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CC:PA:LPD:PR (REG–117631–23), Room 5203
Internal Revenue Service
P.O. Box 7604
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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 / REG–117631–23**

The undersigned organizations, representing environmental justice, equity, environmental, community-based, and grassroots organizations and coalitions appreciate the opportunity to provide feedback on the Notice of Proposed Rulemaking ("Proposed Rule") issued by the Department of Treasury and Internal Revenue Service (hereinafter, "Treasury") providing proposed regulations for relating to the clean hydrogen production tax credit established under section 45V (hereinafter "45V credit") of the Internal Revenue Code by the Inflation Reduction Act of 2022. In addition to the climate consequences at stake, the proposed regulations for this credit will significantly influence whether the planned buildout of the hydrogen-based economy adds to the pollution and safety burdens disproportionately borne by environmental justice communities.

## I. Environmental justice concerns

The statutory text of the 45V credit focuses on the climate impact of hydrogen production, as represented by the lifecycle greenhouse gas emissions rate involved in producing the hydrogen for which the 45V credit will be claimed. This focus elides the fact that the various methods of hydrogen production — both currently commercializable and in development — raise significant environmental justice concerns, especially to the communities where these activities are proposed to be sited. We raise these concerns here in order to underscore the importance of guiding the development of the hydrogen economy with deliberation and care, in order to avoid perpetuating and exacerbating environmental injustice. Because the 45V credit is expected to underpin the rapid growth of the hydrogen industry, Treasury must design and implement final regulations for the 45V credit with a clear understanding of the environmental justice issues implicated by the rapid rise of the hydrogen economy. While some of these issues may fall outside of the scope of Treasury's legal authority to address in this rulemaking, we raise them here for awareness of environmental justice concerns that are currently unaddressed in the federal regulatory landscape.

### A. Safety

For communities living in proximity to proposed hydrogen production sites and related infrastructure, the rapid and vast expansion of the hydrogen economy supported by the 45V credit, in addition to various other federal policies,[1] raises significant safety concerns related to its flammability, combustibility, and explosiveness. As the lightest of all molecules, hydrogen is extremely difficult to contain and prone to leak; when it does, it is difficult to detect, as it is colorless, odorless, and tasteless. Hydrogen is also flammable across a broad range of hydrogen/air mixtures (between 4 percent and 75 percent, compared to 5 percent to 15 percent for methane). If ignition occurs, a hydrogen fire is so pale that it is "almost imperceptible in daylight or artificial light, so visible detection can be a challenge."[2] Because of its high energy content and flammability range, hydrogen poses a similar explosion and shrapnel risk to methane in confined spaces like pipes or ducts.[3]

Hydrogen embrittlement poses another significant safety risk in the context of hydrogen transport via pipelines as well as storage. Hydrogen embrittlement occurs when hydrogen atoms enter a metal, weakening its internal structure and increasing its susceptibility to cracks, even under typical operating pressures. This can pose serious safety concerns, as it can lead to unexpected and potentially catastrophic failures.

Rather than a comprehensive regulatory scheme addressing all aspects of community and public safety and security related to hydrogen production, transportation, and end use, the authority to regulate hydrogen safety and security is scattered across a handful of federal agencies and states. Currently, the main way the safety of hydrogen pipelines is regulated in the United States is by the Pipeline Hazardous Materials and Safety Administration ("PHMSA"), an agency within the Department of Transportation. PHMSA has jurisdiction over hydrogen pipeline safety via regulations established for flammable gases in general, at 49 C.F.R. Part 192.

