December 9, 2022

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Internal Revenue Service,
CC:PA:LPD:PR (Notice 2022-58),
Room 5203,
P.O. Box 7604,
Ben Franklin Station,
Washington, DC 20044

Response to Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production
Notice 2022-58

TC Energy appreciates the opportunity to submit the following comments to the U.S. Department of Treasury (Treasury) and the Internal Revenue Service (IRS), pursuant to Notice 2022-58, regarding the implementation of the new rules related to the production of qualified clean hydrogen under Section 45V of the Internal Revenue Code, as amended by the Inflation Reduction Act of 2022 (IRA).

TC Energy, formerly known as TransCanada Pipelines, is a leader in the energy industry with a historically large network of natural gas pipelines. Founded in 1951, TC Energy has served the energy industry for over seven decades. Using the industry knowledge we have gained over the last 70-years, we are committed to the clean energy transition and lowering our carbon footprint. TC Energy is eager to lead the charge in this transition while not losing sight of our business values. Safety, innovation, and integrity remain at the forefront of our minds as we work towards a zero-emissions standard across all business lines.

Coordination with 45Q:
Section 45V(d)(2) provides that "No credit shall be allowed under this section with respect to any qualified clean hydrogen produced at a facility which includes carbon capture equipment for which a credit is allowed to any taxpayer under section 45Q for the taxable year or any prior taxable year."

Further clarification as to the interpretation of the word "allowed" and the intent of using this language as opposed to "allowable" is required.

Where carbon capture equipment meets the thresholds set forth in Section 45Q for the Credit for Carbon Oxide Sequestration, would a taxpayer be precluded from choosing to take the 45V credit rather than the 45Q credit? Was the intent of the language set out in Section 45V(d)(2) to disallow the 45V credit entirely where the ability to claim a Section 45Q credit is present although not exercised?

In many of the clean hydrogen projects that are being explored, it has been proposed that carbon capture equipment be located at the same facility that produces the clean hydrogen. This carbon capture equipment is necessary to reduce the carbon footprint of producing clean hydrogen and propel more companies towards a zero emissions standard sooner.

If this language is interpreted to disallow a Section 45V credit to any taxpayer who operates a qualified clean hydrogen facility which also employs the use carbon capture equipment, the benefits afforded under Section 45V will be greatly diminished. Clean hydrogen projects forced into the Section 45Q credit may lack economic viability (though viable with Section 45V) and be abandoned in lieu of projects which yield a greater return.

We implore you to consider this as further guidance on Section 45V(d)(2) is published and suggest flexibility be allowed to taxpayers to claim Section 45V for hydrogen projects which include carbon capture equipment, to enable the construction of *more* rather than fewer clean hydrogen facilities. In absence of such flexibility, it is questionable whether the infrastructure required to meet carbon reduction goals will be economical to build, especially in light of industrial and transportation demands that can only be met with scale and the efficient movement of supply to demand. Given the statute was constructed to provide for credits based upon the carbon intensity of the hydrogen produced and not based upon the technology used to produce it, flexibility appears to have been the intent.

Additionally, if a taxpayer qualifies to take both the Section 45V and Section 45Q credits, and chooses to take the Section 45V credit for the 10-year period noted in Section 45V(a)(1), would said taxpayer remain eligible to claim the Section 45Q credit in years 11 and 12? This assumes all other qualifications for the Section 45Q credit continue to be met in years 11 and 12.

Presently, the statute does not appear to specifically address this scenario. Clarification is needed to determine the reasonableness of one qualified facility claiming both credits, albeit, only to the extent there is no overlap in the taxable years in which each credit is claimed.

While long-term contracts are necessary to back the development of these capital-intensive projects, as well as create a market for this commodity, certainty with respect to credit access will be an important part of understanding a project's economics. Again, when in doubt, it seems pivotal to the energy transition that taxpayers are able to maximize their positions, though not double dip.

Definition of Qualified Clean Hydrogen:

(1) Clean Hydrogen. (1) Section 45V provides a definition of the term "qualified clean hydrogen." What, if any, guidance is needed to clarify the definition of qualified clean hydrogen?

Section 45V(c)(2)(B)(i)(III) provides that hydrogen must be produced "for sale or use" in order to qualify as clean hydrogen.

