

February 26, 2024

**Via Federal eRulemaking Portal: <https://www.regulations.gov>**

Commissioner Danny Werfel  
Internal Revenue Service  
CC:PA:LPD:PR  
REG-117631-23  
Room 5203  
P.O. Box 7604  
Ben Franklin Station  
Washington, D.C. 20044

**Re: IRS and REG-117631-23 – Notice of Proposed Rulemaking**

Dear Commissioner Werfel:

FuelCell Energy, Inc. (“FuelCell Energy”) submits these comments in response to the Internal Revenue Service’s (“IRS” or “Service”) Notice of Proposed Rulemaking (“NPRM”) issued on December 26, 2023, regarding REG-117631-23: *Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property*, 88 Fed. Reg. No. 246, 89220-89255 (Dec. 26, 2023) (referred to herein as the “Proposed Rules”). FuelCell Energy thanks the IRS for this opportunity to provide comments and feedback on the Proposed Rules.

To ensure ease of review, FuelCell Energy has structured this comment letter in four sections: I. Mission Critical Summary and Recommendations, II. Overview of FuelCell Energy and the companies we represent, III. General Comments, and IV. Specific Comments in Response to the Requests in the Proposed Rulemaking.

## **I. Mission-Critical Summary and Recommendations**

**Prompt Corrective Action for Existing Financial Obligations/Litigation Prevention.** Simply put, the IRS and the U.S. Treasury Department understand the extent to which taxpayers make financial decisions based on existing laws and regulations. FCE respectfully submits that to continue that commitment and to protect taxpayers who have made significant financial commitments to clean energy based on existing law, the IRS should include a “grandfather provision” in the Proposed Rules. Such a provision is necessary to protect any taxpayer that entered into a financial agreement for a project covered by Section 45V on or before December 1, 2023, and the inclusion of such a provision will ensure that these agreements and the parties’ critical financial and legal expectations will not be affected by changes in the law that the parties did not plan on, bargain for, or expect. The potential harm of omitting such a provision extends not only to the taxpayers involved in those agreements, but also to the small and mid-sized companies whose growth is dependent upon the continued development of projects in which they have planned to participate.

**PTC Tax Credit Protection.** After extensive internal and external legal analysis and financial consideration, FuelCell Energy is deeply concerned that the current references to “first productive use” in 88 FR 89238-40 are highly problematic. Simply put, as written, the proposed rules would effectively eliminate PTC eligibility for hydrogen projects using RNG. Even if a project uses RNG in a low- to no-carbon way, if that same RNG was previously used productively or sold at any time, the proposed rules imply that it could not be used in a project that would result in a lower carbon intensity. While FuelCell Energy understands that this rule is intended to be an extension of the “incrementality” attribute described elsewhere in the proposed rules, the existing regulations for RNG promulgated by the EPA through its RFS program already address these concerns and should continue to serve as the controlling regulations.

**Consistent with the above priorities, our recommendations are as follows:**

1. The “most recent GREET model” should be the one in effect at the time the project first begins producing hydrogen, and eligibility across the 10-year PTC should be based upon the GREET model used in the initial 45V certification.
2. The goals underlying the three pillars and their role in shaping the definition “qualifying EACs” are laudable, but the timeline for implementation must be tethered to when market conditions can support implementation.
3. The “first productive use” rule must be eliminated because renewable natural gas is already regulated under the EPA RFS program, which should continue to serve as the regulatory authority for RNG.
4. If the “first productive use” rule is not eliminated, the rules should include a “grandfather provision” to avoid penalizing those investors in early, pre-existing projects that have already qualified for 45V credit.

**II. FuelCell Energy Overview**

FuelCell Energy, a global leader in clean energy, appreciates the opportunity to submit these comments on behalf of the advanced technology sector, which represents a wide variety of small and mid-sized companies across the country that are a critical part of the clean energy supply chain in the U.S. These businesses are all specialty manufacturers who build critical inputs that most people never see. At FuelCell Energy alone, we support small and mid-sized businesses in over twenty-five states including Connecticut, New York, Pennsylvania, Ohio and Wisconsin. We believe these U.S. manufacturers are a critical part of the clean energy solution and the essence of the IRA.

FuelCell Energy is proud to be among the companies that have been dedicated to clean energy innovations since our inception five decades ago. The company was founded in the United States in 1969 by two scientists devoted to pursuing technological innovations that address a wide variety of energy priorities through patent-protected U.S. innovation and compound combinations that produce and use energy in ways that are smarter and cleaner. Today, FuelCell Energy has over 600 employees, 188 modules in operation, and more than 15 million MWhs generated with our patented technology.

