December 2, 2022

Internal Revenue Service
CC:PA:LPD:PR (Notice 2022-58)
Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

Re: Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production, Notice 2022-58

The Coalition for Renewable Natural Gas ("RNG Coalition") represents the renewable natural gas ("RNG") industry in North America. We are a non-profit association of companies and organizations dedicated to the advancement of RNG as a clean, green, alternative, and domestic energy and fuel resource. Our membership includes companies throughout the value chain of waste feedstock conversion to end uses, including transportation fuel.

The Inflation Reduction Act of 2022 ("IRA") presents a significant opportunity to reduce greenhouse gas ("GHG") emissions and move this country toward decarbonization. Increased deployment of RNG is and should be a key component of these efforts. RNG is biogas-derived fuel that has been captured from organic waste streams—including agricultural wastes, municipal wastewater, and municipal solid waste in landfills—and upgraded to achieve quality standards necessary to blend with or substitute for geologic natural gas. Every community in America produces organic waste. As that waste breaks down, it emits methane, which is a naturally occurring, but potent and harmful GHG. RNG projects capture this methane from existing food waste, animal manure, wastewater sludge and garbage, and redirect the methane away from the environment, repurposing it as a clean, green energy source.

The Department of Treasury and the Internal Revenue Service (collectively, "IRS") have indicated that they plan to issue guidance on the clean hydrogen production credit under § 45V of the Internal Revenue Code and the clean fuel production credit under § 45Z of the Internal Revenue Code, both as amended or added by the IRA. RNG can be used as a feedstock for the production of clean hydrogen and is used as a transportation fuel in natural gas vehicles in the form of renewable compressed natural gas ("CNG") and renewable liquified natural gas ("LNG"). Substantial capital investments are required to upgrade biogas to RNG, and, due to the lifetime of these projects, the return on investment requires long-term stability and regulatory certainty. As such, implementation of these credits is of significant interest to the members of RNG Coalition. We appreciate the opportunity to provide these comments in response to Notice 2022-58.

With regard to Notice 2022-58, the guidance we believe is needed most quickly includes the following.

- The IRS should promote consistency in lifecycle GHG emissions analysis, allowing facilities to use the GREET model for hydrogen and fuel production tax credits.
    - Consistent with the GREET model, any lifecycle modeling used for determining lifecycle GHG emissions for pathways involving RNG (which is derived from organic wastes) should include avoided emissions and should consider market based instruments and allow for use of book-and-claim accounting.
    - While the IRS can use and allow use of default values from GREET (or other credible source), companies should retain the flexibility to seek facility specific GHG emissions determinations. This can incentivize facilities to seek additional GHG reductions in their production process. Such requests could be sought prior to actual production of the fuel.
- To support additional GHG reductions and in light of the various uses of RNG, the IRS should clearly outline how the various tax credits overlap with respect to RNG projects, giving facilities flexibility to utilize the most appropriate tax incentives, without unduly restricting the ability to seek applicable credits while avoiding duplicative credits. The IRS should also clearly outline when and how the prevailing wage and/or apprenticeship requirements apply to these potentially related credits to receive enhancements.
- The IRS also should seek to facilitate any recordkeeping requirements, recognizing existing requirements under federal and state law and minimizing actual and ongoing monitoring of emissions in light of the goals of the IRA.

## I. BACKGROUND

### A. § 45V Clean Hydrogen Production Credit

The production credit under § 45V applies to qualified clean hydrogen produced after 2022 at a qualified clean hydrogen production facility during the 10-year period beginning on the date the facility is originally placed in service. As explained by the IRS, the amount of the § 45V credit ranges from $0.12 to $0.60 per kilogram of qualified clean hydrogen produced (adjusted annually for inflation), depending on the lifecycle greenhouse gas ("GHG") emissions rate that results from its production. Qualified clean hydrogen is defined in § 45V to include hydrogen that is produced through a process that results in a lifecycle GHG emissions rate of not greater than 4 kilograms of carbon dioxide equivalent ("$CO_2$-e") per kilogram of hydrogen. If the qualified clean hydrogen facility meets the prevailing wage and apprenticeship requirements, the credit amount is multiplied by five, resulting in an applicable amount that ranges from $0.60 to $3.00 per kilogram of clean hydrogen produced.[1] The production and sale or use of the hydrogen by the taxpayer must be verified by an unrelated party. A taxpayer may not claim a § 45V credit for qualified clean

[1] The higher credit amount also applies if the construction of the facility begins prior to the date that is 60 days after the Secretary publishes guidance with respect to the prevailing wage and apprenticeships requirements, unless the facility is altered or repaired after that date. RNG Coalition submitted requests for clarifications on these requirements in separate comments submitted in response to Notice 2022-51. The IRS recently issued initial guidance on these requirements. 87 Fed. Reg. 73,580 (Nov. 30, 2022).

hydrogen produced at any facility that includes carbon capture equipment for which a credit is allowed to any taxpayer under § 45Q for the taxable year or any prior taxable year.

RNG can be used as a feedstock for the production of renewable hydrogen, providing another avenue for zero-carbon and carbon-negative renewable gas in the energy, transportation, and industrial sectors.[2] Renewable hydrogen at scale could significantly reduce carbon emissions from various applications. When renewable hydrogen production is paired with carbon capture and sequestration ("CCS"), the hydrogen production process using RNG is ultimately carbon negative, making RNG an important part of this country's decarbonization plans. RNG can also be used as a source of energy that can further reduce a facility's GHG emissions.

As the IRS recognizes, the U.S. Department of Energy ("DOE") recently proposed a Clean Hydrogen Production Standard which is intended to be consistent with the definition of qualified clean hydrogen under the IRA.[3] In the Draft CHPS Guidance, DOE proposed to base the standard on lifecycle GHG emissions—"well to gate"—and recognized reforming of RNG as a biomass-based system for production of "clean hydrogen" should meet that standard.[4] RNG Coalition generally supported DOE's proposed guidance and urges the IRS to coordinate with DOE on these efforts.

