



February 26, 2024

Hon. Janet Yellen, Secretary of Treasury  
U.S. Department of Treasury

Hon. Danny Werfel, IRS Commissioner  
Internal Revenue Service  
U.S. Department of Treasury

Internal Revenue Service  
Office of Chief Counsel  
Passthroughs and Special Industries  
CC:PA:LPD:PR (REG-117631-23),  
1111 Constitution Ave. N.W.  
Washington, D.C. 20224

**RE: Comment of the American Chemistry Council on Section 45V Clean Hydrogen Production Tax Credit 48(a) (15) election to treat Clean Hydrogen Production Facilities as Energy Properties (Docket REG-117631-23)**

Submitted electronically via Federal eRulemaking Portal at <https://www.regulations.gov>.

Dear Madam Secretary Yellen & Commissioner Werfel:

The American Chemistry Council (ACC) appreciates the opportunity to comment on the proposed Section 45V Clean Hydrogen Production Tax Credit Notice of Proposed Rulemaking (NPRM). ACC represents a diverse set of companies engaged in the business of chemistry – a \$639 billion enterprise. ACC members work to solve some of the biggest challenges facing our Nation and our world, driving innovation through investments in research and development (R&D) that exceed \$13.4 billion annually. The chemical sector is incredibly diverse, touching every sector of the economy at every level of the nation's value chain.

The chemical sector is one of the primary sources of hydrogen production today, and one of the most promising sectors for low-carbon hydrogen production in the future. The industry's process expertise, infrastructure, sales, and distribution channels along with access to opportunities to build new hydrogen markets makes the chemical sector an essential stakeholder and future partner in Congress' and the Administration's efforts to rapidly scale a national clean hydrogen economy. In addition, the chemical sector's industry's demand for clean hydrogen as a feedstock and as a potential source of



lower-emissions energy for hard-to-abate industrial operations positions our members as likely significant demand drivers in building national markets.

As current and prospective producers, users, and enablers in a new hydrogen economy, our members see the Inflation Reduction Act's (IRA) 45V tax credit, paired with the Bipartisan Infrastructure Law's (BIL) hydrogen hub infrastructure program, as essential catalysts for early, rapid, and nationwide investment in a clean hydrogen economy.

This build-out is not only important to our members, but also critical to the Administration's climate goals and strategy. As stated by DOE, "[t]he production, processing, delivery, storage, and end-use of clean hydrogen, including innovative uses in the industrial sector, are crucial to DOE's strategy for achieving our nation's climate goal of a 100% clean electrical grid by 2035 and net-zero carbon emissions by 2050."<sup>1</sup> This statement reinforces both the importance of clean hydrogen as an emissions abatement pathway and the need for concurrent, independent action and investment across multiple pathways, under multiple timeframes, to reach the nation's 2050 goals.

With this background in mind, ACC urges the U.S. Treasury Department and Internal Revenue Service (hereinafter, "the Department"), to consider the following principles in its implementation of Section 45V and other critical IRA/BIL programs.

- Meeting our Nation's climate objectives requires an all-of-the above energy and manufacturing sector abatement strategy that focuses on reducing emissions not options.
- The 45V tax credit should incentivize investment in all forms of clean hydrogen production technologies that can meet the GHG emissions standards, regardless of the energy source, feedstock or process.
- Regulatory and financial certainty, access to necessary infrastructure, access to critical feedstocks and innovative chemistries, and a clear path from commitment to permitting to operation is necessary.
- The build-out of a nationwide clean-energy grid should complement, not curtail investment in clean hydrogen production and other industrial abatement technologies.
- Taxpayers must be able to rely on the rules in place at the time investment decisions are made. Any subsequent changes to GREET or eligibility rules should grandfather current or pending projects.
- The 45V tax credit should allow and encourage projects to refine the default assumptions in the 45VH2-GREET model with validated data, incentivizing innovation and emissions reduction.

