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February 26, 2024

The Honorable Janet L. Yellen
Secretary
U.S. Department of the Treasury
1500 Pennsylvania Avenue, NW
Washington, DC 20220

The Honorable Daniel I. Werfel
Commissioner
Internal Revenue Service
1111 Constitution Avenue, NW
Washington, DC 20220

RE: Synergen Green’s Comments on the Proposed Regulations Implementing the Section 45V Clean Hydrogen Production Credit (REG-117631-23)

Dear Secretary Yellen and Commissioner Werfel:

Synergen Green Energy Inc. (Synergen Green) submits the following comments on the proposed clean hydrogen production credit regulations implementing Internal Revenue Code section 45V

(REG-117631-23) (Proposed Rule) issued by the Department of the Treasury (Treasury) and the Internal Revenue Service (IRS) December 26, 2023. Section 45V, which was established by the Inflation Reduction Act of 2022 (IRA),¹ provides a tax credit of as much as \$3/kg of hydrogen to U.S. producers of clean hydrogen (that is, hydrogen that has a low lifecycle greenhouse gas emissions rate as measured by the carbon dioxide equivalent (CO₂-e) per kg of hydrogen produced).

We strongly recommend that Treasury extend the temporal matching transition rule for qualifying energy attribute certificates (EACs) so that it applies to electricity that is generated before January 1, 2030. We ask that Treasury rework the temporal matching requirements for EACs’ acquisition and retirement, to remove the cliff effect of the rules and replace them with a graded approach to EAC qualification. Additionally, given the liquidity concerns raised by the administrative and timing challenges of refundable credits, we encourage Treasury to clarify the requirements for verification reports to increase the chances that taxpayers can claim the section 45V credit on an original return (including by treating hydrogen that is subject to a binding written offtake agreement, but that is temporarily in storage, to have been sold or used for purposes of the sale or use attestation). Finally, we take issue with the harmful assumption in the GREET model that 4.9 percent of electricity produced is lost during transmission and distribution—even in cases where the electricity generating facility is directly connected to or co-located with the hydrogen production facility.

Background on Synergen Green

Synergen Green, which is based in Houston, Texas, is a manufacturer of green fuels, including clean hydrogen—the fuel of the future—using water electrolyzer systems.² Our goal is to produce 180 million kg green hydrogen per year and 1 MTPA of green ammonia by 2030, over a series of projects. In the process, we are partnering with wind and solar energy developers, across the nation, to supply us with 3.9 GW of sustainable power to help position us as a leader in the zero-carbon-footprint energy market. We are investing \$5 billion of capital and creating more than 500 U.S. jobs to build some of

¹ P.L. 117-169.

² Synergen Green produces its green hydrogen using low-temperature water electrolysis using electricity, which is one of the pathways included in 45VH2-GREET.

the largest green fuel production facilities in America. The first of these facilities will be located in Hamilton County, Nebraska, and we will be breaking ground on it in early 2025 and expect to begin operations by early 2027.

Synergen Green's green hydrogen will be used³ to make net-zero ammonia for industrial feedstock (fertilizer), transport fuels (for maritime and fuel-cell based road transport, thus decarbonizing long-haul transport) and other energy applications (including dispatchable renewable energy). By 2030, Synergen Green's water electrolyzer systems used in its green fuel production processes will have prevented some 5 MMT of carbon dioxide from escaping into the atmosphere.

Our Recommendations

1) Additional Temporal Matching Relief

Treasury should recognize the significant complexity underlying the development of systems with mechanisms to provide for hourly tracking so that purchased electricity inputs can be matched to ensure they were generated in the same hour in which the hydrogen was produced. We take issue with the assertion that any systems are currently available in the marketplace that track such generation and retirement information on an hourly basis for both electrolytic hydrogen producers and their supplier wind or solar electricity generating facilities. The intermittent nature of minimal-emitting wind and solar power facilities (and the treatment of electricity storage in such contexts) only exacerbates this challenge, as Treasury itself acknowledged in the preamble to the Proposed Rule.⁴