### B. § 45Z Clean Fuel Production Credit

The credit under § 45Z is equal to the product of (1) the applicable amount per gallon (or gallon equivalent) with respect to any transportation fuel that is (a) produced by the taxpayer at a qualified facility, and (b) sold by the taxpayer in a manner described in § 45Z(a)(4) during the taxable year, and (2) the emissions factor for such fuel (as determined under § 45Z(b)). The applicable amount ranges from $0.20 to $1.00, depending on whether the facility satisfies certain prevailing wage and apprenticeship requirements. These amounts are increased to $0.35 and $1.75, respectively when the transportation fuel is sustainable aviation fuel. The applicable amounts will be adjusted annually for inflation. Section 45Z applies to fuel produced and sold after December 31, 2024, and before January 1, 2028.

The U.S. Environmental Protection Agency ("EPA") has found that renewable CNG and LNG are "advanced biofuels" under the Renewable Fuel Standard ("RFS") program.[5] RNG can

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[2] *See, e.g.,* European Commission, Questions and answers: A Hydrogen Strategy for a climate neutral Europe (2020), https://ec.europa.eu/commission/presscorner/detail/en/QANDA_20_1257 ("Renewable hydrogen may also be produced through the reforming of biogas (instead of natural gas) or biochemical conversion of biomass, if in compliance with sustainability requirements.").

[3] *See* DOE, *Clean Hydrogen Production Standard (CHPS) Draft Guidance*, at 2 (2022), *available at* https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard.pdf ("Draft CHPS Guidance").

[4] *Id.* at 3.

[5] 40 C.F.R. §80.1426, Table 1. RNG transportation fuels are eligible as "cellulosic biofuels," which is a category of advanced biofuels. RNG comprises over 95% of the cellulosic biofuels sold in the United States under the RFS program. RNG is also eligible to be used for renewable electricity, although EPA has not yet approved RIN generation for any projects under the RFS program. EPA recently issued a proposed rule that would govern the generation of qualifying renewable electricity under the RFS program.

also be used as a feedstock for liquid fuels, including sustainable aviation fuel.[6] RNG Coalition, therefore, urges the IRS to ensure that any guidance on § 45Z include provisions to account for RNG as both a fuel and as a feedstock for liquid fuels. As noted above, RNG can also be used as a source of energy for production facilities, further reducing their GHG emissions. In all of these cases, downstream parties should be able to use a "book and claim" process (as discussed below) to utilize RNG distributed via commercial pipelines as is allowed in other decarbonization regulatory and voluntary programs, such as the RFS program.

## II. REQUEST FOR COMMENTS

The IRS requests comments on questions arising under § 45V (and the associated clean hydrogen production incentives in §§ 45 and 48) and under § 45Z that should be addressed in guidance. We provide responses, as applicable, to these requests for comments, which are reprinted in ***bold italics*** below. RNG Coalition reserves the right to provide more information to IRS on these issues, including, but not limited to, after reviewing any draft guidance that is subsequently issued.

### A. Credit for Production of Clean Hydrogen

***(1) Clean Hydrogen. Section 45V provides a definition of the term "qualified clean hydrogen." What, if any, guidance is needed to clarify the definition of qualified clean hydrogen?***

*Response to Request for Comment (1):* RNG Coalition supports allowing the use of the GREET model for determining lifecycle GHG emissions. However, any guidance on the definition of qualified clean hydrogen should confirm that GHG emissions associated with production of biomass feedstocks include avoided emissions benefits from organic waste to RNG for all GHGs (e.g., methane).

Organic wastes emit methane when they are left untreated in covered landfills, lagoons, or other disposal applications and require no material substitutes. Capturing and upgrading methane gas for biofuel production results in a negative displacement effect. GHG emissions associated with production of biomass feedstocks should include both avoided emissions benefits from organic waste to RNG for all GHGs (e.g., methane) as well as sinks of $CO_2$ as biogenic material (that eventually becomes the organic waste) is grown.

This approach would be consistent with other regulatory programs that consider lifecycle GHG emissions. For example, when assessing a company's carbon intensity score under California's Low Carbon Fuel Standard program, the California Air Resources Board accounts for avoided methane emissions from diversion of wastes to anaerobic digestors. This is a key benefit of RNG and can result in negative emissions associated with RNG. These negative emissions can

[6] RNG Coalition has urged EPA to include provisions to allow for RNG use as a "biointermediate" feedstock for the production of liquid fuels.

be substantial.[7] Moreover, because RNG can have negative GHG emissions (i.e., remove carbon from the atmosphere) and the statute uses a formula to determine the emissions rate, we ask the IRS to confirm that the applicable amounts for facilities/fuels with negative emissions rates may exceed the base amounts in the statute. At a minimum, these fuels should get the full base/alternative amount of the credit (e.g., $1.00/$1.75).

***(a) Section 45V defines "lifecycle greenhouse gas emissions" to "only include emissions through the point of production (well-to-gate)." Which specific steps and emissions should be included within the well-to-gate system boundary for clean hydrogen production from various resources?***

*Response to Request for Comment (1)(a):* Section 45V properly limits the lifecycle GHG emissions to include emissions through the "point of production." It is critical to quantify and track the carbon intensity of hydrogen pathways based on onsite and upstream production emissions. Congress recognized this in referencing a "well-to-gate" approach. This accounting approach includes emissions associated with feedstock production, feedstock transportation, losses, flaring, hydrogen production, and carbon capture and storage (if applicable). A lifecycle analysis accounts for the climate impacts associated with hydrogen production pathways. It also helps reduce market misrepresentations and facilitates the development of a credible clean hydrogen market. As this is a production tax credit, this properly would not include downstream emissions.

