February 13, 2024

Commissioner Daniel Werfel
Internal Revenue Service
CC:PA:LPD:PR (REG–117631–23)
Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

RE: Comments on the IRS' Proposed Section 45V Credit for Production of Clean Hydrogen

Dear Commissioner Werfel:

Thank you for the opportunity to comment on the Internal Revenue Service's (IRS) proposed regulations regarding the Section 45V Credit for Production of Clean Hydrogen. If properly implemented, the incentives for producing low-emissions sources of energy and fuel in the Inflation Reduction Act (IRA) will drive significant reductions in greenhouse gas (GHG) emissions and grow American jobs. Growth Energy is the nation's largest association of biofuel producers, representing 97 U.S. plants that each year produce 9.5 billion gallons of low-carbon, renewable fuel; 115 businesses associated with the production process; and tens of thousands of biofuel supporters around the country. Our members are committed to developing a robust low-carbon, renewable fuel market in the United States, including sustainable aviation fuels (SAF), consistent with national climate goals and commitments. A number of our members have already made substantial investments in SAF and low carbon intensity on-road transportation fuel production, and the IRA's Section 40B and 45Z tax credits have the potential to greatly accelerate this trend.

Growth Energy's comments below focus on the IRS' proposed application of the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model (commonly referred to as the "GREET model") for calculating the lifecycle emissions of hydrogen. Similar to the IRA's provisions on SAF and clean fuel qualification, Section 45V establishes certain lifecycle GHG emissions standards in order to qualify as "clean hydrogen."[1] Section 45V provides that lifecycle emissions will be "determined under the most recent [GREET] model developed by Argonne National Laboratory, or a successor model (as determined by the Secretary).[2] In the proposed rule implementing the

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[1] *See* 26 U.S.C. § 45V(c)(2).
[2] 26 U.S.C. § 45V(c)(1)(B).

Section 45V tax credit, the IRS interprets "most recent GREET model" to mean "the latest version of 45VH2–GREET developed by Argonne National Laboratory (ANL) that is publicly available on the first day of the taxpayer's taxable year in which the qualified clean hydrogen for which the taxpayer is claiming the section 45V credit was produced."[3] The 45VH2-GREET model is, however, a *successor* GREET model modified specifically for this context and distinct in various features from the GREET model for calculating hydrogen's lifecycle emissions in existence when the IRA was enacted.

As explained further below, a proper interpretation of the IRA demonstrates that Congress' intent was for the Argonne GREET model used for over a decade before enactment of the IRA, and which is annually updated in accordance with new science and data, to be the "most recent GREET model" referenced by the statute. The 45VH2-GREET Model is a successor model, and as such, must adhere to the best available science for calculating lifecycle GHG emissions consistent with the function and principles of the original Argonne GREET model. These foundational principles are similarly applicable to deployment of any 40B-GREET and 45Z-GREET model the Department of Energy may develop and IRS may require. Doing so will not only ensure adherence to the IRA and the accuracy of the lifecycle analysis, but also create stability and certainty regarding the significant investments being made in low-carbon energy and fuel sources.

The Bespoke 45VH2-GREET Model is a "successor model" to Argonne GREET

By incorporating the GREET model as a basis for determining the qualification of energy and fuel sources for certain IRA tax credits, Congress did not intend Treasury to have flexibility to require *any* conceivable formulation of the GREET model to be used. Nor did Congress' reference to the use of the "most recent GREET model" contemplate Treasury's use of a bespoke, newly created version of the model that departs in various respects from the base Argonne GREET model widely used at the time of enactment of the IRA. A more accurate and reasonable interpretation of the statute is that the IRS is requiring use of a "successor model."

As noted above, Section 45V of the IRA defines "lifecycle greenhouse gas emissions" as follows:

> The term "lifecycle greenhouse gas emissions" shall only include emissions through the point of production (well-to-gate), as determined under the most recent Greenhouse gases, Regulated Emissions, and Energy use in Transportation model (commonly referred to as the 'GREET model')

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[3] 88 FR 89,220 at 89,223 (Dec. 26, 2023).

developed by Argonne National Laboratory, or a successor model (as determined by the Secretary)."[4]

A plain text reading of this provision indicates that Congress used the phrase "most recent" to refer to the GREET model in existence at the time of the passage of the IRA, rather than a reference to any future formulation of the GREET model. There cannot be a "most recent" version of **45VH2**-GREET, as that model that has never previously existed. Moreover, the GREET model is a long-standing and well-established U.S. government-developed model for calculating lifecycle GHG emissions. Given the long history of updates to the GREET model over time, the requirement to measure lifecycle GHG emissions using the "most recent" version should be read as simply distinguishing the most recent annually updated version from prior versions. This reading follows logically from the statute's reference to "a successor model" as distinct from the "most recent" GREET model. Indeed, Congress would not have needed to specify the possibility of a successor model if that concept is encompassed by the reference to the "most recent" GREET model.

Similarly, in light of this context and the overall provision, Congress' use of the phrase "successor model" must also be read as allowing only for subsequent iterations of the GREET model that hew closely in function and principle to the Argonne GREET model in existence at the IRA's enactment. As noted above, the Argonne GREET model was the only version known to Congress when it drafted this language; it would be unreasonable to read this provision as an invitation to use a radically different version of GREET that is untethered from the basic structure, inputs, and purpose of the Argonne GREET model (i.e., something that would more closely resemble an "alternative" model rather than a "successor"). The well-accepted principle of agency law and statutory interpretation that Congress does not intend to delegate authority to agencies without sufficient guidelines further counsels against such an open-ended reading.[5] To effectuate Congress' intent, therefore, the IRS may still develop technology- or fuel-specific "successor" GREET models — such as the proposed 45VH2-GREET and any forthcoming 40B- or 45Z-GREET — but should ensure that any such model closely adheres in function and conceptual approach to the Argonne GREET model in existence at the time Congress enacted the IRA.