Further clarification may be needed to address the question as to *when* a taxpayer who produces qualified clean hydrogen for sale or use, that is then stored for a period of time, would be eligible to claim a Section 45V credit. Additional guidance is needed for taxpayers to understand whether credits may be claimed in the year of production or in the year in which such hydrogen is sold or used.

The current rules should be interpreted to allow claiming the Section 45V credit in the year of production as it provides that the clean hydrogen needs to be produced "for sale or use" and does not seem to require that it would actually be sold or used prior to claiming the credit.

Since clean hydrogen does not receive a renewable identification number (RIN) credit, we believe the term for "sale or use" is satisfactory to claim the Section 45V credit in the year of production and the requirement for third party verification should only be interpreted to verify that the producer has evidence of efforts to sell or store for future sale.

Claiming the Section 45V credit in the year of production would better incentivize consistent and reliable production of clean hydrogen. This is largely important due to realistic fluctuations in the timing of demand. It is anticipated that many customers may operate in an environment where their needs may fluctuate, "peaking" and declining over periods of time due to changes in conditions. To incentivize consistent and continued hydrogen production, the Section 45V credit should be claimed at the time of production. Taxpayers would otherwise be less likely to continue production during low demand cycles where credits may not be readily available to be claimed until the time of sale/use. Supporting the steady production of hydrogen during low demand times will help to ensure a secure supply of this clean energy in the event of unexpected demand. Without ready access to clean hydrogen, the energy transition may lack the reliability that fossil fuels provide today and that battery storage and traditional wind and solar renewables may not be able to provide at scale alone.

Section 45V Interplay with certain Renewable Energy Credits (RECs), Power Purchase Agreements (PPAs), Virtual Power Purchase Agreements (vPPAs) and Other Market Incentives:

> (4) Recordkeeping and Reporting (f): Should indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions (also known as a book and claim system), including, but not limited to, renewable energy credits, power purchase agreements, renewable thermal credits, or biogas credits be considered when calculating the §45V credit?

Section 45V does not include any reference to RECs, PPAs, vPPAs, or other market incentives and does not specify how these interact with the Section 45V credit and the determination of the "lifecycle greenhouse gas emissions".

In determining ''lifecycle greenhouse gas emissions,'' it was Congress' intent that indirect book accounting factors, also known as a book and claim system, that reduce effective greenhouse gas emissions, which includes, but is not limited to, renewable energy credits, renewable thermal credits, renewable identification numbers, or biogas credits, etc. be recognized and incorporated.[1]

As RECs, PPAs and vPPAs are a vital part of the renewable energy market and contribute to decarbonization efforts, we are requesting further guidance that supports the use of RECs, PPAs, and vPPAs in the determination of the relevant "greenhouse gas emissions" for purposes of Section 45V. The renewable electricity market has grown dramatically with the use of vPPAs whereby commercial and industrial customers can secure fixed prices for renewable energy and access project RECs. By transacting financially, customers are able to support renewable project development which ultimately lowers the carbon intensity of the electrical grid. Without the use of RECs, PPAs, and vPPAs, etc. (and acknowledgement of variable resources and limited technologies scalable for certain sectors), the location of hydrogen facilities may be limited, stalling full development of the infrastructure necessary to support a transition to cleaner, affordable fuels for all.

Assuming RECs may be used to lower carbon intensity levels for purposes of Section 45V, further guidance is required to establish which RECs may qualify (e.g., will the hydrogen facility location dictate whether the RECs are generated in a specific ISO/RTO[2], market hub, or state). In addition, will RECs

[1] *Congressional Record, Volume 168 Issue 133 dated Saturday, August 6, 2022*. Page S4166 demonstrates Senator Wyden's support that indirect book accounting factors are intended to be recognized as an effective means to reduce greenhouse gas emissions.

[2] Independent System Operator (ISO) / Regional Transmission Organization (RTO): Organizations formed by the Federal Energy Regulatory Commission (FERC) using Orders Nos. 888/889 and Order No. 2000. These

(such as those related to a particular state or ISO/RTO) be required or will national voluntary REC markets represent the renewable energy markets' role as a hydrogen feedstock that reduces greenhouse gases? In all cases, RECs are systematically retired to prevent double counting. Though different approaches could be taken, requiring RECs to be generated in the specific ISO/RTO in which the hydrogen facility is located would seem most logical in order to help efficiently arrange and stabilize grid demands, as well as prevent market manipulation.