In footnote 3 on page 5 of Notice 2022-58, the IRS indicates that the well-to-gate system boundary for hydrogen production "includes emissions associated with feedstock growth, gathering, and/or extraction; feedstock delivery to a hydrogen production facility; conversion of feedstock to hydrogen at a production facility; generation of electricity consumed by a hydrogen production facility (including feedstock extraction for electricity generation, feedstock delivery, and the electricity generation process itself); and sequestration of carbon dioxide generated by a hydrogen production facility." While RNG Coalition does not necessarily dispute this description for certain hydrogen production processes, we do not believe it necessarily applies to all possible hydrogen production facilities, particularly those using RNG. For example, the phrasing "feedstock extraction" seems a little targeted to fossil fuel sources, while feedstock growth and gathering could more aptly apply to crop-based feedstocks. We would suggest clarifying that organic waste biomass feedstocks also are available feedstocks, which result in avoided emissions benefits.

It is also not clear whether all facilities will utilize electricity to power their facilities. For example, biogas/RNG can be used as a source of power to operate equipment. That being said, for those facilities that do use electricity, we agree that the differences in emissions associated with how the electricity is generated should also be a part of the lifecycle analysis. As discussed in the response to request for comment (4)(f), this should include consideration of any credits for use of renewable energy.

[7] Section 45Z(b)(1)(C) includes provisions on rounding, providing that, in the case of an emissions rate that is between 2.5 kilograms of $CO_2e$ per mmBTU and -2.5 kilograms of $CO_2e$ per mmBTU, the Secretary *may* round such rate to zero. It does not address negative emissions beyond -2.5 kilograms of $CO_2e$ per mmBTU.

RNG Coalition notes that the IRS should allow an individual facility to seek facility-specific analysis rather than only rely on default values or an emissions rate table. If RNG is used, companies should have the option to use a site specific value or the look up table to determine the applicable emissions rate.

***(b)(i) How should lifecycle greenhouse gas emissions be allocated to co-products from the clean hydrogen production process? For example, a clean hydrogen producer may valorize steam, electricity, elemental carbon, or oxygen produced alongside clean hydrogen.***

***(ii) How should emissions be allocated to the co-products (for example, system expansion, energy-based approach, mass-based approach)?***

***(iii) What considerations support the recommended approaches to these issues?***

*Response to Request for Comment (1)(b):* The appropriate allocation of emissions to co-products may depend on the feedstock and production process being utilized by the facility, as well as the type of co-product. System expansion, energy, and mass-based allocation are all valid lifecycle assessment co-product methods that can be employed properly in the hands of trained experts. However, if all are allowed, we recommend clear reporting on which method was used.

***(c)(i) How should lifecycle greenhouse gas emissions be allocated to clean hydrogen that is a by-product of industrial processes, such as in chlor-alkali production or petrochemical cracking?***

***(ii) How is byproduct hydrogen from these processes typically handled (for example, venting, flaring, burning onsite for heat and power)?***

*Response to Request for Comment (1)(c):* Not applicable.

***(d) If a facility is producing qualified clean hydrogen during part of the taxable year, and also produces hydrogen that is not qualified clean hydrogen during other parts of the taxable year (for example, due to an emissions rate of greater than 4 kilograms of CO2-e per kilogram of hydrogen), should the facility be eligible to claim the § 45V credit only for the qualified clean hydrogen it produces, or should it be restricted from claiming the § 45V credit entirely for that taxable year?***

*Response to Request for Comment (1)(d):* It is unclear the scenarios that are contemplated by this request for comment. Facilities should be incentivized to produce clean hydrogen, and RNG Coalition supports applicable tax credits for use of RNG as a feedstock to produce hydrogen.

Nonetheless, we suggest that the determination of whether the hydrogen is qualified clean hydrogen be measured on an annual (or other periodic) basis and that the credits be available in respect of all hydrogen produced during any measurement period in which the hydrogen meets the definition.

***(e) How should qualified clean hydrogen production processes be required to verify the delivery of energy inputs that would be required to meet the estimated lifecycle greenhouse gas emissions rate as determined using the GREET model or other tools if used to supplement GREET?***

***(i) How might clean hydrogen production facilities verify the production of qualified clean hydrogen using other specific energy sources?***

***(ii) What granularity of time matching (that is, annual, hourly, or other) of energy inputs used in the qualified clean hydrogen production process should be required?***

*Response to Request for Comment (1)(e):* Federal and state government agencies may require reporting of GHG emissions, which may include verification measures. IRS should allow facilities to rely on these reporting requirements to report their direct emissions. For example, generation of Renewable Identification Numbers ("RINs") or credits for fuel pathway approved by the EPA, the California Air Resources Board ("CARB"), or similar agency and subject to third party verification/quality assurance methods in the RFS or Low Carbon Fuel Standard programs should also be an acceptable method of demonstrating GHG emissions performance in this process. Otherwise, facilities should be able to rely on GREET Modelling to determine upstream emissions.

***(2) Alignment with the Clean Hydrogen Production Standard. On September 22, 2022, the Department of Energy (DOE) released draft guidance for a Clean Hydrogen Production Standard (CHPS) developed to meet the requirements of § 40315 of the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58, 135 Stat. 429 (November 15, 2021). The CHPS draft guidance establishes a target lifecycle greenhouse gas emissions rate for clean hydrogen of no greater than 4.0 kilograms CO2-e per kilogram of hydrogen, which is the same lifecycle greenhouse gas emissions limit required by the § 45V credit. For purposes of the § 45V credit, what should be the definition or specific boundaries of the well-to-gate analysis?***

*Response to Request for Comment (2):* Please see response to request for comment (1)(a). As noted in that response, inclusion of upstream emissions (e.g., avoided emissions) is important to ensure a diversity of feedstock sources, which is consistent with Congressional intent in supporting hydrogen production in the United States through the Bipartisan Infrastructure Law and the IRA. We incorporate by reference our comments on DOE's Draft CHPS Guidance, which are provided as an attachment to this letter.

DOE's Draft CHPS Guidance attempts to be aligned with the definition of qualified clean hydrogen under the IRA. As noted above, we urge the IRS and DOE to coordinate on these definitions and lifecycle GHG emissions analysis.