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<sup>1</sup> DOE, Office of Clean Energy Demonstrations, *Regional Clean Hydrogen Hubs* (last visited 2/20/2024), available at <https://www.energy.gov/oced/regional-clean-hydrogen-hubs-0>.



- The Administration must guard against regulatory overreach in interpreting its Section 45V tax credit authority.

## **I. The IRA, BIL, and The Department of Energy Endorse a Diversified “All Of The Above” Approach to Emissions Abatement Technology so Should the Rule**

Achieving the Administration’s economy-wide 2050 net zero goals and Paris commitments will require an extensive suite of solutions appropriate to the unique technical, economic, resource, environmental, and societal factors shaping and constraining climate action. The BIL and IRA reflect this reality in the design, scope, flexibility of its incentive programs, which extend to every sector and are intended to incentivize innovation and investment using fossil and non-fossil inputs and processes.

Within the chemical sector, this need for flexibility is particularly important. The complexity, heterogeneity, and regional diversity of the chemical value chain, combined with the need for energy and operational reliability, redundancy, and security precludes reliance on a few favored feedstocks, energy sources, or technologies. DOE recognized this in its 2022 Industrial Decarbonization Roadmap, stating that “[t]he diversity, complexity, and deep capital investment of the chemical manufacturing subsector leads to parallel RD&D needs” for energy efficiency, industrial electrification, low-carbon fuels, feedstocks, and energy sources, and carbon capture use and sequestration.<sup>2</sup> As discussed below, clean hydrogen can have a prominent role across these categories if properly developed and deployed.

## **II. Clean Hydrogen is an Essential but Uncertain Emissions Abatement Pathway for the Chemical Sector**

DOE has repeatedly recognized hydrogen as an essential abatement technology pathway, mitigation solution, and economic stimulus, particularly for energy-intensive, hard-to-abate industries like chemical manufacturing.<sup>3</sup> The fulfilment of this promise remains uncertain, however, due to the challenges inherent in building a clean hydrogen economy, largely from scratch. Indeed, DOE has noted that, at present, clean hydrogen production is not technically or economically viable for many companies, markets, and regions, making early government leadership and investment critical.<sup>4</sup>

This is where the Section 45V tax credit comes in. Paired with the rapid buildout of H2Hubs and other critical infrastructure, the Section 45V tax credit is one of the most important policy tools the federal government has to jumpstart early investment in a U.S. clean hydrogen economy. Indeed, the

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<sup>2</sup> *Id.* at 55.

<sup>3</sup> DOE, 2023 *Clean Hydrogen Roadmap* (“Clean hydrogen across the entire RDD&D spectrum, catalyzed by the Bipartisan Infrastructure Law and the Inflation Reduction Act, will both enable decarbonization of hard-to-abate sectors and create and preserve good-paying jobs, provide environmental and energy justice benefits, and create energy independence and export opportunities for the United States.”); *Id.*, *Industrial Decarbonization Roadmap* (2022) (“Hydrogen as a feedstock is an important option for decarbonizing industry. Clean hydrogen can serve as a precursor to chemicals production, providing a low-carbon route to methanol, ammonia, hydrazine, and other molecules that serve as feedstocks for other chemicals.”).

<sup>4</sup> See, e.g., <https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf> (24 (challenges); 71 (Actions to support clean hydrogen use and broader market adoption));



DOE's National Clean Hydrogen Strategy and Roadmap noted that "Focused investment and action in the near, mid, and long-term are needed to lay the foundation for broader clean hydrogen adoption, to drive down cost, and increase scale in a sustainable and holistic manner."<sup>5</sup>

But the 45V incentives will only be as impactful as it is practicable, and the level of participation and investment will be driven by the decision made in this rule. The tax credit is time limited. Clean Hydrogen Production (CHP) projects must make investment decisions, begin construction before January 1, 2033. That means companies and investors need certainty now to make decisions and start work on these time and capital-intensive projects.