Our current product portfolio includes two dynamic electrochemical platforms: molten carbonate and solid oxide. Both platforms can support power generation and combined heat and power applications from a variety of fuels, including natural gas, renewable biogas, or hydrogen. These fuel cells react with fuel electrochemically, without combusting the fuel, which avoids emissions produced by fuel combustion such as oxides of nitrogen, oxides of sulfur, and particulate emissions. In the electrochemical process, fuel and air are reacted in separate chambers in the fuel cell stack. As a result, the reactions producing CO<sub>2</sub> occur without mixing fuel and air. Thus, CO<sub>2</sub> remains concentrated and easy to remove. Both molten carbonate and solid oxide fuel cell systems can benefit from this unique feature, with modifications enabling the capture of their own CO<sub>2</sub> for use or sequestration before it is emitted into the air.

FuelCell Energy's molten carbonate fuel cell is unique in its ability to also capture CO<sub>2</sub> from an external source, such as a power plant, an industrial boiler, or a steam methane reformer. Our solid oxide fuel cell can operate on pure hydrogen as a feedstock, emitting zero CO<sub>2</sub>, which will become increasingly important as the uses of hydrogen for fuel become more widely adopted, and which complements the nation's current emphasis on deploying technology that enables hydrogen-based energy storage. Our solid oxide electrolyzer produces hydrogen from power and water, which is well suited to partner with renewable energy projects and/or hydrogen storage infrastructure.

FuelCell also manufactures a platform called Tri-gen that co-produces power, hydrogen, and water. On September 7, 2023, FuelCell Energy and Toyota Motor North America announced the completion of the Tri-gen project at the Port of Long Beach in California ("Tri-gen Project"). FuelCell Energy's Tri-gen Project is the world's first deployed generation facility that uses biofuel to produce up to 1,200 kg/day of hydrogen, 2.35 MW of renewable electricity, and 1,400 gallons water per day. Toyota uses these resources to power its operations at the port, fuel hydrogen vehicles, and to operate a car washing facility. Any Tri-gen Project electricity unused by Toyota supports the local grid in southern California.

FuelCell Energy is proud that our multi-featured platforms can be configured to provide multiple value streams, including electricity, hydrogen, high grade heat including steam, water, and CO<sub>2</sub> for sequestration and or utilization. In addition, as a global leader in electrochemical technology, FuelCell Energy and its subsidiary Versa Power Systems, Inc. have: 163 U.S. patents covering their fuel cell technology, 43 U.S. patents pending, 368 patents in other jurisdictions covering their fuel cell technology, and 124 patents pending in other jurisdictions.

### **III. General Comments**

At the outset, FuelCell Energy wishes to thank the Treasury Department and IRS for their continued commitment to proposing thoughtful guidance aimed at clarifying and implementing the innovative tax credits the Inflation Reduction Act of 2022 reimaged. FuelCell Energy recognizes that these Proposed Rules reflect just one facet of the many efforts Treasury and IRS have undertaken both prior to and since the IRA's enactment. FuelCell Energy appreciates the significant time and resources IRS and Treasury have dedicated to these Proposed Rules.

FuelCell Energy also reiterates the sentiments of its recent comments in response to IRS-REG-132569-17. In that submission, FuelCell Energy emphasized the need to remain focused on the potential effects the proposed guidance will have on the clean energy economy *as a whole*, and especially on the small to mid-sized businesses which will drive that economy. It bears repeating that the IRA and Section 45V specifically have the capacity to completely transform our nation’s clean energy economy by catalyzing investment, increasing clean energy supply and demand, and creating pathways to decarbonization on a nationwide scale. FuelCell Energy respectfully submits that regulatory certainty is required to enable development of a market that supports the necessary growth of clean energy and that such certainty must be firmly grounded in the realities of the existing market conditions. Rather than focusing solely on the future, while the market remains in its infancy, our collective focus must be on growth and transitional market elements that thoughtful regulation can support within the scope of the governing law. These goals for the future can and will be achieved, but only if we analyze and account for the present nascent state of the market. Stated differently, while the regulations and framework implemented now should consider the clean energy economy we aspire to create, they must be implemented in a manner that acknowledges the present state of the market, accounts for “costs” as a major driver of broad market adoption and the ability to scale technologies driving down costs, and which can be modified as scale/growth is achieved.

