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Internal Revenue Service
Room 5203, PO Box 7604
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Via Electronic Submitted to Regulations.gov

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

To whom it may concern:

SkyNRG submits these comments to the U.S. Department of Treasury (Treasury) and the Internal Revenue Service (IRS) regarding the Credits for Clean Hydrogen, § 45V, and Clean Fuel Production, § 45Z, as well as the Sustainable Aviation Fuel Credit, § 40B. SkyNRG appreciates the opportunity to respond and provide feedback on the implementation of these important clean energy policies.[1]

SkyNRG has been a global leader in sustainable aviation fuel (SAF) since 2009. Our mission is to build up sustainable aviation fuel capacity for aviation to meet its 2050 net zero commitment and reduce the industry's impacts on the environment.

Our company works to source, blend, and distribute SAF to airlines (over 40 airlines thus far) and create partnerships that significantly increase the supply and production of SAF all over the world. Our operations are certified by the Roundtable on Sustainable Biomaterials (RSB), the highest certificate standard for sustainable fuels, and we are guided by an Independent Sustainability Board that helps steer our approach to SAF production.

We are developing a worldwide network of regional SAF supply chains, which includes our new project in the Pacific Northwest region of the United States. In the Pacific Northwest, our goal is to produce 30 million gallons of SAF per year starting in 2027, from sources such as renewable natural gas (RNG) and green hydrogen.

In these comments, we respectfully urge Treasury and the IRS to adopt the following regulatory approaches:

i. Eligibility for Book-and-Claim Under § 45Z and § 40B. Provide eligibility under the Clean Fuel Production Credit, § 45Z, and the Sustainable Aviation Fuel Credit, § 40B, for SAF produced from RNG on a book-

[1] In addition to these comments submitted by our company, SkyNRG has signed onto and fully endorses the comments submitted by the "SAF BTC Coalition," an informal coalition of aviation industry stakeholders, including passenger and cargo carriers, clean fuel producers, engine and aircraft manufacturers, labor unions, airports, business and general aviation, airline passengers, trade associations, and think tanks.

and-claim basis, so long as such SAF meets the greenhouse gas emissions threshold and other criteria outlined in 26 U.S.C. § 45Z and 26 U.S. Code § 40B, respectively.

ii. Negative Carbon Intensity Scores Under § 45Z. Allow SAF and other clean fuels to qualify for credits above $1.75/gallon and $1.00/gallon, respectively, if such fuels are able to achieve a negative emissions rate (or negative "carbon intensity") score.

iii. § 45Z Coordination with § 45Q and § 45V. Narrowly interpret the definition of "qualified facility" under the § 45Z Clean Fuel Production Credit to allow fuel developers to develop clean energy facilities in the most economically and environmentally efficient way possible.

GENERAL COMMENTS REGARDING THE CLEAN FUEL PRODUCTION CREDIT, § 45Z:

I. SkyNRG's RNG-to-SAF Project

SkyNRG is developing a new project in Washington State that will use RNG as a feedstock to produce SAF. SkyNRG plans to contract the purchase of RNG from various points of origin, including landfills and anerobic digestion facilities that produce RNG and inject it into the existing and extensive network of natural gas pipeline infrastructure that is in place throughout the country. Under existing rules and industry practice, this RNG is utilized to produce transportation fuels and hydrogen in what's known as a book-and-claim contracted basis, similar to the concept of renewable energy certificates (RECs) used in the renewable electricity sector.

The book-and-claim model is a common practice where a sustainability claim made by a company is separated from the physical flow of these goods and documented in a manner that is required by government policies. The most notable example of such a system is renewable electricity. Electricity cannot be tracked along the grid since it is all combined before exiting a power outlet. To solve this problem, book-and-claim systems were developed to allow customers to claim a specific amount of renewable energy by contracting mechanisms that are validated by RECs. Electricity providers can enter or "book" the electricity they have produced into the power grid and customers can "claim" the green energy they have bought. Costumers will then receive a certificate stating the amount of renewable electricity they paid for. A similar process is carried out for RNG as the issues are similar. RNG is comingled with natural gas into the natural gas grid: CNG, LNG, and/or hydrogen producers draw a unit of gas from existing pipeline infrastructure. They claim the RNG they purchased via contract that has been injected into the pipeline network. This book-and-claim of RNG is eligible under both federal and state policies, such as the federal Renewable Fuel Standard and California's Low Carbon Fuel Standard programs.