ACC urges the Administration to focus on one fundamental objective: incentivizing early investment in clean hydrogen production capacity to build a foundation for long-term emissions abatement in hard-to-abate sectors like industrial manufacturing and transportation. Policies should direct support for all technologies, not just agency preferred technologies and provide constructive solutions for implementation. Absent such a central organizing theme, the Department risks creating an incentive in paper only.

### **III. Elements of the NPRM Raise Legal, Policy, and Practical Questions**

As noted in ACC's February 8<sup>th</sup> extension request and discussed below, the NPRM and supporting materials adopt requirements and restrictions that are vague, ambiguous, and potentially inconsistent with the language and/or spirit of the statute. These elements raise legal, policy, and fairness concerns, along with practical implementation questions that are not adequately explained or justified.

#### **1. Investors Need Certainty as to What Standards Will Apply to Their Projects**

Under the NPRM, a taxpayer's Section 45V credit amount is determined based upon the lifecycle GHG emissions rate of the facility's total hydrogen production using "the most recent GREET model," defined as the "latest version of 45VH2-GREET developed by Argonne National Laboratory that is publicly available ...on the first day of the taxable year during which the qualified clean hydrogen for which the taxpayer is claiming the Section 45V credit was produced." This definition and practice would create uncertainty in the terms required for qualification for the 45V tax credit which could discourage its value in making capital investment decisions. Taxpayers that produce hydrogen from a qualified facility are entitled to claim tax credits under Section 45V for a ten-year period that begins on the date that the facility is placed in service. The NPRM require taxpayers (including taxpayers that have already placed in service a qualifying hydrogen facility) to calculate the amount of Section 45V tax credits generated in a given tax year by using the "most recent GREET model" to determine the lifecycle GHG emissions rate. The development of a hydrogen facility will take years and is costly. Taxpayers may not

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<sup>5</sup> See, e.g., <https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf> (24 (challenges); 71 (Actions to support clean hydrogen use and broader market adoption));



invest in the development of hydrogen facilities unless they are confident that future versions of the GREET model will not limit or prevent a hydrogen facility from qualifying for tax credits.

If the final rule allows at-will updates to the 45VH2-GREET model as included in the NPRM, taxpayers will not have certainty that a production facility that qualifies to generate tax credits in the year it is placed in service will not fail to qualify in a future year solely because of an updated GREET model. This rule is punitive and likely may discourage many taxpayers from making investment in clean hydrogen projects deemed marginal without the credit.

We recommend that taxpayers be provided with the option to use the GREET model version in place at the time the investment decision is made or at the latest, beginning of construction. Furthermore, taxpayers should be permitted to use the most recent GREET model at the time hydrogen is being produced but should not be required to do so. The requirement in the NPRM that taxpayers always use the most recent GREET model (even for facilities that were placed in service in prior tax years) would introduce significant uncertainty in whether those facilities may be used to generate clean hydrogen in a way that qualifies for the tax credits.

If the final rule is promulgated, without the option to continue using the GREET Model in place at the time of the initial investment decision, this requirement may also violate the Administrative Procedure Act by effectively allowing the Department to amend the tax credit's governing regulations without notice and comment.

While the 45VH2-GREET model and Form 7210 are not reproduced in the preamble or proposed regulatory text, they are incorporated by reference through the definition and thus constitute essential regulatory language governing the rights and responsibilities afforded to taxpayer making investment decisions based on the tax credit at the time the rule is promulgated.

This requirement in the NPRM is arbitrary and would introduce significant risk to the development of clean hydrogen production facilities and likely would significantly impede the growth of the production of clean hydrogen.

## **2. The Proposal's Reliance on a Novel "Induced Grid Emissions" Doctrine Exceeds the Department's Authority and has Far Reaching Implications for Federal Climate and Energy Policy**

Tucked into the discussion of eligible Energy Attribute Certificate requirements for qualified electricity, the preamble of the NPRM introduces the concept of "Induced Grid Emissions" (hereinafter the "IGE doctrine"). The proposal relies on this novel doctrine to expand its interpretation of a facility's "indirect emissions" (and attributable lifecycle emissions) to encompass any increase in a grid's net emissions associated with the facility's entry to local or regional grid jurisdiction, while restricting the facility's ability to utilize existing local or virtual clean energy generation to reduce its facility footprint.



