DEPARTMENT OF THE TREASURY AND THE INTERNAL REVENUE SERVICE ISSUE FINAL REGULATIONS ON SECTION 45V CLEAN HYDROGEN PRODUCTION TAX CREDIT

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On 3 January 2025, the Department of the Treasury (Treasury) and the Internal Revenue Service (IRS) released final regulations (Final Rules) implementing the Section 45V Clean Hydrogen Production Tax Credit (Section 45V tax credit) pursuant to the Inflation Reduction Act of 2022 (IRA). These much-anticipated Final Rules arrive over a year since the holiday-adjacent publication of the proposed regulations on 26 December 2023 (Proposed Rules). Treasury and IRS received approximately 30,000 written comments on the Proposed Rules and conducted a three-day public hearing that included testimony from over 100 participants. Adding to this long saga, the Biden Administration in its waning days has attempted to build upon the Final Rules and promote clean hydrogen production well into the future, announcing a US$1.66 billion loan guarantee by the Department of Energy (DOE) for Plug Power to produce and liquify clean hydrogen fuel. However, these actions come within days of the new Trump Administration and a Republican-controlled Congress, casting some uncertainty over the future of the Final Rules, DOE spending, and, more generally, the Section 45V tax credit.

In the Final Rules, Treasury and IRS made numerous modifications to the Proposed Rules—including notable changes to the controversial “three pillars” (incrementality, deliverability, and temporal matching) of the Energy Attribute Certificate (EAC) framework—largely in an effort to provide flexibility in response to industry concerns without sacrificing the integrity of the credit, while at the same time addressing concerns that substantial indirect emissions would not be taken into account. The Final Rules enable tax credit pathways for hydrogen produced using both electricity and certain methane sources, intending to provide investment certainty while ensuring that clean hydrogen production meets the IRA's lifecycle emissions standards.

The Final Rules, and primary differences between the Proposed and Final Rules, are discussed below.

EAC REQUIREMENTS FOR ELECTROLYTIC HYDROGEN PRODUCTION – THE THREE PILLARS

Under both the Proposed and Final Rules, EACs are the established means for documenting and verifying the generation and purchase of electricity to account for the lifecycle greenhouse gas emissions associated with hydrogen production. Under this framework, a taxpayer must acquire and retire qualifying EACs to establish, for purposes of the Section 45V tax credit, that it acquired electricity from a specific electric generation facility (and therefore did not rely on electricity sourced via, e.g., the regional electric grid). Like in the Proposed Rules, the

Final Rules require that taxpayers seeking to use EACs attribute electricity use to a specific generator that meets certain criteria for temporal matching, deliverability, and incrementality.

Incrementality

As in the Proposed Rule, the Final Rules define electric generation as "incremental" if the generator begins commercial operations within 36 months of the hydrogen facility being placed in service, or is uprated within that period. Treasury and IRS declined to extend the 36-month time frame for eligibility, but, within that 36-month time frame, Treasury and IRS provided more pathways for eligibility. The expanded pathways are as follows:

Uprates

The Final Rules modify the uprate rules to provide additional flexibility to taxpayers in determining "uprated" production capacity from generation facilities. The Final Rules provide that the term "uprate" means the increase in either an electric generating facility's nameplate capacity (in nameplate megawatts) or its reported actual productive capacity.

Restarted Electric Generation Facilities

Under the Final Rules, EACs can meet the incrementality requirement with electricity from an electric generation facility that is decommissioned or is in decommissioning and restarts. The Final Rules clarify that these facilities can be considered to have additional capacity from a base of zero if that facility was shut down for at least one year.

Qualifying Nuclear Reactors

The Final Rules allow EACs to meet the incrementality requirement with electricity produced from a qualifying nuclear reactor up to 200 MWh per operating hour per reactor. A qualifying nuclear reactor is a "merchant nuclear reactor" or a single-unit plant that competes in a competitive market and does not receive cost recovery through rate regulation or public ownership.

Qualifying States

The Final Rules allow EACs to meet the incrementality requirement if the electricity represented by the EAC is produced by an electric generating facility physically located in a "qualifying state," i.e., a state that has stringent clean energy standards (for now, California and Washington), and the hydrogen production facility is also located in the qualifying state.