The promise of book-and-claim RNG to SAF lies in its scalability and the fungible nature of RNG: because RNG utilizes existing gas infrastructure, it can be quickly expanded with the increasing RNG supplies that are coming online across the U.S. Based on assessments from the Department of Energy (DOE), U.S. Department of Agriculture (USDA), and others, RNG has the potential to supply 5 billion gallons of SAF per year or more, which will significantly help the U.S. meet the Biden administration's SAF Grand Challenge goals. This level of supply would also help the aviation sector achieve its stated decarbonization goals of net zero by 2050 with low carbon SAF that can be produced at commercially relevant prices under supportive policies such as § 45Z.

If RNG book-and-claim contracting for use in SAF production is supported by § 45Z, it would allow SkyNRG and others to secure long-term contracts for new RNG production from landfill gas capture and

anerobic digestion. Furthermore, supporting RNG to SAF production provides a twofold benefit: it materially contributes to increased methane capture and utilization for use as a feedstock to produce SAF, which, given the outsized climate impacts of methane, helps mitigate this potent greenhouse gas. Moreover, RNG to SAF provides a significant opportunity to reduce aviation's climate impacts with low carbon SAF that does not rely on food-based feedstocks.

Critically, SAF produced using a combination of low carbon RNG sourced from landfills and anaerobic digestion has the potential to produce an ultra-low carbon intensity (CI) score — even a negative CI score — compared to the baseline emissions of fossil jet fuel.

II. Eligibility for Book-and-Claim Under § 45Z and § 40B

We respectfully urge Treasury to provide eligibility under the Clean Fuel Production Credit, § 45Z, and the Sustainable Aviation Fuel Credit, § 40B, for SAF produced from RNG on a book-and-claim basis, so long as such SAF meets the greenhouse gas emissions threshold and other criteria outlined in 26 U.S.C. § 45Z and 26 U.S. Code § 40B, respectively. Affording this flexibility would advance Congress' intent for the Clean Fuel Production Credit and the Sustainable Aviation Fuel Credit to constitute a tech-neutral overhaul of U.S. clean energy incentives.[2]

In order to receive the Clean Fuel Production Credit, a taxpayer must satisfy several key criteria. For example, the SAF produced must:

- be sold by the taxpayer in a manner described in 26 U.S.C. § 45Z(a)(4) (26 U.S.C. § 45Z(a)(1)(A)(ii))
- constitute liquid fuel, the portion of which is not kerosene, which is sold for use in an aircraft (26 U.S.C. § 45Z(a)(3)(B))
- meet the requirements of ASTM International Standard D7566 or the Fischer Tropsch provisions of ASTM International Standard D1655, Annex A1 (26 U.S.C. § 45Z(a)(3)(B))
- not be derived from palm fatty acid distillates or petroleum (26 U.S.C. § 45Z(a)(3)(B))
- be suitable for use in an aircraft (26 U.S.C. § 45Z(d)(5)(A(i))
- have an emissions rate which is not greater than 50 kilograms of CO2e per mmBTU (26 U.S.C. § 45Z(d)(5)(A)(ii))
- not be derived from coprocessing an "applicable material" or materials derived from an "applicable material"— monoglycerides, diglycerides, triglycerides, free fatty acids, and fatty acid esters — with a feedstock which is not biomass (26 U.S.C. § 45Z(d)(5)(A)-(B))

Similar criteria apply for the Sustainable Aviation Fuel Credit, § 40B.[3]

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[2] *Wyden Clean Energy, Prescription Drug Pricing Legislation Passes Senate*. U.S. Senate Committee on Finance, Statement from Chairman Ron Wyden (August 2022) ("For the first time, the tax code is going to reward emissions reductions, and encourage the development of new clean energy technologies as soon as they come online. No longer will Congress need to legislate technology by technology, making it easier to innovate and bring new technologies to market. Importantly, this is permanent energy policy. Congress will no longer need to extend these incentives every few years, giving companies and states certainty to plan clean energy projects and create jobs.").

[3] Notably, under the Sustainable Aviation Fuel Credit, eligible SAF must have a lifecycle greenhouse gas emissions reduction percentage of at least 50 percent, 26 U.S.C. § 40B(d)(1)(D). The SAF produced by SkyNRG would achieve emissions reduction percentages substantially greater than 50 percent.

SAF produced from low-carbon RNG sources on a book-and-claim basis can neatly fit into the Clean Fuel Production Credit and Sustainable Aviation Fuel Credit's frameworks, satisfying each of the criteria outlined above. For example, SAF produced using book-and-claim RNG sourced from dairy farms and landfills has the potential to score an ultra-low emissions rate, well below the 50 kilograms of CO2e per mmBTU maximum.