In an exhaustive attempt to ensure our readiness to comply with the Proposed Rule, we hired over a dozen advising firms, and all of them were in agreement that not only is there nobody in the industry that can help us comply with the hourly matching and EAC tracking rule today, but also that additional time beyond 2028 will be needed in order for such systems to come online. Given the lack of near-term clarity, robust business models cannot be established for more than handful of green hydrogen projects. If Treasury decides to move forward without extending the transition relief, it will stifle the green hydrogen start-up sector, increase our costs by at least 15 percent, and threaten the viability of our expansion plans. This situation is even more critical given that the section 45V credit is only available for the 10-year period beginning on the date the facility was originally placed in service.

Because additional time is needed for the market to put in place such hourly temporal matching systems, we respectfully request that Treasury extend the temporal matching transition rule in Prop. Treas. Reg. §1.45V-4(d)(3)(ii)(B) (and the related provision in Prop. Treas. Reg. §1.45V-4(d)(2)(iii)(D)) so that it provides relief through January 1, 2030 (instead of 2028).

Alternatively, Treasury could extend the rule to 2030, but modify it to require temporal matching by month (instead of by year) for 2029 and 2030. This would be more consistent with our major trading partners, as the European Union allows for monthly matching of green hydrogen production with renewables generation until 2030.⁵

³ Pursuant to Prop. Treas. Reg. §1.45V-5(d)(2), “[a] verifiable use can be made by the taxpayer.”

⁴ REG-117631-23, 88 Fed. Reg. 89220, 89231 (Dec. 26, 2023) provides that “periods of curtailment or times when generation from minimal-emitting electricity generation is on the margin) may make the resulting incremental generation difficult to anticipate or identify.” Further, Treasury wrote: “Among the issues that require resolution as EAC tracking systems move to hourly resolution is the treatment of electricity storage.” Treasury also acknowledged that “[h]ourly tracking systems for EACs are not yet broadly available across the country and will take some time to develop. . . . Moreover, once the tracking software infrastructure is in place nationally, it may take additional time for transactional structures and efficient hourly EAC markets to develop.”

⁵ The European Commission adopted final rules on June 20, 2023 requiring hourly temporal matching beginning on Jan. 1, 2030 (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1184>).

Further, the binary nature of the temporal matching requirement is not supported by the statute and threatens to undermine the goal of the Biden administration to cut emissions from the long-haul transportation sector. Rather than draft a rule with a cliff effect, Treasury should modify its temporal matching requirement to incorporate a graded or tiered approach—similar to how the credit amount ranges from 60 cents to \$3 depending on the lifecycle greenhouse gas emissions rate—so that EACs that are matched by month rather than by hour will still hold some value (albeit resulting in a lower credit amount).

2) Clarifications to Facilitate Timely Credit Refunds

Start-ups such as Synergen Green are building the energy technologies that will deliver cost-competitive green hydrogen and play a vital role in achieving the Biden administration’s 2050 net-zero emissions goal. However, the business realities of a start-up present challenges that could frustrate the goals of section 45V. Synergen Green expects to be pre-revenue until 2027. Therefore, it anticipates utilizing the elective payment election⁶ (to treat the credit as a payment giving rise to a refund) provided for in section 6417 and obtaining an IRS-issued registration number for our facility, once it is operational.

Treasury should streamline the verification requirements in the Proposed Rule to increase the chances that verification can occur before the extended return filing deadline for the taxable year in which the hydrogen was produced. Synergen Green intends to use the green hydrogen that it produces to make green ammonia (utilizing the Haber-Bosch process powered by renewable energy to combine three parts hydrogen and one part nitrogen—without producing any CO₂) that it will then sell. We will claim a credit for the green hydrogen produced on the Form 7210, *Clean Hydrogen Production Credit*,⁷ with our timely filed (including extensions) Federal income tax return, attaching the required verification report.

However, we are concerned that we may not be able to complete all of the requirements for claiming the section 45V credit, especially the verification of the production and sale or use of our green hydrogen, by the extended return filing deadline of our original return (which, in our case, is generally in October of the following year).