Carbon Capture and Sequestration (CCS)

As authorized by the Final Rules, the "CCS retrofit rule" allows an EAC to meet the incrementality requirement if the electricity represented by the EAC is produced by an electric generating facility that uses CCS technology and the CCS equipment was placed in service no more than 36 months before the hydrogen production facility.

Temporal Matching

The Final Rules maintain the proposed hourly-matching requirement, which requires that the electricity represented by the EAC be generated in the same hour as the hydrogen facility's use of electricity to produce hydrogen. The Proposed Rules required hourly matching to go into effect in 2028, but the Final Rules have delayed this requirement until 2030. Annual matching is required through 2029. The Final Rules note that this two-year postponement does not prohibit a hydrogen producer from voluntarily implementing hourly matching

prior to 2030. Changes in the Final Rules also provide additional flexibility by allowing hydrogen producers to deviate from the annual aggregation of emissions to an hourly basis so long as the four kg CO2e per kg of hydrogen is met on an aggregate annual basis for the facility. This affords a hydrogen producer the ability to optimize the tax credit amount when it is unable to secure EACs during all hours of operation, without suffering severe penalties in the form of lower credit amounts across the entire year. Additionally, each electrolyzer is considered to be an individual qualified facility, which allows a producer to allocate EACs across electrolyzers and time periods to optimize tax credit values for a site.

Reliance Rule

In the Final Rules, Treasury and IRS declined to include a "reliance rule" (i.e., grandfathering) that would allow facilities that meet certain milestones (such as beginning of construction, being placed in service, or commencing commercial operations) by a certain date to continue to use annual matching instead of hourly matching.

Energy Storage

The Final Rules allow hydrogen producers and their electric suppliers to use energy storage, such as batteries, to shift the temporal profile of EACs based on the period of time in which the corresponding electricity is discharged from the storage device. The storage system must be located in the same region as both the hydrogen production facility and the facility generating the electricity to be stored. Storage systems need not themselves meet the incrementality requirement, but the EACs that represent electricity stored in such storage systems must meet the incrementality requirement based on the attributes of the generator of such electricity. EAC registries must be able to track the attributes of the electricity being stored.

Deliverability

As in the Proposed Rules, the Final Rules provide that an EAC meets the deliverability requirement if the electricity represented by the EAC is generated by a facility that is in the same region as the hydrogen production facility. Also, as in the Proposed Rules, the Final Rules establish that, for the duration of the Section 45V tax credit, "region" for purposes of deliverability will be based on the regions delineated in the DOE's National Transmission Needs Study. Those regions are based on the balancing authority to which the electric generating source and the hydrogen facility are both electrically connected. The table published in the Final Rules is the authoritative source regarding the geographic regions used to determine satisfaction of the deliverability requirement.

Dynamic Deliverability Regions

Treasury and IRS intend to update the regions in future safe harbor administrative guidance published in the Internal Revenue Bulletin.

Interregional Connections

The Final Rules allow some flexibility on interregional delivery, acknowledging that interregional electric transfers commonly occur. Accordingly, the Final Rules allow an eligible EAC to meet the deliverability requirement in certain instances of actual cross-region delivery where the deliverability of such generation can be tracked and verified. The Final Rules provide specific rules to meet this standard.

ELIGIBILITY FOR METHANE-BASED HYDROGEN PRODUCTION

The Final Rules also provide pathways for receiving Section 45V tax credits for hydrogen production using biogas, renewable natural gas (RNG), and fugitive sources of methane (collectively, natural gas alternatives). Most notably, the Final Rules dispense with the "first productive use" requirement proposed in the draft regulations, which would have required that the RNG or biogas used to produce hydrogen was not previously used, likening this requirement to the incrementality requirement of the Three Pillars for electrolytic hydrogen. Instead, the Final Rules rely on "alternative fates," which refer to the assumptions used to estimate emissions from the use or disposal of natural gas alternatives were it not for the natural gas alternative's new use of producing hydrogen. Under the Final Rules, alternative fates are determined on a categorical basis, rather than adopting a single alternative fate for all natural gas alternatives or adopting alternative fates on an entity-by-entity basis. The alternative fate associated with natural gas alternatives feeds into the "background data" that is entered into the 45VH2-GREET Model. The 45VH2-GREET Model uses that background data to calculate the estimated lifecycle greenhouse gas emissions associated with the specific hydrogen production process.

