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Douglas W. O'Donnell
Deputy Commissioner for Services and Enforcement
CC:PA: LPD:PR (REG–117631-23)
Room 5203
Internal Revenue Service
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

Re: Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property, Notice of Proposed Rulemaking and Notice of Public Hearing, 88 Fed. Reg. 89,220 (Dec. 26, 2023)

Dear Mr. O'Donnell:

SkyNRG Americas ("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. SkyNRG appreciates the opportunity to respond and provide feedback on the implementation of these important clean energy policies.

SkyNRG is a global leader in sustainable aviation fuel (SAF). Since 2009, the company has been scaling up SAF demand and production capacity for the industry to meet its 2050 net zero commitment. SkyNRG was the first in the world to supply SAF on a commercial flight flown by co-founder and shareholder KLM in 2011. To date, SkyNRG has supplied SAF to over 40 airlines across the world and is now developing dedicated production facilities to support the shift from fossil jet fuel to sustainable aviation fuel. As a certified B Corp™, SkyNRG prioritizes producing the most responsible and sustainable SAF worldwide. Recognized as a sustainability leader, it maintains an independent Sustainability Board, which advises the company on feedstocks and provides strategic guidance on wide-ranging sustainability issues. SkyNRG's operations are certified by the Roundtable for Sustainable Biomaterials also known as RSB and the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

We are developing a worldwide network of regional SAF supply chains, exemplified by our new project in Washington State which aims to produce up to 50 million gallons of SAF per year, from sources such as renewable natural gas (RNG) and potentially clean hydrogen.

While SkyNRG is not a hydrogen producer, it is our intention to use hydrogen, when available, as a feedstock. Similarly, we are cognizant that many of the policies adopted in this guidance would set precedents for future tax credits, including those related to SAF such as § 40B, the Sustainable Aviation Fuel Credit, and §45Z, the Clean Fuel Production Credit. We strongly support rules that will support rapid expansion of the hydrogen industry to combat climate change and accelerate the energy transition.

In these comments, we respectfully urge Treasury and the IRS to adopt the following regulatory approaches regarding the § 45V Credit for Production of Clean Hydrogen:

1. Additional pathways for RNG in the 45VH-GREET model beyond landfill gas.
2. Inclusion of the book-and-claim accounting system for RNG to hydrogen.
3. Adjust the temporal matching requirements from hourly to monthly.
4. Revise the First Productive Use requirement for RNG to ensure it does not place unworkable restrictions on the industry.
5. For RNG, classify the national natural gas common carrier pipeline system as 'geographic' in scope.

RENEWABLE NATURAL GAS AND THE 45VH-GREET MODEL

When crafting the Inflation Reduction Act (IRA), Congressional intent was clear: they intended the legislation to be technologically- and feedstock-neutral. They did not intend to pick winners and losers but instead establish clear metrics and use market forces to drive the transition to a cleaner economy.

RNG is a critical clean energy source that demonstrably reduces greenhouse gas (GHG) emissions. As defined by the U.S. Environmental Protection Agency (EPA), RNG is derived from biogas that "comes from a variety of sources, including municipal solid waste landfills, digesters at water resource recovery facilities (wastewater treatment plants), livestock farms, food production facilities and organic waste management operations."[1] "As organic waste decomposes, it releases a biogas that is 45% to 65% methane (CH_4)."[2]

[1] U.S. Environmental Protection Agency (EPA), *Renewable Natural Gas*, https://www.epa.gov/lmop/renewable-natural-gas (last updated on Feb. 12, 2024).
[2] *Id*. ("Raw biogas has a methane content between 45 and 65 percent, depending on the source of the feedstock."). *Cf.* 88 Fed. Reg. at 89,238 n.27 (noting that methane is "principal constituent" of biogas "50-75 percent").