***(3) Provisional Emissions Rate. For hydrogen production processes for which a lifecycle greenhouse gas emissions rate has not been determined for purposes of § 45V, a taxpayer may file a petition with the Secretary for determination of the lifecycle greenhouse gas emissions rate of the hydrogen the taxpayer produces.***

***(a) At what stage in the production process should a taxpayer be able to file such a petition for a provisional emissions rate?***

***(b) What criteria should be considered by the Secretary in making a determination regarding the provisional emissions rate?***

*Response to Request for Comment (3)*: The taxpayer should be allowed to submit the petition prior to production being started. RNG facilities have experience seeking and obtaining carbon intensity scores from CARB under California's Low Carbon Fuel Standard. EPA also has a petition process to obtain an approved pathway under the RFS program, if not already established. In both cases, these petitions are allowed prior to production. Information needed to conduct a lifecycle analysis can be based on facility design, third-party databases, literature, and data from other regulatory programs. It is important to note that lifecycle analysis should not be used to determine actual emissions akin to monitoring emissions out of a smokestack. Rather, the lifecycle analysis is a tool for comparison purposes and, as such, default values and other standard information can be utilized to determine emissions rates.

***(4) Recordkeeping and Reporting.***

***(a) What documentation or substantiation do taxpayers maintain or could they create to demonstrate the lifecycle greenhouse gas emissions rate resulting from a clean hydrogen production process?***

*Response to Request for Comment (4)(a):* Please see response to request for comment (1)(e).

***(b) What technologies or methodologies should be required for monitoring the lifecycle greenhouse gas emissions rate resulting from the clean hydrogen production process?***

*Response to Request for Comment (4)(b):* Please see response to request for comment (1)(e). As noted above, a lifecycle analysis is a tool for comparison purposes and attempting to monitor certain emissions, such as those upstream from the facility, would not seem feasible or warranted, even when facilities utilize site-specific GHG analysis. Instead, IRS should include some process for determining process changes (e.g., change in feedstock or source of energy) that could impact the lifecycle assessment, rather than seeking to monitor actual emissions from any particular facility.

***(c) What technologies or accounting systems should be required for taxpayers to demonstrate sources of electricity supply?***

*Response to Request for Comment (4)(c):* Please see response to request for comment (1)(e). RNG projects participating in the RFS program typically undergo third-party auditing

through the quality assurance program established by EPA. This auditing would typically include a review of energy use at a facility, as appropriate under an EPA-approved plan. As discussed in the response to request for comment (4)(f), this should include accounting of any credits for use of renewable energy.

***(d) What procedures or standards should be required to verify the production (including lifecycle greenhouse gas emissions), sale and/or use of clean hydrogen for the § 45V credit, § 45 credit, and § 48 credit?***

*Response to Request for Comment (4)(d):* Please see response to request for comment (1)(e). Under the RFS program, sufficient paperwork demonstrating that the fuel will be used for transportation purposes is required in order to generate a RIN under that program. EPA's current regulations could be used as a model for IRS to identify the proper contracts and documentation that could be used to show production and sale of hydrogen without creating additional, undue regulatory burdens.[8]

***(e) If a taxpayer serves as both the clean hydrogen producer and the clean hydrogen user, rather than selling to an intermediary third party, what verification process should be put in place (for example, amount of clean hydrogen utilized and guarantee of emissions or use of clean electricity) to demonstrate that the production of clean hydrogen meets the requirements for the § 45V credit?***

*Response to Request for Comment (4)(e):* Please see response to request for comment (1)(e). In addition to establishing the lifecycle GHG emissions rate is met, the IRS should consider additional requirements necessary to establish that the hydrogen was actually produced and used at the facility.

***(f) Should indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions (also known as a book and claim system), including, but not limited to, renewable energy credits, power purchase agreements, renewable thermal credits, or biogas credits be considered when calculating the § 45V credit?***

*Response to Request for Comment (4)(f):* Yes. The use of market-based instruments for both clean electricity procured via the grid and RNG from commercial pipelines to be used as a feedstock source for hydrogen should be allowed. This is consistent with Congressional intent, as explained on the Senate floor:

> Mr. CARPER. Mr. President, I rise for the purpose of entering into a colloquy with the chair of the Finance Committee, Mr. Wyden, concerning section 13204, clean hydrogen, which establishes for the first time tax incentives for the production of clean hydrogen, and

[8] EPA recently issued a proposed rule that would include revisions to the regulations governing RNG under the RFS program. These regulations confirmed the ability to use a "book and claim" process. RNG Coalition is continuing to review the proposal and will submit comments to EPA on the proposed revisions.

> section 13701, Clean Electricity Production Credit, which establishes for the first time technology neutral tax credits for clean electricity production. … It is also my understanding of the intent of section 13204, is that in determining "lifecycle greenhouse gas emissions" for this section, the Secretary shall recognize and incorporate indirect book accounting factors, also known as a book and claim system, that reduce effective greenhouse gas emissions, which includes, but is not limited to, renewable energy credits, renewable thermal credits, renewable identification numbers, or biogas credits. Is that the chairman's understanding as well?
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> Mr. WYDEN. Yes.
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> Mr. CARPER. Thank you, Mr. Chairman. Additionally, I would like to clarify that the intent of section 13701 allows the Secretary to consider indirect book and claim factors that reduce effective greenhouse gas emissions to help determine whether the greenhouse gas rate of a qualified fuel cell property, which does not include facilities that produce electricity through combustion or gasification, is "not greater than zero." Is that the chairman's understanding?
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> Mr. WYDEN. Yes.

168 Cong. Rec. S4165, S4165-S4166 (Aug. 6, 2022).

Renewable Thermal Credits ("RTC")—analogous to renewable electricity credits ("REC") in the electricity market—are the primary means of accounting for renewable gas use in the U.S., and the IRS can look at the book-and-claim process currently used by EPA under the RFS program as a known and well-functioning system.

