HyAxiom, Inc.
A Doosan Company
101 East River Drive
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Submission VIA the Federal eRulemaking Portal at www.federalregister.gov

Internal Revenue Service
CC:PA:LPD:PR (REG-132569-17)
Room 5203
P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

Re: REG-117631-23: Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property

Dear Ladies and Gentlemen:

HyAxiom, Inc. – A Doosan Company ("HyAxiom") appreciates the opportunity to submit the following comments in response to the proposed regulations published by the Internal Revenue Service and the U.S. Treasury Department regarding Internal Revenue Code Section 45V Credit for Production of Clean Hydrogen (Clean Hydrogen PTC) and the energy credit, as established and amended by the Inflation Reduction Act of 2022, Public Law 117-169, 136 Stat. 1818 (August 16, 2022).

HyAxiom is a stationary fuel cell manufacturer and hydrogen solutions provider located in East Hartford and South Windsor, Connecticut. HyAxiom employs nearly 300 people at its world-class R&D and manufacturing facilities where it produces fuel cells and electrolyzers for the global marketplace. HyAxiom currently has more than 600 MW of fuel cells operating, under construction or awarded. HyAxiom is a part of the Doosan Corporation, a global company with 42,000 employees and revenue of more than $15 billion with a range of businesses and products in infrastructure support and power generation.

Recently, HyAxiom made the decision to expand its fuel cell capabilities and produce PEM Electrolyzers as the world looks to use hydrogen as path to decarbonization. HyAxiom will soon be able produce 100 MW of electrolyzers, yearly, at its Connecticut facility.

HyAxiom is extremely concerned by the positions outlined within the proposed rulemaking and the potential impact on our business and the future domestic clean hydrogen market. HyAxiom has already made certain investments with the understanding that production of hydrogen will be at the forefront of a new zero-carbon economy. However, we are now worried that the future of hydrogen will be hindered by over-aggressive policies that will only stifle growth.

If the proposed rule is implemented, there is significant risk that the United States (U.S.) will not achieve its stated goals of clean hydrogen production, preventing significant decarbonization potential and economic growth. We are alarmed by the onerous restrictions proposed for grid-connected clean hydrogen projects using energy attribute credits (EACs). The so-called three pillar restrictions – incrementality, temporal matching, and regionality – are not enshrined in the Inflation Reduction Act and run counter to legislative intent. Taken together, these pillars would handicap the nascent clean hydrogen sector before it is able to scale through added compliance costs that could make many use cases of hydrogen uneconomical, delay projects for months or

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years, and would risk U.S. technology leadership, significant decarbonization potential across the economy, and the development of the Biden Administration's announced Regional Clean Hydrogen Hubs.

Temporal Matching, Regionality, and Incrementality

The temporal matching provision would require clean hydrogen producers to match the time that power is generated on an hourly matching basis starting in 2028. Had this provision of the proposed guidance been envisioned when written, the necessary subsidy would have been significantly greater. In addition, hourly matching EACs are not available now, and are unlikely to be commercially available by the 2028 timeframe suggested in the proposed rule. In markets like California that have binding renewable portfolio standards (RPS) and/or carbon regulation, temporal matching in the form of storage and firm renewable resources will evolve through market forces. Overlaying mandates will interfere with optimal market-based resource additions and dispatch. Finally, the temporal matching requirement of hourly matching will increase costs. When the hydrogen industry collectively advised lawmakers that $3/kg was an appropriate level of incentive for renewable electrolytic hydrogen to be cost-competitive, it was with the explicit understanding that the use of unbundled RECs would be permitted.

The regionality provision would require that purchased power must come from the same region as the hydrogen production facility, with strict limitations on those regions and no ability to purchase EACs across regions. Large energy market areas with regional transmission and transport capability are the most cost optimal solution. This has been fully proven in existing energy markets (power, natural gas, and liquid fuels). The proposed rulemaking proposes a balkanized collection of micro-markets that is out of sync with existing power markets. The draft guidance limits 45V power transaction to part of California. The California RPS program has regulations in place regarding renewable power transaction within the Western Electricity Coordinating Council (WECC), and those same regulations, including prohibition of double counting, should be used for 45V eligibility for California renewable electrolytic hydrogen production. California projects are being developed and seeking financing as we speak. Restricting power sourcing to part of the state will render an unknown number of planned projects unfinanceable. The proposed boundary would restrict California projects from sourcing wind or solar power from within the WECC region outside of California. This will increase the cost of producing hydrogen in California with absolutely zero environmental benefit.

Finally, the incrementality provision would require that the clean energy generating facility must be no more than 36 months old. Clean hydrogen projects are being designed and financed in California today and they have been on hold for months waiting for finalization of this guidance. This proposed regulation, if implemented, will force projects to reevaluate their renewable generation source. Due to lengthy, years-long permitting times, which can range from five to ten years, this will not be possible and will force projects to redesign. This includes projects that are part of the DOE Regional Clean Hydrogen Hubs, including the California ARCHES Hub.

