

June 16, 2023

Mr. John Podesta
Senior Advisor to the President for Clean Energy Innovation and Implementation
The White House
1600 Pennsylvania Ave NW
Washington, DC 20500

Mr. Ali Zaidi
National Climate Advisor
The White House
1600 Pennsylvania Ave NW
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Dear Mr. Podesta and Mr. Zaidi,

Thank you for your leadership in implementing the *Inflation Reduction Act* (IRA). We are proud to have helped pass this legislation, which represents the single biggest federal effort to combat the global climate crisis. The success of these policies greatly depends on the details around program design and implementation, and on behalf of our millions of members, we write to urge you to support program design with critical climate and community safeguards.

One issue of concern is the implementation of the section 45V clean hydrogen tax credit. If the tax credit does not adhere to statutory requirements of the IRA 45V credit, the Administration risks driving tens to hundreds of billions of taxpayer dollars into unsustainable hydrogen projects that increase fossil fuel use, exacerbate environmental injustices, and increase economy-wide emissions by hundreds of millions of tons. These outcomes would be contrary to the Biden Administration's U.S. climate targets and commitments to environmental justice. They would also undermine the market for truly clean hydrogen production, a threshold requirement for hydrogen to have a beneficial role in the nation's clean energy transition.

As Treasury works to finalize the 45V rulemaking, it is important that rigorous frameworks govern emissions accounting across all hydrogen production pathways to ensure the climate implications of each pathway is fully captured. Specifically, we call on the White House to recommend that Treasury adopt the following three approaches:

- Require *all electrolytic hydrogen projects* immediately comply with the three pillars of new clean electricity supply (i.e., additionality; deliverability; and hourly matching), without grandfathering any projects that do not comply with the pillars.
- Update the accounting of upstream methane emissions to reflect the present reality of high system leakage and prohibit the use of outdated biomethane assumptions; and

- Clarify that for all hydrogen projects, hydrogen that is purged, vented, or flared is not eligible to receive the credit.

Each of these issues requires careful treatment to ensure the hydrogen tax credit does not inadvertently worsen carbon and health pollution nor drive investments in hydrogen production projects that are fundamentally misaligned with the nation's clean energy transition.

Rigorous accounting framework for all electrolytic hydrogen production projects

All electrolytic hydrogen projects must be required to meet the three pillars of emissions accounting to avoid increasing grid emissions and render President Biden's power sector and climate goals out of reach.^[1] To be eligible for the top 45V tax credit, both behind-the-meter and grid-connected electrolytic hydrogen projects must (1) be powered by new clean energy generation that is not already on the grid (also known as 'additionality'), (2) be within the same geographic boundary as the clean energy project to prevent region-shifting of emissions (deliverability), and (3) be matched with the clean energy project on an hourly rather than annual basis (hourly matching).

Weak guidelines for the hydrogen tax credits that jettison any of these pillars, create arbitrary exceptions, and/or allow for grandfathering of non-compliant projects will lead to an increase in both power sector and economy-wide carbon emissions by tens of millions of tons in this decade and exacerbate air pollution and public health concerns.¹

The IRA tax credit provisions and its reference to the Clean Air Act support the requirement of the three pillars for *all* electrolytic hydrogen projects – both behind-the-meter and grid-connected. The IRA language specifically references life-cycle emissions, with the Clean Air Act reference requiring Treasury to account for system-wide emission increases of hydrogen production, including those caused by diverting existing clean power from the grid to hydrogen production. If Treasury ignores, waters down the three pillars or creates exemptions, it would be a clear violation of the IRA's requirements and the credit risks being held up in lengthy litigation.

We emphasize that there is no tradeoff between safeguarding against significant, unlawful emissions increases and supporting a robust scale-up of the nascent clean hydrogen industry. First, hydrogen projects that comply with the three pillars are being announced and deployed worldwide, including here in the U.S. Second, the generous IRA renewable energy and clean hydrogen subsidies will enable hydrogen projects that comply with the three pillars to be competitive from day one and support robust growth of the hydrogen industry. We urge you to question disingenuous claims by some industry actors that the three pillars will

¹ Evolved Energy Research, 45V Tax Credit: Three-Pillars Impact Analysis, June 2023, <https://www.evolved.energy/post/45v-three-pillars-impact-analysis>; Energy Innovation, Smart Design Of 45V Hydrogen Production Tax Credit Will Reduce Emissions And Grow The Industry, April 2023, <https://energyinnovation.org/publication/smart-design-of-45v-hydrogen-production-tax-credit-will-reduce-emissions-and-grow-the-industry/>, Princeton ZERO Lab, Minimizing emissions from grid-based hydrogen production in the United States, December 2022, https://cmi.princeton.edu/wp-content/uploads/2023/04/Ricks-et-al-2023_Minimizing-emissions-from-grid-based-H-Environ_Res_Lett.pdf

hinder industry lift-off: this is demonstrably false.² Further, we point out the commendable leadership of the many leading hydrogen and renewable energy companies who strongly support the three pillars and are intent on getting this right from the start as they understand that the climate—and the industry’s credibility—depend on it.

