February 23, 2024

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: Section 45V Credit for Production of Clean Hydrogen,

eFuel Alliance's IRC section 45V Comments

The eFuel Alliance is a stakeholder initiative committed to promoting the political and social acceptance of eFuels and to securing their regulatory approval. We represent more than 170 companies and associations along the value chain of eFuel production. We stand for fair competition and a level-playing field for all relevant emission reduction solutions. We are clearly committed to more climate protection and aim to win broader recognition of the significant contribution eFuels can make in the drive for sustainability and climate protection. Our goal is to facilitate the global industrial production and widespread use of carbon neutral fuels made from renewable energy sources.

I. Background

a. The latest IPCC report (Working Group 3, Mitigation of Climate Change) underlines the role of CCU fuels in reducing emissions: "CO2-based fuels and feedstocks such as synthetic methane, methanol, diesel, jet fuel and other hydrocarbons from CCU represent drop-in solutions with limited new infrastructure needs". The scientific literature considers that "the estimated potential for the scale-up of CO2 utilization in e-fuels varies from 1 to 4.2 Gt CO2yr−1"[1].

b. A safe investment environment and sufficient planning certainty are required for the rapid scale-up of renewable fuels of non-biological origin, hydrogen derivatives such as synthetic fuels, and underlying technologies such as Carbon Capture and Utilisation (CCU). This is crucial to reduce the use of unabated fossil based energy carriers and transition the energy system.

c. Overly restrictive requirements as well as the absence of clear guarantees on the availability of renewable electricity and relevant dedicated infrastructure curtail investments in production capacity and imposing undue administrative burdens.

d. IRA tax credits are highly welcome as they provide a much needed boost to accelerate the uptake of clean energy technologies. The US can become a frontrunner in scaling technologies that fight climate change such as hydrogen derivatives – so-called eFuels.

e. US rules to a large extent mirror the European Union rules under the Renewable Energy Directive. However, the Draft rules are even stricter than the already difficult to implement EU rules. We will outline below how at least alignment with EU rules can be achieved or in the best case a more pragmatic ruleset for green hydrogen production can be implemented

[1] Hepburn et al., 2019, Farfan et al., 2019, Ram et al., 2020

to accelerate market ramp-up. In addition, as hydrogen and hydrogen-based products will become a globally traded commodity, it would be beneficial to ensure similar certification processes.

II. Issues and solutions proposed by the eFuel Alliance

a. "Proposed § 1.45V–4(d)(3)(i)(A) would provide that an EAC meets the incrementality requirement if the electricity generating facility that produced the unit of electricity to which the EAC relates has a COD (as defined in proposed § 1.45V–4(d)(2)(i)) that is no more than 36 months before the hydrogen production facility for which the EAC is retired was placed in service."

   i. Incrementality matches the European Additionality rule. However, the EU does not implement this rule before 2028. Afterwards the same 36 months between installation of renewable energy are applicable. In addition, the EU includes a grandfathering rule for operators with production starting before 2028 until 2038. This helps first movers and should be included in the US rules as well.

   ii. We generally recommend extending the transitional period and grandfathering to at least 2030. Given the time demanding procedures to install new renewable electricity generation installations the incrementality requirement risks limiting project realization. In addition, a longer period than the proposed 36 months would consider such uncertainties and lead to more realized hydrogen projects.

b. "Proposed § 1.45V–4(d)(3)(ii)(A) would provide the general rule that an EAC satisfies the temporal matching requirement if the electricity represented by the EAC is generated in the same hour that the taxpayer's hydrogen production facility uses electricity to produce hydrogen. Proposed § 1.45V–4(d)(3)(ii)(B) would provide a transition rule to allow an EAC that represents electricity generated before January 1, 2028 to fall within the general rule provided in proposed § 1.45V–4(d)(3)(ii)(A) if the electricity represented by the EAC is generated in the same calendar year that the taxpayer's hydrogen production facility uses electricity to produce hydrogen."

   i. Most industrial production processes require continuous energy input that do not mirror variable renewable energy sources. Moreover, many industrial sectors lack the extensive storage options needed to offset the risks of an intermittent energy supply and implement an hourly correlation. An hourly correlation would thus lead to significant inefficiencies that hinder the expansion of a hydrogen market. This study[2] finds that hourly correlation would increase the cost of green hydrogen by 27.5%, compared to annual correlation. In addition there is little evidence for increasing power sector emissions if yearly correlation is maintained.

   ii. The EU uses temporal correlation as criteria in a similar manner. However, until 2030, the EU rules allow for monthly correlation, with hourly correlation being mandated from 2030. Moving the starting date to 2030 to match the European rules would be beneficial to streamline certification processes. In addition, the EU will review the introduction of hourly correlation in 2028.

   iii. In terms of practicability, maintaining monthly correlations in the long term would be beneficial for operators. Switching to hourly correlations should be thoroughly

[2] Ruhnau, O., & Schiele, J. (2023). Flexible green hydrogen: The effect of relaxing simultaneity requirements for project design, economics, and power sector emissions. *Energy Policy*, *182*, 113763.

assessed at a later stage considering the availability of renewable electricity, storage capacity and adequate technical possibilities to comply with the target.

iv. To incentivize first movers a grandfathering of installations coming into operation before 2030 would be beneficial.

c. "Proposed § 1.45V–4(d)(3)(iii) would provide that an EAC meets the deliverability requirements if the electricity represented by the EAC is generated by a source that is in the same region (as defined in proposed § 1.45V–4(d)(2)(vi)) as the relevant hydrogen production facility."

i. To prevent installations that are in neighboring regions to be excluded the definition should be widened and include "adjacent region".

d. Other:

i. Revise the definition of the "most recent GREET model" to the GREET model publicly available at the earlier of project financing or FID. This ensures long term planning security, legal clarity and prevents changing model assumptions to affect project financing. Planning security is not ensured if the model assumptions change afterwards.

ii. We recommend reviewing the criteria regularly in terms of their practicability and desired effectiveness.

III. Conclusion

- We believe that the US with its IRA is able to activate investments and play a mayor role in creating a hydrogen market. However, we believe that some improvements are needed. Workable criteria lead to less cost and faster scaling of this industry. We kindly ask to consider above mentioned arguments and adjust the proposed rules. A less stringent approach might be more appropriate to facilitate the initial growth of a global hydrogen market.

- In addition, we believe that harmonization of rules is of great importance to facilitate transatlantic trade which also contributes to the Declaration of Intent published at COP28. This also opens significant business opportunities for US companies in Europe. Differences in regulations make it more difficult to export eFuels and hydrogen from the US to the EU. The importance of fostering global trade is shown by this study[3] that finds that global trade will reduce the levelized cost by up to 30 % compared to a self-supply scenario.

[3] Ram, Manish, et al. "Powerfuels in a renewable energy world. Global volumes, costs, and trading 2030 to 2050." (2020).