United States Senate
WASHINGTON, DC 20510

July 10, 2024

Honorable Janet Yellen
Secretary
U.S. Department of the Treasury
1500 Pennsylvania Avenue NW
Washington, D.C. 20220

Dear Secretary Yellen:

We are writing to express our serious concerns about the burdensome and unnecessary restrictions prescribed in the Department of the Treasury's proposed requirements for implementation of the Section 45V Credit for Production of Clean Hydrogen (hereinafter the "45V credit"). As the primary Congressional authors of the 45V credit, we are discouraged that the proposed guidance is inconsistent with the intent and requirements of the Inflation Reduction Act (IRA). In order to preserve our legislative intent, we offer several recommendations that we view as essential for a workable final rule.

We share and fully support the Administration's aim to ensure that the 45V credit catalyzes innovation and capital investment without inadvertently causing higher greenhouse gas emissions. However, Treasury's guidance would jeopardize billions of dollars of investment in clean hydrogen projects, render the cleanest forms of hydrogen uneconomical, and imperil efforts to decarbonize hard-to-abate sectors of our economy. Simply put, unless revised according to the suggestions below, the proposed guidance will undermine our shared goal of creating an enduring domestic clean hydrogen industry capable of significantly reducing economy-wide carbon emissions.

Legacy hydrogen producers, clean energy entrepreneurs, and the many and diverse partnerships that have earned the promise of government support through the Department of Energy's (DOE) Hydrogen Hubs program have all expressed the same concerns. Their success is key to achieving the Administration's goals for cost-competitive clean hydrogen production as detailed in DOE's "U.S. National Clean Hydrogen Strategy and Roadmap." As the leaders of the hubs wrote to you on February 26, 2024, "These investments and jobs will not fully materialize unless Treasury's guidance, in its current form, is significantly revised, as many of the projects generating these investments and supporting jobs will no longer be economically viable…[T]he proposed guidance poses a significant risk to the ability of the U.S. to be a global leader in the hydrogen economy." If completed, the hubs will also reduce emissions by 25 million metric tons of carbon dioxide according to DOE's calculations – and we do not want to lose that opportunity to decarbonize hard-to-abate sectors.

To avoid the disadvantages of implementing an overly stringent "three-pillars" approach, we urge you to incorporate the following improvements to the final 45V credit guidance that we are confident would result in significant overall emissions reductions. We request that Treasury modify its proposed requirements for Energy Attribute Certificates (EACs) by offering alternative compliance pathways for each of the three pillars as specified below.

Incrementality. While the incrementality requirement as proposed may marginally limit induced grid emissions in the short term, it is also likely to have the effect of prolonging the carbon intensity of the grid in the long-term. Devoting future potential clean energy sources to hydrogen production rather than to electricity generation carries its own indirect emissions impact which has not been adequately quantified. Moreover, Treasury acknowledges that there are alternative approaches that would not result in significant induced grid emissions.

We also believe that strict incrementality requirements will unnecessarily limit the production of clean hydrogen that should qualify for the highest tier of the 45V credit. The result of Treasury's approach would be a diminished potential for hydrogen production to improve grid efficiency, reliability, and resiliency. This is especially true where state energy policies already mandate clean energy additions to the grid and where lagging investment in transmission and delays in interconnection of clean electricity projects are driving increasing clean energy curtailments.

In view of these deficiencies, Treasury should not impose the incrementality requirements in certain circumstances. For example, generation facilities that are located in a state with enforceable clean energy mandates, that are located in a grid region with significant rates of curtailment (demonstrated through a facility's operational history), or that demonstrate retirement risk should not be forced to meet any incrementality requirements. In addition, all generation from hydroelectric and nuclear facilities issued license extensions following promulgation of the final 45V rule should likewise be exempt from incrementality.