Notably, 49 C.F.R. § 192.53(b) requires that pipeline materials be "[c]hemically compatible with any gas that they transport and with any other material in the pipeline with which they are in contact." This requirement cannot currently be met for hydrogen pipelines, as existing codes and industry standards do not address hydrogen specifically. For example, the Phase 1 report of a study commissioned by PHMSA to assess weld qualification requirements and develop parameters for evaluating the integrity of pipelines found several issues within existing industry codes and standards, as well as 49 C.F.R. Part 192 itself, demonstrating

[1] *See*, *e.g.*, New Source Performance Standards for GHG Emissions from New and Reconstructed EGUs; Emission Guidelines for GHG Emissions from Existing EGUs; and Repeal of the Affordable Clean Energy Rule, 88 Fed. Reg, 33,240 (May 23, 2023) (proposing carbon pollution standards for fossil fuel power plants based on co-firing with "low-GHG hydrogen") and H.R. 3684, 117th Cong., 1st Sess., Division D, Title III, Subtitle B, §§ 40311–40315, Hydrogen Research and Development (2021).
[2] Congressional Research Service (CRS), "Pipeline Transportation of Hydrogen: Regulation, Research, and Policy," R46700 (March 2, 2021) at 3.
[3] *Id*.

incompatibilities with hydrogen.[4] In other words, engineering codes, industry standards, and the regulatory environment are not currently capable of ensuring that hydrogen can be safely transported in pipelines.

In addition, while the Transportation Security Administration ("TSA"), another DOT agency, is authorized to regulate pipeline security, TSA has declined to issue security regulations for hydrogen pipelines or carry out inspections and enforcement, "relying instead upon industry compliance with voluntary guidelines for pipeline security."[5]

### B. Air pollution

Hydrogen holds significant potential to contribute to meaningful climate action by decarbonizing currently "hard-to-abate" sectors and industries, but frequently proposed hydrogen production methods (and end uses) would increase emissions of non-greenhouse gas air pollutants that harm human health.

Both gray and blue hydrogen production methods use natural gas and water as inputs; the addition of carbon capture and sequestration ("CCS"), in the case of blue hydrogen, increases the amount of both inputs required to produce the same amount of hydrogen. Both methods emit various health-harming air pollutants, including NOx, SO2, and particulate matter, and the addition of CCS would increase these emissions if the 45V credit functions as intended and incentivizes increased hydrogen production. Furthermore, the application of CCS can significantly increase emissions of $NH_3$ from degradation of amine-based solvents.[6]

The regulatory scheme that would be established under the Proposed Rule, based on trading Environmental Attribute Certificates ("EACs"), raises the risk of creating air pollution hotspots, or worsening existing ones. Based on experience with similar market-based regimes, such as California's cap and trade program, it is likely that local air pollution in environmental justice communities will persist, disparities in exposure to co-pollutants will increase, and incentives for polluting facilities to reduce local emissions may be undermined by the availability of offsets.[7]

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[4] M.J. Connolly et al., "Determining Steel Weld Qualification and Performance for Hydrogen Pipelines," National Institute of Standards and Technology (February 28, 2023) https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=976.
[5] CRS, *supra* note 1, at 12.
[6] European Environmental Agency, "Air pollution impacts from carbon capture and storage (CCS)," Technical report No 14/2011 (November 17, 2011) https://www.eea.europa.eu/publications/carbon-capture-and-storage.
[7] Lara Cushing et al., "Carbon trading, co-pollutants, and environmental equity: Evidence from California's cap-and-trade program (2011–2015)," PLoS Med 15(7) (July 10, 2018) https://doi.org/10.1371/journal.pmed.1002604.

### C. Water intensity

Producing hydrogen by electrolysis requires significant quantities of extremely pure water. Estimates suggest that under DOE's hydrogen roadmap, where hydrogen production increases by five times from 2020 to 2050, water consumption for hydrogen production would increase by up to *ten times*, up to 350 billion gallons a year.[8] Therefore, electrolysis-based hydrogen production in certain locations could increase demand and competition for scarce water resources. Because the 45V credit is expected to significantly accelerate hydrogen production, we recommend that Treasury direct or encourage taxpayers claiming the credit to work in consultation with local communities in conducting a water use impact assessment which accounts for equity impacts and long-term sustainability.

At minimum, Treasury should proactively work with EPA and local water authorities to track water use impacts of projects claiming the 45V credit. This information will be critical to evaluating the impacts of the credit and any future reforms that Congress may consider to restrict or eliminate hydrogen credits in water-stressed places.