This biogas can be captured – avoided associated GHG emissions – and refined to be indistinguishable from geological natural gas. "On a lifecycle basis, RNG can reduce GHG emissions by 95% as compared to diesel, giving it a nearly net zero carbon impact. In cases where biogas would otherwise be released into the atmosphere (e.g., open lagoons), RNG can have a negative carbon impact."[3]

Limitations on RNG in the Hydrogen Production Tax Credit – as well as the Sustainable Aviation Fuel Tax Credit and Clean Fuel Production Credit – would not only run counter to the clear intent of Congress but risk increasing net GHG emissions as the biogas that could have been captured, refined, and been brought to market is instead emitted into the atmosphere.

On the specific questions posed in the 45V proposed rule regarding RNG, we support the detailed answers provided by the Coalition for Renewable Natural Gas ("RNG Coalition").

The statute requires the use of the GREET model (or a successor) to determine emissions rates for purposes of Section 45V. The GREET model is transparent and well-respected. Importantly, it has included RNG pathways in its modeling for some time, including recognizing that RNG facilities avoid emissions in cases where the biogas may otherwise have simply been flared or released into the atmosphere. These avoided methane emission benefits are key and an important part of any lifecycle analysis for RNG.

The Argonne National Laboratory has provided a GREET model targeted for the Section 45V tax credit – the 45VH2-GREET model. However, this revised model appears to only include landfill gas pathways for hydrogen production, which is only one potential source of RNG. The current GREET model, however, includes additional RNG pathways that must be added. We urge the IRS to ensure that these additional pathways are included, as well as pathways that are likely to be most used in the near future. These include, at a minimum, biogas from anaerobic digestion of animal waste, biogas from anaerobic digestion of wastewater sludge, biogas from anaerobic digestion of municipal solid waste (MSW), and RNG-to-hydrogen via electrolysis. We appreciate that the GREET model has been updated with new pathways and updated science as appropriate to support those efforts.

We support use of default assumptions to ensure that these pathways are allowed, but as further described in the RNG Coalition's comments, certain site-specific factors for each pathway would better reflect the GHG emissions for the applicable RNG facilities. We also note that, to provide the needed certainty for investments while encouraging additional

[3] U.S. Environmental Protection Agency (EPA), *Renewable Natural Gas*, https://www.epa.gov/lmop/renewable-natural-gas (last updated on Feb. 12, 2024).

GHG reductions, the emissions rate should not need to be checked annually. Instead, updates can be made if material changes are made to the facility. In addition, there should be an ability to seek individualized emissions rates for those facilities that take action to further reduce their carbon footprint. This would support the program's intent to promote additional GHG emissions reductions.

BOOK-AND-CLAIM ACCOUNTING

SkyNRG is developing a new project in Washington State that will use RNG and potentially clean hydrogen as a feedstock to produce SAF. This facility, when completed, will be able to produce up to 50 million gallons of SAF annually. For perspective, in 2022, the United States consumed around 14 million gallons of SAF in the entire country.[4]

SkyNRG plans to contract the purchase of RNG from various points of origin, including landfills and anaerobic digestion facilities that produce RNG, and inject it into the existing and extensive network of natural gas pipeline infrastructure in place throughout the country. Under existing rules and industry practice, this RNG is used to produce transportation fuels such as compressed natural gas (CNG), liquified natural gas (LNG), and hydrogen through what is 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 respective 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 renewable energy certificates (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. Customers will then receive a certificate stating the amount of renewable electricity they paid for.

A similar process is applied to RNG as the issues are related. CNG, LNG, and/or hydrogen producers draw a unit of gas from the existing pipeline infrastructure, claiming the RNG they purchased via contract that has been injected into the common carrier pipeline network. SkyNRG plans to use the same book-and-claim approach to produce SAF from

[4] U.S. Department of Energy (DOE), *Sustainable Aviation Fuel*, https://afdc.energy.gov/fuels/sustainable_aviation_fuel.html.

RNG. Based on assessments from the U.S. Department of Energy (DOE), U.S. Department of Agriculture (USDA), and others, RNG has the potential to supply five 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.

