info@ekonapower.com
www.ekonapower.com

February 26, 2024

To: Treasury Department and Internal Revenue Service

Subject: Comments on the 45V Proposed Rules (REG-117631-23)

Summary

Ekona welcomes the opportunity to provide comments on the proposed regulations under Section 45V of the Internal Revenue Code relating to the clean hydrogen Production Tax Credit (PTC). We believe that this PTC is a key incentive to accelerate the deployment of clean hydrogen technologies that can contribute to the decarbonization of the energy sector and the achievement of U.S. climate goals. We appreciate the efforts of the Treasury Department and the Internal Revenue Service to provide clear and comprehensive guidance on the requirements and procedures for claiming the credit, as well as the flexibility and openness to stakeholder input.

We have feedback related to five areas listed below:

1. **GHG allocation of valorized co-products.**
   Allow both solid carbon and hydrogen to be valorized co-products (as produced in methane pyrolysis processes), and allow the hydrogen producer and third-party validator to select the most appropriate GHG allocation method for a given application of the co-products.

2. **Move upstream emissions due to production/distribution of natural gas/methane feedstocks from background to foreground.**
   More accurately reflect reduced upstream emissions achieved according to region.

3. **Expand RNG feedstock choices.**
   Currently, only land-fill gas is recognized as a feedstock – expand to other forms of RNG.

4. **Provide more certainty on the process and turnaround time associated with the Provisional Emissions Rate (PER) petition.**
   More details are required on the process and expected turnaround time of the PER peition. Further, making the petition only after the hydrogen is produced creates uncertainty and risk for investors in the hydrogen production capital – risk could be managed better by having the PER determined earlier in the project planning process.

5. **45VH2-GREET model transparency and industry participation.**
   Provide more transparency and participation in the process of updating the 45VH2-GREET model.

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About Ekona

Ekona Power is a clean hydrogen company in Burnaby, BC. Its novel pulsed methane pyrolysis (PMP) solution converts natural gas into hydrogen and solid carbon, drastically reducing CO2 emissions compared to incumbent technologies. Decarbonization of hydrogen production by Steam Methane and Autothermal Reformers is achieved by capturing and sequestering CO2 gas formed during the reforming process; by contrast, methane pyrolysis takes the carbon out of natural gas as a solid before it has a chance to form CO2 gas, simplifying carbon handling and substantially reducing gas emissions.

Ekona Power was formed in November 2017, largely based on an initial investment from Evok Innovations and their limited partners, Suncor, and Cenovus, who were seeking new technology solutions for clean and affordable hydrogen production. In 2020, Ekona Power built and tested a proof-of-concept reactor to validate its unique combustion-driven methane pyrolysis design. In 2022, Ekona Power completed a Series A financing round, led by Baker Hughes, that brought in numerous strategic investors and provided funding to scale-up the solution for pilot deployment and demonstration. In 2023, Ekona Power built and commissioned a 200 kg/day demonstration system at our Burnaby facilities, achieving and exceeding performance targets. This year, 2024, Ekona Power will commence construction of its first field deployment: a one-tonne-per-day clean hydrogen plant at ARC Resources' Gold Creek Natural Gas Plant in Grande Prairie, Alberta. Commissioning and performance testing will take place in 2025, and operational testing in 2026 will inform scale-up and commercial deployment of the platform in 2027 and beyond.

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Recommendations

1. GHG allocation of valorized co-products

Methane-pyrolysis/splitting technologies produce both hydrogen and solid carbon as co-products. The proposed regulations do not clearly address how these valorized co-products are to be treated, which is important for purposes of allocating GHG emissions. The 45VH2-GREET model guidance document and the model itself indicate that only steam, oxygen, and nitrogen may be valorized. We urge the Treasury Department and IRS to expand the concept and definition of valorization in the final regulations, specifically to permit both hydrogen and solid carbon to be treated as valorized when both are sold or used to produce end-products that will be sold.

In addition, we request that hydrogen producers and associated third-party validators be given flexibility to select a GHG emission allocation methodology approved in GREET that is most appropriate for the uses of the valorized co-products.

2. Move upstream emissions due to production/distribution of natural gas/methane feedstocks from background to foreground.

The proposed regulations state that the upstream emissions associated with natural gas feedstocks are background data in the 45VH2-GREET model. This rate of emission may not reflect the actual emissions of regions where the sources of emissions have been better controlled. We suggest that the Treasury Department/IRS allow the use of different emission factors for upstream natural gas if verifiable data is available about the local carbon intensity such as certificates or verified LCA data from companies providing the methane. Allowing natural gas upstream emissions to move from the background to the foreground would encourage the use of cleaner natural gas sources and reward the efforts of reducing emissions associated with natural gas production and distribution.

3. Expand RNG feedstock choices.

The 45VH2-GREET model limits methane feedstocks to natural gas and one source of renewable natural gas (RNG), namely landfill gas. We request an expansion of the regulations to ensure additional sources of RNG outside of landfill derived RNG are fully eligible, making accommodation for the specific emissions associated with a reasonable representation of the various types of RNG.

4. Provide more certainty on the process and turnaround time associated with the PER petition.

The current 45V regulations allow a hydrogen producer using a hydrogen production method not supported by the current 45VH2-GREET model to make a Provisional Emissions Rate (PER) petition along with their income tax return in the year in which the hydrogen is produced. This petition is submitted to the DOE for review, from which an emissions rate and associated tax credit rate is determined.

Waiting until after the hydrogen is produced to make a determination of 45V eligibility introduces great financial uncertainty, and makes it difficult for investors to reach the Final Investment Decision (FID) when planning for the deployment of new clean hydrogen production assets. We request that this process be allowed to occur earlier in the deployment cycle – once emissions can be verified by a third-party from assets already deployed – and that the PER be permitted to be valid for 5-10 years so that a PER petition does not have to be made for each new construction that uses the same technology from the same vendor.

Further, upon making a PER petition, we look for guidance from the Treasury Department/IRS on a reasonable turnaround time for the DOE to reach a determination of the PER.

5. 45VH2-GREET model transparency and industry participation.

The proposed regulations state that the 45VH2-GREET model will be updated annually by Argonne National Laboratory, and that the Treasury Department will publish the updated model and guidance document on its website. We appreciate the efforts to keep the model up to date and relevant, but we are concerned about the potential impacts of these updates on the eligibility and amount of tax credits for hydrogen producers.

We request that the Treasury Department provide more transparency and participation in the process of updating the 45VH2-GREET model, such as disclosing the formulas and assumptions used in the model, soliciting feedback and input from industry and stakeholders, and giving advance notice of the changes and their implications.

Further, 45VH2-GREET model results for a given facility at the time of claiming the tax credit should remain in effect for the duration of a project to avoid the financial risk associated with changing an assumption in a model parameter that impacts 45V eligibility.

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We thank the Treasury Department and the IRS for their consideration of our comments. We look forward to working with you to ensure the successful implementation of the 45V tax credit regulations and associated rules, and the advancement of the low-carbon hydrogen industry in the U.S.