### D. Hydrogen leakage

The likelihood and understudied nature of hydrogen leakage raises both safety and climate-warming concerns, especially in the scenario of rapid growth of hydrogen production. Under current policy, scientific, and technological conditions, the scale of hydrogen leakage and associated climate warming impacts from hydrogen production activities is not well understood, highlighting the nascent stage of this industry.

Hydrogen, while not itself a greenhouse gas, indirectly causes warming through chemical interactions in the atmosphere. As discussed in further detail in Section II.A, below, this warming effect is not accounted for in the model incorporated in the Proposed Rule for the purpose of calculating the lifecycle greenhouse gas emissions of hydrogen for which the 45V credit is claimed. Thus, the climate impacts directly caused by hydrogen production may be significantly underestimated using the mechanisms in the proposed regulations.

While current commercialized technology exists to monitor for hydrogen leaks for safety purposes, there is no such technology available to monitor chronic, lower-level hydrogen leaks that can account for the warming impact of leaked hydrogen. In order to mitigate the risk that the climate impacts caused by hydrogen leaks may overwhelm any climate benefits from hydrogen production, we urge Treasury to require taxpayers claiming the 45V credit to certify that effective mitigation measures are in place to prevent, minimize, and monitor for hydrogen leaks.

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[8] Arjun Makhijani and Thom Hersbach, "Hydrogen: What Good Is It?" Institute for Energy and Environmental Research (January 2024) [https://ieer.org/wp/wp-content/uploads/2024/01/What-Good-is-Hydrogen-IEER-report-for-Just-Solutions-January-2024.pdf](https://ieer.org/wp/wp-content/uploads/2024/01/What-Good-is-Hydrogen-IEER-report-for-Just-Solutions-January-2024.pdf) at 22.

### E. Intensifying existing pollution sources

Environmental justice communities disproportionately bear the burden of toxic, polluting industries like oil extraction and refining, power generation, goods movement, metal processing, and chemical manufacturing. The impacts in these communities are often worsened by the legacy of redlining practices, political disenfranchisement, linguistic isolation, and low socio-economic status. All of these industries would see strong financial benefits from the 45V tax credit. Yet even with more rigorous lifecycle emissions accounting, the 45V credit could worsen pollution produced in communities impacted by these industries by providing a financial incentive for them to expand or increase operations relative to current conditions. Grid-connected blue and green hydrogen production will add significant electricity demands that could potentially exacerbate energy reliability and affordability concerns that environmental justice communities face. The yet unproven carbon capture and storage technology required to produce blue hydrogen will also require significant electricity to power. The ultra-pure water needed to support electrolysis will demand energy intensive purification processes. In other words, this rule will have the indirect but causally linked effect of inducing additional pollution from facilities related to hydrogen production, increasing pollution burden for local communities. Unless these rules contemplate and address these risks to environmental justice communities, sacrifices will be made where they are always made, in poor, pollution-burdened communities.

## II. Definitions

### A. § 1.45V-1(a)(8)(ii) "Most recent GREET model"

Proposed § 1.45V-1(a)(8)(ii) defines "most recent GREET model" as the latest version of 45VH2-GREET developed by Argonne National Laboratory that is publicly available. Flaws in this model risk significantly undercounting the lifecycle greenhouse gas emissions and total climate warming impacts of producing hydrogen for which the section 45V credit is claimed. Most notably, 45VH2-GREET underestimates the upstream methane leak rate, overestimates the rate of carbon capture, and fails to address the climate warming impacts of hydrogen leaks.

The upstream methane leak rate embedded in 45VH2-GREET is 0.9 percent. By comparison, recent scientific estimates for methane leakage across the supply chain range as high as 9.4 percent.[9] One frequently-cited study of the United States oil and gas industry supply chain (but excluding local distribution and end use) estimates an average leak rate of 2.3 percent.[10] A meta-analysis of results from peer-reviewed studies found a mean emission rate of

[9] Ilissa B. Ocko and Steven P. Hamburg, "Climate consequences of hydrogen emissions," Atmospheric Chem. Phys., 22, 9349–9368 (2022), https://doi.org/10.5194/acp-22-9349-2022.
[10] R.A. Alvarez et al., "Assessment of methane emissions from the U.S. oil and gas supply chain", Science, 361, 186–188 (2018) https://www.science.org/doi/10.1126/science.aar7204.