Alternative Fates, as Applied to Sectors

For landfills, coal mine methane, and wastewater sources, flaring is considered the primary alternative fate. For animal waste, the alternative fate is based on a national average of all animal waste management practices for the sector as a whole. For fugitive methane from fossil fuel activities other than coal mining, the alternative fate is the emissions that would otherwise be generated from productive use.

Venting

The Final Rules reject venting as an alternative fate across all sources of natural gas alternatives because it does not account for the prevalence of flaring and productive use, nor does it address the risk of induced emissions due to the incentives provided by the Section 45V tax credit. In taking this position, Treasury and IRS recognize that venting will likely be increasingly prohibited at local, state, and federal levels.

It is worth noting that Treasury's failure to issue actual draft regulations for a methane-pathway 45V tax credit could increase the likelihood of a successful legal challenge to the 45V Final Rules. It is unclear at this time whether Treasury's solicitation of comments in response to the questions the agency posed related to RNG as a viable pathway to secure the 45V credit is sufficient to satisfy proper notice-and-comment requirements under the Administrative Procedure Act. The Biden Administration's inclusion of Final Rules related to RNG could be part of a strategic effort aimed at minimizing attacks against the Final Rules by bringing RNG developers to the table.

OTHER CONSIDERATIONS

Determining Lifecycle Greenhouse Gas Emissions Rates

The Final Rules clarify that the annual determination of the tax credit amount is made separately for each hydrogen production process conducted at a hydrogen production facility during the taxable year. The Final Rules clarify that "process" means the operations conducted by a facility to produce hydrogen (for example, electrolysis or steam methane reforming) during a taxable year using one primary feedstock. CCS equipment that is necessary to meet the 45V emissions thresholds is considered part of the facility for purposes of the credit.

Construction Safe Harbor

The Final Rules allow taxpayers to make an irrevocable election to treat the 45VH2-GREET Model available on the date of construction commencement of the hydrogen production facility as the applicable 45VH2-GREET Model.

Third-Party Disclosure Requirement

As in the Proposed Rules, the Final Rules require that an unrelated third party certify the annual verification report submitted as part of the election to treat qualified property as energy property for purposes of the Section 45V tax credit.

Effective Date

The Final Rules become effective immediately upon their publication in the Federal Register.

OUTLOOK

There is still a great deal of political uncertainty surrounding the Section 45V tax credit due to the incoming Trump Administration and Republican-controlled Congress, which could nullify these regulations through the Congressional Review Act or reduce or eliminate the credits by modifying or rolling back the IRA as part of the budget reconciliation process. There is additionally the potential for litigation challenges to the Final Rules under the new *Loper Bright* standard for judicial review of agencies' interpretations of statute.[1]

Regardless, the Final Rules attempt to lay a foundation for hydrogen development for years to come. Barring political disruption, the Final Rules settle many uncertainties that may have acted as an obstacle to investment in the clean hydrogen sector and the progress of planned projects, including the DOE-funded hydrogen hubs. The Final Rules also generate new questions. As noted above, these Final Rules are effective immediately upon publication in the Federal Register. The immediate effectiveness and rollout of the Final Rules could contribute to the momentum needed to keep these rules and relevant IRA provisions in place even as administrations change. Strong industry reliance upon these rules may make it less politically palatable or practical to uproot and discard them entirely.

FOOTNOTES

[1] For more information on the U.S. Supreme Court's decision in *Loper Bright Enterprises v. Raimondo* and how it impacted administrative law, see the following:

- The Post-Chevron Toolkit | HUB | K&L Gates
- The End of Chevron Deference: What the Supreme Court's Ruling in Loper Bright Means for the Regulated Community | HUB | K&L Gates

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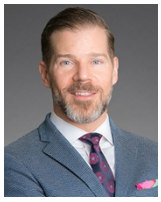

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