

Clean Hydrogen Regulations Finalized

January 9, 2025

On January 3, 2025 the U.S. Department of Treasury and the Internal Revenue Service (“IRS”) issued final regulations under section 45V of the Internal Revenue Code of 1986 (the “Code”) updating the proposed regulations published in December 2023. The final regulations follow the approach laid out in the proposed regulations, with several exceptions to provide clarity and respond to taxpayer comments.

Background

The Inflation Reduction Act of 2022 introduced section 45V of the Code, which provides a production tax credit (the “Hydrogen PTC”) for clean hydrogen produced and sold in the United States or a U.S. possession at a qualifying facility, construction of which begins before 2033. The Hydrogen PTC is available for 10 years after the applicable facility is placed in service. Available credits range from 12 cents to \$3 per kilogram of clean hydrogen produced depending on the lifecycle greenhouse gas (“GHG”) emissions rate of the production process (the lower the lifecycle greenhouse gas emissions rate involved in producing the hydrogen, the higher the rate of the credit) and whether prevailing wage and apprenticeship requirements are met. The Hydrogen PTC may not be claimed for a facility for which the carbon capture credit under section 45Q or the section 48 investment tax credit is taken.

If you have any questions concerning this memorandum, please reach out to your regular firm contact or the following authors

NEW YORK

Jason Factor
+1 212 225 2694
jfactor@cgsh.com

David Maranjian
+1 212 225 2722
dmaranjian@cgsh.com

Adrianna Duggan
+1 212 225 2145
aduggan@cgsh.com

SAN FRANCISCO

Maureen Linch
+1 415 796 4420
mlinch@cgsh.com



Final Regulations

Energy Attribute Certificates and the Three Pillars

Because the amount of the credit depends on the greenhouse gases emitted in the hydrogen production process, the regulations include rules for measuring the emissions from electricity used in producing clean hydrogen. The proposed regulations allowed taxpayers to use energy attribute certificates (“EACs”) to demonstrate the emissions impact of electricity used in the hydrogen production process, provided they met three “pillar” requirements:

- **Incrementality:** The electricity source must have commenced operations relatively recently, to demonstrate that the electricity source was put in place in response to the increased demand for this type of project.
- **Temporality:** The electricity must have been generated in the same hour that it is used, to encourage efficiencies in the system and minimize indirect emissions.
- **Deliverability:** Also known as “geographic matching,” the electricity must have been sourced from a power producer in the same geographic region as the hydrogen production, to demonstrate that it was actually deliverable to the project.

In response to claims that the three pillars were unduly restrictive and confusing, Treasury and the IRS softened and clarified the three pillar requirements in the final regulations:

— Incrementality

- Consistent with the proposed regulations, the final regulations provide that an electricity source can satisfy the incrementality requirement if it has a commercial operations date no more than 36 months before the hydrogen production facility is placed in service. But the final regulations allow electricity from a generator that has added carbon capture and sequestration technology within the 36-month window to meet the

incrementality requirement (*i.e.*, the entire source need not be new).

- In addition, under the final regulations, electricity can meet the instrumentality requirement if it is generated in certain states with certain GHG emissions caps and certain clean electricity standards or renewable portfolio standards.
- The final regulations also allow certain nuclear power sources (capped at 200 megawatt-hours per operating hour per reactor) to meet the incrementality requirement.

— Temporality

- Under the proposed regulations, the rule that EACs must match the electricity used to produce hydrogen with clean power generated was required annually (rather than hourly) until 2028, to provide time for the required technology to be built before the rules took full effect.
- The final regulations extend the transition period by two years, with hourly matching now required only on or after January 1, 2030.

— Deliverability

- The final regulations clarify that whether the electricity generating source and the hydrogen production facility are located in the same region is determined by the balancing authority to which each is electrically interconnected, not the geographic location.
- The final regulations also provide additional rules for demonstrating that deliverability is satisfied in the case of interregional delivery of electricity (cross-region transfers).

The IRS rejected a number of taxpayer comments with respect to the three pillars, including requests for:

- an alternative standard based on certain European Union rules;
- exemptions based on specific technologies, or “behind-the-meter” facilities in which a

hydrogen production facility uses electricity to produce hydrogen and that electricity generating facility is directly connected with the hydrogen production facility;

- an exemption for a hydrogen production facility using electricity generated by a facility that qualifies for either the section 45Y credit or the section 48E credit; and
- grandfathering rules with respect to the EAC requirements for hydrogen production facilities with a beginning-of-construction date, placed in service date, or commercial operations date before a certain point.

In rejecting the above requests, the preamble notes that exemptions or delays would lead to increased GHG emissions, and would delay the implementation of the entire regulatory framework.