2.6 percent.[11] 45VH2-GREET, or any successor model, should incorporate an upstream methane leak rate that is more consistent with these values.

Similarly, the assumed carbon capture rate incorporated in 45VH2-GREET, 96 percent, is unrealistic and has never been demonstrated in commercial-scale operations. Instead, real-world data from commercial-scale hydrogen production facilities show a capture rate ranging from approximately 30 to 80 percent.[12] It is not the role of the GREET model to serve as a driver for technology forcing; rather, Congress' intent in referencing GREET or a successor model was to identify a tool for accurately estimating lifecycle greenhouse gas emissions. Therefore, background data on the rate of carbon capture embedded in 45VH2-GREET, or any successor model, should be based on capture rates actually demonstrated in real life.

In addition, 45VH2-GREET does not account for the climate warming impacts of hydrogen leaks. These warming effects result from a series of chemical reactions involving hydrogen gas in the atmosphere. Hydrogen reacts with hydroxyl radicals (OH·) in the atmosphere, which initiates a positive feedback cycle, whereby reduced OH· availability slows down methane breakdown in the atmosphere, thereby increasing the accumulation of atmospheric methane and its warming impact. In addition, the hydrogen radical undergoes a series of reactions in the troposphere to create ozone, a greenhouse gas. At the same time, increased water vapor in the stratosphere is itself a greenhouse gas, further contributing to climate warming.

Currently, hydrogen leakage is not well understood, due to a lack of empirical data. Leak rate estimates across different stages of the supply chain vary widely, from 0.2 to 20 percent, across varying system boundaries.[13] To date, technology limitations have prevented accurate measurements of site-level hydrogen emissions, as "high precision, fast response instruments" (sensitivity of 10 ppb and 1-2 second response time) have not been available.[14] However, while there is significant uncertainty in the accuracy of hydrogen leak rate estimates, it is clear that hydrogen leakage is a potential risk at many points across the supply chain and that such leaks could threaten the hoped-for climate benefits of producing hydrogen. A leak rate of 12 percent would exceed DOE's Clean Hydrogen Production Standard (of 4 kg $CO_2$-eq/kg-$H_2$) based on the warming impacts of hydrogen leaks alone (excluding any other greenhouse gas emissions from hydrogen production).[15] Compared to fossil fuel technologies, green hydrogen with a "best case" leak rate of 1 percent would result in a 95 percent reduction in climate impacts over the first ten

[11] Robert W. Howarth, "Methane Emissions from the Production and Use of Natural Gas," EM (December 2022) https://www.research.howarthlab.org/documents/Howarth2022_EM_Magazine_methane.pdf.
[12] David Schlissel and Anika Juhn, "Blue Hydrogen: Not Clean, Not Low Carbon, Not a Solution," Institute for Energy Economic and Financial Analysis (September 2023) https://ieefa.org/sites/default/files/2024-01/Blue%20Hydrogen%20Not%20Clean%20Not%20Low%20Carbon_September%202023_0.pdf at 18.
[13] Sofia Esquivel-Elizondo et al., "Wide range in estimates of hydrogen emissions from infrastructure," Front. Energy Res., 11 (2023) https://doi.org/10.3389/fenrg.2023.1207208.
[14] *Id*.
[15] Makhijani & Hersbach, *supra* note 7, at 48.

years, while a "worst case" but plausible leak rate of 10 percent would result in a 65 percent reduction.[16] Therefore, accounting for the climate impacts of hydrogen leaks is essential to ensuring that hydrogen production does not result in inadvertently exacerbating climate change.

The GREET model should account for climate warming impacts from both hydrogen and methane leaks, including assessing the 20-year Global Warming Potential (GWP) of both chemicals, in contrast to the 100-year GWP for methane currently included. The shorter time horizon is more relevant because it is in line with global climate goals to reach "net-zero" greenhouse gas emissions by limiting global average temperature rise to 1.5°C by 2050. In addition, hydrogen is short-lived within the atmosphere and its potent GWP at 20 years of 33 drops off rapidly in the following years.[17]

We urge Treasury to work with Argonne National Laboratory to revise 45VH2-GREET to resolve these problems before the final regulations go into effect, in order to provide a more accurate estimate of climate warming impacts as well as certainty to the public. This addition would be analogous to the model's incorporation of indirect emissions, including induced grid emissions resulting from hydrogen production. Alternatively, any alternative successor model as determined by the Secretary must incorporate accurate methane leak rates and account for hydrogen leakage.

