



HyVelocity Hub

SUBMITTED ELECTRONICALLY

Internal Revenue Service
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Room 5203
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Washington, DC 20044

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Re: REG-117631-23 | Credit for Production of Clean Hydrogen, Election to Treat Clean Hydrogen Production Facilities as Energy Property

The HyVelocity Hub (HyVelocity) strongly supports Congress and the Administration's unprecedented investments in a clean energy economy and the deployment of low-carbon hydrogen. We are proud to be part of national efforts to accelerate decarbonization and establish long-standing economic benefits for America's communities.

HyVelocity, one of seven Regional Clean Hydrogen Hubs selected by the U.S. Department of Energy (DOE) for award negotiation, will serve the Gulf Coast region of the United States. HyVelocity is led by seven core industry partners – AES Corporation, Air Liquide, Chevron, ExxonMobil, Mitsubishi Power Americas, Ørsted, and Sempra Infrastructure. As envisioned in the initial proposal, HyVelocity includes nine core projects across the seven industry partners. In addition to the potential federal investment through DOE's hub program, HyVelocity's partners will be investing more than \$10 billion in private capital to bring these low carbon solutions to market.

The HyVelocity team, consisting of global energy producers and dedicated Texas and Louisiana-based organizations, collectively brings decades of success, experience, and key competencies to bear in achieving national goals to deploy low-carbon, reliable, and affordable energy. We will leverage our collective experience of the partners to create economic benefits for communities in the region. Based on our team's extensive experience in bringing innovative technologies to market, we know that successful private investment in these technologies is driven by clarity of risks and investment surety over the extended life cycle of the projects.

That is why HyVelocity is pleased to provide the following comments to the Department of the Treasury and the Internal Revenue Service's (IRS) Request for Comments on the Credit for Production of Clean Hydrogen, Election to Treat Clean Hydrogen Production Facilities as Energy Property (REG-117631-23). Specific impacts vary by HyVelocity project, and sponsor companies will provide specific details through their individual comment submissions.

The Inflation Reduction Act (IRA) was established to enable environmental, economic, and just and equitable benefits, including well-paying jobs, in communities across the nation. Regional Clean Hydrogen Hub proposals are intended to directly address and build upon the intended outcomes of the IRA. HyVelocity, a Texas-based clean hydrogen hub, has the potential to significantly impact the Gulf Coast jobs markets and, in part, enable a transition in energy jobs to new and lasting careers in hydrogen energy, directly supporting the goals established under the IRA.

To achieve market liftoff, Treasury’s 45V guidance must allow for flexibility and certainty in implementing the “three pillars” for electricity - (1) temporality, (2) incrementality, and (3) deliverability.

It is imperative that to enable the desired environmental, economic, and equity goals of the IRA, private investment in hydrogen production must advance at scale and at an accelerated pace. Hydrogen production project investments require stable market projections and assurance of regulatory stability to ensure the economics of the long-term projects. To support this investment environment, we recommend that projects be granted a "grandfathered exemption" such that for the project's life, they can use the regulations in place at the time when construction begins.

Furthermore, grid-connected projects that begin construction before January 1, 2033 should be permitted to retain annual matching for the life of the PTC and be exempt from incrementality and regionality requirements. The cutoff of beginning construction was chosen to align with expected timelines for the DOE Regional Clean Hydrogen Hubs. This timing would allow all first movers, as well as the Administration supported Hydrogen Hubs, to qualify for the section 45V production credit providing critical support for liftoff of this nascent market and enablement of broader decarbonization across the economy.

Temporality: The timing of proposed hourly matching in 2028 is not advised for several reasons: first, this mandate is not supported by an hourly renewable energy recredit (REC) tracking product broadly available on the market and attachable to a power purchase agreement or Energy Attribute Certificates (EAC) product sourced for a hydrogen production project. A transition period will be necessary to successfully implement such stringent time matching requirements, expected to be infeasible until at least 2032. To ensure the success of the first movers to produce hydrogen in the market, grandfathering of any facility beginning construction prior to at least 2033 is supportive.

