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Douglas W. O'Donnell
Deputy Commissioner for Services and Enforcement
Internal Revenue Service Internal Revenue Service
P.O. Box 7604, Ben Franklin Station
Washington, DC
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Concerns and Feedback Regarding Proposed 45V Tax Guidance for Renewable Natural Gas (RNG) Use as EACs for Hydrogen Projects and the 45VH2-GREET Model

Dear Mr. O'Donnell,

I am writing on behalf of NW Natural, a natural gas distribution company serving over 2.5 million customers in the Pacific Northwest that is dedicated to decarbonizing our energy supply swiftly and affordably. As a key stakeholder in the clean energy sector, we would like to express our concerns regarding certain provisions outlined in the proposed 45V tax guidance, including aspects of the 45VH2-GREET model, and especially for renewable natural gas (RNG) as a feedstock to hydrogen projects. Moreover, we would like to suggest alternative approaches to the guidance that align with our shared goal of achieving a sustainable and efficient energy future.

NW Natural has not only been talking about decarbonizing the natural gas system over the past decade but also has been putting plans into action to get to net zero by 2050. These include bringing two new RNG projects online, purchasing a significant amount of RNG through offtake agreements, and blending hydrogen into its facilities using various hydrogen production methods. We understand what has helped these projects succeed and what would have hindered these projects from becoming realities; our desire is to provide constructive feedback based on this experience for the proposed 45V guidance we received in December of 2023.

First and foremost, book and claim accounting has been critical to the success of RNG projects and will be needed to ensure success for hydrogen projects that use 'Energy Attribute Certificates' (EACs) created from RNG. The following are key benefits and aspects of using book and claiming accounting:

1. **Minimizes Costs:** using the existing natural gas grid to receive, store, and distribute molecules not only allows for the most efficient and flexible placement of projects (including production and consumption), it accommodates variable production and consumption patterns that are almost impossible to align.

   For example, a wastewater treatment plant located in Nebraska may produce RNG 24 hours a day, 7 days a week with varying production amounts each month depending on feedstock and ambient temperature. A hydrogen production unit using this RNG as its source could be coupled with a vehicle fueling facility in an urban environment in California. The hydrogen production may need to consume the RNG at various intensities throughout the day, weeks, and months.

Book and claim accounting allows the aggregate number of molecules to match over a period of time, which reduces pipeline costs and storage costs. It also eliminates the pipeline transportation costs for actually moving specific molecules to customers, as displacement becomes the method of offsetting molecules one for one. This can easily be assured today using meter data, renewable energy tracking systems, and third-party audits.

2. **Decreases Risk:** Building production and consumption projects connected by the natural gas grid in lieu of having dedicated infrastructure for discrete projects enables market liquidity. This liquidity ensures both production and consumption projects can be connected to other projects should an unforeseen interruption in supply or demand occur. This reduction in risk secures capital investment at lower costs.

3. **Robust Reporting and Tracking:** Monthly accounting for RNG supplies and offtakes is routinely done today for Federal and State renewable and low-carbon fuels programs. The data are readily available through the use of meters and automated reporting. Tracking systems such as the Midwest Renewable Energy Tracking System (M-RETS) exist today that provide additional traceability and data for auditing purposes. **Temporal matching of RNG used as EACs on an annual or monthly basis would be welcome as it is commonplace today in other markets. Hourly matching of molecules is prohibitive and not required due to the storage ability of the natural gas system and the demonstrated, robust reporting that exists for RNG today.**

Without book and claim accounting we would not have the successes in existing Federal and State renewable and low-carbon fuel programs and other utility decarbonization programs would simply be impossible from both logistical and cost perspectives. **Book and claim accounting using RNG as EACs for hydrogen production should be included in every and all aspects of 45V guidelines to ensure quick and lasting growth of hydrogen markets.**

As previously mentioned, natural gas can be produced anywhere in the country and injected into the common carrier pipeline system. The natural gas system also has an immense amount of storage capacity not only from short term line pack but also from long-term dedicated underground storage reservoirs (over 4 trillion Bcf). **Production, injection, and storage for months on end, and accounting for direct or indirect use of molecules are commonplace on the natural gas common carrier pipeline today; therefore, deliverability restrictions should not be included for RNG used as EACs for hydrogen production.**

On the topic of additionality and ‘first productive use’ of RNG, there simply is no evidence today that repurposing existing RNG facilities for hydrogen production in lieu of other uses would create ‘induced emissions’. Renewable natural gas is largely used for federal and state renewable and low-carbon fuel compliance programs that have increasing and decreasing caps respectively. These caps ensure that if one volume of fuel is removed, another must be added to ensure compliance thereby maintaining (and not increasing) emissions levels.

