February 26, 2024

Submitted via-regulations.gov

Office of the Associate Chief Counsel (Passthroughs and Special Industries)
CC:PA:LPD:PR (REG–117631–23)
Room 5203
Internal Revenue Service
P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

RE: Comments with respect to proposed regulations implementing Section 45V as amended by the Inflation Reduction Act of 2022 (IRS REG-117631-23)

Dear Sir or Madam:

OCOchem Inc. ("OCOchem") respectfully submits comments to the U.S. Department of the Treasury ("Treasury") regarding the proposed regulations under Code[1] Section 45V (the "PTC") published on December 26, 2023 at 88 Fed. Reg. 89220 (generally, the "Proposed Regulations"). The Proposed Regulations interpret certain provisions of the Code, as amended by Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 ("IRA").[2]

OCOchem urges Treasury to clarify which taxpayer can claim the PTC. Specifically, OCOchem requests Treasury to make clear that the first producer of qualified clean hydrogen is the only taxpayer that may claim the PTC. This can be done by stating that qualified clean hydrogen does not include hydrogen where the feedstock is a substance intended to be a hydrogen carrier. Further, Treasury should clarify that both hydrogen in its single atom form (H) and in its diatomic molecular form (H_2) is qualified clen hydrogen.

The IRA is the United States Congress's greatest commitment to addressing climate change.[3] Most of these commitments come from the IRA's tax title, which enhances and expands previously enacted provisions and provides new incentives for clean and renewable energy production.[4] The credit for production of clean hydrogen under Code Section 45V was established to incentivize the United States energy transition to a renewable fuel source. We respectfully request that Treasury and the IRS promptly revisit the Proposed Regulations to clarify which taxpayer may claim the PTC.

1. Background

a. OCOchem Inc.

[1] All references to the "Code" herein are to the Internal Revenue Code of 1986, as amended and restated, including by IRA.
[2] Inflation Reduction Act of 2022 (IRA), H.R. 5376, 117th Cong. (2022).
[3] *Id.*
[4] *Id.* § 13101–13903.

OCOchem was founded in 2017 in the Pacific Northwest and operates its principal research and development laboratories in Richland, Washington. OCOchem is developing and scaling patented and proprietary technology that electrochemically uses carbon dioxide to store energy in the chemical bonds of formates and formic acid. Specifically, OCOchem's technology transforms captured carbon dioxide, water, and zero-carbon electricity to produce a platform molecule known as formate in either its salt or acid form. OCOchem does this using an electro-synthesis process, in a proprietary modular stack called a Carbon FluX Electrolyzer. Once made, formate can be stored, moved, and used as a "drop-in" energy-dense platform chemical using existing well-established and new pathways to replace many fossil-based petrochemical feedstocks to make a wide variety of organic chemicals, clean hydrogen, and fuels.

OCOchem uses a 2-step chemical process that creates clean hydrogen and then adds it to CO_2. During the first step, water is split via electrolysis into oxygen (O_2) and Hydrogen (H+) in its atomic single-atom form (H), not its molecular form (H_2). The hydrogen atom is placed in a highly acidic aqueous electrolyte solution, which inhibits it from forming H_2. The hydrogen made from water is then transported and combined with a CO_2 molecule to make a formate molecule HCO_2. Then, in the second step, water is again split to yield 2 H+ atoms and 1 hydroxide molecule (OH-). The hydrogen made from water here is combined with the formate molecule (HCOO) to form formic acid (HCOOH).

In this process, 100% of the hydrogen is made from water using electricity. The form of the hydrogen in each of the two-step processes is atomic hydrogen (H+) in an ion form. The hydrogen produced is then added to a CO_2 molecule in two steps to first make formate (HCO0) and then to make formic acid (HCOOH). The formic acid can then either be used as an industrial or commercial chemical or be used as a hydrogen carrier, where the Hydrogen (H_2) is released from the formic acid molecule to make H_2 and CO_2. When Hydrogen (H2) is released from the formic it is not being made for the first time, the original hydrogen came from water via electrolysis.

2. Treasury should clarify that only the first producer of qualified clean hydrogen may claim the 45V Credit.

There are many technologies that can be used to produce hydrogen. For example, the current 45VH2-GREET ("GREET") model provides eight different technologies to produce hydrogen. Not every pathway to produce hydrogen, however, is included in the GREET model. Specifically, the GREET model does not include the production of hydrogen using OCOchem's 2-step chemical process outlined above. Therefore, if a taxpayer obtains a provision emissions rate ("PER") to produce hydrogen using a feedstock that is a substance intended to be a hydrogen carrier[5] (like OCOchem's formic acid), there will undoubtedly be a conflict as to which taxpayer can claim the PTC.

[5] The Department of Energy defines hydrogen carrier as a "hydrogen-rich liquid or solid phase materials from which hydrogen can be liberated on demand." *See* Tom Autrey & Rajesh Ahluwalia, *Hydrogen Carriers for Bulk Storage and Transport of Hydrogen*, DOE at 5 (Dec. 6, 2018), https://www.energy.gov/sites/default/files/2018/12/f58/fcto-webinarslides-hydrogen-carriers-120618.pdf.

The Proposed Regulations currently do not offer any guidance on which taxpayer may claim the PTC if, for example, one taxpayer is using a hydrogen carrier as a feedstock to produce hydrogen. Therefore, we urge Treasury to clarify that only the first producer of hydrogen—whether the hydrogen is in a single atom or a diatomic molecular form at that time—may claim the PTC, and hydrogen that is produced using hydrogen carrier as a feedstock should not be included in the definition of qualified clean hydrogen.

a. Proposed revision.

Treasury should revise Section 1.45V-1(a) of the Proposed Regulations as follows:

> (9) *Qualified clean hydrogen* —(i) *In general.* The term *qualified clean hydrogen* means hydrogen **(either in its single atom form or its diatomic molecular form)** that is produced through a process that results in a lifecycle GHG emissions rate of not greater than 4 kilograms of CO2e per kilogram of hydrogen. Such term does not include any hydrogen unless the production and sale or use of such hydrogen is verified by an unrelated party in accordance with, and satisfying the requirements of, § 1.45V–5, and such hydrogen is produced—
>
> (A) In the United States (as defined in section 638(1) of the Code) or a United States territory, which, for purposes of section 45V and the regulations in this part under section 45V, has the meaning of the term *possession* provided in section 638(2) of the Code;
>
> (B) In the ordinary course of a trade or business of the taxpayer; ~~and~~
>
> (C) For sale or use; **and**
>
> **(D) Not using a feedstock that is a substance intended to be a hydrogen carrier.**

These changes would clarify that only the first producer of hydrogen would be permitted to claim the PTC. This revision also makes clear that hydrogen in its single atom form (H) and in its diatomic molecular form (H_2) would be classified as qualified clean hydrogen.

3. Conclusion

Providing clear guidance on which party can claim the PTC is pivotal to ensuring Congress's goals are met under the IRA. We urge Treasury to clarify the adopt the measures above as soon as possible.

OCOchem Inc.

_____

Todd Brix

CEO & Co-Founder