Incrementality should not begin until 2032 and should include a 3-year lookback window and an allowance to use a proportion of existing renewable power sources. Treasury should provide a rule that deems 10% of generation from existing minimal-emitting electricity generators placed in service before the 3-year lookback window as satisfying the incrementality requirement. If hydrogen is produced in a region with curtailments in excess of the 10% safe harbor, Treasury should provide an election for such producers to prove actual curtailments beyond 10%, which should also be deemed to satisfy the incrementality requirement. The 10% safe harbor recognizes that curtailments are increasing nationwide as the supply of renewable generation continues to rise, but also provides for ease of administration. The election allows taxpayers to prove actual curtailments beyond the 10% safe harbor while preventing induced grid emissions.

Deliverability: For projects which begin construction before 2030, EACs for electricity should be bounded by the established six North American Electricity Reliability Corporation (NERC) regions. For projects beginning construction on or after January 1, 2030, EACs could transition to the geographic regions used in DOE’s National Transmission Needs Study.

We request that final 45V guidance affirms that all feedstock sources of renewable natural gas (RNG) are fully eligible, book-and-claim accounting is critical for RNG and differentiated natural gas to hydrogen pathways, and the ‘three pillars’ are not applicable for the natural gas market.

Treasury should expand regulatory language to ensure all feedstock sources of RNG outside of landfill-derived renewable natural gas (LFG) are fully eligible. Treasury should acknowledge there are fundamental differences in the infrastructure for RNG when compared to electricity and the “three pillars” should not be applicable. As the pipelines used by RNG are national and production continuous, the deliverability and time matching issues described for electricity are not relevant.

Clean hydrogen developers should be able to use existing substantiation and documentation protocol under Renewables Fuel Standard (RFS) and Low Carbon Fuel Standard (LCFS) programs to demonstrate book-and-claim compliance. These systems used today enable economic development of emissions abatement in the agriculture sector that is far from demand centers. Existing frameworks such as California’s LCFS should be used. Furthermore, the proposed “first productive use” requirement within the preamble would cause a significant value discrepancy for new projects, creating a market distortion and a high risk of stranded gas for existing projects, thus no first productive use should be included.

We request that final 45V guidance and associated GREET model fully recognize steps taxpayers take to reduce emissions across the well-to-gate life cycle analysis as intended by the statute.

Final 45V guidance should account for natural gas with lower carbon intensity than average to incentivize deeper upstream decarbonization. Currently, the 45VH2-GREET model uses a set number for the carbon intensity of natural gas. Treasury should allow clean hydrogen producers to input their specific CI data into 45VH2-GREET model as foreground data based upon their actual reported GHG emissions data, as validated by the EPA GHG Reporting Program Subparts W and C and as required by Methane Emissions Reduction Program (MERP) mandated by the IRA or another assured source of GHG data.

As Treasury acknowledges, the EAC market is expected to mature in the next few years. Treasury should also recognize the strides being made to reduce and measure the carbon intensity of natural gas and allow EPA’s regulatory programs to be fully implemented, thereby giving the Treasury certainty of the fidelity of effectiveness and verifiability of the data.

Incentivizing the reduction of greenhouse gas emissions from natural gas production will encourage the adoption of new technologies to avoid methane leakage, leading to greater overall greenhouse gas reductions.

We request final 45V guidance clarifies that 45VH2 GREET model calculations made for a given facility at the time of claiming the credit can be “locked in” for the duration of a project and project developers are allowed but not required to use updated versions of the model

To provide tax credit and cost certainty to clean hydrogen developers, the carbon intensity as calculated by the most updated model as of the taxable year in which the project commences final investment decision (FID) can be treated as an upper bound, with producers able to choose between continued use of the same model or use of any updated model in the future. The ability to lock in the credit at the time of financial investment decision is consistent with how the California Low Carbon Fuel Standard applies the GREET model and will provide companies with the clarity needed to forecast returns and make investment decisions. Similarly, clean hydrogen producers obtaining a Provisional Emissions Rate (PER) should also be able to lock that rate in for the project's lifetime.

We request that final 45V guidance allows taxpayers to claim the PTC for any duration of clean hydrogen production – not just an annualized aggregate.