In the context of the NPRM, the new interpretation establishes a “bring your own 24/7 windfarm” to a new project seeking the tax credit, shifting responsibility for “greening the grid” from regional, state, and local policymakers to each new prospective project applicant and facility and disrupting well established renewable energy markets and trading systems already established in many areas. In doing so, it creates a significant barrier to entry for prospective clean hydrogen production projects and investors, either forcing them to locate in select areas that already have excess low/zero emissions electricity (hereinafter the “LZEE”) generation capacity.

More broadly, the IGE doctrine could have profound implications for domestic energy and industrial policy. It would blur the division of authority between federal and state governments, regional transmission entities, and industrial electricity users with respect to building and maintaining local and regional electric grids. More broadly, it could set the precedent for expanded regulation and permitting of new or modified sources under the auspices of stationary source emissions control.<sup>6</sup> This concept raises novel questions of law, policy, and economics, and has little precedent under prior U.S. law, regulation, or domestic energy policy.

There is no express definition of “induced grid emissions” in the proposal or its supporting documents. Nevertheless, the IGE doctrine appears to adopt the following logic.

- Adding a new or expanded electricity-intensive facility to local or regional transmission network will increase demand for low/zero emissions electricity;
- Many regional grids are currently LZEE-constrained, requiring them to rely on fossil-based generation for a portion of their existing load;
- Adding new industrial demand to an LZEE constrained grid will require increased dispatch of unabated fossil generation which would, in turn, increase the grid’s net emissions.
- The increase in “induced grid emissions” resulting from a new facility’s entry into regional electricity market should be attributed to the new facility as indirect emissions, even if the facility enters into a power purchase agreement, obtains REC, or otherwise procures LZEE energy from existing sources.
- Responsibility for these indirect emissions can only be avoided if the new facility finds or constructs a new source of renewable generation that: i) commences or commenced operation within a specified time window; ii) that is located within a specified distance boundary, and iii) can synchronize the timing of LZEE use in production with timing of the LZEE’s generation.<sup>7</sup>

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There is little to no record of the use or application of the IGE doctrine or the related restrictions on accessing existing LZEE (commonly known as the three pillars) in US policy prior to the current rulemaking proceeding.<sup>8</sup> ACC defers a detailed discussion of the three pillars and the potential impact of different design approaches to others, focusing instead on the underlying legal and policy issues underlying the IGE doctrine itself.

As an initial matter, neither the IRA, the Clean Air Act, nor any other federal statute identifies the risk of “induced grid emissions” as a basis for barring reliance on existing sources of lower emissions electricity for the purposes of regulation or incentives. Such a policy would be a significant expansion of federal authority with implications far beyond this rulemaking and inappropriate for adjudication by the Department.

The IRA provides a flexible, technology-neutral definition of qualified clean hydrogen. Qualified hydrogen must be “produced through a process that results in a lifecycle greenhouse gas emissions rate of not greater than 4 kilograms of carbon dioxide equivalent (CO<sub>2</sub>e) per kilogram of hydrogen.”<sup>9</sup> Further, it must “be produced in the United States... in the ordinary course of business of a trade or business of the taxpayer... for use and sale ... and production and sale or use of such hydrogen is verified by an unrelated party.”<sup>10</sup> Nothing in this definition or elsewhere in Section 45V suggests Congress intended the IRA to authorize a novel and significant expansion to the scope of federal energy regulatory authority over grid-level emissions, electric generation dispatch policy, or interference in the operation of local or regional LZEE markets.