To that end, we urge Treasury to consider amending Prop. Treas. Reg. §1.45V-1(a)(9)(ii) so that the term “for sale or use” can include hydrogen that is in storage but with respect to which its sale or use has already been accounted for pursuant to a binding written offtake agreement (or, in the case of internal arrangements, the producer would make an attestation as to the future use, under penalty of perjury⁸). In each case, if the hydrogen produced is not ultimately sold or used pursuant to the agreement or attestation, the credit would be subject to recapture. This would enable an unrelated party that is a qualified verifier to make an attestation regarding the amount of qualified clean hydrogen sold or used (and such sold or used hydrogen would include hydrogen that is temporarily in storage but is already spoken for) so that the hydrogen producer’s section 45V claim for the year of production will not be further delayed even though the actual sale or use might not occur until a later year.

Additionally, we respectfully request that the IRS prioritize its processing of refunds connected to section 45V claims—including so-called quickie refunds claimed on Forms 4466, which are supposed to be processed within 45 days of filing—to ensure that hydrogen producers have the capital and certainty they need to continue making transformative investments to secure America’s clean energy future.

⁶ The election would be made on its original return pursuant to Prop. Treas. Reg. §1.6417-2(b)(1)(iv).

⁷ IRS Form 7210 for 2023 is here: <https://www.irs.gov/pub/irs-pdf/f7210.pdf>. Instructions for the form are here: <https://www.irs.gov/instructions/i7210>.

⁸ This is not unlike the compliant-battery ledger regime that Treasury recently proposed in the section 30D rules.

3) Accounting for Electricity in GREET Model Emissions Rate Determinations

Pursuant to the Proposed Rule, the lifecycle greenhouse gas emissions rate of hydrogen produced at our facility (which is tied to our ability to qualify for the section 45V credit and at what rate) would be determined under the most recent GREET model. It is not clear to us whether the electrical grid average transmission and distribution loss rate assumed in the GREET model (the 4.9 percent figure discussed on page 15 of the December 2023 “Guidelines to Determine Well-to-Gate Greenhouse Gas (GHG) Emissions of Hydrogen Production Pathways using 45VH2-GREET 2023”⁹) would constitute background data in our hydrogen production pathway.

Treasury should ensure that the well-to-gate greenhouse gas emissions associated with hydrogen produced using water electrolysis can be determined under the GREET model using foreground data from the taxpayer that specifies the amount and source and actual transmission and distribution loss rate (if any, in the case of direct transmission) of the electricity from a specific power source (a generator or combination of generators) that was then consumed by the hydrogen production facility (as is verified via the purchase and retirement of qualifying EACs). The GREET Manual states that, even when a specific power source is selected, “45VH2-GREET 2023 will then automatically assume that an additional ~4.9% of electricity was actually produced by each generator type chosen.”¹⁰

This assumption does not make sense when the source electricity is directly used from a generating facility and is therefore not subject to any significant transmission and distribution loss. Direct-use information should be foreground data that turns off the 4.9 percent background assumption. Especially in the case of directly connected or co-located electricity generating facilities, it is disadvantageous for Treasury to make assumptions about transmission and distribution loss rates that contradict the very data the agency is trying so hard for producers to collect and verify.

Treasury should not promulgate guidance that limits the section 45V credit in a way that is inconsistent with the statute and efforts by lawmakers to reduce the cost of clean hydrogen to \$1 per kg within 10 years. Synergen Green has the technology and plans to help deliver meaningful results in support of America’s clean hydrogen strategy, but the Proposed Rule, as written, would pose significant barriers to our efforts. We urge you to correct and clarify the regulations before finalization so as not to have a disruptive and counterproductive impact on this burgeoning industry.

Sincerely,



Pranav Tanti
President & CEO
Synergen Green Energy

⁹ https://www.energy.gov/sites/default/files/2023-12/greet-manual_2023-12-20.pdf; the number is also addressed in this publication: https://greet.anl.gov/publication-Update_td_losses_2018

¹⁰ *Id.*