In total, the proposed rulemaking would put the achievement of California's decarbonization goals at risk. The Californian government has set mandates for zero-emission fleets by 2035. Other sectors like rail are set to phase in zero-emission locomotives through 2047, and power plants are planning to transition from fossil fuel to hydrogen in the years ahead. The state has stated that a strong hydrogen market is critical to achieving these goals and the stringent temporal matching rules could cause considerable downstream impacts that prevent this decarbonization from being economical.

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It is HyAxiom's position that we continue to raise strong concerns with any implementation of the proposed three pillars. However, should Treasury insist on moving forward with some level of these requirements, we offer the following proposed policy preferences.

First, **a waiver of hourly matching, incrementality, and regionality requirements should be provided for all projects located in states and regions that already have compliance and tracking mechanisms in place to ensure production of decarbonized hydrogen such as a renewable portfolio standard, a low-carbon fuel standard, or other regulation with binding standards. Given California's strong policy framework for clean and renewable power, projects located in the state should thus receive a waiver from hourly matching, incrementality, and regionality requirements.**

For regionality, Treasury should adopt the same market boundaries as the existing North American Electric Reliability Corporation (NERC) regions for tradeable RECs and allow for interregional markets for EACs.

Calculation of 45V Credit on an Annual Basis

HyAxiom requests that Treasury allow taxpayers to claim the PTC for any duration of clean hydrogen production – not just an annualized average. **The hydrogen credit should be determined regarding each unit of hydrogen produced by a taxpayer, not regarding all units of hydrogen produced each year as described in the Proposed Regulations**. Hydrogen producers should be able to produce hydrogen with varying carbon intensities throughout the taxable year to optimize operations, accommodate customer requirements, and adjust to input availability, price, and quality.

The Guidelines to Determine Well-to-Gate Greenhouse Gas Emissions of Hydrogen Production Pathways using 45VH2-GREET 2023 does not require the input of all hydrogen produced annually at a hydrogen production facility as "foreground data" and specifies that taxpayers must input "the quantity of hydrogen produced for which emissions are being evaluated." Therefore, the **final regulations should clarify that taxpayers are permitted to enter the quantity of hydrogen produced (e.g., all or a portion thereof) for which well-to-gate emissions are to be evaluated and used in computing the 45V credit, and not "all hydrogen produced at a hydrogen production facility during the taxable year: as stipulated under Prop. Treas. Reg. Sec. 1.45V-4(a). Co-product emission allocations should also be included when computing hydrogen production pathways for the 45V credit.**

Renewable Natural Gas (RNG)

With respect to RNG, HyAxiom proposes the following recommendations.

Treasury should **ensure that a wider range of feedstocks are included in the rule**, particularly those with a negative carbon intensity, such as dairy, organic waste, poultry, and swine-based feedstocks.

The "first productive use" concept limits RNG pathways by creating a de facto strict additionality requirement that is even more onerous than that suggested for electricity and EACs. Treasury should eliminate "first productive use" in a way that leaves open the possibility for various pathways to produce RNG. Treasury can ensure market certainty by **allowing new and existing RNG facilities to shift to hydrogen production at any time to support emission reduction in electricity and transportation**.

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Hourly temporal matching is incongruous with RNG and Treasury should avoid any such requirements. There is no ability for the RNG market to provide more volume granularity than monthly due to the natural gas industry's existing practices (i.e., pipeline operators issue reconciled injection statements monthly), therefore a more restrictive option is entirely unfeasible. **Hourly temporal matching should not be applied to RNG**.

The appropriate region for book and claim should be defined as the North American interconnected pipeline grid. The California LCFS requirement for "plausible deliverability" should be used here**.**

Treasury should institute a book and claim provision for RNG and other low-emissions and certified natural gas without geographic restrictions. The current proposed rule only supports landfill gas physically connected to the production facility, thereby limiting the ability to capture short-lived climate pollutants. Expanding the rule to include landfill, dairy waste, organic waste, sanitation facilities, forest waste, and other biogas/biomass sources that is geographically dispersed will help unlock the production and use of RNG from waste products that would otherwise vent methane into the atmosphere. This can be accomplished if Treasury establishes a book and claim system like that currently used by the California Low Carbon Fuel Standard (LCFS) program.

HyAxiom supports the broader details and policy preferences outlined by the California Hydrogen Business Council (CHBC) and Fuel Cell and Hydrogen Energy Association (FCHEA) as trade associations representing industry. Thank you again for the opportunity to share these critical perspectives with you. Please contact me with any questions or comments.

Thank you for your consideration,

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