Lacking support for its position in the IRA itself, the Department proffers a novel interpretation of the Clean Air Act, stating in a 2023 Department of Energy White Paper:

“The IRA cites to Clean Air Act 211(o)(1)(H), which requires inclusion of direct and significant indirect emissions. In the context of hydrogen production under 45V, a lifecycle analysis would include induced grid emissions as a source of indirect emissions, consistent with the [EPA’s] longstanding interpretation and application of the [CAA] section in the context of the [RFS] Program.”<sup>11</sup>

The Department’s reliance on prior precedent in the RFS program is misplaced. EPA’s memorandum to the Department distances itself from the Department’s statements, emphasizing that “it has not analyzed the lifecycle [GHG] emissions associated with or conducted a lifecycle analysis for electrolytic hydrogen production..., [n]or has EPA interpreted CAA 211(o)(1)(H) in the context of hydrogen production.” Indeed, far from endorsing the IGE doctrine as “consistent with the [EPA’s]

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longstanding interpretation and application of the [CAA] section in the context of the [RFS] Program,” the memo expressly states, “EPA has not considered the use of three-pillar EACs in conjunction with its lifecycle analyses for fuels that involve the use of grid electricity under the RFS program.”<sup>12</sup>

The IGE’s restriction on the existing LZEE by new facilities could also conflict with other federal and state energy laws and policies. The law governing regulation of electricity markets in the US is complex, with states, local governments, and regulated utilities holding significant authority over energy generation and interstate distribution, connection agreements, local power market decisions, and intrastate ratemaking. By restricting the ability of new CHP plants to utilize LZEE power from the existing LZEE grid (through RECs) or off grid (through contracts) electric resources, the NPRM forces investors to act in the place of their local utilities and transmission providers, denying CHP project investors access to one of the most basic public goods, and potentially interfering with decades of federal and state energy law.

Beyond the basic legal infirmities of the IGE doctrine, its use in the NPRM has significant policy implications, potentially discouraging investment in clean hydrogen production during the life of the tax credit. The eligibility window for new clean hydrogen production projects closes on January 1, 2033, two years before the Administration’s well-publicized goal for achieving a national net-zero grid in 2035. This two-year gap begs the question: Did Congress intend to prioritize the ongoing build out of the lower emissions transmission grid over early investment in a new clean hydrogen economy? Put another way, did Congress intend to prioritize the avoidance of potential short-term “induced grid emissions” from new facilities over long term reductions industrial, transportation, and electric generation emissions needed to reach 2050 goals?

Considering the “all-of-the-above” climate solutions approach reflected in the IRA and BIL, reinforced by many of the Administration’s own climate roadmaps, strategies, and pathway reports, ACC believes that the answer must be no on both counts, and we urge the Department to reconsider this policy.

### **3. The Proposed Rules for Determining a Credit’s Taxable Year Raise Timing and Process Questions**

ACC members have expressed several concerns about timing as it relates to the verification process.

For example, under the statute, the section 45V credit for any taxable year is determined with respect to the qualified clean hydrogen produced by the taxpayer during that taxable year.<sup>13</sup> While the verification of the production and sale figures for the taxable year may be submitted in a later taxable

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<sup>12</sup> McCabe, J. (2023, December 20). 45V NPRM EPA Letter. U.S. Treasury. Retrieved January 14, 2024, from <https://home.treasury.gov/system/files/136/45V-NPRM-EPA-letter.pdf>

<sup>13</sup> 26 USC 45V: Credit for production of clean hydrogen. (n.d.). <https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title26-section45V&num=0&edition=prelim>





year, “the taxpayer would not be eligible to claim the section 45V credit until all relevant verification requirements, and the verification itself, have been completed.” Moreover, “if verification occurred after the extended return filing deadline for the taxable year in which the hydrogen was produced, the taxpayer would need to file an amended return or administrative adjustment request (AAR) to claim the section 45V credit for such hydrogen.”

