

Alert | Energy & Natural Resources



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Treasury Issues Final Guidance on Clean Hydrogen Production Tax Credit

Go-To Guide

- Treasury finalizes clean hydrogen tax credit rules, clarifying Carbon Intensity calculations.
- New regulations address additionality, hourly matching, and deliverability for zero-carbon electricity.
- Annual matching allowed until 2030, with hourly matching required thereafter.
- Renewable Natural Gas treated similarly to electricity, with monthly matching and single-region deliverability.
- Potential impacts of new administration and Congress on 45V regulations remain uncertain.

The U.S. Treasury Department has issued final regulations for clean hydrogen production tax credits, which may significantly impact the renewable energy sector. These regulations implement the Section 45V clean hydrogen tax credit. Critical to developers of hydrogen production projects, they determine the requirements to qualify for the Section 45V credit and resolve disagreements over how to calculate the Carbon Intensity (CI), or life cycle greenhouse gas emissions, for clean hydrogen production projects.

The CI is a key factor in determining whether hydrogen produced by a clean hydrogen project qualifies for a 45V credit, as well as the amount of that credit. The regulations also cover other important aspects, such as:

- the petitioning process for provisional emissions rates,
- rules for verifying clean hydrogen production, sale, or use,
- rules for modifying or retrofitting existing qualified clean hydrogen production facilities,
- rules for using electricity from certain renewable or zero-emissions sources to produce qualified clean hydrogen, and
- options for treating part of a clean hydrogen production facility as energy property eligible for the Section 48 energy credit.

I. How the Carbon Intensity that Dictates Section 45V Credit Value is Determined

Under the final regulations, the CI of hydrogen will be determined based on life cycle emissions through the point of production, known as “well-to-gate.” This determination will use the most recent Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model developed by Argonne National Laboratory. The well-to-gate system boundary includes several types of emissions. It covers emissions associated with feedstock growth, gathering, extraction, processing, and delivery to a hydrogen production facility. It also includes all emissions resulting from the facility’s hydrogen production process. This encompasses the production of mixed gas or impurities, electricity used by the hydrogen production facility, and any capture and sequestration of carbon dioxide generated by the facility. Emissions from activities that occur after the facility’s hydrogen production process is complete, such as liquefaction, storage, or transport, are generally beyond the well-to-gate system boundary. However, there is an exception: emissions from certain purification activities that occur downstream of the facility’s qualified clean hydrogen production process are considered within the well-to-gate system boundary.

II. Treasury Resolves Issues Over ‘The Three Pillars’

In the case of clean hydrogen produced from zero carbon electricity, three issues critical to measuring CI have emerged: (1) *additionality* – whether the electricity must be produced by newly constructed renewable generation facilities; (2) *hourly matching* – whether the electricity must be produced in the same hour, or under a more lenient standard, the same year in which it is consumed to produce hydrogen; and (3) *deliverability* – whether the electricity must be generated in the same region where the hydrogen is produced. The final rules adopt less restrictive standards than initially proposed on many of these issues.

Additionality

The final rules address *additionality* by finding that the newly constructed renewable generation facility’s generation must begin commercial operations within 36 months of the facility being placed into service. However, Treasury also adopted an exception to this general rule that will allow up to 200 MW of nuclear generation capacity at risk of retirement to be considered incremental. In addition, when clean power is sourced from states with stringent emissions caps, such as California and Washington, that ensure continued growth in renewable generation capacity, the electricity will be considered incremental. Finally, electricity produced by a generation facility that has added carbon capture and sequestration within 36 months will be considered incremental.

Hourly Matching

The regulations on Hourly Matching give hydrogen producers more time to adapt. They can use annual matching until 2029, with hourly matching required in 2030. This extends the transition period by two years.

After 2030, when hourly matching is mandatory, any electricity use not covered by a qualifying Energy Attribute Certificate (EAC) will be assessed based on the regional electricity grid's default emissions intensity. The Section 45V credit amount varies based on the produced hydrogen's CI. To qualify, hydrogen must have an annual average CI below 4 kilograms of CO₂ per kilogram of hydrogen. The credit value increases as CI decreases: \$0.60 for CI between 2.5 and 4.0, \$0.75 for CI between 1.5 and 2.5, \$1.00 for CI between 0.45 and 1.5, and \$3.00 for CI below 0.45.

The final rules allow taxpayers to optimize their credit value. If the annual average CI is below 4.0 for all hydrogen produced in a calendar year, they can choose to calculate emissions from electricity use on an hourly basis to potentially increase their 45V credit.

Deliverability

The final regulations largely adopt the proposed rules for EACs and deliverability. An EAC meets the deliverability requirement if the associated electricity is generated by a facility in the same grid region as the hydrogen production facility. The National Transmission Needs Study (DOE Needs Study), which the DOE released on Oct. 30, 2023, defines these regions. Alaska and Hawaii, as well as each U.S. territory, are considered separate regions.

The final regulations amend the proposed regulations to allow an eligible EAC to meet the deliverability requirement in cross-region deliveries where the generation's deliverability can be tracked and verified.

Hydrogen Produced from Renewable Natural Gas

The adopted regulations seek to treat methane similarly to hydrogen produced from electricity. They introduce gas EACs to track emissions from RNG used in methane production. Qualified EAC registries will manage these EACs.

The regulations also require monthly matching and treat the contiguous United States as a single region for deliverability purposes. However, the regulations do not adopt a "first productive use" requirement to address incrementality. A first productive use requirement would have required the taxpayer to establish that the biogas has not been previously used for another productive application, such as electricity generation or transportation.

III. Potential Impacts of a New Administration and Congress

It is uncertain how the new administration and Congress may impact the 45V regulations. The incoming administration and Republican Congressional majority have expressed opposition to various grants and tax credits adopted under the Inflation Reduction Act, such as those relating to electric vehicles and offshore wind facilities. But they may also be aware of the substantial U.S. investments that have already been made, additional investments and employment that might be unleashed, and support for hydrogen some Republicans, Democrats, and fossil fuel companies have expressed. Additionally, while the final regulations could also be revised by the incoming administration, this would require a lengthy regulatory process.

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