Moreover, any revision of 45VH2-GREET or determination of an alternative successor model should include procedural mechanisms to make background data embedded in the model transparent. Such data and assumptions should undergo a rigorous and publicly accessible vetting process. Applying the precautionary principle and a risk averse approach, all background data integrated into any revised or alternative successor model should be required to be proven feasible in practice and to the maximum extent practicable, based on empirical data. Where a range of values may be considered reasonable, any revised or alternative successor model should adopt the most risk averse value, with regard to potential climate impacts.

### B. § 1.45V-1(a)(8)(iii) "Emissions through the point of of production (well-to-gate)"

Section 45V(c)(1)(B) provides that "lifecycle greenhouse gas emissions" encompasses only greenhouse gas emissions through the point of production (well-to-gate). "Emissions through the point of production (well-to-gate)" is defined in proposed § 1.45V-1(a)(8)(iii) as "aggregate lifecycle GHG emissions related to hydrogen produced at a hydrogen production facility during the taxable year through the point of production." The proposed definition further specifies that the term includes "emissions associated with feedstock growth, gathering, extraction, processing, and delivery to a hydrogen production facility" as well as "emissions associated with the hydrogen production process, inclusive of the electricity used by the

[16] Ocko & Hamburg, *supra* note 8.
[17] *Id*.

hydrogen production facility and any capture and sequestration of carbon dioxide generated by the hydrogen production facility."

This definition excludes greenhouse gas emissions from other elements of the "well-to-gate" portion of the supply chain, resulting in an inaccurate underestimate of the lifecycle climate warming impact of hydrogen produced. Notably, the exclusion of lifecycle greenhouse gas emissions embedded in equipment used in the hydrogen production process, such as electrolyzers or solar panels, as well as other infrastructure, such as pipelines used to transport natural gas, which may add approximately 1 kg $CO_2$-eq/kg-$H_2$.[18] This definition also excludes emissions associated with water withdrawn, delivery, and purification.

The climate impacts of hydrogen leaks currently excluded from 45VH2-GREET, as discussed above, are also excluded in the definition provided at proposed § 1.45V-1(a)(8)(iii). We urge Treasury to add hydrogen leaks to this definition. The statutory language at Section 45V(c)(1)(A) defines "lifecycle greenhouse gas emissions" with reference to Section 211(o)(1)(H) of the Clean Air Act (42 U.S.C. § 7545(o)(1)(H)), which definition incorporates the meaning for "greenhouse gas" provided at 42 U.S.C. § 7545(o)(1)(G). This definition of "greenhouse gas" does not include hydrogen. However, "lifecycle greenhouse gas emissions" is defined to include in its meaning "direct emissions and *significant indirect emissions* such as significant emissions from land use changes… related to the full fuel lifecycle" (emphasis added). In the context of Renewable Fuel Standard-related rulemaking, EPA has interpreted this to include lifecycle indirect impacts caused by indirect land use changes in other countries, like knock-on effects and market interactions consequent to a farmer's decision to grow biofuel feedstock.[19] In the context of the 45V credit, the climate impact of hydrogen emissions is analogously caused by indirect means (hydrogen leakage).

We recommend that Treasury amend the proposed definition to further include emissions embedded in investments and infrastructure within the well-to-gate boundary. Likewise, emissions associated with water used in production and the climate impacts of hydrogen leaks should be explicitly included in this definition.