The promise of book-and-claim RNG to SAF lies in its scalability and the fungible nature of RNG since it can be injected and dispersed through our national common carrier pipeline system. This fully interconnected system spans across the U.S. and includes significant storage capabilities. The injection of RNG into our existing natural gas common carrier pipelines has significant environmental benefits that should be encouraged through federal regulations – not limited. Importantly, even if a company cannot show direct receipt of the RNG molecules, guidance should permit producers to receive credit if they can demonstrate they acquired and retired corresponding attribute certificates through a book-and-claim accounting system.

Further, many projects that rely on RNG, such as the project we are constructing in Washington State, need more RNG than the immediate environs can realistically supply. Placing limits on the utilization of book-and-claim accounting for RNG to nearby geographic areas will have the unintended consequence of preventing many projects from utilizing it as a feedstock. RNG sources, including the capture of methane emissions from landfill and dairy waste, are geographically dispersed. In fact, rural communities are where the vast majority of RNG capture takes place.

The domestic RNG industry has evolved within 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.

This book-and-claim of RNG is eligible under both federal and state policies, such as the federal Renewable Fuel Standard (RFS), California's Low Carbon Fuel Standard (CA-LCFS), and Washington's Fuel Standard (WA-CFS) programs. In fact, all three programs incorporate book-and-claim accounting for pipeline-injected biogas, including Washington which specifically allows for RNG to SAF/RD. We believe these accounting frameworks could be valuable resources for Treasury as the agency thinks through the book-and-claim concept for the § 45V credit.

Critically, there was clear Congressional intent[5] to permit flexible use of book-and-claim accounting when they crafted the IRA. Congress intended these rules to be technology-agnostic. Similarly, Congress did not want the hydrogen, or SAF, industries to become overly reliant upon any one feedstock. Limitations on book-and-claim accounting would make domestic production overwhelmingly reliant upon agriculturally based feedstocks.

We believe strongly that tax policy should be consistent across different statutes and that clear allowances for book-and-claim should be a key design feature of both the Clean Fuel Production Tax Credit as well as the Clean Hydrogen Production Tax Credit. Accordingly, we are concerned that limitation on book-and-claim accounting developed for the § 45V credit could be applied to future Treasury guidance on other tax credits.

The IRA had the clear intent of promoting clean energy investments across our country and a robust book-and-claim system will clearly lead to increased efforts to capture, and bring to market, methane emissions that are currently released into the atmosphere. This emissions avoidance will help displace traditional, geologic natural gas, and have significant climate and health benefits, irrespective of the connectivity and location of the producer location.

TEMPORAL MATCHING

While we appreciate the work Treasury did in crafting the guidance on time-matching requirements, we strongly urge you to consider incorporating the approach that Europe has taken in their RED II Delegated Act ("RED II").

In RED II, the EU initially proposed an hourly-matching requirement. However, that system proved impractical for hydrogen producers because, from a business standpoint, it limits the revenue-generating hours available to earn back the initial CAPEX investment and requires an overcapacity of renewable power to produce during times that strictly match renewable electricity availability. Therefore, important adjustments were made, including a clause creating flexibility by allowing for monthly matching until 2030. We believe that

[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.

Treasury should take note of this approach and adopt more flexible policies. While it is clearly beneficial to have an annual-matching requirement in the initial phase, we urge Treasury to adopt a similar approach to Europe and institute a monthly correlation instead of an hourly requirement. While we support hourly-matching strictly from an environmental perspective, taking into account the economics of operating electrolyzers and the great CAPEX investment needed for these assets, we believe some flexibility will enable a more robust business case and therefore a more rapid scale-up of hydrogen and greater emissions reductions over time. Setting the cut-off date at 2030 will also allow the flexibility period to make an impact, as very few electrolyzer projects will be online before 2028 given current market expectations and the absence of final investment decisions until this date.