SkyNRG's concern is not whether book-and-claim RNG-to-SAF can satisfy the legislative requirements of these two credits. Rather, we are concerned that this critical SAF feedstock will be rendered ineligible for the credits during implementation, due to a lack of clear guidance from the federal government.

In particular, the issue in our case is whether Treasury will apply the emissions criteria outlined in 26 U.S.C. § 45Z(d)(5)(A)(ii) and 26 U.S.C. § 40B(d)(1)(D), as well as the prohibitions on fuels derived from petroleum, to the natural gas pipeline hookup at the location of SkyNRG's SAF production site; or instead apply the criteria to the RNG feedstocks procured by SkyNRG at various points of origin, e.g., landfills, along the commercial gas distribution system. We believe Treasury and the IRS should choose the latter option and provide clear guidance to industry, thereby enabling book-and-claim RNG to SAF producers to receive the Clean Fuel Production Credit and Sustainable Aviation Fuel Credit.

Book-and-claim RNG is an innovative concept in the context of SAF, but it's not a new idea for other types of fuels, such as clean hydrogen.[4] [5] The U.S. RNG industry has evolved with existing regulatory programs that recognize that most renewable fuel producers cannot reasonably co-locate with RNG sources and achieve any practical scale or commercial applicability. To accommodate this challenge, book-and-claim accounting has been globally recognized as a credible solution and is an indispensable tool for incentivizing the development of RNG production.

In fact, the State of California's Low Carbon Fuel Standard[6] and the federal Renewable Fuel Standard[7] both incorporate book-and-claim accounting for pipeline-injected biogas. We believe both accounting frameworks could be valuable resources for Treasury as the agency thinks through the book-and-claim concept under the Clean Fuel Production Credit and the Sustainable Aviation Fuel Credit.

[4] As indicated in Notice 2022-58, Treasury and IRS are seeking comment on "book accounting factors that reduce a taxpayer's effective greenhouse gas emissions (also known as a book and claim system)" under the Clean Hydrogen Credit, § 45V.

[5] On August 6, 2022, U.S. Senators Ron Wyden of Oregon and Tom Carper of Delaware engaged in a colloquy to specify that book-and-claim accounting should be considered in determining "lifecycle greenhouse gas emissions" under the Clean Hydrogen Credit, § 45V. Senator Carper stated, "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." *Congressional Record Volume 168*, *Number 133,* Page S4166, Government Publishing Office (Saturday, August 6, 2022), https://www.govinfo.gov/content/pkg/CREC-2022-08-06/html/CREC-2022-08-06-pt1-PgS4165-3.htm.

[6] *Reporting and Recordkeeping for Natural Gas and Book-and-Claim Accounting for Biomethane*, California Air Resources Board, Low Carbon Fuel Standard (LCFS) Guidance 19-05 (May 2019), https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/guidance/lcfsguidance_19-05.pdf.

[7] 40 CFR 80.1426(f)(11)(ii).

Below is sample/draft regulatory language, modeled after the Renewable Fuel Standard's book-and-claim accounting rules for biogas,[8] that would provide eligibility under the Clean Fuel Production Credit for SAF produced from RNG on a book-and-claim basis.

> Book-and-Claim Accounting
>
> (A) Liquid fuel that is derived from biogas, as that term is defined in 40 C.F.R. 80.1401, introduced into a commercial distribution system (including a physically connected pipeline, barge, truck, and rail) and which the taxpayer is able to demonstrate meets all of the accounting methods specified under subparagraph (B) shall be treated as sustainable aviation fuel under 26 U.S.C. § 45Z.
>
> (B) For purposes of subparagraph (A), the accounting methods under this subparagraph are the following:
>
> (i) The taxpayer has entered into a written contract for the sale or use of a specific quantity of biogas taken from a commercial distribution system for the purpose of converting the biogas into aviation fuel.
>
> (ii) The quantity of liquid fuel derived from biogas for which the Clean Fuel Production credit was claimed was sold for use as aviation fuel and for no other purposes.
>
> (iii) The biogas was injected into and withdrawn from the same commercial distribution system.
>
> (iv) The biogas that is ultimately withdrawn from the commercial distribution system and used to manufacture aviation fuel is withdrawn in a manner and at a time consistent with the transport of the biogas between the injection and withdrawal points.
>
> (v) The volume and heat content of biogas injected into a commercial distribution system and the volume of biogas withdrawn to make an aviation fuel are measured by continuous metering.
>
> (vi) The amount of fuel sold for use as aviation fuel corresponds to the amount of fuel derived from biogas that was placed into the commercial distribution system.
>
> (vii) No other party relied upon the volume of biogas for the claiming of the sustainable aviation fuel credit.
>
> (C) The taxpayer must be able to demonstrate the emissions rate of the sustainable aviation fuel produced from biogas using book-and-claim accounting is below the maximum of 50 kilograms of CO_2e per mmBTU.