Though we have made progress as a nation over the last decade towards increasing clean energy supply, this progress has not been always been linear.<sup>1</sup> As we introduce the next wave of clean energy technologies that support the current installed base, our ability to continue on an upward trajectory and to reach decarbonization at scale across the nation largely hinges upon the existence of sufficient renewable market penetration leveraging new technologies. The market has successfully demonstrated that emerging technologies can scale with proper tax support, especially in states that have aligned in concert with the federal government.

Lessons from the solar and wind markets are instructive here. Those markets, as supported by government incentives, have had 20 years to mature to the point they are at today. All parties agree, however, that we cannot plan for a 20-year window for the development of a hydrogen market and the next stage of de-carbonization technology. If it takes that long, we will have failed. Section 45V, if implemented in accordance with the present state of the market and then modified to incorporate the requirements set forth in the three pillars over time, will accelerate the adoption of decarbonization technology and foster public and private investment in hydrogen, thus allowing the country to meet its decarbonization goals, create thousands of U.S. clean energy jobs, and promote even greater U.S. technological innovation.

Section 45V plays no small role in this “progress” equation – it is the key that will allow our nation to unlock the door that leads towards deploying decarbonization measures at scale, and it was enacted with that very goal in mind. Within the context of clean hydrogen, this goal was quantified by the U.S.

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<sup>1</sup> *Wind power industry drifts off course*, REUTERS, updated Sep. 28, 2023, accessible at <https://www.reuters.com/sustainability/climate-energy/wind-power-industry-drifts-off-course-2023-09-28/> (last accessed Feb. 22, 2024); *see also Inflation, interest rates and whales: Why offshore wind projects are on the rocks*, CNN.COM, July 21, 2023, accessible at <https://www.cnn.com/2023/07/21/us/offshore-wind-delays-inflation-whales-climate/index.html> (last accessed Feb. 22, 2024).

Department of Energy (DOE) in 2021 with its announcement of the Hydrogen Shot, which seeks to reduce the cost of clean hydrogen by 80% to \$1 per 1 kilogram in 1 decade ("1 1 1").<sup>2</sup> FuelCell Energy shares in this ambitious goal, as evidenced by its mission, which is to enable a world empowered by clean energy. We are confident that our high efficiency electrolysis platform is the technology at scale that will deliver \$1 per 1 kilogram. Section 45V can be the vehicle to allow our country to reach the Hydrogen Shot goals.

To do this, FuelCell Energy believes that the timeline for implementing the three-pillar construct should be dependent upon a market assessment to be completed by DOE. As the agency best-positioned to perform such an assessment, DOE should assess the market in 2031/2, at which time the market is much more likely to support industry-wide implementation of the requirements outlined within the three pillars. This timeline aligns with the conclusion of the decade set for achieving the Hydrogen Shot goal (by 2032) as well as the completion of the buildout of the Hydrogen Hubs (in 2031). Both of these efforts will play a critical role in increasing clean energy supply and demand, while establishing the framework for the clean hydrogen economy to grow, which are necessary prerequisites to implementing the three pillars. As a result, delaying implementation until DOE evaluates the hydrogen ecosystem will ensure that the market conditions exist to support implementation of the three-pillar construct without stifling the early growth needed to ensure its continued success.

In sum, FuelCell Energy respectfully asks that Treasury consider the current, nascent state of the renewable market. It is simply not sufficiently developed to support the weight of the current Proposed Rules, which – as they are written - will hinder, rather than promote, the market’s growth. Any proposed regulations should not implement a framework that would extinguish the potential for growth before it begins by adding requirements that cannot be supported by the realities of the current market.

FuelCell Energy’s specific comments below highlight some of the key takeaways we believe will balance the Proposed Rules if they are issued in the near term.

#### **IV. Specific Comments Regarding Proposed Rules**

For clarity, FuelCell Energy organizes its specific comments according to the section headings and corresponding titles within the Proposed Rules.

#### **Section V. Procedures for Determining Lifecycle Greenhouse Gas Emissions Rates for Qualified Clean Hydrogen.**

##### **A. GREET Model**

FuelCell Energy supports Proposed § 1.45V–1(a)(8)(ii), which the Proposed Rules describe as providing that the term “most recent GREET model” means the latest version of 45VH2–GREET developed by Argonne National Laboratory (ANL) that is publicly available on the first day of the taxpayer’s taxable year in which the qualified clean hydrogen for which the taxpayer is claiming the

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<sup>2</sup> <https://www.energy.gov/eere/fuelcells/hydrogen-shot>

Section 45V credit was produced. FuelCell Energy further supports this provision within the Proposed Rules that Treasury describes as allowing hydrogen producers a choice between two effective versions of GREET “if a version of 45VH2–GREET becomes publicly available after the first day of the taxable year of production (but still within such taxable year),” such that “the taxpayer may, in its discretion, treat such version of 45VH2–GREET as the most recent GREET model.” This flexibility will allow for innovation and inclusion of additional pathways within the GREET model over time, while still preserving a level of predictability for taxpayers. FuelCell Energy appreciates Treasury’s recognition of the need for both flexibility and predictability in this regard.

