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23 February 2024

Internal Revenue Service
Department of the Treasury
P.O. Box 7604
Ben Franklin Station
Washington, D.C. 20044

Attention: CC:PA:LPD:PR (REG-117631-23), Room 5203

Dear Sir / Madam,

Worley Group, Inc. (Worley) is pleased to submit comments on the Notice of Proposed Rulemaking (NPRM) and Notice of Public Hearing regarding the Section 45V Credit for Production of Clean Hydrogen and Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property. Worley applauds the Department of the Treasury for its timely release of this regulatory guidance that will greatly influence the future of clean hydrogen production in the United States. We appreciate the opportunity to provide expert technical analysis of the regulation and our recommendations for clarity that we believe will catalyze industry into deployment of clean hydrogen at the scale needed to meet net zero and other climate targets.

About Worley

Worley is a leading global provider of professional project and asset services in the energy, chemicals, and resources sectors. We're helping deliver a more sustainable world by providing knowledge-based services to customers and solutions to the challenges they face.

We are our customers' most trusted partner in implementing new solution-based models enabled by data, technology, and automation. We partner with our customers as stewards for a more sustainable world and we're committed to deriving 75% of aggregated revenue from sustainability-related work by 2026.

Our operations in the United States are growing rapidly – we operate out of 22 offices in 16 states and employ more than 6,700 direct hire personnel nationwide.

With substantial market share in global hydrogen project services, Worley has been an influential partner for private industry and governments all over the world that are developing clean hydrogen projects. We work across every step of the hydrogen journey with projects including:

- studies on the feasibility of crude oil to hydrogen pathways in the Middle East
- a study on building a green hydrogen industry for South Australia
- designing 36 GW of electrolyzer capacity for an artificial island off the coast of the Netherlands

- the engineering, procurement, and construction phase of a green hydrogen refueling station in New Zealand
- a detailed analysis of hydrogen in Australia, from ammonia synthesis to fuel cell mobility
- technical counsel for an offshore wind farm and hydrogen electrolyzer facility for a refinery in the Netherlands
- a study on using hydrogen in high pressure natural gas pipelines in Canada.

Worley's comments and recommendations are backed by not only unparalleled clean hydrogen technology expertise, but extensive policy and regulation knowledge from jurisdictions around the globe. Drawing on lessons learned from our portfolio of hydrogen and low-carbon electricity projects, we offer our expertise to ensure that the Section 45V regulatory guidance most effectively meets the statutory intent.

Comment No. 1: Provisions in the rulemaking for temporal matching should allow for Energy Attribute Certificates (EACs) for stored electrical energy in batteries to be matched to hydrogen production in the hour that the energy is released from the battery system.

In section V.C.2.b of the Explanation of Provisions in the NPRM, the Treasury provides background for establishing temporal matching requirements proposed in 26 CFR §1.45V-4(d)(3)(ii)(A). Worley applauds the Treasury on working with the U.S. Department of Energy (DOE) on developing the rulemaking and recognizes that the issue of energy storage and temporal matching is one that has been thoroughly evaluated to ensure the final rulemaking addresses significant indirect emissions from electricity use.

Enabling renewable power stored in battery electric storage systems to satisfy the temporal matching criterion for EACs would promote the acceleration of the battery storage industry and its supporting supply chain sectors. Major climate legislation such as the Infrastructure Investment and Jobs Act and the Inflation Reduction Act set forth programs that demonstrates the US Government's prioritization of these sectors as critical components of the country's energy transition strategy.

Rigid standards for documentation and verification of several data attributes for generation and purchase of zero-GHG electricity have been implemented by EPA for the purpose of generating Renewable Energy Certificates (RECs), and high-integrity EACs can be managed using similar EAC registry or accounting systems.

Comment No. 2: The proposed rulemaking does not adequately describe the process for which additional hydrogen pathways are included for new feedstocks and technologies in updates to the 45VH2-GREET model.