This language ensures that a unit of biogas injected to a common carrier pipeline (or other commercial distribution system) is linked to a corresponding quantity of natural gas withdrawn from a common carrier pipeline at the SAF production site. It also provides for full traceability and eliminates risk of double counting.

SkyNRG would greatly appreciate the opportunity to collaborate with Treasury and IRS on the formulation of book-and-claim rules that align with the legislative text and purposes of the Clean Fuel Production Credit and the Sustainable Aviation Fuel Credit.

III. The Case for Book-and-Claim Under § 45Z and § 40B

As noted above, SkyNRG believes that the production of SAF from RNG on a book-and-claim basis is contemplated by the Clean Fuel Production Credit and the Sustainable Aviation Fuel Credit and that eligibility for such fuels supports the principles of tech-neutrality advanced by Senator Ron Wyden of Oregon and other key drafters of the Inflation Reduction Act legislation. Treasury should adopt a flexible

[8] *Id.*

implementation framework by ensuring that advanced, low-carbon SAF technologies can achieve credit eligibility if they satisfy relevant legislative criteria.

Additionally, book-and-claim RNG to SAF should be made eligible for these credits in order to further key federal climate and economic objectives.

In September 2021, the Biden administration launched a government initiative — dubbed the "SAF Grand Challenge" — to supply at least 3 billion gallons of SAF per year by 2030 and have enough SAF by 2050 "to meet 100% of aviation fuel demand, currently projected to be around 35 billion gallons a year."[9] A year later, DOE, in coordination with the USDA, the U.S. Department of Transportation, the National Renewable Energy Laboratory, and the Environmental Protection Agency (EPA), released the SAF Grand Challenge Roadmap, a government-wide strategy for ramping up production and use of SAF nationwide.[10]

In the SAF Grand Challenge Roadmap, DOE and the other agencies endorse the concept of book-and-claim. "Electricity, natural gas, and fuels are fungible commodities that can be tracked and accounted for in a closed system from their introduction to final consumption," the Roadmap states.[11] The paper also lists "expand[ing] the commercial collection and use of renewable natural gas and hydrogen" as an important deliverable for President Biden's administration.[12]

The Biden administration recognizes the many advantages of RNG as a climate solution. Livestock and other agricultural processes, as well as decomposing organic waste in landfills, are massive contributors of methane emissions, a powerful greenhouse gas about 80 times more potent than carbon dioxide over a 20-year period. Major innovations in RNG technologies have allowed energy producers to begin capturing methane emanating from these landfills and livestock operations and other waste streams via anerobic digestion to generate electricity, transportation fuels, and feedstocks. EPA has identified several crucial benefits of RNG, including:

- *Fuel Diversity.* Use of RNG increases and diversifies domestic energy production.
- *Economic Benefits.* New RNG development creates skilled jobs and spurs local economies.
- *Local Air Quality Benefits.* Replacing fossil fuels with RNG reduces emissions of nitrogen oxides and particulate matter, resulting in local air quality improvements.
- *Greenhouse Gas Emission Reductions.* RNG projects capture and recover biomethane produced at landfills and anaerobic digestion facilities that would have otherwise been released into the atmosphere with adverse emission impacts.[13]

[9] *FACT SHEET: Biden Administration Advances the Future of Sustainable Fuels in American Aviation*, The White House Briefing Room (September 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/09/fact-sheet-biden-administration-advances-the-future-of-sustainable-fuels-in-american-aviation/.
[10] SAF Grand Challenge Roadmap, Department of Energy et al. (September 2022), https://www.energy.gov/sites/default/files/2022-09/beto-saf-gc-roadmap-report-sept-2022.pdf.
[11] Id at 51.
[12] Id at 80.
[13] *Renewable Natural Gas*, Environmental Protection Agency, Landfill Methane Outreach Program (November 2022), https://www.epa.gov/lmop/renewable-natural-gas.

