

THOMAS R. CARPER, DELAWARE, *CHAIRMAN*
SHELLEY MOORE CAPITO, WEST VIRGINIA, *RANKING MEMBER*

BENJAMIN L. CARDIN, MARYLAND
BERNARD SANDERS, VERMONT
SHELDON WHITEHOUSE, RHODE ISLAND
JEFF MERKLEY, OREGON
EDWARD J. MARKEY, MASSACHUSETTS
DEBBIE STABENOW, MICHIGAN
MARK KELLY, ARIZONA
ALEX PADILLA, CALIFORNIA
JOHN FETTERMAN, PENNSYLVANIA

KEVIN CRAMER, NORTH DAKOTA
CYNTHIA M. LUMMIS, WYOMING
MARKWAYNE MULLIN, OKLAHOMA
PETE RICKETTS, NEBRASKA
JOHN BOOZMAN, ARKANSAS
ROGER WICKER, MISSISSIPPI
DAN SULLIVAN, ALASKA
LINDSEY O. GRAHAM, SOUTH CAROLINA

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-6175

Courtney Taylor, *Democratic Staff Director*
Adam Tomlinson, *Republican Staff Director*

November 9, 2023

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

Secretary Jennifer Granholm
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Mr. John Podesta
Assistant to the President and Senior Advisor to the President for Clean Energy
1600 Pennsylvania Avenue NW
Washington, DC 20220

Dear Secretary Yellen, Secretary Granholm, and Mr. Podesta:

I am writing to express strong support for the expeditious and effective implementation of the new clean hydrogen production tax credit under section 45V of the Internal Revenue Code (hereafter the “45V credit”), included in the Inflation Reduction Act (IRA). I believe that this tax credit is essential to building a domestic supply of clean hydrogen, especially hydrogen produced using renewable and nuclear energy, which will help our nation meet our climate and economic goals. If implemented as intended by its authors, the 45V credit offers the United States an invaluable opportunity to reduce greenhouse gas emissions, enhance energy security, and expand U.S. competitiveness while strengthening our economy and creating jobs.

As the United States continues to shift toward a clean energy economy, I agree with President Biden that clean hydrogen can play a critical role in strengthening our country’s industrial sector and achieving net-zero emissions by 2050. Hydrogen is a versatile energy resource that provides reliable energy and storage solutions for a wide range of sectors, including our manufacturing and transportation sectors. Hydrogen can also be used as an important feedstock in many industrial processes, such as cement production or fuel refining. The majority of existing hydrogen production occurs through an emissions-intensive process that generates hydrogen but also produces carbon dioxide; however, hydrogen electrolysis methods produce only hydrogen and oxygen. The 45V credit provides an opportunity to promote cleaner hydrogen generation with low or net-zero carbon emissions by offering the highest incentives to the most environmentally-friendly hydrogen production.

That is why I urge you to ensure that the forthcoming guidance for 45V strikes a balance between spurring our domestic clean hydrogen industry and aligning with our emissions reduction and clean energy goals. The Administration's direction on 45V will ultimately determine the pace of clean hydrogen deployment. That is why I strongly urge you to consider flexible and inclusive guidelines that accommodate a variety of hydrogen technologies, production methods, and projects. Without appropriate flexibility, I am concerned that there will be a chilling effect on this emerging clean energy industry – including harms to the growth potential of the hydrogen market, increased costs, delayed project development and construction, as well as the adoption of hydrogen in industries that are currently reliant on carbon-intensive processes. This delay would hinder our efforts to reduce carbon emissions and transition to cleaner energy sources.

On October 13, 2023, President Biden and Secretary of Energy Granholm announced the Administration's \$7 billion investment in America's first clean hydrogen hubs through funding provided in the Bipartisan Infrastructure Law. I am proud that this announcement included \$750 million to support the Mid-Atlantic Clean Hydrogen Hub (MACH2) in Delaware, Pennsylvania, and New Jersey.¹ The MACH2 project is focused on developing clean hydrogen production from renewable and existing nuclear energy sources, repurposing historic fossil fuel infrastructure, while providing economic opportunities and health improvements that will benefit historically underserved communities.² Currently, MACH2 is anticipated to create 20,800 direct jobs – including 14,400 construction jobs and 6,400 permanent jobs. These hubs have the potential to revolutionize a wide range of industries by providing a reliable supply of low- and zero-carbon hydrogen for transportation, industrial processes, and power generation.

