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Internal Revenue Service
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Room 5203
P.O. Box 5203, Ben Franklin Station
Washington, D.C. 20044

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Re: Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45 Z

Apex Clean Energy (Apex) appreciates the opportunity to submit the following comments in response to the Internal Revenue Service's (IRS or the Service) *Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production*.[1] The Credit for Production of Clean Hydrogen (45V) warrants significant attention and will support the emerging domestic clean hydrogen and fuels industry, create jobs, and support domestic manufacturing.

Background

Apex Clean Energy was founded with a singular focus: to accelerate the shift to clean energy. Through origination, construction, and operation of utility-scale wind, solar, and storage facilities, distributed energy resources, and green fuel technologies, Apex

[1] Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45 Z, https://www.irs.gov/pub/irs-drop/n-22-58.pdf.

is expanding the renewable frontier across North America. Our mission-driven team of more than 400 professionals uses a data-focused approach and an unrivaled portfolio of projects to create solutions for the world's most innovative and forward-thinking customers

Questions Raised by Treasury & IRS: Lifecycle Greenhouse Gas Emissions

(1)(a)Section 45V defines "lifecycle greenhouse gas emissions" to "only include emissions through the point of production (well-to-gate)." Which specific steps and emissions should be included within the well-to-gate system boundary for clean hydrogen production from various resources?

(2) Alignment with the Clean Hydrogen Production Standard. On September 22, 2022, the Department of Energy (DOE) released draft guidance for a Clean Hydrogen Production Standard (CHPS) developed to meet the requirements of § 40315 of the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58, 135 Stat. 429 (November 15, 2021). The CHPS draft guidance establishes a target lifecycle greenhouse gas emissions rate for clean hydrogen of no greater than 4.0 kilograms CO2-e per kilogram of hydrogen, which is the same lifecycle greenhouse gas emissions limit required by the § 45V credit. For purposes of the § 45V credit, what should be the definition or specific boundaries of the well-to-gate analysis?

Response

The IRS should implement a system boundary that includes clearly defined emission parameters that articulate the beginning and end points of calculation within a well-to-gate construct. While The Department of Energy (DOE) has yet to release its final revisions, the methodology in its proposed draft Clean Hydrogen Production Standard (CHPS)[2] includes the right steps and emissions that should be included in the well-to-gate accounting boundaries. Further, CHPS's incorporation of the boundary system employed by the International Partnership for Hydrogen in the Economy (IPHE) will help enable the nascent domestic clean hydrogen industry to better integrate with global hydrogen markets. Since 2019, more than twenty countries have worked to harmonize emissions analysis methodologies and boundary conditions for hydrogen pathways through IPHE's Hydrogen Production Analysis Task Force (H2PA TF), which is co-led by the United States.

[2] Department of Energy Clean Hydrogen Production Standard, https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard.pdf

Questions Raised by Treasury & IRS: Verification, Recordkeeping and Reporting

(1)(e)How should qualified clean hydrogen production processes be required to verify the delivery of energy inputs that would be required to meet the estimated lifecycle greenhouse gas emissions rate as determined using the GREET model or other tools if used to supplement GREET? (i) How might clean hydrogen production facilities verify the production of qualified clean hydrogen using other specific energy sources? (ii) What granularity of time matching (that is, annual, hourly, or other) of energy inputs used in the qualified clean hydrogen production process should be required?

(4)(f) Should indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions (also known as a book and claim system), including, but not limited to, renewable energy credits, power purchase agreements, renewable thermal credits, or biogas credits be considered when calculating the § 45V credit?

(4)(g) If indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions, such as zero-emission credits or power purchase agreements for clean energy, are considered in calculating the § 45V credit, what considerations (such as time, location, and vintage) should be included in determining the greenhouse gas emissions rate of these book accounting factors?

Response

The development of a book and claim system that enables the regional incorporation of bundled energy and renewable energy credits (RECs) will help support the growth of the clean hydrogen industry in the United States. This assertion is supported by the legislative intent of the Inflation Reduction Act (IRA) that is evident from the colloquy that occurred during passage of the IRA between Senate Finance Committee member Thomas R. Carper, D-Del., and Senate Finance Committee Chair Ron Wyden, D-Ore. In this colloquy, Senator Carper stated the intent of section 45V "is that in determining 'lifecycle greenhouse gas emissions' for this section, the Secretary shall recognize and incorporate indirect book accounting factors, also known as a book and claim system, that reduce effective greenhouse gas emissions, which includes, but is not limited to, renewable energy credits, renewable thermal credits, renewable identification numbers, or biogas credits." Senator Wyden confirmed that this intent was correct.[3] Apex believes that developing a system that enables this intended use of bundled energy and RECs, and which is incorporated into guidance that provides certainty and predictably, will help ensure clean hydrogen is produced.

[3] Senate – August 6, 2022, https://www.congress.gov/congressional-record/volume-168/issue-133/senate-section/article/S4165-3.

