DIFFERENTIATED GAS COORDINATING COUNCIL

February 26, 2024

Commissioner Daniel Werfel
Department of Treasury
Internal Revenue Service
1111 Constitution Ave NW
Washington, DC 20224

Submitted electronically via: www.regulations.gov

RE: Response to IRS Proposed Rule for Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property; Docket IRS REG-117631-23

Dear Commissioner Werfel:

The Differentiated Gas Coordinating Council (DGCC) appreciates the opportunity to comment on the Proposed Rule, Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property (Proposed Rule), established in the Inflation Reduction Act (IRA). This rulemaking represents a critical step forward in the development of the clean hydrogen economy in the U.S. and DGCC supports the production of clean hydrogen for a full suite of end uses.

We support the Treasury Department and Internal Revenue Service's (Treasury) effort to accelerate the development of the U.S. clean hydrogen industry. However, as currently presented, the Proposed Rule does not provide a pathway for project developers to accurately account for the supply chain emissions associated with their feedstocks.

About Differentiated Gas

DGCC is a coalition of stakeholders across the natural gas supply chain dedicated to facilitating a pathway for policymakers, regulators, utilities, and gas consumers to utilize differentiated gas as an important option to reduce emissions and meet their climate goals.

The DGCC's members represent the entire spectrum of the natural gas value chain and are dedicated to advancing a comprehensive set of policies that foster the development of a robust market for differentiated gas. **Differentiated gas, also referred to as certified gas, producer-certified gas, and responsibly sourced gas, can be described as geologic natural gas characterized by the assessment and verification of its superior environmental performance criteria, particularly methane, across the natural gas value chain.** This new market is underpinned by enhanced measurement protocols and the use of advanced technologies to enable differentiated gas. **Advanced technologies include**

continuous emissions monitoring systems, aerial surveys, and satellites, to directly measure facility emissions and detect methane leaks.

Measurement-Based Quantification and the Differentiated Gas Market

The Treasury's Proposed Rule suggests that current verification methods for project inputs, like methane loss rates, are unreliable. However, advancements in technology and standardization efforts offer a viable pathway for incorporating feedstock-specific data into the 45VH2-GREET model. Independent verification processes are already established, and the foundation provided by other emissions assessment auditing, such as the Low Carbon Fuel Standard (LCFS), is well developed. Encouraging the growth of independent verification services aligns with the Administration's goal of reducing methane emissions from the natural gas supply chain.

Historically and currently, federal regulators relied on emissions factor models and estimates to report greenhouse gas (GHG) emissions due to the lack of alternative methods for approximating or measuring emissions across industries like oil and gas, which produce vast amounts of emissions data. For instance, a single methane sensor operating at a rapid frequency can generate millions of data records daily, resulting in billions of data points from numerous facilities within an enterprise. Modern quantification technologies reveal significant inaccuracies in emissions estimates, with some assets in the oil and gas sector showing significant deviations. Even esteemed models like GREET are constrained by the limitations of emission factors. However, advancements in measurement protocols and technology now offer the possibility of replacing estimates with direct measurement-based quantification methods. Specifically, one study on the benefits of clean hydrogen and methane's impact on the production process states "Given that ground-level, airborne, and satellite measurements of methane emissions over the past decade have greatly improved our understanding of oil and gas methane emissions, a more sophisticated treatment of methane emissions is warranted".

The Administration has taken significant steps to address methane emissions through initiatives like the Environmental Protection Agency's (EPA) Subpart W rule and Pipeline and Hazardous Materials Safety Administration (PHMSA) leak detection and repair rulemaking. Standardization efforts such as GTI's Veritas Initiative and Department of Energy's (DOE) measurement, monitoring, reporting, and verification (MMRV) framework further support the verification of complex data sets resulting from advanced technologies. These efforts align with the goal of reducing emissions through clean hydrogen, as intended by the 45V credit.

Treasury should incentivize the use of independently verified measurement data for methane emissions in the 45VH2-GREET model to promote accuracy and support decarbonization efforts. Advanced measurement-based quantification methods, along with robust verification frameworks, ensure accurate reporting of methane emissions data.

Standards for Verifying Differentiated Attributes

Like any emerging industry or market, companies in the differentiated gas value chain are continuing to develop policies that support transparency and accuracy. While there are a

number of approaches regarding what reliable verification practices for differentiated gas should look like, the DGCC encourages Treasury to consider the markets development to verify attributes. Verification of emissions data is provided by companies such as KPMG to ensure that the data exists as represented in a digital ledger, is measured and monitored along its end-to-end flowpath, is not altered in any way, and is digitally signed by verified identities.