By contrast both elective pay and transferability elections have to be made on the original return for the year the credits are generated. Accounting for the Section 45V verification process, however, it is possible that a Taxpayers might have to file an amended return if the verification is delayed, bringing into question their ability to change or transfer credits and elect elective pay on the amended return. The final rule should clarify that in cases where a taxpayer must file an amended return, it may change its elections on the amended return,

#### **A. The Department Needs to Complete Provisional Emissions Rate Determinations Following a Project’s Front End Engineering Design**

The proposed timing for provisional emissions rate (PER) applications is incompatible with typical project delivery frameworks that are employed on major capital projects. Taxpayers’ developing capital intensive projects will typically spend significant time analyzing and selecting a specific technology or facility design concept, often referred to as Pre-FEED (Front end engineering design). Pre-FEED completion signals the end of an optionality period, which then progresses into FEED. During FEED, final engineering is completed on the basis that design work is finalized and the project scope is frozen. Waiting until FEED to submit the PER application will delay or eliminate the taxpayers’ ability to progress a project that aligns with standard project assurance and auditing processes. The PER application timing at the end of FEED would also complicate and delay the ability to order long-lead items, which taxpayers must order prior to final investment decisions. Given the uncertainty of the PER process for a given project, it could further delay execution and onstream dates. The more appropriate timing for the PER application is at the completion of pre-FEED. At this time, taxpayers should have developed the following deliverables that would signal sufficient project maturity to apply for a PER: Class 4 Cost Estimate (+/- 30%), Level 2 Schedule, Basis of Design including product specifications and plant capacity requirements, heat & material balance, utility balance, equipment list, preliminary P&IDs, plot plan, Risk Management Plan, Economic assessments, and SOW for FEED phase. Like the discussion in Section II.C, PER grandfathering and future optionality to use GREET should apply to projects receiving a PER.

#### **B. The GREET Model Should Prioritize Verifiable Data over Fixed Assumptions**

ACC recommends that all background data defaults in the 45VH2- GREET model be converted to adjustable, foreground data fields, so producers of clean hydrogen are incentivized to find solutions and license technology that result in the lowest carbon intensity of the hydrogen produced.



The current version of the 45VH2-GREET model “locks” certain key parameters as background data, which will disincentivize or prevent the production of hydrogen using pathways or systems that are significantly less carbon intensive than the relevant background data in the 45VH2-GREET model. Locking these key variables in the 45VH2-GREET model as background data is not an accurate representation for emission intensity of the hydrogen produced.

Examples of frozen default data fields include the distance of natural gas pipelines, the emissions associated with renewable natural gas, and the emissions associated with natural gas, methane leakage rates, etc. Restricting data input to specified averages or other amounts would contradict a fundamental purpose of lifecycle analysis (informing decision-making) and introduce significant inaccuracy to GHG emissions intensity accounting, and resulting payment of credit to taxpayers, as well as potential inconsistency with regulatory reporting. Extensive use of background data also has the potential to significantly limit opportunities to optimize facility design, lead to increased costs, and potentially incentivize the use of less efficient technologies resulting in higher emissions than would otherwise be possible. Below are examples of where the 45VH2-GREET model should be adjusted to allow use of accurate and representative data.

### **1. GHG Emissions Data for Natural-Gas-Based Processes**

The model should allow input of emissions intensity data based on an ISO-specified energy allocation methodology from the specific Natural Gas Supply Chains (extraction, processing, transmission). The Treasury should recognize the efforts of producers that have taken steps to lower the CI of their natural gas below national average values. Further, the Treasury should recognize the efforts of the EPA to create a rigorous measurement, monitoring, reporting, and verification system through its GHG Reporting Program Subparts W and C and accurately reflect methane emissions data as required by the IRA’s Methane Emissions Reduction Program (MERP).