The proposed annual aggregation of a production facility fails to address the complex markets, customer requirements, and efficient operation and utilization of production assets. Operational flexibility is a key to optimizing energy usage and market demands. To address this, we request that Treasury allow taxpayers to claim the PTC for any duration of clean hydrogen production – not just an annualized aggregate. The hydrogen credit should be determined with regard to each unit of hydrogen produced by a taxpayer, not with regard to all units of hydrogen produced in a given year as described in the proposed regulations. Hydrogen producers should be able to produce hydrogen with varying carbon intensities throughout the taxable year to optimize operations, accommodate customer requirements, and adjust to input availability, price, and quality. Particularly in light of the proposed hourly matching requirements for EACs, clean hydrogen producers should be given the ability to bifurcate their clean hydrogen production into qualified and nonqualified quantities for purposes of claiming the 45V PTC. Clean hydrogen producers should not have to average the two to claim the credit. Similarly, as long as annual matching is the requirement the hydrogen production claimed as qualifying in a given year should only need to be matched with the EACs acquired in that year, regardless of how well the production matches EAC acquisition. That same view should be held if, or when, an hourly matching requirement comes into effect.

For all pathways, we request final 45V guidance allow the taxpayer to input excess steam as measured by meters. Co-product steam should be foreground data, similar to carbon capture efficiency and hydrogen yield, to best represent actual carbon intensity.

Hydrogen produced with natural gas creates steam, a usable coproduct, during the production process. The proposed regulation and the updated 45VH2 GREET 2023 model assume that for hydrogen produced from natural gas with carbon capture, the steam created as part of the hydrogen production process is equal to the amount of steam needed to power the carbon capture equipment. Taxpayers are not allowed to change this assumption in the model. Cryogenic CO₂ capture processes have higher overall efficiency and negligible steam requirements when compared to amine-based processes. Published reports have shown that when cryogenic CO₂ capture is employed, it can reduce overall energy demand by 30-50% versus amine absorption.¹ Taxpayers are not allowed to change this assumption in the model. Thus, the updated 45VH2 GREET 2023 model does not allow a hydrogen producer with a more efficient carbon capture technology to take credit for excess steam created during the production process as a result of the carbon capture technology being more efficient. This excess steam can be used to replace higher CI energy sources in other parts of the energy complex (non-hydrogen operations). Taxpayers that invest in ways to create more efficient and cleaner processes should have their efforts recognized and the emissions reductions counted as part of the §45V process. In fact, the proposed regulations and updated 45VH2 GREET 2023 model do recognize excess steam for grey (unabated) hydrogen production pathway, just not hydrogen produced with natural gas with carbon capture.

Taxpayers that are producing hydrogen with natural gas and carbon capture should be able to prove the efficiencies of their processes and take credit for excess steam (in line with proposed guardrails on amount) in the GREET model, just like grey hydrogen. The ask is to simply level the playing field within the proposed guardrails and not disadvantage hydrogen produced via natural gas with more energy efficient carbon capture technologies.

¹ [Cryogenic Carbon Capture™ Technoeconomic Analysis \(Conference\) | OSTI.GOV](https://www.osti.gov/etd-websearch/search.html?docid=15000000)

Final 45V Guidance from Treasury should confirm that taxpayers with separate, independent production lines may be eligible for both the 45V and 45Q credits on a separate production line basis. even if the production lines are co-located in the same industrial complex and are interconnected via utility, power, or other systems. For example, a facility may need to produce decarbonized electrical power (claiming the 45Q), and then use that power to run an ATR-based ammonia plant, which claims the 45V. Alternatively, a single site could have a green hydrogen plant, as well as legacy blue hydrogen production with CCS claiming the 45Q.

IRA section 45V can, if implemented as outlined in this letter, provide significant regional economic impacts predicated on the implementation of hydrogen energy projects at scale. The economic engine of 45V will be the private investments made in the construction and operation of hydrogen production facilities and the development of healthy hydrogen offtake markets.

We appreciate the opportunity to share insights from our experience through this comment process and would be happy to participate in any stakeholder engagement on the IRA section 45V rulemaking.