposed rules in reference to the three pillars approach.⁷ Beyond the failures of emissions offset systems in general, 45V eligibility is reliant on a facility’s lifecycle emissions rate. Currently, under some approaches to biomethane, most notably the California Low-Carbon Fuel Standard, biomethane that is captured and utilized is treated as “carbon-negative” under the assumption that the methane would have otherwise been vented into the atmosphere. This approach ignores the serious consequences of methane leakage overall and creates a perverse incentive for polluters to produce more, resulting in increased methane emissions.⁸

Allowing fossil hydrogen producers to claim credits or offsets for methane biogas will enable the industry to co-opt 45V tax credit eligibility while encouraging the buildout of polluting manure lagoons that will have deleterious impacts on environmental justice communities. Offsets from methane biogas would be an unacceptable loophole in the emissions requirement of 45V, which could potentially allow fossil hydrogen production, with or without the addition of carbon capture and storage (CCS), to qualify for the highest tier of the credit.⁹

In conclusion, CEG urges the IRS to uphold the rigorous three pillars approach to electrolytic hydrogen production and avoid relaxing or delaying implementation of these strict requirements.

⁶ Ibid.

⁷ Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property (REG-117631-23), pg 89233.

⁸ Grubert, Emily. “At Scale, Renewable Natural Gas Systems Could Be Climate Intensive: The Influence of Methane Feedstock and Leakage Rates.” *Environmental Research Letters* 15, no. 8 (August 2020): 084041. <https://doi.org/10.1088/1748-9326/ab9335>.

⁹ Lutz, Sarah. “Pay No Attention to the Polluter behind the Curtain.” *Friends of the Earth*, February 2, 2024. https://foe.org/wp-content/uploads/2023/02/Hydrogen-Polluter-Wishlist_FINAL.pdf.

In addition, closing the methane biogas loophole is vital to ensuring only truly carbon-free hydrogen production is eligible for the 45V credit. The 45V tax credit has the potential to set the standard for how clean hydrogen is regulated in the US. The IRS has a valuable opportunity to set strict guardrails for clean hydrogen, which are necessary for ensuring this fuel does not derail necessary climate action or perpetuate harm to environmental justice communities.

We would welcome a conversation to discuss these issues further if that would be of interest.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Abbe Ramanan', with a long horizontal flourish extending to the right.

Abbe Ramanan
Project Director
Clean Energy Group