

United States Senate

WASHINGTON, DC 20510

May 25, 2023

The Honorable Danny Werfel
Commissioner of the Internal Revenue Service
1111 Constitution Ave., NW
Washington, DC 20224

Dear Commissioner Werfel,

Taken together, the historic clean energy investments that we made last Congress in the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA) should be an important step in tackling the climate crisis. One technology poised to benefit greatly is the American hydrogen industry; however, hydrogen production is an energy-intensive process that, if left without proper guardrails, could result in a net *increase* in greenhouse gas (GHG) emissions for the country.

That's why we write to urge the Internal Revenue Service (IRS) to include rigorous guardrails when implementing the IRA Section 45V Tax Credit for Production of Clean Hydrogen (Section 45V Tax Credit) in order to support decarbonization of the hydrogen sector while promoting responsible growth in hydrogen infrastructure. The IRS must ensure that the billions of dollars at stake are used to promote truly low- and zero-carbon hydrogen production and infrastructure development as intended by Congress. To do this, the IRS must: require a complete assessment of systemwide emissions related to hydrogen production when determining whether projects qualify for the credit; prioritize hydrogen produced via electrolysis and categorically exclude hydrogen produced from fossil fuel projects that cause a net increase in GHG emissions; and verify the potential carbon footprint of projects by assessing additionality, deliverability, and time-matching.

As a foundational requirement to ensure that implementation of the IRA Section 45V Tax Credit supports truly low-carbon hydrogen, the IRS must assess the carbon intensity of produced hydrogen via a robust, accurate lifecycle GHG emissions accounting framework. This should include the *systemwide emissions* linked to hydrogen production – including both methane and hydrogen leakage and emissions induced on the grid due to increased electricity demand from hydrogen production – as required by the reference to Section 211(o)(1)(H) of the Clean Air Act.

Currently, 95 percent of the hydrogen produced in the United States comes from natural gas reforming, which is energy-intensive and produces carbon dioxide and other air pollutants.¹ Electrolysis is the cleanest method of hydrogen production and should be encouraged above other methods, provided the electrolyzers are powered by additional, deliverable, and time-matched clean, renewable resources. If these guardrails are not met, electrolysis can be *up to 4 times more carbon intensive* than today's status-quo high-carbon hydrogen.² One estimate suggests that failure to ensure clean hydrogen production through the IRA's incentives could

¹ Department of Energy, Hydrogen Production: Natural Gas Reforming, <https://www.energy.gov/eere/fuelcells/hydrogen-production-natural-gas-reforming>.

² Smart Design of 45V Hydrogen Production Tax Credit Will Reduce Emissions and Grow the Industry, <https://energyinnovation.org/wp-content/uploads/2023/04/Smart-Design-Of-45V-Hydrogen-Production-Tax-Credit-Will-Reduce-Emissions-And-Grow-The-Industry.pdf>

increase carbon emissions equivalent to 26 new coal plants each year, exacerbating existing environmental justice risks to communities affected throughout the supply chain.³

Each of the three components – additionality, deliverability, and time-matching – are necessary to accurately verify the carbon intensity of produced hydrogen and ensure that hydrogen production meets the IRA’s statutorily required emissions thresholds:

- *Additionality*: If hydrogen production facilities are powered by existing clean energy projects on the grid – either directly or indirectly via the procurement of credits from existing clean energy projects – the risk of a net GHG emissions increase are high. The IRS must require that producers seeking the Section 45V Tax Credit source the energy used to run their facilities from additional clean renewable energy sources beyond those already on the grid. This additionality requirement applies to both grid-connected and behind-the-meter production. This is because behind-the-meter production that diverts existing clean energy from the grid induces fossil generation to fill at least part of that gap, which means that the producer’s GHG emissions would exceed the limits of the Section 45V Tax Credit emission threshold.
- *Deliverability*: Electrolyzers that are not co-located with a new clean energy project must procure new clean power from the same region in which it is to be consumed. If a producer relies on a non-local source for clean energy, their overall energy demand might be met instead by nearby fossil energy due to transmission constraints resulting from the distance of the contracted clean energy. Notably, unbundled renewable energy credits (RECs), or RECs that are not geographically proximate to delivery of the associated electricity, should not be accepted by the IRS to demonstrate clean power sourcing. Similarly, unbundled biogas credits should not be accepted to demonstrate that a facility uses low-carbon feedstocks or power sources.
- *Hourly time-matching*: To ensure that a hydrogen project is truly clean, it must operate during the same hours in which the contracted new clean energy project operates. A looser correlation (e.g., weekly, monthly, annually) would dramatically underestimate the lifecycle emissions of a hydrogen project. The IRS should require hourly time-matching between hydrogen projects and new clean energy projects

We also urge the IRS to be conservative with assumptions about GHG emissions, including for example methane and hydrogen leakage rates based on the best available data from in-basin and pipeline measurements.

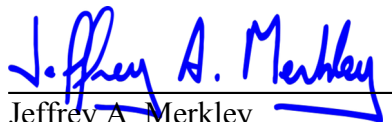
If the IRA Section 45 Tax Credit is not implemented properly from the beginning, we fear we will be set on a trajectory that will be impossible to correct down the line.

In closing, we want to emphasize the importance of getting the IRA Section 45V Tax Credit implementation right. We have the opportunity to make great strides towards combating climate chaos through the development of zero-carbon infrastructure and truly clean energy solutions in

³ Without Sufficient Guardrails, the Hydrogen Tax Credit Could Increase Emissions, <https://blog.ucsusa.org/julie-mcnamara/without-sufficient-guardrails-the-hydrogen-tax-credit-could-increase-emissions/>.

this country. We can only get there if the IRS is careful with its guidance and implementation on the IRA's clean hydrogen tax provisions.

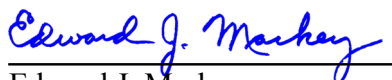
Sincerely,



Jeffrey A. Merkley
United States Senator



Peter Welch
United States Senator



Edward J. Markey
United States Senator



Bernard Sanders
United States Senator



Elizabeth Warren
United States Senator