Proposed § 1.45V–1(a)(8)(ii) aligns with Section 45V by allowing taxpayers to claim the PTC during the year the project is placed in service according to the GREET model that controls the lifecycle greenhouse gas emissions determination for the entire 10 years of production. For the avoidance of doubt, Proposed § 1.45V–1(a)(8)(ii) should be clarified to note that “the most recent GREET model” which controls a producer’s initial eligibility for the PTC remains that which controls its continued eligibility during the 10-year production period, except for circumstances where a modification to feedstock components used in the project would alter the lifecycle GHG emissions under the GREET model in effect at the time the project is placed in service. This aligns with Proposed § 1.45V–1(a)(8)(ii), as it is necessarily tethered to the “most recent GREET model” as defined within the Proposed Rules and which is in effect during the first taxable year that hydrogen is produced.

#### B. Provisional Emissions Rate

FuelCell Energy supports the Proposed Rules’ procedure for requesting a Provisional Emissions Rate (PER) for use in calculating lifecycle greenhouse gas emissions rates. FuelCell Energy also wishes to thank Treasury for its reference to “trigeneration” technology as one technology of current commercial interest not modeled within 45VH2–GREET. FuelCell Energy reads this as a positive reference to its innovative Tri-gen platform, which FuelCell Energy partnered with Toyota to deploy at the Port of Long Beach and which has recently reached operational status.<sup>3</sup> FuelCell Energy appreciates Treasury’s recognition of not only its own first in the world innovative Tri-gen technology, but also the potential for future innovation and emerging technologies in crafting these Proposed Rules.

However, the PTC benefit associated with the Toyota Tri-gen Project is in jeopardy if the proposed rules associated with biogas are implemented. Based on DOE’s continuous support of this technology and its first commercial installation, FuelCell Energy does not believe that it is the intent of Treasury. A detailed explanation can be found in our comments beginning on page 9 below.

#### C. Use of Energy Attribute Certificates

The Proposed Rules provide that Treasury and IRS “in consultation with the United States Environmental Protection Agency (EPA) and the DOE, have preliminarily determined that energy attribute certificates (EACs) may be considered under certain conditions in documenting purchased

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<sup>3</sup> *FuelCell Energy and Toyota Announce Completion of World’s First “Tri-gen” Production System*, TOYOTA NEWSROOM, Sep. 7, 2023, accessible at: <https://pressroom.toyota.com/fuelcell-energy-and-toyota-announce-completion-of-worlds-first-tri-gen-production-system/> (last accessed Feb. 15, 2024).

electricity inputs and assessing emissions impacts of electricity used in the production of hydrogen for purposes of the section 45V credit.” 88 Fed. Reg. at 89227. This sentence is followed by citation to EPA’s December 20, 2023 Letter to Treasury (the “EPA Letter”),<sup>4</sup> which highlights the critical distinction between hydrogen producers who increase grid load and thereby induce grid emissions (like other energy users) on the one hand, and those who do not. Overall, EPA’s message appears guided by the relevant concern that hydrogen producers who increase grid load and emissions should not be allowed to do so while reaping the benefits of Section 45V. The letter states in relevant part that EPA “believes that Treasury could reasonably rely on [EACs with particular attributes] to substantiate the deliverability of zero-emitting electricity to a hydrogen producer.”<sup>5</sup>

Given the inherent distinctions between electricity and other forms of feedstock, and the explanations provided in the EPA Letter, tailoring Proposed § 1.45V–4(d)(1) as Treasury has makes sense in a theoretical and forward-looking way. FuelCell Energy understands the concerns that must guide these analyses by Treasury, including the need to ensure that implementation of the 45V Credit does not adversely affect the very cause it seeks to promote (*i.e.*, by allowing producers to increase emissions while claiming to reduce them without verification).