In its final rule, Treasury should allow for feedstock-specific data in the 45VH2-GREET and consider pathways for differentiated gas to be accounted for in a similar manner to renewable energy certificates (REC) at a later date. This will provide Treasury and the market with additional time to develop the mechanisms necessary for a certification that can be utilized like a REC.

Congressional Intent of 45V Tax Credit

As written, the 45V tax credit is intended to be technology-neutral. However, the Proposed Rule's inclusion of the methane loss rate as background data disadvantages those producing hydrogen derived from natural gas. It's important to recognize that upstream methane emissions play a pivotal role in determining the carbon intensity of hydrogen produced with a natural gas feedstock. Consequently, projects striving to achieve minimal emissions are now faced with disincentives.

Figure 1 demonstrates that projects will find it exceedingly challenging, if not virtually unattainable, to qualify for even the lowest tier of the 45V credit if they are to rely on generalized estimates for methane loss rates, rather than having access to more precise, feedstock-specific data. Excluding feedstock-specific data not only contradicts the technology-neutral nature of the credit but also undermines its fundamental objective of emissions reductions.

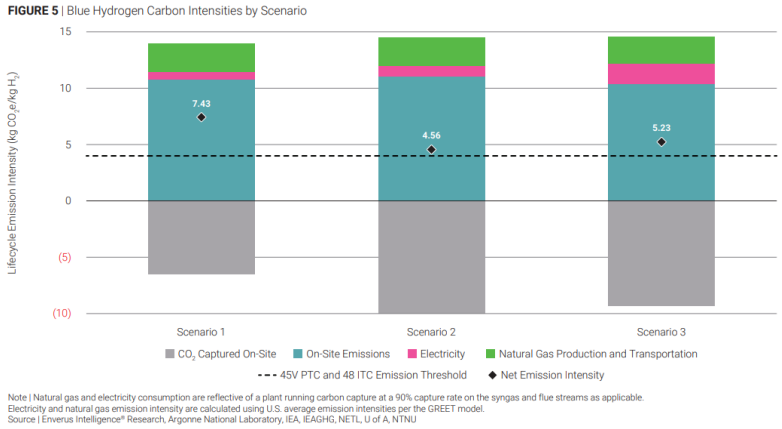

Figure 1

Incentives for Hydrogen Derived from Natural Gas

In addition to 45V, hydrogen derived from natural gas is also eligible for the 45Q tax credit under most project structures. As currently drafted, the Proposed Rule would likely influence project developers to claim the 45Q credit rather than the 45V credit. Claiming 45Q would allow projects to have more certainty on their rate of return, even if that rate falls below potential 45V values. Projects choosing this option would be able to pitch their projects to investors on a more accelerated schedule and would still be able to market their product as clean hydrogen by obtaining a certified carbon intensity from a third party.

Driving projects to 45Q over 45V would have unintended consequences and run counter to the goals of the Administration. Specifically, projects that choose to claim 45Q over 45V will be driven by the volume of CO_2 captured, rather than the overall carbon intensity of the hydrogen being produced, which includes significant upstream emissions. Figure 2 demonstrates that projects would claim the same amount under 45Q regardless of the carbon intensity of the hydrogen produced.

Project Lifecycle Emissions	45V Credit Value	45Q Credit Value
4 kg CO2e	$0.60/kg	Up to $0.80/kg*
2.5 kg CO2e	$0.75/kg	Up to $0.80/kg*
1.5 kg CO2e	$1.00/kg	Up to $0.80/kg*
0.45 kg CO2e	$3.00/kg	Up to $0.80/kg*

Figure 2. Source

Additionally, there are several instances throughout the Proposed Rule where hydrogen derived from natural gas is not afforded the same level of certainty as electrolytic hydrogen. There is uncertainty over how Treasury will monitor capture rates for carbon capture equipment associated with hydrogen production facilities and how renewable natural gas (RNG) will be accounted for. If Treasury seeks to provide additional clarity on topics related to hydrogen derived from natural gas it must ensure that stakeholders are provided adequate opportunities to comment on those policies prior to their inclusion in a final rule.