Using book-and-claim accounting to produce SAF from RNG is an innovative way to leverage the benefits of RNG and help draw down the emissions footprint of the aviation *and* the agriculture and waste sectors. Furthermore, book-and-claim helps address a key roadblock of the SAF Grand Challenge and its ambitious goal of 3 billion gallons of SAF production per year by 2030: scalability.

Many promising SAF technologies fail to make an impact because they cannot scale up from the early stages of commercial development. Often, issues like limited sustainable feedstock availability, food for fuel debates, technology readiness, lack of dedicated SAF infrastructure, and high costs prevent meaningful deployment. Book-and-claim treatment of RNG to SAF helps address these challenges by minimizing all these risks.

As noted above, book-and-claim RNG to SAF utilizes existing gas infrastructure and can be quickly expanded as increasing sources of RNG supplies come online.[14] It reduces risks associated with technology as gas to liquids is a commonly practiced technology, and it lowers the costs associated with feedstock production and delivery, such as the cost of transport via rail or road, and therefore the cost of SAF. Book and claim accounting not only drives supply chain efficiency and ensures adequate supply is available where it is needed, but it also can significantly reduce transport emissions from the SAF supply chain, supporting the emission reduction goals of both the § 40B and § 45Z credits.

Lastly, SkyNRG and other companies that adopt this book-and-claim process will help support new RNG production (and SAF feedstock eligibility) by securing long-term contracts with RNG producers utilizing landfill gas capture and anerobic digestion. Under supportive policies like the Clean Fuel Production Credit and the Sustainable Aviation Fuel Credit, each of these advantages will help SkyNRG and other SAF producers generate significant volumes of low carbon SAF at commercially relevant prices. Furthermore, the scale up of new RNG production in support of book-and -claim RNG to SAF will also contribute to greater U.S. energy independence and significant clean energy job creation.

IV. Negative Carbon Intensity Scores Under § 45Z

SkyNRG encourages Treasury to allow SAF and other clean fuels to qualify for credits above $1.75/gallon and $1.00/gallon, respectively, if they are able to achieve a negative CI score. Under the Clean Fuel Production Credit, § 45Z, the credit amount is equal to the product of:

- The applicable amount per gallon (or gallon equivalent); and
- The emissions factor for such fuel

Assuming prevailing wage and apprenticeship requirements are met, the applicable amount per gallon for SAF is $1.75. The emissions factor is calculated by using the following formula:

50 kg CO2e/mmBTU – emission rate of the fuel) / 50 kg CO2e per mmBTU

If the emissions rate of the fuel, or CI score, is 0, then the credit amount would be calculated as follows:

Credit = $1.75 x ((50 kg CO2e per mmBTU – 0) / 50 kg CO2e per mmBTU)

[14] RNG supplies are expected to grow significantly in the coming years. Analysts and utilities believe renewable natural gas could reach 10% to 30% of total natural-gas supply by 2040. Ryan Dezember, *Companies Seek to Green the Grid With Trash Gas*, The Wall Street Journal (December 2020), https://www.wsj.com/articles/companies-seek-to-green-the-grid-with-trash-gas-11609151401.

Credit = $1.75 x (50 kg CO2e per mmBTU / 50 kg CO2e per mmBTU)

Credit = $1.75 x 1

Credit = $1.75

SAF production that uses RNG as a feedstock, as mentioned in previous sections, could have a negative CI score because using such RNG sources helps avoid emissions that would otherwise enter the atmosphere. In this case, RNG-to-SAF could actually remove more GHG emissions than it produces, leading to negative lifecycle greenhouse emissions. According to § 45Z, the credit amount for SAF created from RNG could exceed $1.75/gallon if the CI score is negative. For example, if the CI score of SAF created from RNG is –20 kg/mmbtu, the following credit value calculation would apply:

Credit = $1.75 x ((50 kg CO2e/mmBTU – -20)/ 50 kg CO2e/mmBTU)

Credit = $1.75 x (70 kg CO2e/mmBTU/50 kg CO2e/mmBTU)

Credit = $1.75 x 1.4

Credit = $2.45

There is no clear maximum credit value written in § 45Z, and we believe this was an intentional decision by Congress to incentivize carbon negative fuels. This aligns with the underlying policy approach in both the § 40B and § 45Z credits, which provide higher credit values for lower-GHG fuels to incentivize production of fuels with the greatest GHG reductions. The provisions on rounding of emissions rates are also properly interpreted to provide for negative emissions rates. § 45Z(b)(C)(ii) states that in the case of an emissions rate between 2.5 kg CO2e/mmBTU and -2.5 kg CO2e/mmBTU, the Secretary may round the rate to zero. As an initial matter, this provision demonstrates that Congress clearly envisioned crediting fuel with negative emissions rates, though in the case of rates near zero it granted Treasury discretion to round to zero. However, Congress did not extend the discretion to round to zero for emissions rates below -2.5 kgCO2e/mmBTU, demonstrating congressional intent to credit fuels with more than marginally negative emissions fully.