Most RNG projects are connected to a natural gas pipeline system. Market-based instruments are important for their ability to allow the widespread, distributed buildout of renewable resources utilizing common energy delivery infrastructure which already exists. The need for market-based instruments may be eliminated as clean energy throughput on the electric and gas systems increase over time, however, building out clean hydrogen and these feedstock resources in the meantime is reliant on the use of market-based instruments so that first-movers can successfully purchase clean energy without physical limitations.

Disallowing the use of RTCs and RECs will limit the amount of clean hydrogen which can be produced using renewable energy feedstocks. This may lead to inefficient use of existing grid infrastructure (e.g., non-optimal citing for renewable power) and gas infrastructure (e.g., the buildout of dedicated RNG pipelines where usable common infrastructure exists). In some cases, this can lead to additional GHG emissions (e.g., trucking of RNG vs. use of common infrastructure to reach hydrogen production facilities).

Market-based accounting is used in nearly all renewable gas procurement programs—in the RFS; LCFS programs in California, Oregon, and British Columbia, and Canada on the federal level; state-level renewable gas standard and clean heat standard programs; and voluntary

renewable energy procurement frameworks from Climate Disclosure Project,[9] and The Climate Registry.[10] For transactions in both compliance markets and the voluntary renewable energy procurement space, the primary RNG tracking systems in use are M-RETS[11] for North America and ERGaR[12] in Europe; the latter supported by national registries such as GreenGas UK.[13] These tracking systems issue a unique, traceable, digital certificate guaranteeing the origin of RNG from projects across jurisdictions, which ensures that RTC and REC procurement methodologies are robust and reliable.

***(g) If indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions, such as zero-emission credits or power purchase agreements for clean energy, are considered in calculating the § 45V credit, what considerations (such as time, location, and vintage) should be included in determining the greenhouse gas emissions rate of these book accounting factors?***

*Response to Request for Comment (4)(g):* Please see response to request for comment (4)(f). The IRA seeks to promote GHG reductions nationwide. As such, we do not believe any location restrictions are needed, so long as the energy is used in the United States. Overly restrictive time frames also could unduly restrict the use of renewable energy. Any such requirements should be consistent with the protocols in place for the applicable credits.

***(5) Unrelated Parties.***

***(a) What certifications, professional licenses, or other qualifications, if any, should be required for an unrelated party to verify the production and sale or use of clean hydrogen for the § 45V credit, § 45 credit, and § 48 credit?***

***(b) What criteria or procedures, if any, should the Treasury Department and the IRS establish to avoid conflicts of interest and ensure the independence and rigor of verification by unrelated parties?***

***(c) What existing industry standards, if any, should the Treasury Department and the IRS consider for the verification of production and sale or use of clean hydrogen for the § 45V credit, § 45 credit, and § 48 credit?***

*Response to Request for Comment (5):* Please see response to request for comment (1)(e). We refer IRS to EPA's regulations under the RFS program – 40 C.F.R. §§ 80.1450(b)(2)(ii), 80.1450(g)(2), §80.1467(h), 80.1471(b). Although we believe these requirements are overly conservative and may unduly restrict the number of people that may be available to provide

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[9] CDP, *CDP Technical Note: Accounting for Scope 2 Emissions*, at 27-28 (2022), *available at* https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/000/415/original/CDP-Accounting-of-Scope-2-Emissions.pdf?1617880167.

[10] The Climate Registry, *General Reporting Protocol Version 3.0*, at D-7 (2019), *available at* https://theclimateregistry.org/wp-content/uploads/2022/11/General-Reporting-ProtocolV3.pdf.

[11] https://www.mrets.org/

[12] https://www.ergar.org/

[13] https://www.greengas.org.uk/certificates

verification services,[14] RNG facilities have experience with these regulations and should be able to use the same providers, as appropriate, for verification of IRS tax credits.

***(6) Coordinating Rules.***

***(a) Application of certain § 45 rules.***

***(i) Section 45V(d)(3) includes a reduction for the § 45V credit when tax-exempt bonds are used in the financing of the facility using rules similar to the rule under § 45(b)(3)). What, if any, additional guidance would be helpful in determining how to calculate this reduction?***

***(ii) Section 45V(d)(1) states that the rules for facilities owned by more than one taxpayer are similar to the rules of § 45(e)(3). How should production from a qualified facility with more than one person holding an ownership interest be allocated?***

*Response to Request for Comment (6)(a):* Section 45V(d)(1) provides that, for facilities owned by more than one taxpayer, "[r]ules similar to the rules [in] section 45(e)(3) shall apply for purposes of this section." Section 45(e)(3) provides that: "In the case of a facility in which more than 1 person has an ownership interest, except to the extent provided in regulations prescribed by the Secretary, production from the facility shall be allocated among such persons in proportion to their respective ownership interests in the gross sales from such facility." IRS should confirm that credits for facilities with multiple ownership interests are allocated based on their respective ownership interests, such as for joint ventures. Utilizing the same rules provides consistency and more certainty to the industry in how these credits are allocated.

***(b) Coordination with § 48.***

***(i) What factors should the Treasury Department and the IRS consider when providing guidance on the key definitions and procedures that will be used to administer the election to treat clean hydrogen production facilities as energy property for purposes of the § 48 credit?***

***(ii) What factors should the Treasury Department and the IRS consider when providing guidance on whether a facility is "designed and reasonably expected to produce qualified clean hydrogen?"***

***(c) Coordination with § 45Q. Are there any circumstances in which a single facility with multiple unrelated process trains could qualify for both the § 45V credit and the § 45Q credit notwithstanding the***

[14] EPA recently issued a proposed rule that would include revisions to the regulations governing third party qualification and conflict of interest provisions under the RFS program.