To address these concerns, proposed § 1.45V–4(d)(3) establishes the requirements that an EAC must meet in order to qualify for the incentive: incrementality, temporal matching, and deliverability. FuelCell Energy’s perspective on these requirements can be illustrated using FuelCell Energy’s electrolyzer platform as an example. FuelCell Energy’s base electrolysis platform is a packaged system that produces up to 600 kg of hydrogen per day from 1.1MW of ac power input. The product is targeted at distributed hydrogen applications, such as fueling stations or industrial applications, but it could also be used for larger projects by deploying multiple units. With the electrolyzer operating at 90% capacity factor, it would use 9,128 MWh of energy to produce 197 tonnes of hydrogen per year. Using annual time matching, this energy requirement could be met with a 3.16 MW solar system operating at 33% capacity factor. If hourly matching is required, a solar system of no more than 1.1MW would be used, providing only 3,150 MWh of energy per year, with only 68.7 tonnes of hydrogen produced.

The hourly matching requirement reduces the amount of added solar capacity by 65%, while reducing the amount of clean hydrogen by the same percentage. With capital and fixed costs spread over fewer kilograms, the cost of hydrogen per kilogram would double. FuelCell Energy understands the concern that the energy offset during periods of overproduction could have a lower carbon intensity than the energy consumed during periods of low or zero production, but this potential result would not always be the case. It is certainly the case today in California, where high market penetration of solar drives a significant difference in carbon intensity at different times in a day, but most other US regions have a more constant grid carbon intensity during the day. And as more wind resources are deployed, grid intensity during evenings and nights will be further reduced.

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<sup>4</sup> EPA Letter at p. 5, available at <https://home.treasury.gov/system/files/136/45V-NPRM-EPA-letter.pdf>; DOE. 2023. “Assessing Lifecycle Greenhouse Gas Emissions Associated with Electricity Use for the Section 45V Clean Hydrogen Production Tax Credit.” Washington, DC: U.S. Department of Energy available at [www.energy.gov/45vresources](http://www.energy.gov/45vresources).

<sup>5</sup> *Id.*

As an extension of this example, consider the case where the 1.1MW electrolyzer was deployed in FuelCell Energy's home state of Connecticut using power delivered with EACs from a solar project in West Virginia. West Virginia's grid carbon intensity is fairly constant over a typical 24-hour period, and it is about twice the grid carbon intensity of New England. The solar project in West Virginia would be offsetting significantly more CO<sub>2</sub> emissions than any associated with Connecticut's grid power, but this arrangement would not qualify for the PTC since West Virginia is in a different region than Connecticut and does not meet the deliverability criteria.

Both of these examples involve a connection between a specific renewable source and an electrolyzer through the grid with EAC management of time averaging and qualification. Another common situation will occur where electrolyzer developers source RECs on open REC markets from a variety of sources. It is true that additionality cannot be guaranteed in these cases since REC providers can represent new resources or existing resources looking for a higher value for RECs they are already selling. But even as developers tap into that second type of supplier, the value of RECs will increase, which will incentivize renewable energy providers to add capacity. Incrementality – which FuelCell Energy agrees is important – will happen, but its success will be driven by market forces.

These are simple examples for discussion purposes, but more detailed modeling has been done by others showing these issues are complex, and the three pillars do not always achieve the targeted emission reductions compared to less stringent requirements.<sup>6</sup> To be clear, FuelCell Energy is not asking for an incentive for high carbon intensity hydrogen as a way to support the nascent hydrogen industry. Rather, we are suggesting that less stringent rules can support the emerging clean hydrogen industry while still assuring low carbon intensity.

Requiring the use of qualifying EACs in the strict way proposed in the draft rules, if imposed too early, would have the very real impact of hindering hydrogen development at the expense of theoretical emissions reductions which may not prove to be valid in practice. Also, the current market conditions cannot support the enactment of these requirements at present, and it is unclear whether the market will be able to support their enactment in 2028. The IRA intended to support a transition period to clean energy. Moving too quickly to rules will dampen any opportunity to achieve the clean energy transition we all seek. While the Proposed Rules implicitly/explicitly acknowledge the need for additional time to establish the framework for the issuance/verification of qualifying EACs, the amount of time actually needed should not be determined in the Proposed Rules in an arbitrary or fixed way (*i.e.*, not by selecting a date certain in the future now). Instead, implementing a longer timeline which depends upon an assessment of the future market will lead to a much higher likelihood of successful implementation.

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<sup>6</sup> See, e.g., *Producing hydrogen from electricity: How modeling additionality drives the emissions impact of time-matching requirements*, MIT ENERGY INITIATIVE, April 2023, accessible at <https://energy.mit.edu/wp-content/uploads/2023/04/MITEI-WP-2023-02.pdf>; *Flexible green hydrogen: The effect of relaxing simultaneity requirements on project design, economics, and power sector emissions*, Ruhnau and Schielle: ENERGY POLICY Vol. 182, Nov. 2023, accessible at: <https://doi.org/10.1016/j.enpol.2023.113763>; *Analysis of Hourly & Annual GHG Emissions; Accounting for Hydrogen Production*, AMERICAN COUNCIL ON RENEWABLE ENERGY (ACORE) E3, April 2023, accessible at <https://acore.org/wp-content/uploads/2023/04/ACORE-and-E3-Analysis-of-Hourly-and-Annual-GHG-Emissions-Accounting-for-Hydrogen-Production.pdf>.