Changes to Definition of “Facility”

In response to comments from taxpayers seeking clarity on the scope of the term “facility” for purposes of section 45V, the final regulations provide that a facility:

- includes carbon capture equipment that contributes to the lifecycle GHG emissions rate of the process by which the qualified clean hydrogen is produced; but
- does not include feedstock-related equipment such as production, purification, recovery, transportation, or transmission equipment; and
- does not include electricity production equipment used to power the hydrogen production process such as carbon capture equipment that does not also function interdependently with other components to produce qualified clean hydrogen.

Clarification of Lifecycle GHG Emissions Scope

The final regulations clarify that lifecycle GHG emissions include emissions only through the point of production (known as “Well-to-Gate”):

- If the taxpayer knows or has reason to know the purification of a hydrogen gas stream (that is, removal of a mixed gas or impurity) is necessary for a hydrogen gas stream to be productively used, or to be sold for productive use, any lifecycle GHG emissions relating to such purification are treated as emissions through the point of production.
- If the taxpayer knows or has reason to know that a hydrogen gas stream contains less than 99 percent hydrogen and will be combusted without purification, any lifecycle GHG emissions relating to the purification needed to purify the hydrogen gas stream to contain 99 percent hydrogen are treated as emissions through the point of production facility.
- Emissions from liquefaction, storage, and transportation of hydrogen are outside of the Well-to-Gate boundary.

Clarification of Anti-Abuse Rules

The final regulations clarify the scope of the anti-abuse rules that disallow the Hydrogen PTC where the primary purpose of the sale or use is to obtain the benefit of the Hydrogen PTC in a wasteful manner.

- The final regulations provide that venting or flaring in excess of standard commercial practices is wasteful but that venting or flaring for safety or maintenance reasons in the ordinary course of business is a non-abusive commercial industry practice. The regulations also clarify that venting or flaring for safety or maintenance is not a verifiable use and therefore ineligible for the section 45V credit.
- Relatedly, the final regulations clarify the definition of productive use. To be productive, use must generate positive economic value without considering the availability of the Hydrogen PTC.
- The preamble also notes that the anti-abuse rule is not meant to apply to the use of hydrogen to store energy for later conversion to electricity and sale to a regional electricity grid when a

buyer from the grid uses such electricity to produce hydrogen.

Emissions Rate Models: Changes to Provisional Rate Application Process and Elections

Recognizing that technologies evolve, the proposed regulations allowed taxpayers to file a petition with the IRS for a provisional emissions rate (“PER”) to determine the lifecycle GHG emissions rate of hydrogen produced in cases where no 45VH2-GREET Model to determine the lifecycle GHG emissions rate was available for such pathway. The final regulations maintain this rule with some modifications:

- The final regulations update the requirements for a PER petition, the reapplication process, and the effect of a PER determination.
- To provide investment certainty, the final regulations allow a taxpayer to make an irrevocable election, in selecting a GREET model, to treat the latest version of 45VH2-GREET publicly available on the date when construction of the qualified clean hydrogen facility began as the 45VH2-GREET Model. If construction began prior to December 26, 2023, the taxpayer can make an irrevocable election to use the December 2023 GREET model.

Natural Gas Alternatives and Lifecycle GHG Emissions Rate Measurements

The regulations address the use of natural gas alternatives in hydrogen production and the assessment of lifecycle GHG emissions with respect to natural gas alternatives, such as methane derived from biogas, renewable natural gas (“RNG”) derived from biogas, and fugitive sources of methane. The final rules for measuring lifecycle GHG emissions for each methane source are more detailed and slightly more taxpayer friendly:

- The proposed regulations contained a “first productive use” requirement in which a natural gas alternative used during the hydrogen production process must have originated from the first productive use of the relevant methane

to receive an emissions value consistent with the alternative gas, rather than fossil natural gas. In response to comments questioning the practicability of and rationale for this requirement, the final regulations do not include this rule.

- The final regulations include rules similar to those described above for EAC eligibility with respect to electricity, for gas EACs, RNG, and coal mine methane. Unlike the rules discussed above, these EAC rules require geographic matching within the pipeline network in a region to satisfy the deliverability requirement, and monthly matching to satisfy the temporality requirement.
- Further, the preamble notes that an electronic book-and-claim system may eventually be used to determine compliance with the EAC requirements if the Secretary makes a determination that the systems meet the requirements specified in the final regulations. This will occur no earlier than January 1, 2027.

Other Changes

Other changes made in the final regulations include:

- updated rules regarding modified, retrofitted, or restarted facilities, including definitional changes and rules for determining the placed in service date of an existing facility modified or retrofitted to produce qualified clean hydrogen; and
- removal of references to sections 6417 and 6418.

...

CLEARY GOTTLIEB