It is critical to understand that hydrogen producers, and SAF producers, cannot simply power their facilities down when renewable energy is not available. Proposed guidance does not address how the tax credit will be applied during periods when renewable energy is not available in an hourly-matching requirement, which begs the question: will none of the hydrogen produced qualify for the tax credit or only a proportional amount matching the clean energy supplied?

As proposed guidance acknowledges, hourly tracking systems for energy attribute certificates (EACs) are not yet widely available across the country and will take some time to develop. Similarly, in many regions, there is insufficient clean energy available to satisfy an hourly-matching requirement. Instead of establishing arbitrary timelines that may, or may not, prove practical, we urge Treasury to be responsive to current energy market conditions and provide needed temporal flexibility.

DELIVERABILTY

SkyNRG believes that rules pertaining to geographical correlation (deliverability) are sound and ensure renewable electrons actually reach the project. However, there are clear variations in geographic sizes, available renewable energy sources and suitability of renewable energy development that merit additional flexibility and guidance.

For example, the Pacific Northwest has a unique supply of hydropower, but the proposed guidance would place strict limits on the ability to tap into that energy source. In some regions, we see much more established solar and wind sources. In addition, not all geographies are equally suited for clean energy development. We are concerned that regional deliverability requirements could create geographical winners and losers that run counter to the goals of the IRA.

With regards to RNG, sources are geographically dispersed, and any direct deliverability requirement would preclude more RNG dependent projects from being completed. This would limit the development of RNG projects throughout the country and curtail financial incentives to capture biogenic methane. In contrast to other commodities, RNG can be added and distributed through the existing common carrier pipeline system, which is fully integrated across the country. RNG plays a critical role in displacing geologic natural gas and has clear climate benefits regardless of where it occurs.

Further, we are concerned about any effort to limit book-and-claim accounting for RNG to geographically delineated regions. Major projects, such as our planned facility, require more RNG than the immediate environs can support. It is a clear climate benefit to establish financial incentives to capture, and bring to market, biogenic methane and guidance should reflect that. These financial incentives should be universally applicable, ensuring equal benefits for all parts of the country without relying on a project being developed in a particular region.

For RNG, we recommend following the current guidance of the EPA for treatment of RNG by classifying the entire national natural gas common carrier pipeline system as the 'geographic' scope. Viewing the natural gas common carrier pipeline system as an interconnected national network will allow RNG to support the clean energy economy in a technologically agnostic way, help in the development of projects throughout the country, and provide strong market incentives to support the development of additional RNG projects. This approach will disproportionately benefit rural areas where the majority of RNG projects are located.

INCREMENTALITY

We commend the diligence and intention in the guidance to ensure these credits support the development of new clean energy production. As a company, we are committed to supporting this effort. However, there are many outstanding questions and, as written, the guidance poses a significant risk of preventing new clean energy projects from moving forward.

To date, many projects across the country are facing significant cost increases. Businesses are struggling not only with higher inflation and interest rates but shortages of labor and materials to complete their projects. While the President has made clear progress on reducing inflation, the undeniable reality is many clean energy projects must now grapple with dramatically higher costs than when they were initially planned just a few years ago.

Instituting strict *new* clean power requirements will add new project development costs to businesses that are already struggling to finance significantly increased input costs. The net result of this will likely result in many projects not being completed.

The incrementality requirement creates many additional problems that developers will struggle to meet. For example, many clean energy projects are plagued not only with years long permitting processes but then often face delays in connecting to the grid itself. If these new clean energy sources are significantly delayed, would the new project still qualify for the tax credits? Similarly, if a project signs a power purchasing agreement (PPA) with a clean energy provider but then faces subsequent construction delays – an altogether too common occurrence – would they face the risk of not qualifying for the tax credits if the project is no longer considered a *new* clean energy source?

