EQUITABLE ORIGIN

A higher standard. A better choice.™

Equitable Origin
1801 Main Street
10th Floor
Houston
Texas 77002

23 February 2024

Re: Comments on 45V - Federal Register/Vol. 88, No. 246/Tuesday, December 26, 2023 Proposed Rules

Dear Madam or Sir,

As the leading site-level and comprehensive ESG certification in the Natural Gas sector with over 15% of US natural gas independently-certified against our standard, we are writing to offer our advice on the structure of the Section 45V tax credit for Hydrogen Production. We believe that as currently proposed, 45V would subsidize Blue Hydrogen production with a significantly-higher well-to-burner tip Carbon Intensity (CI) than intended by the incentive mechanism. **The use of a single National Methane Emissions Average underestimates sector-wide value chain methane emissions, and penalizes those oil and gas producers and distributors who have made proactive investments to significantly reduce their methane emissions below that benchmark.** It creates a perverse incentive against individual producers taking action to reduce and quantify methane emissions. Based on our experience and insight into the natural gas value chain, we believe that Treasury, supported by the Department of Energy and Environmental Protection Agency, should enable the use of rigourously-derived and independently verified bespoke emissions data.

About Equitable Origin

Equitable Origin is a US 501(c)3 established in 2012 to incent and reward more-responsible energy production through independent, site-level certification to global environmental and social performance standards. In 2015 we established the world's first, and most comprehensive voluntary sustainability standards system for Natural Gas production and distribution.Today, over 15% of both US and Canadian natural gas production is certified under the EO100 Standard.

The EO100 Standard outlines a comprehensive set of globally-recognized and sector-relevant ESG benchmarks and international norms across 5 dimensions:

- Corporate Governance, Transparency & Ethics
- Human Rights, Social Impact & Community Development
- Indigenous People's Rights
- Occupational Health & Safety; Fair Labor & Working Conditions
- Climate Change, Biodiversity & Environment

Similar to the third-party expert process undertaken in financial accounting, EO approves independent Assessors for the purposes of auditing site level performance by Natural Gas producers and infrastructure operators. Assessors are trained on the EO100 Standard, the relevant sector-specific Technical Addendum, and the EO100 third-party assessment methodology. Assessors must have demonstrated oil and gas-specific expertise, be experienced auditors, and be independent of the operator in that they can not have provided consulting services or have other financial relationships.

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EO offers energy producers and infrastructure operators:

- A comprehensive and integrated set of environmental, social and governance (ESG) criteria for assessing and managing ESG performance at the site level;
- An independent, credible, and reproducible yardstick for differentiating and communicating an energy project's ESG performance to key stakeholders including communities, investors, customers and regulators; and,
- Premium payment for higher-ESG attributes by a subset of customers.

Benefits of certification accrue to Labour, project-affected Communities, Treaty Rights-holders and the Environment through commitment by the Project to operate to above-compliance standards and to pursue continual improvement in relation to the Standard, through the annual audit mechanism, and through the obligation to establish site-level recourse mechanisms. Similar to the emergence of the Renewable Energy Credits market over the last 10 years, there is a premium market starting to emerge for demonstrably higher-ESG natural gas, that can reward and incent higher performance.

The Problem: National Methane Average in GREET Model

Under 45V, Proposed § 1.45V–1(a)(8)(iii) would provide that, for purposes of section 45V(c)(1)(B) and proposed § 1.45V–1(a)(8)(i), the term "emissions through the point of production (well-to-gate)" means the aggregate lifecycle GHG emissions related to hydrogen produced at a hydrogen production facility during the taxable year through the point of production. It includes emissions associated with feedstock growth, gathering, extraction, processing, and delivery to a hydrogen production facility. It also includes the emissions associated with the hydrogen production process, inclusive of the electricity used by the hydrogen production facility and any capture and sequestration of carbon dioxide generated by the hydrogen production facility".

In our view:

1. **45V Depends on GREET Inputs Being Accurate.** The effectiveness of 45V in reducing greenhouse gas emissions in existing and new hydrogen supply, growing demand, and scaling clean hydrogen technology will depend on the accuracy of the GREET model in determining the lifecycle GHGs of the associated delivered natural gas.

2. **GREET's Use of a National GHG Intensity Average for Natural Gas Underestimates Emissions:** 45V would apply a single national factor for methane leakage as the background input into the GREET model. The use of a national average for the GHG intensity of delivered natural gas under the GREET model would result in an overall underestimation of methane emissions in hydrogen production, by as much as 2x, based on numerous academic studies using direct measurement. This would significantly underestimate the resulting CI of the delivered Blue Hydrogen, and undermine the goals of the proposed policy.