***prohibition in § 45V(d)(2) preventing any § 45V credit with respect to any qualified clean hydrogen produced at a facility that includes carbon capture equipment for which a § 45Q credit has been allowed to any taxpayer?***

*Response to Request for Comment (6)(b):* Section 48 was amended by the IRA to define energy property to include qualified biogas property, including cleaning and conditioning equipment.[15] The equipment required to upgrade biogas to RNG and to distribute that RNG requires substantial and long-term investments, which Congress sought to incentivize. While "clean hydrogen" may depend on consideration of upstream emissions to determine if the emissions rate is met, we believe this is a distinct class of property from clean hydrogen production facilities and should not be affected by any IRS guidance for clean hydrogen production facilities.

As previously explained, facility design and standard information can be used to determine emissions rates prior to production. However, a taxpayer can be required to provide annual support that the rate continues to apply or submit revised, facility specific request to update its emissions rate based on actual production. Failure to meet the standard could result in a partial recapture for the relevant year based on the difference in estimated emissions.

As noted above, a hydrogen production facility that incorporates CCS can result in carbon negative emissions. To give facilities flexibility and ensure proper tax credits, the IRS should make clear that § 45Q is only incompatible when the sequestration credit rate is actually claimed by the taxpayer. At a minimum, while the facts and circumstances should govern, the IRS could provide guidance that delineates the equipment that constitutes a hydrogen facility versus any other process trains and issue guidance clearly stating that only that equipment that handles carbon will be treated as carbon capture equipment.

***(7) Please provide comments on any other topics related to § 45V credit that may require guidance.***

*Response to Request for Comment (7):* "RNG is a cost-competitive option" to achieving this Administration's climate change goals.[16] One means for doing so is to support hydrogen production from RNG. RNG Coalition urges the IRS to ensure any guidance considers the use of RNG as a feedstock for clean hydrogen production to promote further investments and move this country toward decarbonization.

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[15] RNG Coalition submitted comments in response to IRS Notice 2022-49 on Certain Energy Generation Incentives.
[16] ICF Resources, *Study on the Use of Biofuels (Renewable Natural Gas) in the Greater Washington, D.C. Metropolitan Area*, at 3-4 (2020), *available at* https://www.worldbiogasassociation.org/wp-content/uploads/2020/03/200316-WGL-RNG-Report-FINAL-1.pdf.

## B. Clean Fuel Production Credit (§ 45Z)

### *(1) Sale Definition.*

#### *(a) What factors should the Treasury Department and the IRS consider in determining whether an unrelated person purchases transportation fuel for use in a trade or business for purposes of § 45Z(a)(4)(B)?*

*Response to Request for Comment (1)(a):* Section 45Z(f)(3) provides that "[p]ersons shall be treated as related to each other if such persons would be treated as a single employer under the regulations prescribed under section 52(b)." It further states that, "[i]n the case of a corporation which is a member of an affiliated group of corporations filing a consolidated return, such corporation shall be treated as selling fuel to an unrelated person if such fuel is sold to such a person by another member of such group." Based on this language, unrelated persons should be considered to be very broad, particularly with respect to affiliated companies. Under this language, companies that are separate legal entities should be considered "unrelated." If these separate legal entities do have common ownership, then the IRS could examine the nature of the transaction to ensure that the sale is concluded at arm's length, while not unduly penalizing those parties that have taken action to utilize clean fuel.

For example, often companies have private fueling stations that dispense fuel to their fleets. The IRS should ensure that companies that utilize fleets and may have renewable CNG/LNG stations be eligible for purposes of the tax credit.[17] Owners of fleets often have their own fueling stations and may have different corporate structures. IRS should consider the applicability of these provisions to fleets, which are often significant users of RNG, providing substantial GHG emissions reductions.

#### *(b) What factors should the Treasury Department and the IRS consider in determining whether fuel is sold at retail for purposes of § 45Z(a)(4)(C)?*

*Response to Request for Comment (1)(b):* To be eligible for the clean fuel production tax credit, § 45Z(a)(4)(C) provides that the fuel be sold by the taxpayer to an unrelated person for use by such person in the production of a fuel mixture, for use by such person in a trade or business, or who sells such fuel at retail to another person and places such fuel in the fuel tank of such other person. As noted above, RNG is used as a transportation fuel in natural gas vehicles in the form of CNG/LNG. RNG is typically obtained from a commercial pipeline and then compressed or liquified by the ultimate retailer of the CNG/LNG. The IRS should make clear that the RNG is the "transportation fuel" suitable for use in a highway vehicle and compressing or liquifying the fuel for use in a vehicle does not make it ineligible for the tax credit. Natural gas compression is a mechanical process to reduce the volume of RNG. Similarly, liquification is merely condensing the gas through cooling. These are mere form changes. It should be sufficient that the fuel is designated for sale to the CNG/LNG retail station.

[17] A fleet is grouping of vehicles that are owned and managed by a single business, non-profit, or government organization.

For distribution purposes, RNG is often distributed through commercial pipelines. It is universally allowed for CNG/LNG retail stations to obtain natural gas from the pipeline and claim environmental attributes (e.g., RINs under the RFS program) through a "book and claim" process. This is true even if the use of such RNG cannot be directly traced from the interconnection point to the point where the customers fuel their vehicles (i.e., if the offtake arrangement is stylized in a manner different than physical delivery). The IRS should allow these types of sales to be considered as fuel sold at retail for purposes of § 45Z(a)(4)(C).

***(2) Establishment of Emissions Rate for Sustainable Aviation Fuel. Section 45Z(b)(1)(B)(iii) provides that the lifecycle greenhouse gas emissions of sustainable aviation fuel shall be determined in accordance with the Carbon Offsetting and Reduction Scheme for International Aviation or "any similar methodology which satisfies the criteria under § 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), as in effect on the date of enactment of this section." What methodologies should the Treasury Department and IRS consider for the lifecycle greenhouse gas emissions of sustainable aviation fuel for the purposes of § 45Z(b)(1)(B)(iii)(II)?***

*Response to Request for Comment (2):* Section 45Z(b)(1)(B)(iii)(II) references § 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), which defines "lifecycle greenhouse gas emissions." For purposes of this provision, RNG Coalition supports allowing the use of the GREET Model, which is publicly available and well known. GREET was used by EPA in developing its methodology for determining lifecycle GHG emissions reductions under the RFS program in 2010. Although EPA utilized other models to assess emissions largely related to indirect land use, GREET has incorporated a land use component into its modeling since 2010. In addition, California uses a modified form of GREET in its assessments under its Low Carbon Fuel Standard program. As explained above in relation to the clean hydrogen production tax credit, avoided emissions should be included as part of any lifecycle GHG emissions assessment with respect to RNG.