Specifically, the conditions needed to support incrementality, temporal matching, and deliverability should be assessed and gauged at certain points in the near future. This would allow the market to continue developing to support the supply and demand needed and would further allow a more informed decision to be made about whether the market can support the requirement for qualifying EACs. This would better serve the goals highlighted in the Proposed Rules without eliminating eligibility to otherwise-qualifying projects simply because renewable supply is just out of the region. This determination of market readiness should be made by DOE, as it is in the best position to gauge all aspects of the market that are impacted by or on which “qualifying EACs” rely. Most importantly, this implementation depends on the existence of sufficient renewable penetration, which DOE is best positioned to assess.<sup>7</sup>

**For these reasons, FuelCell Energy supports a delayed implementation, an actual transition, of the use of EACs dependent on qualifications based on the three pillars, specifically until a time that the market can support such a requirement without hindering the current progress and deployment of hydrogen projects.**

## IX. Renewable Natural Gas and Fugitive Sources of Methane

FuelCell Energy further comments upon the intention noted by Treasury and the IRS “to provide rules addressing hydrogen production pathways that use renewable natural gas (RNG) or other fugitive sources of methane (for example, from coal mine operations) for purposes of the section 45V credit.” In relevant part, the Proposed Rules provide:

Such rules would apply to all RNG used for the purposes of the section 45V credit and would provide conditions **that must be met before certificates** for RNG or fugitive methane (representations of the environmental attributes of the methane) and the GHG emissions benefits they are meant to represent **may be taken into account** in determining lifecycle GHG emissions rates for purposes of the section 45V credit. Such conditions would be logically consistent with but not identical to the incrementality, temporal matching, and deliverability requirements for electricity derived EACs, in that they would be designed to reflect the ways in which additional RNG or demand for fugitive methane can impact lifecycle GHG emissions and also to address the differences between electricity and methane, including but not limited to the different sources of emissions, markets, available tracking and verification methods, and potential for perverse incentives.

88 FR 89238 (emphasis added). At first blush, this section of the Proposed Rules suggests that Treasury and the IRS seek to extend the requirement that qualifying EACs may be considered for purposes of the Section 45V credit only where so elected by a taxpayer/producer, as is true of qualifying EACs for electricity. However, whereas Proposed § 1.45V-4(d)(1) lists the limited circumstances under which that conditional requirement is triggered, no corresponding limited circumstances appear in this Section of the Proposed Rules. In fact, the EPA Letter on which Treasury

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<sup>7</sup> There is some support for such an approach in other federal regulatory regimes. For example, the 1996 Telecommunications Act proscribed the entrance of incumbent local exchange carriers into the long-distance exchange market until such time as the Federal Communications Commission concluded that sufficient competition in the local exchange market had developed. See generally Telecommunications Act of 1996, Pub. LA. No. 104-104, 110 Stat. 56 (1996).

relied in making that preliminary finding and drafting Proposed § 1.45V-4(d)(1) does not analogize electricity and RNG. Nor does it opine that Treasury may reasonably rely upon EACs with certain attributes “to substantiate the deliverability” of all feedstocks. Aside from both the lack of clear conditions and clear correlation, requiring the use of “qualifying EACs” and applying the “first productive use” condition in all circumstances would be crippling to the production of clean hydrogen from RNG.

Imposing a requirement for certificates for RNG by all producers seeking to claim the 45V credit is detrimental for a number of reasons.<sup>8</sup> First, although Treasury acknowledges the proposed conditions “would be logically consistent with but not identical to the incrementality, temporal matching, and deliverability requirements for electricity derived EACs,” this concept cannot be reconciled with what Treasury also recognizes as “the differences between electricity and methane.” The inherent differences between electricity and methane or RNG cannot be accounted for in developing proposed conditions, but instead must guide an initial assessment of whether such a process is necessary for RNG. Treasury’s conclusion, as informed by the EPA Letter, that certain producers of hydrogen using electricity could increase emissions while claiming to reduce them logically underscores the need for further substantiation in that circumstance. However, there is no corresponding concern that the use of RNG or methane will be drawn from the grid, induce grid emissions, and thus allow hydrogen producers to avail themselves of the 45V credit without fully disclosing all potential sources of emissions within their lifecycle greenhouse gas emissions calculation. Instead, GREET already accounts for the potential emissions associated with using RNG or methane as feedstock, and the EPA Letter expressly notes that “EPA’s regulations under the RFS program governing the use of renewable natural gas to produce renewable fuel are designed to, *inter alia*, demonstrate deliverability of renewable natural gas transported via commercial pipeline.” EPA Letter, p. 5. The RFS program at its core analyzes and provides standards and pathways for the greenhouse gas emissions reductions that must be achieved for “renewable fuels.” RNG is one of these RFS renewable fuels, and the EPA Letter further explains:

These [RFS] regulations require a contractual pathway between renewable natural-gas providers and users. They also require that a volume of renewable natural gas claimed for use to produce renewable fuel must be placed into and withdrawn from a commercial pipeline in a manner consistent with that volume actually being used by the downstream renewable fuel producer. That is, the renewable natural-gas injection point must be physically connected to and upstream of the withdrawal point and the volume(s) injected must be equal to or larger than the volume(s) withdrawn; additionally, the injection must occur before the associated withdrawal.<sup>9</sup>

EPA Letter, *supra* n. 4, at pp. 5-6. As such, the RFS Program already accounts for what EPA has

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<sup>8</sup> FuelCell Energy understands that the Proposed Rules intend to broadly define RNG as inclusive of biofuels and biogas (including directed biogas), as the Proposed Rules provide that “the term RNG refers to biogas that has been upgraded to be equivalent in nature to fossil natural gas” (88 FR 89238) and refer to “biogas or biogas-based RNG” (88 FR 89239) and “any specific source of biogas,” which is defined as “gas resulting from the decomposition of organic matter under anaerobic conditions, and the principal constituent is methane (50–75 percent).” 88 FR 89239, n. 27.

<sup>9</sup> This is exactly the process FuelCell Energy follows at the Tri-gen Project to ensure that it qualifies under the State of California’s BioMat program.

determined should be included in any lifecycle greenhouse gas emissions analysis for RNG. The EPA rules include compliance and tools for stakeholders to ensure RNG meets the regulatory requirements. These requirements should remain the controlling requirements: that is, EPA’s RFS standards should govern the use of RNG for purposes of Section 45V eligibility without additional or possibly conflicting proposed rules from Treasury.

Adding requirements beyond EPA’s would be inappropriate for several reasons. The primary practical reason why imposing “conditions logically consistent with but not identical to the incrementality, temporal matching, and deliverability requirements” is inappropriate stems from the current status of renewable market penetration, which is insufficient to support any of these requirements as described in the Proposed Rules for electricity. Specifically, applying an incrementality requirement to fuel cells or electrolyzers would lead to significant delays in clean hydrogen capacity which is dependent upon renewable power capacity introduction. Temporal matching, if implemented as described for electricity, would increase the cost of hydrogen by limiting capacity utilization of fuel cells and electrolyzers and reducing the amount of renewable energy deployed to support hydrogen production, which would ultimately reduce the amount of zero-carbon hydrogen produced. Deliverability requirements similar to those provided for electricity delivery within specific federally defined region limits would conflict with the nationwide delivery capabilities of natural gas, which unlike electricity, can be delivered across the nation under existing federal regulations.<sup>10</sup>

It bears repeating that renewable natural gas, under the EPA RFS program, already has the oversight and enforcement in place to guard against perceived misrepresentations of lifecycle greenhouse gas emissions, which seems to be the driving force for the implementation of EACs in certain circumstances.

To the extent Treasury instead intended to provide the proposed “logically consistent” conditions it referenced within the text of the Proposed Rules directly, the requirements explicitly provided therein fare no better. The Proposed Rules state:

The Treasury Department and the IRS anticipate requiring that purposes of the Section 45V credit, for biogas or biogas-based RNG to receive an emissions value consistent with that gas (and not standard natural gas), the RNG used during the hydrogen production process must originate from the first productive use of the relevant methane. For any specific source of biogas, productive use is generally defined as any valuable application of biogas (including to provide heat or cooling, generate electricity, or upgraded to RNG), and specifically excludes venting to the atmosphere or capture and flaring. The Treasury Department and the IRS further propose to define “first productive use” of the relevant methane as the time when a producer of that gas first begins using or selling it for productive use in the same taxable year as (or after) the relevant hydrogen production facility was placed in service.