In addition to the cases described above, Treasury should offer an allowance for owners of existing, minimally emitting sources of electricity to provide their power to clean hydrogen producers. An allowance could also account for situations in which clean energy generation would otherwise be curtailed or those in which the operational characteristics of specific generating facilities do not result in significant induced grid emissions. The energy required for large electrolyzers – vital to scaling cost-competitive clean hydrogen – can easily exceed a facility-level allowance. Thus, the allowance must be applied at the ownership level rather than to individual facilities. The allowance must also be of sufficient magnitude to give generation owners – including federal, state and tribally owned facilities – the needed flexibility to manage their fleets. A 10 percent allowance would strike an appropriate balance between enabling clean hydrogen production and minimizing any induced short-term grid emissions.

Temporal Matching. Treasury must also provide a workable alternative to its stringent and problematic temporal matching proposal in order to provide the clean hydrogen industry with predictability and certainty. The draft guidance would force a transition from annual to hourly matching, which would especially harm early projects. As the comprehensive April 2023 analysis by Energy and Environmental Economics and the American Council on Renewable Energy concluded, "An hourly matching requirement results in significantly higher costs for hydrogen production than an annual matching requirement with the same GHG intensity across a wide range of renewable energy and wholesale electricity market assumptions." The analysis further found that "An hourly

matching requirement does not ensure lower GHG emissions relative to an annual matching requirement, and in many cases is less effective at eliminating carbon emissions than annual matching." A similar finding, shared with Treasury in comments submitted about 45V, is reflected in modeling performed by the Open Energy Outlook Initiative of Carnegie Mellon in partnership with North Carolina State University.

For these reasons, investment and design decisions for new facilities must reflect assumptions about how the facility will operate after the required shift to different matching requirements. This means that projects must conform to any temporal matching scheme on their first day of operation regardless of whether they come online prior to the transition date. Meeting overly burdensome matching requirements leads to significantly higher capital costs for projects and higher operations and maintenance costs for electrolyzers over the long-term. Furthermore, first-mover projects will be required to spend additional capital to procure significantly more clean power in order to meet unworkable matching requirements, needlessly wasting clean energy that could otherwise be used to decarbonize the grid. To address these inefficiencies and uncertainties, Treasury should employ a commence-construction standard, a commonly used tool for other energy tax credits, and forgo temporal matching requirements for any projects that begin construction prior to January 1, 2028. Also, Treasury should establish monthly matching requirements for any projects that begin construction after January 1, 2028 and before December 31, 2032.

Deliverability. Finally, any three-pillars-based approach must recognize those grid constraints that limit access to renewable energy for certain geographic regions of the country. Utility-scale renewable generation facilities tend to concentrate in areas where abundant resources exist, meaning that areas lacking favorable conditions for renewable energy development face a constrained supply of clean energy to power hydrogen production projects. Therefore, Treasury's proposed deliverability maps should be revised to better reflect real-world grid operations. While the National Transmission Needs Study provides a useful tool for transmission planning purposes, its application in this context does not account for differences in electricity market structures across regions. Therefore, in regions with insufficient clean energy resources, project sponsors should receive an allowance when they need to access clean power for hydrogen production beyond Treasury's proposed geographic boundaries. Providing this allowance will also provide near-term relief from persistent interconnection backlogs and from the long lead times required to build new transmission infrastructure.

Treasury must also permit project sponsors to apply the GREET model consistent with Congress' direction and the language in the statute, and it should allow project sponsors the option to rely on the more accurate, project-specific data in their GREET calculations. For example, project sponsors should be able to provide data from modeled assessments of induced grid emissions or upstream methane emissions rather than the background assumptions included in the corresponding 45VH2-GREET models. Accurate models can better reflect regional variations in grid carbon intensity while accounting for state and regional clean energy mandates and the curtailment of clean energy resources. Treasury's claim – through reference to DOE's 45V White Paper – that "modeling is not currently a practical, primary solution for lifecycle GHG assessment within 45VH2-GREET for the purpose of 45V [because] such models are

complex and require many important assumptions" does not relieve the Department from needing to develop the analytical tools necessary to implement the credit as intended by law.