## III. <u>Verification Requirements</u>

In the Proposed Rule's discussion of proposed § 1.45V-1(c), Treasury solicits "comments on whether taxpayers anticipate they will be able to complete all the requirements for claiming the section 45V credit, including the proposed requirements for verification," as well as comments about any specific alternatives should be considered. Proposed § 1.45V-1(c) addresses the determination of credit and provides that a taxpayer is not eligible to claim the

[18] Makhijani & Hersbach, *supra* note 7, at 59.
[19] *See* "Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program," 75 Fed. Reg. 14,670, 14,765-67 (Mar. 26, 2010).

section 45V credit until "all verification requirements, and the verification itself" have been completed for both the production and sale or use of the hydrogen at issue.

A robust and independent verification process must be a prerequisite for claiming the 45V credit. The need for safeguards against such practices is exemplified by the recent history of the § 45Q credit for carbon sequestration. In April 2020, the Treasury Inspector General for Tax Administration reported that over the previous ten-year period, approximately $894 million were claimed by ten taxpayers that were not in compliance with EPA requirements for monitoring, reporting, and verifying the amount of carbon sequestered, leading to examinations and the disallowance of approximately $531 million in credits.[20] To avoid similar outcomes with the 45V credit, hydrogen production, sale, or use must be verified before receiving the benefit of the 45V credit. Providing waivers or phasing in the verification requirement for the 45V credit could have the effect of entrenching industry dependencies on production processes and related arrangements that could engender future resistance to imposing a verification requirement.

## IV. <u>GHG Emissions Rates: Use of Energy Attribute Certificates</u>

Overall, we support the Proposed Rule's inclusion of provisions to incorporate the "three pillars" of additionality, deliverability, and hourly matching, which will help to prevent substantial increases in greenhouse gas emissions. However, aspects of how the Proposed Rule would implement additionality — termed "incrementality" here — as well as hourly matching could severely undermine the protections that these pillars are intended to provide.

### A. § 1.45V-4(d)(3)(i) Incrementality

The incrementality requirement provided at proposed § 1.45V-4(d)(3)(i) would be met "if the electricity generation facility …has a COD [commercial operations date] that is no more than 36 months before the hydrogen production facility …was placed in service." While using a relatively short lookback period as a proxy for additionality has the benefit of being easy to administer, this approach would also readily count as new potentially vast amounts of energy resources that may already be under contract to state procurement mandates, thus subverting the intent of the additionality pillar. Many energy resources currently being deployed are intended to meet increasing overall electricity demand, unrelated to hydrogen production, which would be deemed "additional" under this approach.[21] Indeed, a study assessing the emissions impacts of grid-connected electrolysis under various policy choice scenarios found that

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[20] Letter from J. Russell George, Treasury Inspector General for Tax Administration, to Senator Robert Menendez (April 15, 2020) https://www.menendez.senate.gov/imo/media/doc/TIGTA%20IRC%2045Q%20Response%20Letter%20FINAL%2004-15-2020.pdf.

[21] John D. Wilson and Zach Zimmerman, "The Era of Flat Power Demand is Over," Grid Strategies (December 2023) https://gridstrategiesllc.com/wp-content/uploads/2023/12/National-Load-Growth-Report-2023.pdf.

allowing existing and mandated resources to qualify as "additional" would result in no consequential emissions reduction benefits.[22]

Alternatively, we recommend that Treasury consider prioritizing hydrogen production powered by behind-the-meter zero-emissions generation, and to incorporate in its approach consideration of overlap with state capacity procurement mandates and a causal linkage to procurement by hydrogen producers. We further recommend that Treasury consider treating zero- or near-zero market-based prices for Energy Attribute Certificates as an indicator that resources do not satisfy the incrementality requirement.

The Proposed Rule requests comment on a "formulaic" approach to addressing incrementality, which would "deem five percent of the hourly generation from minimal-emitting electricity generators …placed in service before January 1, 2023, as satisfying the incrementality requirement." We strongly object to this approach, which one analysis estimated could result in "nearly 1.5 billion metric tons of increased emissions cumulatively through 2035."[23]

### B. § 1.45V-4(d)(3)(ii) Temporal matching

While the Proposed Rule includes an hourly matching requirement, proposed § 1.45V-4(d)(3)(ii)(B) provides a "transition rule" which would allow temporal matching on a calendar year basis for electricity generated before January 1, 2028. This transition rule would likely result in no change in the consequential emissions intensity of hydrogen production relative to a scenario with no temporal matching at all.[24] The Proposed Rule justifies this phase-in approach by citing the lack of broad availability of hourly tracking systems for EACs; the transition is intended to provide time for EAC markets to develop hourly tracking capabilities. However, the significant financial incentive offered by the 45V credit will surely accelerate the maturation and capabilities of EAC markets. During the maturation phase, hydrogen producers in EAC markets without hourly tracking systems could still power electrolyzers with behind-the-meter zero-emission generation.