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<sup>10</sup> See *Oil and Gas Industry: A Research Guide*, LIBRARY OF CONGRESS ONLINE, accessible at <https://guides.loc.gov/oil-and-gas-industry/laws> (last accessed Feb. 24, 2024).

The rationale provided is:

The implication of this proposal is that biogas from any source that had been productively used in a taxable year prior to taxable year in which the relevant hydrogen production facility was placed in service would not receive an emission value consistent with biogas-based RNG but would instead receive a value consistent with natural gas in the determination of the emissions value for that specific hydrogen production pathway. This proposal would limit emissions associated with the diversion of biogas or RNG from other pre-existing productive uses.

FuelCell Energy respectfully disagrees that this proposal is tailored towards the stated purposes. Instead, the implication of this proposal, which may be unintentional or may not have occurred to Treasury, is that hydrogen facilities will be forced to compete for sources of renewable natural gas that have never been “productively used.” In essence, this will render the designation of “renewable” natural gas (according to EPA’s RFS) entirely meaningless, and ironically, will create a scarcity of renewable natural gas that can be used for qualifying clean hydrogen production.

By imposing the “first productive use” definition provided in the Proposed Rules, hydrogen producers with equally as innovative and emissions-reducing technologies will be forced to compete with one another for a source of renewable natural gas that has never been used productively. A perverse incentive thus exists for renewable natural gas producers to vent the emissions into the atmosphere or to flare them until a hydrogen producer (and the highest bidder at that) is able to use the renewable natural gas at its facility, and only once it has been placed in service. In attempting to create a condition that would “limit emissions associated with the diversion of biogas or RNG from other pre-existing productive uses,” *the Proposed Rules would instead incentivize more emissions and render meaningless the Section 45V credit.* Under the Proposed Rules, an RNG producer who is currently using renewable natural gas “for heating or cooling” in a system that is not zero-emitting would not be able to switch to a system powered by a hydrogen fuel cell that has almost no emissions. The “first productive use” limitation would be devastating to the clean hydrogen economy because insufficient market penetration exists for projects to come online while using RNG which has never been productively used before as a feedstock.

### **Proposed Alternative for RNG Rules.**

In the alternative, if the “first productive use” concept is not eliminated or otherwise modified, then Treasury and IRS should at the very least implement a corresponding provision that exempts from any newly-added RNG requirements those pre-existing projects that have already been deemed eligible for the PTC. This kind of exemption, commonly referred to as a “grandfather” rule, is particularly warranted here because the rules that Treasury proposes to implement, if interpreted as described herein, would devastate existing hydrogen projects; namely, FuelCell Energy’s Tri-gen Project with Toyota (developed with support from the DOE). Tri-gen has already qualified for the PTC, and its fully operational status depends on the use of RNG that complies with the EPA RFS program. Thus, under the existing requirements for Section 45V, the Tri-gen Project is compliant and eligible. This eligibility would be eliminated if the “first productive use” rule were implemented without exception and without appropriate conditions. Whether Treasury’s incorporation of the “first productive use”

requirement is intended to apply to each annual PTC certification or whether it is meant to apply to only the “first” annual PTC certification, the needs for clarity and an exemption for pre-existing projects are paramount. Tri-gen is a DOE supported and co-developed technology that has recently gone commercial with the world’s first trigeneration deployment, and its pre-existing eligibility for the PTC should not be altered or removed through this rulemaking.

FuelCell Energy respectfully requests clarification on whether Treasury intended an alternative construction of or application for this Section and appreciates its willingness to consider its position as stated herein.

### **Conclusion**

At FuelCell Energy, we have been committed to clean energy for 55 years. As such, we have been particularly focused on the steps that have been taken by the Administration to permanently change the energy landscape and pursue a world powered by clean energy. Thus, it is important to close this submission by acknowledging that we understand and appreciate the policies that proponents of the three pillars seek to advance, and we believe that with a sincere and significant commitment to scaling the clean energy sector, there will be a time in the future for full implementation of the three pillars. But now is not the time. Now, we need rules that promote a transition to clean energy and support companies like FuelCell Energy in scaling its U.S. grown innovations that continue to create good paying U.S. clean energy jobs, including manufacturing jobs. Our business partners include a wide variety of customers, from academic institutions to hospitals and municipalities. Since last fall, we have heard from them and our prospective customers, and their feedback has been consistent: even if they are philosophically aligned with the three pillars, they know there is no way today that compliance with them can be achieved in accordance with the current Proposed Rules.

We thank you for the opportunity to submit these comments and appreciate your willingness to consider our recommendations. Should you need any additional information, please contact the undersigned.

Sincerely,



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