Enhancements of the EPA GHG reporting program for Oil & Gas and implementation of the NSPS OOOO B/C regulations in the next 2-3 years will result in significant reductions in methane emissions and increase the rigor of accounting/validation of those emissions. As Treasury acknowledges the expected maturation of the lower emissions electricity market in the next 3 years, so should the Treasury recognize the strides being made to reduce and measure the carbon intensity of natural gas. Treasury should maintain a consistent approach across the power sector and the natural gas sector to value improvements in carbon intensity. A transition period would be appropriate to allow EPA’s regulatory programs to be fully implemented thereby giving the Treasury certainty of the fidelity of effectiveness and verifiability of the data.

### **2. Emissions Intensity of Valorized Coproducts**



ACC supports the system expansion approach in the proposal, but taxpayers should be able to replace default factors on the amount of co-product steam created with actual data on the amount of co-product steam created (within the proposed guardrails or limits) with proper substantiation.

The proposed regulations do not allow hydrogen produced from natural gas to recognize the emissions reductions achieved and the actual GHG intensity of the hydrogen produced. GREET should allow the taxpayer to input co-product steam as measured by meters. Coproduct steam should be an adjustable data field, 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 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. That is not always the case.

Cryogenic CO<sub>2</sub> capture processes, for example, have higher overall efficiency and negligible steam requirements when compared to amine-based processes. As the cryogenic system is powered via low carbon intensity electricity, it does not require the large amount of steam that an amine-based system requires. Amine absorption has been the primary method of separating CO<sub>2</sub> from gas mixtures for more than 40 years, but technological developments with cryogenic processes have resulted in more efficient and effective CO<sub>2</sub> capture. Taxpayers are not allowed to change this assumption in the model.

The updated 45VH2-GREET model should allow a hydrogen producer with a more efficient carbon capture technology to take credit for co-product steam created during the production process as a result of its carbon capture technology being more efficient. This steam can be used to replace higher CI energy sources in other parts of an energy complex that are not producing hydrogen).

Taxpayers that invest in ways to create more efficient 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 model do recognize this for grey (unabated) hydrogen production pathway, just not hydrogen produced with natural gas and carbon capture.

In short, each default assumption, emissions or capacity factor, or other data field that the 45VH2-GREET model block from update reduces the accuracy and representativeness of the lifecycle data generated through the model and poses the potential to disadvantage one technology, process, or feedstock over another one. Allowing taxpayers to incorporate GHG emission intensities based on verified data in lieu of default figures is an important step toward leveling the playing field across technologies, regions, and processes, while increasing the incentives for innovation and process improvement.



We recommend allowing all background data in the GREET model to be instead treated as adjustable, foreground data fields, allowing producers to substantiate the use of lower emissions hydrogen production technologies, transport infrastructure, power sources and feedstocks through the PER process.

### **3. The Rule Should Allow Use of the Book and Claim System for Clean Hydrogen Production, including Renewable Gas**

Renewable Natural Gas (“RNG”) is the term used for upgraded biogas originated from a variety of organic matter sources including landfills, livestock farms and waste treatment plants. As a biogenic feedstock to reforming processes for hydrogen production, RNG can provide a very low carbon intensity hydrogen and should be permitted for the 45V production tax credit, consistent with the technology neutral focus on emissions intensity in the statute. RNG participation in clean hydrogen production enables economic development of emission abatement in the agriculture sector, which is often far from demand centers and has few alternatives to decarbonize.

RNG production locations are typically not co-located with hydrogen production facilities. Hydrogen producers using RNG as feedstock would rely on the natural gas common carrier pipeline network for RNG supply. This makes book and claim accounting critical for RNG-based clean hydrogen production systems.

The term “book-and-claim” refers to a regulator-approved, indirect accounting system which tracks the transport of physical quantities and associated environmental attributes (e.g., RNG, natural gas) through a physically connected network (e.g., commercial pipelines) to end use facilities (e.g., hydrogen production plants or CNG vehicles).