In addition, adding additionality and ‘first productive use’ provisions not only creates risk through reduced liquidity, but also creates potential unintended consequences of RNG plants sitting idle if hydrogen production facilities do not coincide with the RNG plant completion dates. A very possible scenario is if a hydrogen production facility is initially conservatively-sized and cannot use the full amount of RNG being produced at a specific project until a later date when the techno-economic case warrants it. The excess RNG would either sit idle as to not trigger a ‘first productive use’ or would have to enter less lucrative markets, which could put the project in jeopardy.

Therefore, additionality and ‘first productive use’ requirements could create significant barriers to the development of new hydrogen markets, do not mitigate ‘induced emissions’, and should not

be included in RNG use as EACs for hydrogen production. If data show that 'induced emissions' are indeed real and need to be addressed, the 45VH2-GREET tool could be used to quickly add in any needed protections.

The 45VH2-GREET modeling tool is a welcome addition to the 45V tax credit process. We do have a number of concerns with the tool as-is and would like to suggest opportunities for improvement:

1. The current model includes a number of hydrogen pathway production processes and one source of RNG (landfill gas). Both hydrogen and RNG developers are currently working on additional types of fuels and have access to evaluate their carbon intensities through the R&D GREET model. These include hydrogen production from methane pyrolysis (aka turquoise hydrogen) and RNG produced from sources such as dairy farms and wastewater treatment plants. **We encourage the DOE to move as quickly as possible to include all sources of hydrogen and RNG production currently available in the R&D GREET model in the 45VH2-GREET model to better reflect the variety of existing and near-term projects.**

2. **The current method of including emissions from impurities in the hydrogen production process penalizes displacement of natural gas with hydrogen and may lead to perverse incentives for taxpayers and should be removed.** For example, if hydrogen is produced from natural gas using methane pyrolysis at a 90%H_2 / 10% natural gas mixture to displace 100% natural gas use in, say, a boiler, the taxpayer would not receive the full value of the 90%H_2; they would need to subtract the carbon intensity of the 10% natural gas even though the counterfactual is 100% natural gas.

   In this situation a taxpayer could purify the outlet gas to 100%H_2 and recycle the remaining natural gas back into the process; however, this purification process is energy intensive and is wasted entirely. The net amount of hydrogen production is fixed based on the size of the methane pyrolysis unit and it does not benefit in any way from receiving recycled gas vs. inlet gas. The net amount of hydrogen produced is the same with a 90%H_2 mixture or 100%H_2 output. In the latter case, it is actually produced with a higher energy intensity and would likely only be done to increase the amount of available tax credits.

   The idea of expending energy to purify hydrogen streams for increased tax incentives takes an even more bizarre turn if the hydrogen is used for blending back into the natural gas system to deliver a blended, lower-carbon gas mixture to be combusted in a natural gas appliance.

3. 45VH2-GREET uses an overall natural gas grid average emissions number and does not discriminate from sections of the distribution and transmission systems that are of newer vintages, and/or use the most modern procedures, equipment, and materials that are known to result in lower leak rates. This omission disincentivizes tighter system development and accepts the status quo. **We recommend that 45VH2-GREET be modified to include discrete gas infrastructure leakage rates to incentivize continued reductions in fugitive emissions in lieu of the current average.**

4. In the same way distribution and transmission lines can have lower fugitive emissions rates, so too can the sources of natural gas themselves. Extracting and producing natural gas can be accomplished using equipment and procedures that result in higher or lower leakage rates. These impacts are measurable and verifiable, and gas meeting strict emissions criteria is often referred to as Certified Natural Gas.

The 45VH2-GREET model does not include a way to differentiate conventional fossil gas from Certified Natural Gas and therefore limits the amount of investment in this area. **Including Certified Natural Gas in the 45VH2-GREET model would incentivize lower emissions right at the well head and reward those who are working to reduce upstream emissions as much as possible; therefore, we recommend the tool be modified to included Certified Natural Gas as soon as possible.**

We understand that the 45VH2-GREET model is evolving, and we anticipate the inclusion of additional RNG options, hydrogen production pathways, and improved representations of infrastructure and well head emissions in the future. These changes will assuredly provide even more comprehensive and accurate assessments of the environmental impact of RNG and hydrogen projects and reward those who are doing the most.

We appreciate the opportunity to share our feedback based on experience with RNG and hydrogen development projects, as well as 165 years of day-to-day gas system operations. We believe that participating in the new Hydrogen Economy will become yet another way our company evolves over the coming years and we look forward to working with Treasury and the DOE to make it happen as efficiently and quickly as possible.

Sincerely,

Mary Moerlins

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