Proposed 26 USC §1.45V-4(c) describes Provisional Emissions Rate (PER) procedures and how subsequent inclusion of hydrogen production pathways will replace the need for a taxpayer's utilization of a PER, but Worley believes the Treasury's process for developing the lifecycle greenhouse gas calculation methodologies with DOE for 45VH2-GREET should be transparent and inclusive of taxpayers that requested the PER and worked with the DOE through the analytical assessment and development of the emission value.

Worley recommends that a procedure be developed and incorporated into the rulemaking that facilitates the collaboration amongst the Treasury, DOE, and the hydrogen production community for implementing new pathways in 45VH2-GREET model updates.

Furthermore, Worley encourages the Treasury to make full use of hydrogen industry knowledge alongside government agency expertise to maximize the benefits of the Section 45V tax credit program and meet the intent of the statute.

Comment No. 3: Proposed 26 USC §1.45V-4(d)(2)(iii) does not require that eligible EACs provide the hour in which the electricity to which the EAC relates for electricity generated before January 1, 2028. Although temporal matching on an hourly basis as an energy attribute is not required until after December 31, 2027, the Treasury and DOE could realize significant benefits from evaluating tracking systems and related contractual structures during the transition rule period.

Worley recommends that beginning January 1, 2026, and ending December 31, 2027, the rulemaking require that, where possible, hydrogen producers provide a simulated reporting of hourly matching for EACs to actual hydrogen production. This will, of course, be in addition to the annual matching of EACs to actual hydrogen production for the purposes of calculating credits under Section 45V.

In section V.C.2.b of the Explanation of Provisions in the NPRM, the Treasury provides background for establishing temporal matching requirements proposed in 26 CFR §1.45V-4(d)(3)(ii)(A). The Treasury cites a survey that evaluated nine existing hourly tracking systems, which cite issues such as limited software functionality, state agency buy-in, clear guidance from agencies, and funding for stakeholder participation. Worley believes that additional data from a trial program can drive innovation for these tracking systems and ensure they are ready for regulatory implementation when the time comes.

As a precedent, The European Union Carbon Border Adjustment Mechanism (CBAM) policy entered into application on October 1, 2023. Affected importers will only need to report during a transitional phase. Beginning January 1, 2026, importers will need to report for the purposes of surrendering CBAM certificates for compliance with the CBAM. This transitional phase will facilitate a smooth roll out of the mechanism and reduce the risk of disruptive impacts on trade.

Comment No. 4: Proposed 26 USC §1.45V-4(d)(2)(vi) would define the term "region" to mean a United States region derived from the National Transmission Needs Study (DOE Needs Study) that was released by the DOE on October 30, 2023.

Worley recommends that a mechanism for petitioning to enable cross-regional coupling of electricity generation sources and clean hydrogen production facilities be implemented with reviews to be conducted on a case-by-case basis.

While Worley agrees that deliverability is an important aspect of maintaining the integrity of clean hydrogen, we recognize that the regions defined by the DOE Needs Study fragment areas of the country where there is significant potential for clean hydrogen production facility to be locate where they could reasonably expect to source clean electricity from a bordering region.

For example, the industrial-centric US Gulf Coast of Texas and Louisiana is divided amongst two regions – Texas and Delta. A project developer may pursue a hydrogen production facility in Louisiana but would not be able to source new electricity from Texas, which is a region with high potential for clean electricity generation development. A similar scenario exists in the US Midwest, where a hydrogen production facility near Chicago or in Southwest Michigan could not develop clean electricity generation in the wind-enabled Plains or Midwest regions.

Comment No. 5: Decarbonization of existing generation resources to produce clean hydrogen would make use of assets that may not be utilized in the most efficient manner with respect to deliverability of power to the grid.

Proposed 26 USC §1.45V-4(d)(3)(i) states that an EAC meets the requirements of this paragraph (d)(3)(i)(A) if the electricity generation facility that produced the unit of electricity to which the EAC relates has a COD that is no more than 36 months before the hydrogen production facility for which the EAC is retired was placed in service – effectively ensuring that the electricity source is "new, clean power."