EPA’s Renewable Fuel Standard (“RFS”) and California’s Low Carbon Fuel Standard (“LCFS”) recognize book-and-claim accounting for RNG in their rules and it should be allowed here. Taxpayers should be allowed to use existing policies that are heavily audited and scrutinized through regulatory agencies (such as EPA and CARB) to substantiate the carbon intensity of the RNG used for hydrogen production. Treasury should not develop a separate administratively burdensome process/requirement that would be inconsistent with the regulations and policies currently in place under the EPA and CARB or other state regulatory agencies. The hydrogen regulations should allow book-and-claim accounting for RNG without additional restrictions for the following reasons:

- The “book-and-claim” systems in both the RFS and LCFS programs have robust substantiation through commercial agreements, attestations, and routine reconciliations, which are audited on an annual basis. These programs require approved third-party verifiers to confirm the validity of the attestations.



- The Biogas Regulatory Reform Rule (BRRR) provides even more stringent requirements for RNG production and distribution to ensure high-quality accounting to reduce any risk of double counting of Renewable Identification Numbers (“RINs”).<sup>14</sup>
- RINs are closely tracked in the EPA Moderated Transaction System (“EMTS”) and LCFS credits in the LCFS Reporting Tool and Credit Bank & Transfer System (“LRT-CBTS”).
- The Q-RIN Quality Assurance Plans (QAP) under the RFS Program is a voluntary program where third-parties audit and verify that RINs have been properly generated and are valid for compliance purposes. The RFS QAP is an established industry standard for RNG that uses the chain of custody to substantiate RNG production and distribution. Protocols to implement third party QAP programs are approved by EPA staff and must meet program criteria to be allowed.
- There are various national tracking systems (e.g., M-RETS), but these registries are all private and limited. Registries require significant resources and extended deployment time, which would limit or unduly delay the hydrogen industry. Regulators have not prioritized the build-out of a registry because existing systems are working effectively to date. In lieu of a national registry, the existing policies and procedures under EPA and CARB will provide adequate support for the use of RNG for hydrogen production.

#### **4. 45V Guidance Should Differentiate Between Electricity and Natural Gas Sourcing**

The interstate pipeline system enables injected physical quantities to be accounted for and tied to equivalent quantities that can be dispensed elsewhere in the network carrying associated environmental attributes with assurance. Therefore, restrictions on sourcing are not relevant for natural gas, including RNG and would cause a significant value discrepancy for new projects creating a market distortion, greater risk of stranded gas for existing projects, added complexity, and higher prices for end-consumers. There should be no restrictions on RNG to ensure investor confidence in developing RNG supply.

#### **IV. Conclusion**

ACC appreciates the opportunity to provide comment on the 45V Clean Hydrogen Production Tax Credit and would welcome the opportunity to talk further regarding opportunities to identify and maximize opportunities to improve the tax credit that both strengthen American communities, address the impacts of climate change through opportunities provided by the IRA and other authorities, and capitalize on American chemical manufacturers commitment to scale the hydrogen economy and reduce greenhouse gas emissions. If you have any questions or would like more information, please feel free to contact me at [Kimberly.White@americanchemistry.com](mailto:Kimberly.White@americanchemistry.com) or (202) 249-6707.

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<sup>14</sup> <https://www.epa.gov/renewable-fuel-standard-program/final-renewable-fuels-standards-rule-2023-2024-and-2025>.



Sincerely,

A handwritten signature in blue ink, appearing to read 'K. White', written over a light blue horizontal line.

Kimberly Wise White, Ph.D.  
Vice President, Regulatory and Scientific Affairs  
American Chemistry Council



cc:

Mr. John Podesta, Senior Advisor to the President  
Clean Energy Innovation and Implementation  
The White House

The Honorable David Crane, Under Secretary of Infrastructure  
U.S. Department of Energy

The Honorable Wally Adeyemo, Deputy Secretary of the Treasury  
U.S. Department of the Treasury

Mr. Seth Hanlon, Deputy Assistant Secretary for Tax and Climate Policy  
Internal Revenue Service  
U.S. Department of the Treasury

Dr. Sunita Satyapal, Director  
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