Stringent criteria for fossil-fuel based pathways

Because the Section 45V tax credit awards funds based on the carbon intensity of produced hydrogen as opposed to the technology by which the hydrogen is produced, in the absence of stringent criteria, the tax credit is at risk of incentivizing and rewarding what are, ultimately, still heavily polluting fossil fuel-based projects. Fossil-fuel based hydrogen production projects bring with them heightened risks, making the importance of rigorous criteria protecting against harmful outcomes all the more critical.

First, Treasury and the Department of Energy must work together to improve the accuracy of estimates for methane leakage from the gas sector and move toward basin- or operator-specific measurements. Upstream methane emissions account for a significant portion of the overall greenhouse gas intensity of hydrogen, and they have an even stronger warming effect in the near term.³ The GREET model currently assumes an average leakage rate of 1%,⁴ which is less than half of what scientists have observed nationwide and several times smaller than emissions rates in certain basins.⁵ Nationwide estimates should be updated to reflect the best available data, and Treasury and DOE should work together to incorporate and verify basin- or operator-specific estimates over time.

In addition, Treasury must prevent irresponsible accounting practices for biomethane, which threaten to undermine the carbon intensity calculations for both steam methane reforming and electrolytic pathways.⁶ This includes disallowing carbon-negative accounting of biomethane, which only occurs under outdated and deeply flawed assumptions, as well as the use of carbon-negative fuels for offsetting or netting lifecycle emissions. Furthermore, Treasury should prohibit permissive book-and-claim accounting by fossil fuel users within 45V, which could enable fossil fuel-based facilities to use paper accounting to declare their processes “clean” without any shift in technology or practice.

² Evolved Energy Research, 45V Tax Credit: Three-Pillars Impact Analysis; Princeton ZERO Lab, The Cost of Clean Hydrogen with Robust Emissions Standards: A Comparison Across Studies, April 2023

³ For example, methane’s 100-year global warming potential is 27-30 times that of carbon dioxide, while its 20-year global warming potential is 80-83 times higher.

⁴Argonne National Laboratory, Hydrogen Life-Cycle Analysis in Support of Clean Hydrogen Production, Table 1, <https://greet.es.anl.gov/publication-hydrogenreport2022>

⁵ Alvarez et al. finds a national average leak rate of 2.3%. Alvarez et al., Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain, 361 Science 186 (2018), <https://science.sciencemag.org/content/361/6398/186> See, e.g., Lin et al., Declining methane emissions and steady, high leakage rates observed over multiple years in a western US oil/gas production basin, 11 Sci. Reports 22291 (2021) <https://www.nature.com/articles/s41598-021-01721-5> (finding a steady leak rate of 6-8% over six years in the Uinta Basin); Chen et al., Quantifying Regional Methane Emissions in the New Mexico Permian Basin with a Comprehensive Aerial Survey, Environ. Sci. Technol. 2022, 56, 7, 4317–4323 (2022), <https://doi.org/10.1021/acs.est.1c06458> (finding a 9% leak rate in the New Mexico Permian).

⁶For more details on the risks of carbon-negative accounting of biomethane and options for implementation guardrails, see Biomethane Threatens to Upend the Clean Hydrogen Tax Credit (25 May 2023).

Reducing the risk of hydrogen emissions

Along with accurate accounting of carbon dioxide and methane emissions, Treasury must minimize the risk of subsidizing fugitive or intended hydrogen emissions. Hydrogen is an indirect greenhouse gas with significant global warming potential in the short term.⁷ However, under the current incentive structure, some hydrogen companies are considering flaring or venting hydrogen as an alternative to recycling or storage. Treasury should definitively close this hydrogen emissions loophole by clarifying that hydrogen that is vented, purged, or flared is not eligible to receive a credit and should be accurately accounted for in lifecycle assessments.⁸ Furthermore, Treasury should require companies receiving federal funds to develop a plan for hydrogen emissions measurement and mitigation, including adoption of known best practices and best-available sensor technologies. Allowing producers to claim a credit for wasted gas is antithetical to the spirit of the law, as it sends warped market signals while heightening climate and safety risks.

Thank you for your careful attention to these matters. Our organizations and millions of supporting members are looking forward to working with you to get this right.

Sincerely,

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⁷ Ocko, Ilissa and Hamburg, Steve (2022). "Climate consequences of hydrogen leakage." *Atmospheric Chemistry and Physics*. Vol. 22, Issue 14. <https://acp.copernicus.org/articles/22/9349/2022/>

⁸ Sand et al., A multi-model assessment of the Global Warming Potential of hydrogen., *4 Communications Earth & Environment* 203 (2023), <https://www.nature.com/articles/s43247-023-00857-8>; finds that GWP values are robust enough to "be used in various mitigation policy decisions, by comparing different GHG reduction measures, or life cycle analysis."

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Cc:
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