In addition, permitting for different projects can take place on dramatically different timelines depending on their location. While Congress has discussed permitting reform to speed up the construction of new projects, which has so far not come to fruition. Instituting a strict incrementality requirement while not reforming the permitting process will unavoidably create major delays for many projects.

For RNG in particular, proposed guidance indicated it intended to require RNG be limited to "hydrogen production process must originate from the first productive use of the relevant methane."[6] While the intent to ensure projects bring *new* clean energy onto the grid, this first productive use requirement would place unworkable burdens on RNG projects. The first productive use requirement would risk placing unworkable constraints on the growing RNG marketplace and prevent it from responding to the market conditions and rapidly expanding. This would result in continued methane emissions that could instead have been captured, brought to market and displaced geologic natural gas. This would run counter to the clear intent of the IRA. For further discussions and analysis into the impracticality of this requirement and negative effects it will have on expanding the RNG marketplace, please see comments submitted by the RNG Coalition.

Treasury should additionally look at ways to support uprating of existing clean power sources and retrofitting existing power plants to qualify as new, clean energy. When crafting the IRA, Congress, and President Biden had the clear intent to support the development of clean energy and a technology agnostic manner. Establishing parameters for retrofitting or expanding clean energy production clearly aligns with this objective.

[6] 88 Fed. Reg. at 89,238.

PROVISIONAL EMISSIONS RATE AND CONSIDERATION OF GEOLOGIC HYDROGEN

In our current environment, technology is rapidly changing, and DOE must ensure that emerging hydrogen technologies can compete on a level playing field – as was the clear Congressional intent when crafting the Hydrogen Production Tax Credit. We commend Treasury and DOE for creating the Provisional Emissions Rate (PER) application process that would allow novel technologies to access the tax credit. To ensure the PER process is efficient, functional, and provides companies with the necessary financial certainty, we recommend that final rules ensure PER determinations are provided in a timely manner – no longer than six months. A prolonged delay in the application and review process would unfairly benefit established hydrogen production methods. If DOE does not complete the process within six months, taxpayers should be provided with the option to determine their carbon intensity (CI) score via an approved third-party lifecycle analysis (LCA) provider.

In addition, appropriate indicators of project maturity for the PER applications must be assessed on a case-by-case basis for each type of emerging clean hydrogen technology. Proposed rules suggest taxpayers include proof of project maturity in the form of a completed Front-End Engineering and Design (FEED) study to apply for a PER. While a FEED study is appropriate for many large-scale investments, it may not be appropriate for all technologies. Where a FEED study is not applicable – such as for geologic hydrogen – Treasury should consider alternative indicators of project maturity. An example of an alternative indicator could be a Final Investment Decision (FID). An FID implies that a company has already prepared an engineering packet with comprehensive information (e.g., equipment lists, mass and energy flows) that would enable DOE to calculate and validate a CI footprint. Before engaging in the PER process, a taxpayer should be reasonably confident that no major project revisions are expected.

Finally, we flag that geologic hydrogen, unlike other hydrogen production technologies, is unique because its production is not characterized by standardized inputs and outputs. The CI of geologic hydrogen will depend on reservoir characteristics and facility design. For geologic hydrogen, a PER petition filed by a taxpayer is appropriate on a per facility basis. Here defined, a geologic hydrogen production facility constitutes the wells, pipes, compressors, a pressure swing absorber, a waste gas treatment system, and associated equipment for onsite operations to process raw hydrogen from reservoir to a salable product. This will help strike a balance between optimum use of administrative resources and regulatory burden on the taxpayer.

We commend the Department of Energy and Treasury Department for their diligent work on this complicated issue. However, we urge you to take into account current treatment of RNG under the RFS in particular, as well as the lessons from Europe and adopt policies that enable a rapid, economic scale up of the green hydrogen industry that can deliver critical emissions reductions.

We appreciate the opportunity to comment on this guidance and commend the Department of Energy and Treasury Department for their commendable work on this complicated issue. 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
President & CEO
SkyNRG Americas, Inc.