Well-to-Gate and Emissions Provisions:

Section 45V defines "lifecycle greenhouse gas emissions" to "only include emissions through the point of production (well-to-gate)." While clear boundaries must be established around the well-to-gate system for clean hydrogen production, various resources and methods for producing clean hydrogen and for reducing the overall greenhouse gas emissions must be considered in establishing those boundaries, with a view towards adequate supply.

In particular, blending of renewable natural gas (RNG) from dairy farms, waste-water treatment plants, landfills, etc. with natural gas and certified natural gas should be included in the GREET model for methane feedstocks for hydrogen production via methane pyrolysis or steam methane reforming.

The use of steam methane reforming (SMR) and/or auto thermal reforming will play an important role in contributing to a more stable and consistent energy market. Where wind and solar energy is subject to environmental interruptions and may be intermittently unavailable, SMR does not have the same external limitations. As a result, use of SMR technology paired with other carbon reducing alternatives may result in the development of additional clean hydrogen facilities, providing more access to reliable energy alternatives.

Assuming RNG/biogas may be used to lower lifecycle greenhouse gas emissions, further guidance is needed to clarify what happens to the RINs produced with the RNG when RNG feedstock is used to produce hydrogen (e.g., will the RINs be retired or separated upon use).

Moreover, where carbon capture equipment is used to lower the carbon intensity of the production of clean hydrogen, further guidance is needed to clarify that the effect of the post-capture carbon oxide utilization should be taken into account in determining the overall carbon intensity of a qualified hydrogen facility.

As mentioned, carbon capture equipment is expected to be included at many qualified hydrogen facilities. Assuming this carbon capture equipment can be used to lower the overall carbon intensity, would this carbon oxide be required to be captured and stored or would use of the carbon oxide be considered in reducing the carbon intensity of the qualified hydrogen facility? Where feasible, taxpayers may look to utilize some amount of the carbon oxide which is captured from the production of hydrogen. Clarification is needed as to confirm that this captured carbon oxide may be used as an input for a separate process.

Section 45V(e)(2): Beginning of Construction

Section 45V(e)(2) provides that a qualified facility may be eligible for an increased Section 45V credit if construction of a qualified facility begins prior to the date that is 60 days following the Secretary's publication with respect to the Prevailing Wage and Apprenticeship requirements.

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organizations were formed to satisfy the requirement of providing non-discriminatory access to transmission as well as to administer the transmission grid on a regional basis throughout North America. RTOs and ISOs | Federal Energy Regulatory Commission (ferc.gov).

Further guidance as it relates to the definition of the "beginning of construction" with respect to qualified clean hydrogen facilities is needed. Notice 2013-29 and its progeny (including Notices 2018-59 and 2020-12) provide guidance on the two methods taxpayers may use to establish beginning of construction as well as examples of what types of activities constitute beginning of construction for certain energy property. These Notices also summarize the continuity requirements and look-through rule that may apply. In turn Notice 2022-61 has confirmed that similar standards will be applicable to the development of qualified clean hydrogen facilities. However, additional guidance and where feasible, specific examples of what would constitute beginning of construction for qualified clean hydrogen facilities are needed.

With respect to examples, we would suggest looking to Notice 2020-12 in framing guidance around the 5% safe harbor to account for front-end planning (e.g., the Front-End Loading (FEL) approach and Front-End Engineering & Design (FEED)) study spend in considering whether beginning of construction has been met for qualified clean hydrogen facilities, given the capital-intensive nature of these projects and the complex engineering required to construct a qualified clean hydrogen facility.

Further, consideration should be given as to how a facility should be defined for purposes of hydrogen, especially as it relates to shared facilities, separate hydrogen trains, hydrogen storage, and processes required to prepare hydrogen for transport (e.g., liquefaction or blending). Given that hydrogen hubs may be built out in separate trains, development of property or project aggregation/segregation concepts similar to those applied under Notice 2013-29 may allow greater flexibility with respect to such facilities.

We thank you for the opportunity to provide comments regarding implementation of the IRA's clean hydrogen tax credit provisions under Section 45V and believe that clarification of the provisions discussed above will improve the ability of taxpayers to use these tax credits and to further ensure that more clean hydrogen facilities and related infrastructure are built.

Sincerely,

Omar Khayum

Omar Khayum
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