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[4] 26 U.S.C. § 45V(c)(1)(B); *see also id.* § 45Z(b)(B)(ii) (requiring calculation of GHG emissions of non-SAF transportation fuel using "the most recent determinations under the [GREET] model developed by Argonne National Laboratory, or a successor model (as determined by the Secretary).
[5] *See, e.g., Mistretta v United States*, 488 U.S. 361, 373 n.7 (1989).

Any "Successor" GREET Model Should Incorporate the Best Available Science on Lifecycle Emissions Analysis

It is critical that in requiring use of any GREET successor model the IRS ensures that it incorporates the best available science. We attach as an appendix to this letter an expert report developed by Environmental Health and Engineering ("EH&E"), a multidisciplinary team of environmental health scientists and engineers, which provides a thoughtful framework for critically evaluating the scientific literature on lifecycle emissions analysis.

Incorporating the best available science ensures that the lifecycle emission analysis (LCA) is based on accurate and credible data, particularly when accounting for inputs such as emissions from indirect land-use change (iLUC) which can be relevant in to biofuels' LCA. Overestimating such variables based on outdated or non-credible science can result in drastically overestimated carbon intensities for biofuels that the IRA was intended to incentivize, potentially excluding them from accessing the credits. For example, EPA's 2010 assessment of ethanol's lifecycle GHG emissions substantially overestimated iLUC emissions. The attached EH&E report explains that, through refinements to model design and updated data since 2010, estimates for iLUC for ethanol are converging approximately two to four times **lower** than EPA's 2010 assessment.[6] This example demonstrates the significance of incorporating accurate and updated scientific estimates into lifecycle emissions analyses.

In the attached report, EH&E provides a simple framework for evaluating the best available science that the IRS should incorporate into any successor GREET model, such as here under 45V as well as in the forthcoming 40B-GREET model and 45Z rulemakings. EH&E suggests four fundamental criteria for evaluating scientific credibility: 1) general acceptance in the scientific community, 2) refinement in modeling techniques, 3) completeness of the underlying data, and 4) transparency.[7] These criteria consider and incorporate recommendations from the recent National Academy of Sciences consensus report, *Current Methods for Life Cycle Analyses of Low-Carbon Transportation Fuels in the United States*.[8] Critical evaluation of the scientific literature

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[6] *See* Environmental Health & Engineering, *Response to Proposed Renewable Fuel Standard (RFS) Program Standards for 2023-2025*, Part I (February 10, 2023) ("EH&E Report").

[7] *Id.*

[8] *Current Methods for Life Cycle Analyses of Low-Carbon Transportation Fuels in the United State,* Nat'l Acads. of Sci., Eng'g, Med. (Oct. 2022).

would exclude works that rely on erroneous and unrealistic model assumptions, which ultimately distort the lifecycle emissions calculation.[9]

As the EH&E report demonstrates, lifecycle analyses based on outdated or otherwise inaccurate science can dramatically overestimate the carbon intensity of energy or fuel sources, risking the possibility of excluding them from qualification under the IRA. Excluding valuable low-carbon technologies and fuels on this basis not only undermines the decarbonization goals of the IRA but also harms U.S. producers and businesses. In a similar vein, erecting artificial barriers to use of clean energy sources to produce low-carbon fuels, such as IRS's proposal to disallow renewable natural gas (RNG) use unless proven to the be "first productive use" is problematic in the 45V context, as well as if carried over into other tax credit provisions.[10]

The IRS Should Ensure that Stakeholders Have the Opportunity to Comment on Any Future GREET Successor Model Developed to Implement the IRA

Growth Energy appreciates that the IRS requests comment on the 45VH2– GREET model in the proposed rulemaking on the 45V hydrogen tax credit.[11] We urge the IRS to provide a similar opportunity to comment on any other "successor" GREET model contemplated for use in the Section 40B and 45Z tax credit contexts. Doing so would ensure that stakeholders, such as Growth Energy's members, are provided a full and fair opportunity to be heard on such a critical regulatory decision affecting their businesses.

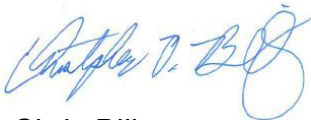<div align="center">*   *   *</div>

Growth Energy appreciates the IRS's consideration of this input as it finalizes the 45V hydrogen tax credit regulations, and would welcome the opportunity to provide comments on behalf of its members regarding future rulemakings to implement the 40B and 45Z credits. We look forward to engaging further on this important work and would be happy to meet with your staff to present on these issues in more detail and answer any questions.

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[9] *See* Letter from Growth Energy to the Treasury Department, "RE: Implementation of Sustainable Aviation Fuel and Clean Fuel Production Tax Credits," November 4, 2022, pp. 3-4 (explaining, for example, that the CORSIA model for calculating lifecycle emissions from SAF relies on outdated models and inapplicable data from non-U.S. contexts, particularly with respect to indirect land-use change).
[10] 88 Fed. Reg. at 89,240.
[11] *See, e.g.*, 88 Fed. Reg. at 89,224, 89,225.

Sincerely,

Chris Bliley
Senior Vice President of Regulatory Affairs
Growth Energy