Specific Comments on Proposed Rule

1. *In Section V. Procedures for Determining Lifecycle Greenhouse Gas Emissions Rates for Qualified Clean Hydrogen, subsection A. The GREET Model, the Department asserts that "(u)sers of 45VH2-GREET may not change background data" and that "background data are parameters for which bespoke inputs from hydrogen producers are unlikely to be independently verifiable with high fidelity, given the current status of verification mechanisms." The Department requests comment on "the readiness of verification mechanisms that could be utilized for certain background data in 45VH2- GREET if it were reverted to foreground data in future releases. For example, the upstream methane loss rate is background data in 45VH2-GREET, and the Treasury Department and the IRS seek comment on conditions, if any, under which the methane loss rate may in future releases become foreground data (such as certificates that verifiably demonstrate different methane loss rates for natural gas feedstocks, sometimes described as responsibly sourced natural gas)."*

   Considering the background information and comments included above, in order to ensure maximum emissions reductions in hydrogen derived from natural gas, Treasury must allow for projects to account for the individual supply chain emissions of their feedstock. By restricting the submission of data from enhanced measurement-based quantification, including advanced technologies, the Proposed Rule risks unfairly denying taxpayers the opportunity to demonstrate carbon intensity levels that could qualify for the 45V tax credit. Such a stance also runs counter to the technology-neutral

congressional intent of this credit, hindering innovation and potentially favoring less accurate reporting methods over more precise ones.

Contrary to Treasury's assertion regarding the verifiability of bespoke inputs for methane intensity, these inputs can indeed be independently verified with high fidelity. Data collected through measurement-based quantification and advanced technologies can be coupled with standardized, independent verification to ensure that any inputs utilized are accurate and transparent. Verifiers can assess both the measured data and the emissions calculations for their accuracy and reliability and allow for Greenhouse Gas Reporting Program (GHGRP) emissions to be used as bespoke inputs, including data that has been produced by technology that has been approved under the NSPS OOOOb/EG OOOOc ATM rule and corroborates emissions inventories calculated using Subpart W. Additionally, registries can prevent double counting of emissions, further enhancing data credibility and measurement-informed inventories become increasingly more available, they should be preferred over emission estimates and often inaccurate GHGRP data.

DOE's "Guidelines to Determine Well-to-Gate Greenhouse Gas (GHG) Emissions of Hydrogen Production Pathways using 45VH2-GREET 2023" states that "users may also supplant 45VH2-GREET default properties for the natural gas (lower heating value (LHV), density, and carbon content) with properties specific to the feedstock they are using by selecting Custom Feedstock Properties". This optionality built into the existing model could be expanded to include unique methane loss rates.

Additionally, Treasury can look to programs being implemented at the state level for guidance on verification practices. For example, Colorado has approved an intensity verification rule that would require a third-party audit or verification of the reported measurement informed inventories. The audit will require the review of all records used to support the development of a measurement informed inventory. These audit provisions are still in development, but it is expected to look at calculation methodologies, measurement sampling frequency, monitoring technology, and the uncertainty of any emission factors and measurement used as applicable. Colorado will accredit the third-party auditors that operators will be allowed to use to audit their inventories. These auditors will be expected to have experience performing audits and evaluating GHG emissions and calculations.

Recommendation: In the final rule, Treasury should allow for the immediate use of independently verified inputs to determine feedstock-specific methane emissions. This approach not only aligns with Congress' goal of incentivizing low carbon intensity hydrogen production but also supports a technology-neutral approach that fosters innovation and rewards emissions reduction efforts in natural gas production. By embracing verified measurement data, Treasury can ensure greater accuracy and credibility in the determination of carbon intensity levels, thereby facilitating more effective emissions reductions and advancing the transition towards cleaner energy sources.

If Treasury elects to not incorporate feedstock-specific data into this version of 45VH2-GREET, Treasury should ensure that projects can pursue the Provisional Emission Rate

(PER) process if they deem their feedstock to be significantly below the default methane loss rate. This will provide DOE and Treasury with additional opportunities for oversight and transparency while ensuring that projects are still able to prove out the differentiated characteristics of their feedstock.

Additionally, project developers should be able to elect to transition to the latest iteration of GREET should it incorporate feedstock-specific data. This will ensure that Treasury is not inadvertently disincentivizing projects developers from continuously improving the emissions profile of the hydrogen they are producing.

2. *In Section V., subsection B. Provisional Emissions Rate, the Department states that, "A taxpayer may not use the PER process if its feedstock and hydrogen production technology are represented in 45VH2– GREET, even if the taxpayer disagrees with the underlying assumptions (that is, background data) or calculation approach used by the most recent 45VH2–GREET."*

Recommendation: Treasury should endeavor to incorporate feedstock-specific data into the iteration of 45VH2-GREET included in the final rule. Alternatively, projects should be allowed to demonstrate the differentiated characteristics of their feedstock through the PER. This exception should be provided if the independently verifiable measurement data, such as the methane leakage rate at a wellsite, proves that the feedstock-specific data is statistically different from the 45VH2-GREET default methane leakage rate. Permitting projects to pursue the PER process will allow DOE and Treasury to have additional oversight of the types of data being utilized while still supporting project developers that want to achieve low emissions from the jump.

Sincerely,

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