However, the success of the hubs largely depends on the availability of financial incentives, such as 45V, to attract investments and foster innovation. Overly stringent guidelines for 45V might create uncertainty or barriers that would slow down private sector investment in hubs across the country – which could delay or put the economic and environmental benefits of these transformational projects at risk. Overly strict requirements could also suppress the scale-up of clean hydrogen supply, which would discourage demand from industrial and other energy-intensive sectors that need to decarbonize.

In 2021, I authored and led the Senate Finance Committee's consideration of the Clean H2 Production Act (S.1807). Together with Chairman Wyden, we successfully shepherded the Clean H2 Production Act through the Finance Committee; as a result, it served as the basis for the Inflation Reduction Act's 45V tax credit. 45V is a technology-neutral credit intended to support the production of clean hydrogen using methods that are at least 50 percent cleaner than traditional hydrogen production methods. To calculate the emission intensity of different production methods, Section 13204 of the IRA directs the Secretary to use a well-established greenhouse gas lifecycle assessment model (the GREET model) through the point of production, with flexibility for use of a successor model, but not the direction to create a new model. The bottom line is this – the cleaner the technology, the greater the credit.

¹ <https://www.energy.gov/articles/biden-harris-administration-announces-7-billion-americas-first-clean-hydrogen-hubs-driving>


² <https://mach-2.com/>

To maximize the effectiveness and environmental benefits of the clean hydrogen production tax credit, it is imperative that the tax credit allow for the use of indirect book accounting factors that help incentivize the use of clean energy sources in the hydrogen production process. That is why, during floor consideration of the IRA, I engaged in a colloquy with Senate Finance Committee Chairman Wyden regarding the intent for 45V. This colloquy addressed the significance of ensuring that the tax credits are technology-neutral and allow for a wide range of hydrogen production methods to qualify. We underscored the intent for the tax credit to allow for the use of indirect book accounting factors that reduce effective greenhouse gas emissions – including, but not limited to, renewable energy credits, renewable thermal credits, renewable identification numbers, or biogas credits.”³ For example, a company in an area with limited wind or solar resources could purchase renewable energy credits from wind farms in regions with strong wind resources. This would allow them to benefit from recently generated clean energy even if it is not available nearby.

In particular, I am concerned that the Department of Treasury might decide to require hydrogen producers to utilize only newly developed clean energy resources, which was not the intent behind the underlying legislation. Implementing a strict additionality requirement would restrict the use of existing carbon-free energy resources – including nuclear and renewable energy – which are critical to ramping up the production of clean hydrogen. For example, existing nuclear reactors are incredibly well-suited to power the production of hydrogen and help decarbonize some of the most difficult sectors of our economy. In fact, using surplus electricity from non-peak periods or renewable energy sources that would otherwise be curtailed can maximize the efficiency and sustainability of existing infrastructure. The use of nuclear energy and hydropower to produce clean hydrogen is also key to the success of the MACH2 project and other clean hydrogen hubs. Allowing existing nuclear reactors to qualify under 45V will help ensure that clean hydrogen is available and affordable enough to be used by customers across a wide range of industries.

In conclusion, by avoiding overly stringent requirements, we can nurture innovation, support the growth of clean hydrogen and the newly funded hubs, and accelerate our clean energy transition. I appreciate your thoughtful consideration of this matter, and I commend the Administration for its efforts to implement the full suite of clean energy tax incentives included in the IRA. These efforts are critical to increasing our nation’s domestic development and deployment of clean energy technologies that are needed to combat the climate crisis.

Sincerely,


Thomas R. Carper
Chairman

³ <https://www.congress.gov/congressional-record/volume-168/issue-133/senate-section/article/S4165-3>