GREET is maintained by the Argonne National Laboratory, which does periodically update its modelling. The facility can be required to verify the modelling it uses each year, including whether it is using the most updated GREET model. To the extent that GREET has not developed specific methodologies for any particular pathway, facilities should be able to propose a methodology that is consistent with GREET. Facilities should be able to include standard inputs or facility specific data, as appropriate. The carbon intensity calculation of RNG from a landfill, for example, includes a variety of factors, including landfill gas into the facility, process energy consumption, chemical use, and other production related items. An important aspect of carbon intensity calculation is the baseline emissions from the landfill and the avoidance of such emissions by an RNG project. To ease the burden on agency resources, we recommend that the avoidance of baseline emissions be calculated based off a national average of baseline methane capture rate from landfills, making it consistent from state to state.

Further, to ensure consistency and uniformity across various IRA energy tax provisions, the IRS should also use the GREET model for lifecycle GHG analysis related to the § 40B sustainable aviation fuel tax credit. Similar to § 45Z(b)(l)(B)(iii), § 40B(e) requires that the lifecycle method used be "similar" to the CORSIA methodology and must also comport with the

methods spelled out in section 211(o) of the Clean Air Act—GREET meets both of those requirements.

***(3) Provisional Emissions Rates. Section 45Z(b)(1)(D) allows the taxpayer to file a petition with the Secretary for determination of the emissions rate for a transportation fuel which has not been established.***

***(a) At what stage in the production process should a taxpayer be able to file a petition for a provisional emissions rate?***

***(b) What criteria should be considered by the Secretary to determine the provisional emissions rate?***

*Response to Request for Comment (3)*: The taxpayer should be allowed to submit the petition prior to production being started. RNG facilities have experience seeking and obtaining carbon intensity scores from CARB under California's Low Carbon Fuel Standard. EPA also has a petition process to obtain an approved pathway under the RFS program, if not already established. In both cases, these petitions are allowed prior to production. Information needed to conduct a lifecycle analysis can be based on facility design, third-party databases, literature, and other regulatory programs. As noted above, the lifecycle analysis is a tool for comparison purposes and, as such, default values and other standard information can be utilized to determine emissions rates.

IRS should also consider CARB and EPA petition processes that allow for standardized formatting, which are intended to facilitate and streamline the petition process.

IRS can also consider use of default values, without precluding an individual company from seeking a facility specific emissions rate, This can be based on the closest fitting GREET model values. In the case of RNG derived from livestock manure, the Secretary could use site specific baseline manure management practice to determine the emissions rate for that project. The GREET model already includes pull-down selections for deep pit, anaerobic lagoon, pasture, and other common manure handling systems. It is essential that any provisional emissions rate for RNG include a proper characterization of the baseline manure management system in place at the dairy.

***(4) Special Rules. Section 45Z(f)(1) provides several requirements for a taxpayer to claim the § 45Z credit, including for sustainable aviation fuel a certification from an unrelated party demonstrating compliance with the general requirements of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) or in the case of any similar methodology, as defined in § 45Z(b)(1)(B)(iii)(II), requirements that are similar to CORSIA's requirements. With respect to this certification requirement for sustainable aviation fuel, what certification options and parties should be considered to support supply chain traceability and information transmission requirements?***

*Response to Request for Comment (1)(e):* Federal and state government agencies may require reporting of GHG emissions, which may include verification measures. IRS should allow facilities to rely on these reporting requirements to report their direct emissions. For example, a

RIN and credit generation under the RFS or Low Carbon Fuel Standard programs have substantial documentation and attest engagement requirements and have audit and verification processes that RNG facilities should be able to utilize to support any supply chain traceability requirements.

***(5) Coordinating Rules. Section 45Z(f)(4) states that under regulations prescribed by the Secretary, rules similar to the rules of § 52(d) apply in the case of estates and trusts. Section 45Z(f)(5) states that rules similar to § 45Y(g)(6) apply to patrons of agricultural cooperatives. Section 45Z(f)(6)(A) states that rules similar to the rules of § 45(b)(7) apply for the prevailing wage requirement. Section 45Z(f)(7) states that rules similar to the rules of § 45(b)(8) apply for the apprenticeship requirement. Is the application of the cross-referenced rules for purposes of the § 45Z credit adequately clear? What aspects of the cross-referenced rules should apply to the § 45Z credit without modification and what aspects should be modified?***

*Response to Request for Comment (4):* RNG Coalition reserves the right to provide more information to IRS on these issues, including, but not limited to, after reviewing any draft guidance that is subsequently issued.

Nonetheless, we do note that the RNG Coalition did submit comments on Notice 2022-51 regarding prevailing wage, apprenticeship, domestic content, and energy communities requirements, which outlined some questions for which the industry is seeking clarifications with respect to the prevailing wage and apprenticeship requirements. We have heard several questions regarding the timing of facility operations/modifications and application of these requirements, which may differ between the different tax credits. In light of these questions and the potentially interrelated (new and revised) tax credits under the IRA and the potential entry of new taxpayers that may now be eligible for these credits, simple cross-references to existing rules may not be sufficient. For example, we understand § 45Z to apply to fuel production at qualifying facilities currently in operation. Explanations as to whether and/or how the prevailing wage and apprenticeship requirements apply to existing projects (and any modifications or improvements to existing facilities) versus new projects during the applicable clean fuel production years (2025-2027) could assist taxpayers in determining the proper amount of any applicable credit under § 45Z and how they might interact with similar requirements under other IRA provisions that may be applicable.