Regarding hydrogen produced via electrolysis with partial or full nameplate grid draw, the IRS should consider adopting a requirement that an electrolyzer must be located in the same regional balancing authority (BA or BAs) or organized market (i.e. RTO or ISO) as the renewable project it claims as its source of electricity. This requirement more directly links hydrogen electrolyzer load to renewable energy. For the small BAs, IRS should consider extending these boundaries to include any adjacent or electricity connected BA. Finally, for all BAs or organized markets, resources that are directly delivered or dynamically scheduled into the BA containing the electrolytic load should be considered as meeting the regionality requirement.

In addition to a regionality requirement, IRS should not allow for an electrolyzer to purchase "unbundled[4]" RECs as means to claim it is producing clean hydrogen. The IRS should also consider establishing requirements to ensure there is no double counting or claiming of benefits. This means that that any environmental attributes associated with the renewable electricity should be retired if that energy is claimed by the hydrogen production.

By providing the aforementioned requirements from the outset, a more balanced build out of renewable energy projects and infrastructure should occur. Allowing for this system also ensures operators of electrolyzers can draw power from the local utility grid when local or regional regulations prohibit a behind-the-meter direct connection. Co-locating renewable generation with hydrogen production is feasible today, however supplementing directly connected renewable generation with grid power allows projects to improve the electrolyzers' utilization rate and project economics, which are both critical for many hydrogen applications today.

Considerations relating to time are important and complex. With the previously mentioned requirements in place, an annual time matching requirement – at least for the foreseeable future - will allow the nascent clean hydrogen industry time to take hold and help ensure clean hydrogen is produced. Time matching at a granular level (i.e., hourly) as an initial requirement would ignore the technological, economic, and regulatory realities facing its widespread adoption today. Rather, an annual time matching requirement would be more administrable for both taxpayers and the IRS and aligns with similar measurement requirements for other energy credits including the energy investment tax credit (ITC) under section 48 of the Internal Revenue Code and Treasury Regulation section 1.48-9.[5] Currently, there is no country wide market and industry standard or definition of an hourly clean power purchase agreement

[4] A REC is unbundled when it is sold separately from the underlying energy.

[5] Treasury has adopted an annual measuring period for dual use of specific energy properties (i.e., geothermal equipment, solar energy property auxiliary equipment and pipes and ducts, and wind energy property) under Treasury Regulations §1.48-9. For example, as provided in Treas. Reg. section 1.48-9(d)(6), an "annual measuring period" for an item of dual use equipment is the 365 day period beginning with the day it is placed in service or a 365 day period beginning the day after the last day of the immediately preceding annual measuring period.

(PPA) and no countrywide mechanism to settle RECs within a granular timeframe. That said, transitioning to shorter time requirements is a worthy discussion as the hydrogen industry matures – particularly as the requisite clean infrastructure is built, new transmission lines and grid improvements are made, and the emergence of enabling market mechanisms occur.

In the near term, appropriate attention and support for hourly implementation could be best directed towards The Biden Administration's Executive Order 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability (https://www.sustainability.gov/federalsustainabilityplan/), which calls for 50% of the federal government to be supplied hourly by clean energy by 2030. This commendable effort provides an opportunity for hourly matching technologies and systems to mature in a setting where the levelized costs of electricity (and hydrogen) are less critical. This work can be prioritized, reviewed, and well understood before expanding time matching requirements to specific industries.

Additionally, Apex Clean Energy is supportive of the American Clean Power (ACP) Association's proposal included in its response to DOE's CHPS rulemaking. In its response, ACP encouraged the IRS, in conjunction with DOE, to create a task force, involving a collaborative stakeholder process with ample opportunity for engagement and comment, to explore the merits of various temporal requirements between renewable electricity and hydrogen production. The task force would examine and model, with input from stakeholders, the multiple approaches to achieving various time of use standards. The task force could also determine the state of tools and technology required to perform and verify each of these alternative approaches. The following goals would be kept in mind: expanding cost-competitive electrolyzer-produced green hydrogen and renewable energy deployment, as well as effectively reducing carbon emissions and maintaining well-functioning electricity markets.

Finally, vintage considerations must be thoughtful and should encompass an array of common-sense options to satisfy any requirement. Ultimately, electrolytic hydrogen could be powered by new, repowered, or existing incremental renewable energy (i.e., driven by new demand from electrolyzers in areas of transmission congestion). However, a mechanism to demonstrate these various pathways may be challenging to implement. IRS should consider if the previously discussed parameters would already ensure a clean hydrogen product is being produced before requiring.

Question Raised by Treasury & IRS: Qualified Clean Hydrogen

01(1). Section 45V provides a definition of the term "qualified clean hydrogen." What, if any, guidance is needed to clarify the definition of qualified clean hydrogen?

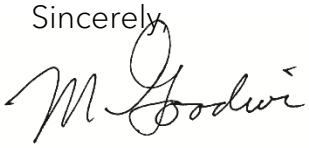
Response

Apex supports the clarification that per IRA statute, while hydrogen must be produced in the United States, the sale or use of the hydrogen may be conducted internationally. If the sale or use of qualified clean hydrogen is restricted to the United States alone, this could serve to limit this nation's ability to become a global leader in the clean hydrogen market.

Conclusion

Apex Clean Energy appreciates the opportunity to respond to this request for comments on § 45V implementation.

Sincerely,



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