3. **Methane Intensity Varies Substantially between basins, operators and delivery pathways.** Methane emissions can vary as much as 10-100x between operators and distributors within each basin, particularly in super-emitter site situations, rendering an average value meaningless. While subject to debate, a range of academic studies suggest that the operator, their operating context and practices make a material difference in the carbon intensity of delivered natural gas, from

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well to the factory gate. As the joke goes, when Bill Gates enters a bar, the average wealth of all those present goes up to $1B. Similarly, an average value for methane emissions would dramatically overestimate emissions from leading producers who have gone beyond regulatory requirements and standard practices in minimizing emissions.

4. **Bespoke, measurement-informed GREET inputs for Natural Gas Pathways on a Facility or Basin Level can cost-effectively be developed.** Rigorous and cost-effective quantification and verification mechanisms exist for the determination of methane loss from the natural gas supply chain. EO's market-based ESG verification program is broad, with methane management reflected among its nearly 500 benchmarks. EO's wide uptake by leading producers including Chesapeake, EQT and Northeast Natural Energy, suggests that the incremental costs of participation are sufficiently offset by the incremental risk management, financial and communications value of the certification.

   MiQ is a voluntary verification program that focuses specifically on natural gas value chain CH4 and CO2 emissions accounting and minimization. Many operators have elected to pursue joint certification to both EO100 and MiQ, as the latter has specific methane intensity performance metrics and a rigorous process for quantification. MiQ has been in service for over 3 years and has demonstrated that a market-based incentive can drive bespoke high-resolution methane quantification, having verified over 20% of US natural gas production. MiQ employs a robust quantification and performance standard for evaluating methane loss rates. Leading operators are certified by MiQ as achieving less than 0.2% methane loss during the production phase using measurement-informed standards.A rigorous, voluntary, market-based model helps resolve this crucial information gap, incent emissions performance improvements, and identify & address super-emitting sites.

5. **Certificates with environmental attributes, including methane loss, for each MMBtu of natural gas throughput, can meet the same criteria as those outlined for Energy Attribute Credits in the 45V rule.** These certificates, hosted within an independent and robust registry, can be issued, tracked and retired to prevent double counting and to enable bespoke pathway determination for the GREET methane input.

6. **Leadership in other Environmental And Social performance areas should be rewarded or at least not penalized by 45V.** All energy production imposes risks and benefits, and has environmental impacts that extend beyond air to include water quality and availability, biodiversity, agricultural productivity and contamination. While incenting and pursuing methane abatement, it is important to recognize and reward leadership and continual improvement in other areas of environmental and social performance, including considerations of Environmental Justice, Tribal Rights, Free Prior and Informed Consent and other international treaty commitments. Credible third-party auditing to global and domestic benchmarks for environmental and social performance leadership can be a helpful market-based solution to incenting and rewarding better performance, and complement initiatives like 45V.

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The Solution

To enable the use of bespoke emissions data from natural gas, Treasury, supported by the DOE and EPA, should remove national or regional (or basin) averages as inputs in the GREET 45V model and allow direct user-inputs of project specific methane loss rates into the GREET 45V model. Updates no later than the 2024 version should enable hydrogen producers to secure FID for new projects. To be consistent with 45V, these inputs must have the following ingredients:

- **Measurement-focused methane emissions reporting standard** that incorporates top-down and bottom-up evaluation of emissions from all emissions sources, all technologies, and all gas flows from an entire asset or facility. Direct user inputs should be comprehensive and not based on a subset of equipment, wellpads or pilot studies. As an example, please see MiQ.org.
- **Verification protocols that match 45V requirements** for independence, including: the verifier is unconflicted and has no financial interest in the outcome of the report; the verifier is a subject matter expert and technically accredited to the program they are verifying against; and the verifier is independent of the data collected.
- **Registries and certificates that provide sufficient information sufficient to issue, track, move, and ultimately retire certificates** and their corresponding environmental attributes to prevent double counting. This would include use of unique identifier numbers for each unit of energy; geographical provenance, facility name, and operator responsible for the verified emissions intensity; details on the supply chain segment sufficient to construct a supply chain intensity; timestamps for each unit of energy throughput; details of the third-party verifiers for each facility; details of verified emissions intensities sufficient to support Blue Hydrogen producer verifiers to cross reference for inputs into carbon footprint calculations.

If the Treasury will not allow for direct-user inputs, then operators which can verify methane loss or GHG emissions for natural gas feedstock and fuel use meeting the above criteria should be allowed to apply for a provisional emissions rate (PER). PER applications would need to meet the same burden of proof for credible and verifiable natural gas emission estimates as would be required for calculations under GREET.

In Closing

We are grateful for this opportunity to help inform development of this critical element of domestic energy policy, and would be pleased to provide additional information and insight into the emergence of the market for ESG-differentiated natural gas and other energy commodities.

Sincerely yours,

Jason Switzer CEO
Equitable Origin Inc.
FEIN: 47-4007160