***(6) Multiple Owners. How should production from a qualifying facility with more than one person having an ownership interest in such facility be allocated to such persons for purposes of § 45Z(f)(2)? Should rules similar to the rules under § 45(e)(3) apply for this purpose? If so, which aspects of § 45(e)(3) should apply without modification for this purpose and which aspects should be modified?***

*Response to Request for Comment (5):* Section 45Z(f)(2) provides that, "[i]n the case of a facility in which more than 1 person has an ownership interest, except to the extent provided in regulations prescribed by the Secretary, production from the facility shall be allocated among such persons in proportion to their respective ownership interests in the gross sales from such facility." This language is the same to that in § 45(e)(3). As noted above for the hydrogen production credit, Congress required the rules under § 45(e)(3) apply to qualifying hydrogen production facilities,

which we understand to be based on ownership interests, such as the relative interests in a joint venture. Generally, these tax credits should be treated in a similar manner.

***(7) Please provide comments on any other topics related to § 45Z credit that may require guidance.***

RNG Coalition requests confirmation that the clean fuel production tax credit would not be rendered invalid based on downstream uses. To be eligible for the tax credit, the fuel must be "suitable for use as a fuel in a highway vehicle or aircraft." RNG is pipeline quality fuel that can be used in various applications, including as a transportation fuel. The statute allows the transportation fuel to be sold to an unrelated party "for use by such person in a trade or business," but does not expressly require that the *actual* use be a transportation fuel use. This was intentional as confirmed by the following colloquy on the floor of the Senate:

> Ms. HASSAN. Mr. President, I ask unanimous consent to engage in a colloquy with Senator WYDEN for clarification regarding a tax provision included in the bill currently before the Senate. Section 13704 of the bill, which concerns production credits for biofuels, defines "transportation fuel" that can qualify for the credit as a fuel that is suitable for use as a fuel in a highway vehicle or aircraft. The fuel must also be below a carbon emissions ceiling and meet a processing requirement. Senator WYDEN, as chair of the Finance Committee, is it his understanding that, although a fuel must be suitable for use as a fuel in a highway vehicle or aircraft to qualify for this biofuel production credit, it may still actually be used for any business purpose, including as transportation fuel, industrial fuel, or for residential or commercial heat?
>
> Mr. WYDEN. I thank the Senator for her inquiry. That is correct. The credit is intended to incentivize production of biofuels of a certain quality, usable as fuel for highway vehicles or aircrafts, but not limited only to fuels which are actually used in highway vehicles or aircrafts.
>
> Ms. HASSAN. I thank the chair for that clarification and for engaging in this colloquy.

168 Cong. Rec. S4165, S4166 (Aug. 6, 2022). This makes sense because the GHG emissions reductions are still being achieved. We request the IRS confirm this to be the case.

In addition, because of the potential interaction between the various tax credits, we ask that the IRS provide guidance on the definition of qualified facility under § 45Z. Section 45Z(d)(4) excludes from the definition "any facility for which one of the following credits is allowed under section 38 for the taxable year": (i) the credit for production of clean hydrogen under § 45V; (ii) the credit determined under § 46 to the extent that such credit is attributable to the energy credit determined under § 48 with respect to any specified clean hydrogen production facility for which an election is made under § 48(a)(15); and (iii) the credit for carbon oxide sequestration under

§ 45Q. We request the IRS provide guidance as to what it means for a credit to be "allowed" at a facility for a taxable year and suggest that the term be interpreted narrowly to only address situations where the credit at issue is actually claimed by the taxpayer. Moreover, RNG can be used as a fuel or as feedstock for the production of another fuel, such as hydrogen. These fuels can be used in various applications. While RNG Coalition does not advocate for duplicative tax credits, we support providing sufficient flexibility to the facilities in recognition of these various uses as far as which credit they can utilize. Nonetheless, the IRS should carefully and precisely delineate the beginning and end points of the various types of facilities that may qualify for the § 45Z, 45V, and 45Q credits based on functionality of the items of property included in the facilities as opposed to a particular end product. This is important so that taxpayers can predictably identify the tax credits that may be available in respect of a project. Without that certainty, investment in the American clean fuels industry will be hampered.

In addition, RNG Coalition notes that § 45Z(d)(4) does not list the qualified biogas property tax credit under § 48 (as added by the IRA) as potentially restricting the ability to receive § 45Z fuel production tax credits. The IRS should confirm that, in all cases, RNG projects that may qualify for this new tax credit under § 48 are not restricted from, to the extent applicable, seeking tax credits for the fuel it produces under § 45Z. These provisions provide different incentives for reduction of GHG emissions and have different eligibility and timing requirements. RNG projects require substantial investments to be constructed, and those investing in RNG projects should be able to take advantage of the investment tax credits, as Congress intended.

Finally, we ask that any guidance under § 45Z provide an example of the calculation under § 45Z(b)(1)(A) for determining the emissions factor. Section 45Z(b)(1)(A) provides:

> The emissions factor of a transportation fuel shall be an amount equal to the quotient of—
>
> (I) an amount equal to—
>
> (aa) 50 kilograms of CO2e per mmBTU, minus
>
> (bb) the emissions rate for such fuel, divided by
>
> (II) 50 kilograms of CO2e per mmBTU.

Along with the emissions rates, it would be helpful for the IRS to provide examples of how this emissions factor is to be calculated and then applied to determine the appropriate tax credit. *See, e.g.,* Response to Request for Comment (1) (regarding fuels with negative emissions rate). We would urge the IRS to consider examples that involve RNG facilities.

* * *

RNG Coalition appreciates the opportunity to submit these responses to the IRS's request for comments. Thank you for your consideration. If you have any questions about these comments, please do not hesitate to contact us.

Respectfully submitted,

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