

To: Treasury Department and Internal Revenue Service

Subject: Comments on the 45V Proposed Rules

Date: February 23<sup>rd</sup> 2024

Hycamite is a cutting-edge clean hydrogen production company at the forefront of sustainable energy solutions. We aim to revolutionize the global hydrogen industry by developing innovative processes that minimize greenhouse gas emissions and promote a cleaner, greener future.

We welcome the opportunity to provide comments on the proposed regulations under Code Section 45V relating to the clean hydrogen production credit. We believe that this credit is a key incentive to accelerate the deployment of clean hydrogen technologies that can contribute to the decarbonisation of the energy sector and the achievement of the climate goals of the United States. 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.

However, we have some concerns regarding the proposed regulations, which we outline below:

- **Add new pathways for methane pyrolysis/methane splitting technologies:** The 45VH2-GREET model does not yet have pathways for a key emerging category of hydrogen production technologies that split methane into clean hydrogen and solid carbon including electric, non-electric and thermal technologies. We request that new pathways be added by Argonne National Laboratory as soon as possible, with industry input and collaboration.

- **Include valorization of solid carbon and allow flexible emissions accounting:** Methane-splitting technologies produce both hydrogen and solid carbon. This solid carbon is a commercial product. The proposed regulations do not clearly address how this carbon will be treated as valorized, which is important for purposes of allocating the 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 to include the concept and definition of valorization in the final regulations, and to permit solid carbon to be treated as valorized when the carbon is sold or used to produce an end product that will be sold. In addition, we request flexible emissions accounting methods that allow taxpayers to optimize for different production facilities.

- **Include different emission factors for upstream natural gas/methane feedstocks:** The proposed regulations state that the upstream loss rates of natural gas feedstocks are background data in the 45VH2-GREET model. This rate may not reflect the actual emissions of different sources of natural gas, especially those that have lower methane leakage. We suggest that the Treasury Department allow the use of different emission factors for upstream natural gas, especially if verifiable data is available about the local carbon intensity such as certificates or verified LCA data from companies providing the methane. Thus, upstream methane loss rates should be foreground data. This would encourage the use of cleaner natural gas sources and reward the efforts of reducing methane emissions.

- **Addition of and flexible access to methane fuel pathways including RSG, RNG, biogas & biomethane:** The 45VH2-GREET model limits methane feedstocks to natural gas and one source of renewable natural gas (RNG), i.e., landfill gas. We request the Treasury Department to include all sources of RNG production in the 45VH2-GREET model and to further provide clarification on the terms RNG, responsibly sourced natural gas, biogas, biomethane and

fugitive sources of methane. In addition, we request flexible access to low-GHG methane sources in an effort to both reduce costs and carbon intensity of clean hydrogen.

- **Optionality between PER or 45VH2-GREET:** The proposed regulations state that the emissions rate for hydrogen production must be determined using the 45VH2-GREET model. Where a hydrogen production pathway is not included in the 45VH2-GREET model, the hydrogen producer would have to obtain a Provisional Emissions Rate (PER). We believe that there should be optionality between using the PER or the GREET model. This would provide more flexibility and certainty for hydrogen producers.

- **Transparency and participation in the 45VH2-GREET model:** 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 the industry and stakeholders, and giving advance notice of the changes and their implications.

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 program and the advancement of the low-carbon hydrogen industry.

Sincerely,

Hycamite TCD Technologies Ltd