February 26, 2024

SUBMITTED ELECTRONICALLY

Internal Revenue Service
CC:PA:LPD:PR (REG–117631-23)
Room 5203
P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

Re: REG-117631-23 | Notice of Proposed Rulemaking for the Clean Hydrogen Production Credit (Section 45V)

On behalf of Verdagy, I am pleased to submit the enclosed comments to the Department of the Treasury (Treasury) and the Internal Revenue Service (IRS) in response to the Notice of Proposed Rulemaking (NPRM) for the Clean Hydrogen Production Credit, Section 45V (REG–117631-23).

Verdagy welcomes the NPRM, which provides much-needed market certainty and will dramatically accelerate the deployment of gigawatt-scale clean hydrogen projects. The proposed rule establishes common sense guardrails to ensure the 45V credit incentivizes truly green hydrogen production that will contribute meaningful emissions reductions to hard-to-abate industrial sectors such as fertilizers, oil refining, chemicals, steel, maritime, aviation and transport.

The enclosed comments aim to provide additional information on how emerging electrolyzer innovations such as Verdagy's eDynamic® Advanced Alkaline Water Electrolyzer (Advanced AWE) can cost-effectively facilitate the rapid growth of a domestic green hydrogen economy, and promote financeable/bankable, ready-to-deploy solutions today while fully satisfying the "three pillars" of incrementality, deliverability and temporal matching articulated in the proposed rule.

We appreciate the opportunity to respond, and thank you for your time and consideration.

Sincerely,

Marty Neese

Marty Neese (Feb 26, 2024 11:04 PST)

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Background on Verdagy

Verdagy designed its Advanced AWE, eDynamic electrolyzer for real-time response to fluctuations in intermittent renewable energy like solar and wind. The electrolyzer's dynamic operability allows real-time adjustment of operating currents (5% to 100% range) and hydrogen production rates to match the hourly fluctuations in renewable energy availability, optimizing production with intermittent power and helping producers satisfy the proposed hourly matching requirement in the NPRM. Manufactured in the United States using low-cost, widely available materials, Verdagy is commercially deploying today a scalable manufacturing design that puts the company on track to achieve the Department of Energy's goal of $2/kg of levelized cost of clean hydrogen by 2026.

Unlike most electrolyzers available today, Verdagy's product is built from widely available materials that can be sourced domestically. With our recently expanded manufacturing capacity in Newark, California, our company is committed to scaling domestic manufacturing and supply chains to expedite the high-volume production of electrolyzers within the United States.

Hourly Matching Requirement

Per §1.45V–4(d)(3)(ii)(A) of the proposed rule, the electricity represented by an energy attribute certificate (EAC) must be generated in the same hour that the hydrogen facility uses electricity for production. This stipulation, known as hourly matching, is scheduled to go into effect in 2028. While this level of operational flexibility is uncommon in most electrolyzers deployed today, Verdagy's Advanced AWE electrolyzers are highly compatible with intermittent renewables and thus well suited to facilitate compliance with the hourly matching requirement.

Outside of the context of 45V and its hourly matching requirement, these same capabilities enable hydrogen producers using Verdagy's electrolyzers to easily modulate production in response to electricity prices (not just availability) in order to reduce production costs and energy usage. With these capabilities and our low CapEx costs, producers can achieve the lowest levelized cost of hydrogen (LCOH) independent of the 45V credit.

Hourly Matching Transition Rule

Per the transition rule outlined in § 1.45V–4(d)(3)(ii)(B), the hourly matching requirement is scheduled to go into effect on January 1, 2028. While emerging electrolyzer innovations such as our Advanced AWE electrolyzer offer financeable, ready-to-deploy technology solutions to this requirement, the Treasury and IRS note that, "hourly tracking systems for EACs [energy attribute certificates] are not yet broadly available across the country and will take some time to develop." This same concern has been repeatedly expressed to us from numerous stakeholders in the clean hydrogen ecosystem. Based on these observations, a short-term extension of the proposed

transition rule's effective date to 2030 could be useful to ensure that project developers have sufficient time to ensure the necessary EAC tracking infrastructure is in place while not completely abandoning the commonsense guardrails instituted through this proposed rule. This increased certainty is critical to facilitate the financing required to ensure green hydrogen production targets can be achieved.

Deliverability Requirement

Per §1.45V–4(d)(3)(iii) of the proposed rule, the deliverability pillar requires "…the electricity represented by the EAC is generated by a facility that is in the same region as the hydrogen production facility," where "regions" are derived from the DOE's 2023 National Transmission Needs Study. The location of an electricity generation facility and of a hydrogen production facility will be based on the balancing authority to which they are electrically interconnected (not their geographic location), with each balancing authority generally linked to a single region.

Critically, the Treasury and IRS acknowledge that there may be additional ways to establish deliverability if, for example, electricity is physically delivered from an electricity generation facility in one region to a hydrogen production facility in another. Verdagy foresees edge cases where two facilities – based on their respective interconnections – are located on different sides of these regional boundaries and yet directly connected to one another. Therefore, we recommend the Treasury and IRS develop a process or provision whereby taxpayers can demonstrate deliverability in these instances. This sort of provision would preserve the integrity of the deliverability requirement, which seeks to ensure hydrogen production and renewable energy generation are closely integrated, while also providing the flexibility to mitigate unintended negative or arbitrary repercussions from an overly strict approach that does not recognize the reality of cross-border clean power deliverability.