The incrementality pillar would preclude existing cogeneration facilities integrated in an industrial hub from implementing carbon capture to reduce carbon intensity, then supplying clean power to an electrolytic clean hydrogen production facility. Industrial hubs have great potential for being the center of decarbonization efforts. Clean hydrogen production located in an industrial hub would be space-limited, and the clean power would likely need to be built far away. This issue poses deliverability concerns and efficiency decreases due to transmission losses.

Worley recommends the Treasury work with the DOE to develop defining criteria for industrial hubs and incorporate provisions allowing power generating resources located within industrial hubs that decarbonize to meet the incrementality requirements for the purposes of creating EACs.

Comment No. 6: Proposed 26 USC §1.45V-4(d)(3)(ii) would require that an EAC meets requirements related to temporal matching if the electricity represented by the EAC is generated in the same hour that the taxpayer's hydrogen production facility uses electricity to produce hydrogen. In addition, a transition rule is applied to allow for matching EACs to hydrogen production in the same calendar year prior to January 1, 2028.

Technology used in pathways for generating clean hydrogen is currently relatively nascent. Many projects for which development has been spurred by the announcement of the Section 45V credit are only in early design phases, and its likely that there will be very few that are placed in service prior to 2028. This effectively renders the transition period irrelevant.

Worley recommends that the transition period be extended, and annual matching of clean electricity to hydrogen production be permissible through the end of calendar year 2030. This could give many projects flexibility in early operating years where run profiles may be sporadic due to unplanned equipment issues and downtimes. This will also allow the Treasury Department

and collaborating agencies more time to trial hourly-tracking systems and work out any efficiency issues.

As a precedent of another jurisdiction, the European Commission has allowed for monthly matching of new clean power generation to hydrogen production until January of 2030 in the Delegated Act on a Methodology for Renewables Fuels of Non-biological Origin that entered into force in June of 2023. This Act outlines detailed rules on the European Union definition of renewable hydrogen.

Comment No. 7: Worley recognizes that nuclear power plays a critical role in stabilizing energy supply during the transition to more renewables, battery storage, and lower carbon hydrogen. Nuclear energy is often overlooked in discussions about decarbonization and sustainability. However, it's currently the second largest low-carbon energy source in the world after hydropower.

Generating electricity at a nuclear power station is carbon-free and can provide a stable and consistent electricity supply to an electrolytic hydrogen application. Worley recommends that a nuclear-based hydrogen production pathway and associated 45VH2-GREET lifecycle greenhouse gas emission rate be developed for the purposes of the Section 45V credit.

Prioritization of nuclear-based hydrogen production is consistent with the DOE's selection of three hydrogen hubs that plan to use nuclear generation of the seven total hubs that will share $7 billion to accelerate large scale production and use of low-cost hydrogen as a clean energy alternative to fossil fuels.

Comment No. 8: Further clarity to the definition of a qualified clean hydrogen production facility is required to understand the boundary of a facility and what equipment must be considered with respect to lifecycle greenhouse gas emissions rate calculations.

Worley acknowledges that the Treasury has used functional interdependence as the determination criterion for equipment or components in the definition of production of qualified clean hydrogen, as well as the inclusion of multipurpose components. However, in many cases it would not be appropriate to count all emissions from large, multipurpose components that are part of the balance of plant (cooling tower, air compressor, etc.) if the hydrogen production process does not cause a significant share of energy demand from such equipment.

Worley recommends a method allowing for the apportionment of emissions associated with the operation of a functionally interdependent component of a qualified clean hydrogen facility based on the share of the component's capacity that is demanded by the qualified clean hydrogen production facility.

Concluding Remarks

Worley applauds the Treasury Department for collaborating with expert agencies in implementation of not only the Section 45V credit, but all the clean energy tax credits introduced and bolstered by the Inflation Reduction Act. We recognize that the energy transition industry is signalling a strong preference for commercial scale deployment of clean energy technology in the United States, and it will take sound policymaking and regulation to achieve the climate goals set forth by the current administration.

If there are any question regarding this submission, or the Treasury Department would like to meet with Worley to better understand our concerns and experience in the hydrogen industry, please contact me at adam.t.green@worley.com or +1 (217) 622-1475.

Sincerely,

Adam Green

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