## V. <u>Annual Reporting Requirements</u>

In the Proposed Rule, Treasury requests comments on reporting of recapture and any additional annual reporting obligations. We recommend that Treasury establish requirements for taxpayers claiming the 45V credit to report on recapture events, as well as for general annual reporting, in order to advance public accountability and oversight over this potentially hugely lucrative tax credit. This general annual reporting requirement should include data relevant to the environmental justice issues discussed in Section I, above, such as water withdrawals, non-greenhouse gas air pollution, hydrogen leaks, and safety incidents.

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[22] Wilson Ricks et al., "Minimizing emissions from grid-based hydrogen production in the United States," <u>Environ. Res. Lett.</u> 18 014025 (2023) https://iopscience.iop.org/article/10.1088/1748-9326/acacb5.
[23] Ben King et al., "How Clean Will US Hydrogen Get? Unpacking Treasury's Proposed 45V Tax Credit Guidance," Rhodium Group (Jan. 4, 2024) https://rhg.com/research/clean-hydrogen-45v-tax-guidance/.
[24] Ricks et al, *supra* note 21.

While Section 6103 of the Internal Revenue Code protects taxpayer return information, that does not include "data in a form which cannot be associated with, or otherwise identify, directly or indirectly, a particular taxpayer." § 6103(b)(2). Data collected in administering the 45V credit, including from Form 7210 or any successor forms, as well as the verification report, should be de-identified and aggregated, to allow for Treasury and the public to monitor, analyze, and evaluate various aspects of the 45V credit program, as well as to inform further policy development.

## VI. Biomethane and Fugitive Sources of Methane

Treasury notes in the Proposed Rule that it intends to provide rules for hydrogen production pathways using biomethane, meaning "biogas that has been upgraded to be equivalent in nature to fossil natural gas," or other fugitive sources of methane, meaning methane released through equipment leaks and venting. We provide the following high-level recommendations:

- **Do not allow hydrogen producers who purchase fossil gas to use unbundled credits to characterize their feedstocks as biomethane or fugitive methane**. Such a scheme would allow fossil fuel-based facilities to declare their processes "clean" by taking advantage of a paper exercise without any shift in technology or practice.

- **Limit feedstock eligibility to avoid perverse outcomes**. Treasury should not provide extra incentives to use biomethane or fugitive methane from sources that can control the amount of methane they produce. For instance, it would be inappropriate to treat livestock biomethane as an avoidable waste stream, when a lucrative market for biomethane can encourage factory farms to generate more methane through unsustainable manure management practices. Similarly, lavishing tax credits on hydrogen producers who claim to use fugitive methane from the oil and gas industry would create a perverse incentive for fossil fuel producers to profit from leaky equipment. In addition, we support Treasury's exclusion of biomethane that is already being used productively, as diverting this methane to hydrogen production provides no climate benefit.

- **For any eligible biomethane or fugitive methane feedstock, Treasury should assume that methane would be flared in a baseline scenario**. A false assumption that methane would otherwise vent to the atmosphere can lead to harmful market distortions if methane is treated as a "carbon negative" resource.

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In addition to our above recommendations, we urge Treasury to meaningfully engage with environmental justice communities as part of the process of finalizing these regulations. Because of the significant environmental justice risks presented by the rapid buildout of the hydrogen economy, Treasury should ensure that its actions in implementing the 45V credit do not perpetuate, exacerbate, or create pollution burdens in communities that have already disproportionately suffered the negative effects of fossil fuels and climate change.

We appreciate your consideration of these comments. If you have any questions, please contact Sylvia Chi at sylvia@justsolutionscollective.org.

Respectfully submitted,


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