Had Congress intended for all emissions rates to be no lower than zero and for the § 45Z credit to not exceed $1.75/gallon for SAF, it would have explicitly stated that as it did elsewhere in the IRA. Indeed, Congress explicitly limited the § 40B SAF BTC to $1.75/gallon. It did not do so under § 45Z, and Treasury must accordingly credit carbon negative fuels under § 45Z.

We urge Treasury to provide clear guidance on the text as written to reward innovative fuels that help reduce overall GHG emissions while powering our society. Allowing for the credit value to be calculated considering a negative CI score would encourage deep decarbonization of the aviation sector and would also result in greater RNG production capacity in the U.S.

V. § 45Z Coordination with § 45Q and § 45V

Under a section of this notice relating to the § 45V Clean Hydrogen Production Credit, Treasury sought comment on circumstances where a single facility with multiple unrelated process trains could qualify for both § 45V and § 45Q Credit for Carbon Oxide Sequestration. This question is equally relevant to the § 45Z Clean Fuel Production Credit, which excludes from the definition of "qualified facility" any facility that has taken the § 45V credit (or elected to take the investment credit) or the § 45Q credit. We strongly encourage Treasury to interpret the definition of qualified facility narrowly to allow fuel

developers to develop clean energy facilities in the most capital and environmentally efficient way possible and not perversely incentivize segmentation of projects into separate clean fuel, hydrogen production, and CCS facilities (or encourage exports of fuel at SAF facilities with carbon sequestration or hydrogen production). One potential approach would be to interpret "qualified facility" as referring only to the SAF production unit and not to adjacent production facilities that are not required for the production of SAF but are co-located to provide efficiencies. Thus, if a § 45Z credit would be allowed for hydrogen produced elsewhere and brought to the SAF facility to be used as process input, Treasury should not preclude efficiently locating the hydrogen production at or adjacent to the SAF facility.

COMMENTS ADDRESSING QUESTIONS POSED IN THE NOTICE RELATED TO THE CLEAN HYDROGEN CREDIT, § 45V:

(1) (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?

Fugitive Emissions: Upstream non-CO2 GHG emissions of oil and gas production are a topic of heated debate. Various scientific papers in the past years have pointed out that fugitive emissions have been underestimated and that fugitive emissions in hydrogen production systems based on natural gas can be as high as 95 gCO2/MJ hydrogen.[15] This means that it would be extremely challenging to achieve the 4 kg CO2e threshold when deploying a natural gas-based production process and using validated data sources to determine fugitive emissions. Another paper recently pointed out via satellite measurements that average US fugitive methane emissions from oil and gas are about 80% higher than estimated by EPA and that the average methane leakage rate in the US today is about 2%.[16] We therefore recommend putting more emphasis on upstream methane emissions to ensure creating a fair level playing field with green hydrogen projects in the US.

(4)(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?

Additionality Criteria: To safeguard the sustainability of hydrogen produced from renewable power, additionality criteria are essential. With expected demand for green hydrogen by 2030 running in the millions of tons, we would not want that associated power demand to be met with gas-fired power generation or we run the risk of increasing energy system-wide GHG emissions. Certification should safeguard that every unit of power used is matched with a unit of renewable power elsewhere in the energy system. Blueprints for this are in development in the European Union, with a 'Delegated Act' on green hydrogen additionality under development in the context of the Renewable Energy Directive. The U.S. can use this language as a guide.

We appreciate the opportunity to comment on the implementation of § 45V, § 45Z, and § 40B of the Inflation Reduction Act. We respectfully request the opportunity to meet and discuss our commentary in

[15] Howarth & Jacobson, *How green is blue hydrogen?* (2021), DOI: 10.1002/ese3.956.
[16] Shen et al., *Satellite quantification of oil and natural gas methane emissions in the US and Canada including contributions from individual basins* (2022), https://doi.org/10.5194/acp-22-11203-2022.

greater detail. Please do not hesitate to reach out if you have any questions or if our company can be a resource in any way.

Sincerely,

John Plaza
CEO SkyNRG Americas, Inc.