To address this deficiency, Treasury must work with the Environmental Protection Agency and the Department of Energy as it does for other IRA clean energy tax credits, like the 45Q credit for carbon sequestration or the 48C Advanced Energy Project Credit. Treasury can then implement the tax credit as Congress directed, incentivizing hydrogen producers to provide the necessary assurances that their projects will not create significant indirect emissions. Additionally, the potential for subsequent updates to the 45VH2-GREET model, after a facility has been constructed and its initial determination of eligibility for the credit has been made, creates unnecessary instability in the market. The value of the credit a project receives should only change if a project is modified following initial operation, rather than due to changes in subsequent versions of the GREET model.

We are also concerned that requiring the carbon intensity of all hydrogen produced at a given facility to be averaged across a taxable year will further restrict access to the 45V credit for otherwise-qualified clean hydrogen facilities. Again, Treasury introduces additional complexity and uncertainty, which contradicts the plain language of the law and is unlikely to withstand legal challenge. We strongly urge Treasury to allow project sponsors to claim partial credits for clean hydrogen produced within a taxable year. Hydrogen produced with the lowest carbon intensity should qualify for the highest credit, regardless of when it was produced or whether the same facility produced hydrogen with higher carbon intensities.

Lastly, we encourage Treasury to include in the final rule clear guidance for hydrogen production pathways that use renewable natural gas (RNG) and other fugitive methane sources. In constructing its guidance, Treasury should adopt similar flexibilities for pathways that encourage mitigation of fugitive sources of methane, which include the capture and beneficial use of coal mine methane, methane leakage from oil and gas operations, and biogas from organic waste and other agricultural sources as RNG. These pathways must also incorporate indirect book accounting factors, also known as a book-and-claim system, which verify that greenhouse gas emissions reductions have occurred.

The 45V credit offers the United States an irreplaceable opportunity to boost our economic and international competitiveness. At this critical juncture for the expansion of domestic clean hydrogen production, it is important that Treasury apply a workable tax treatment of new projects to spur investment, attract customers, and promote new clean energy jobs. Treasury must also pursue timely completion of the rulemaking process as a paramount objective given the billions of dollars of private-sector investment waiting on the sidelines for Treasury to act. We therefore strongly urge Treasury to issue final guidance that adheres to the recommendations above by August 16, 2024, one year after the deadline required in the IRA.

We have one more chance to get this right. Without significant changes to the draft guidance that align with the parameters provided in statute, one of the most powerful job creation and emission reduction tools in the IRA will likely be hamstrung by future court challenges, Congressional opposition, and unfulfilled private sector investment. Getting it right means capitalizing on this opportunity to reduce greenhouse gas emissions faster and enhance our energy security, while strengthening our economy, creating thousands of jobs, and combating the climate crisis.

Sincerely,

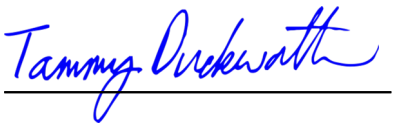
Thomas R. Carper
United States Senator

Maria Cantwell
United States Senator

Sherrod Brown
United States Senator

Robert P. Casey, Jr.
United States Senator

Christopher A. Coons
United States Senator



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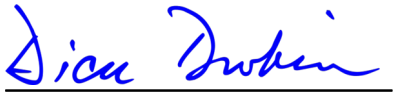

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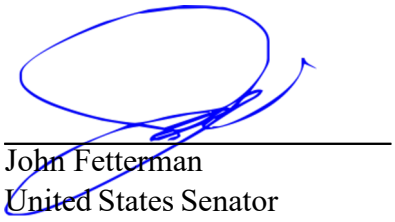

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Honorable Shalanda Young, Director, Office of Management and Budget
Honorable Jennifer Granholm, Secretary of Energy
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