December 3, 2022

SUBMITTED ELECTRONICALLY

Internal Revenue Service
CC:PA:LPD:PR (Notice 2022-47)
Room 5203
P.O. Box 5203, Ben Franklin Station
Washington, D.C. 20044

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Re: Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45 Z

Submitted via www.regulations.gov; Notice 2022-58

The American Clean Power Association[1] (ACP)[2] appreciates this opportunity to submit the following comments in response to the Internal Revenue Service's (Treasury) *Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45 Z.*[3] The Hydrogen Production Credit (HPC) warrants significant

[1] The American Clean Power Association (ACP) is the national trade association representing the renewable energy industry in the United States, bringing together hundreds of member companies and a national workforce located across all fifty states with a common interest in encouraging the deployment and expansion of renewable energy resources in the United States.

[2] These comments do necessarily reflect the individual views of all of ACP's members.

[3] Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45 Z, https://www.Treasury.gov/pub/Treasury-drop/n-22-58.pdf.

attention, and through proper guidance, it will serve to drive the nascent clean hydrogen industry.

I. QUESTIONS FROM Treasury

***.01(1).* Section 45V provides a definition of the term "qualified clean hydrogen." What, if any, guidance is needed to clarify the definition of qualified clean hydrogen?**

Treasury should clarify that it will use the Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET) model to qualify projects.[4] In addition, Treasury should clarify that producers of electrolytic hydrogen that seek to be grid connected should immediately qualify, subject to certain limitations discussed herein. As the legislative history below clarifies, grid-connected electrolyzers that use grid power and procure renewable energy to offset their consumption are meant to be eligible for the Section 45V credit at the highest tier because of the effective reduction in greenhouse gas emissions that results.

> Mr. CARPER: It is … my understanding of the intent of section 13204, is that 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. Is that the chairman's understanding as well?
> Mr. WYDEN. Yes. Mr. CARPER. Thank you, Mr. Chairman.
> Additionally, I would like to clarify that the intent of section 13701 allows the Secretary to consider indirect book and claim factors that reduce effective greenhouse gas emissions to help determine whether the

[4] GREET model' developed by Argonne National Laboratory, or a successor model (as determined by the Secretary)." 26 U.S.C. § 45V(c)(1)(B).

greenhouse gas rate of a qualified fuel cell property, which does not include facilities that produce electricity through combustion or gasification, is ‘‘not greater than zero.’’ Is that the chairman’s understanding? Mr. WYDEN. Yes.[5]

ACP also believes Treasury should clarify that, while hydrogen must be produced in the United States, the sale or use of the hydrogen may be conducted internationally. In other words, to qualify for the tax credit, the hydrogen must only be *produced* in the United States; the location of the sale or use of the qualified hydrogen following production should not be taken into consideration. In addition, it may be administratively impossible for a taxpayer to trace the use of its hydrogen production. Hydrogen is a chemical building block for other molecules that are capable of more efficiently carrying hydrogen, especially ammonia, which can be exported and used in other applications. Restricting the sale or use of qualified clean hydrogen to the United States will only limit this nation’s ability to become a global leader in the clean hydrogen market, and potentially disincentivize production.

a) Section 45V defines "lifecycle greenhouse gas emissions" to "only include emissions through the point of production (well-to-gate)." Which specific steps and emissions should be included within the well-to-gate system boundary for clean hydrogen production from various resources?

Given the degree to which greenhouse gas emissions (GHG) emissions arising upstream of the point of production can dictate the final emissions profile of hydrogen production pathways, ACP urges Treasury to employ its discretion to develop a carbon intensity threshold that rigorously accounts for a well-to-gate life cycle assessment (LCA) on the basis that it will better support sustainable reductions in GHG emissions. Indeed, the IRA’s directive to use a well-to-gate LCA will serve as a foundational

[5] 168 Cong. Rec. S4165 (Aug. 6, 2022), available at https://www.govinfo.gov/content/pkg/CREC-2022-08-06/pdf/CREC-2022-08-06-pt1-PgS4165-3.pdf.

requirement for establishing a clean hydrogen market since it accounts for greater GHG emissions associated with aspects of hydrogen production.

The well-to-gate LCA should establish consistent GHG reduction from hydrogen facilities, accounting for emissions associated with feedstock production processes, methane leaks, hydrogen production, carbon capture, and storage, as well as others. The system boundary should include carbon capture and sequestration, even if sequestration is not at the site of production, but should not include other post-hydrogen production steps, such as potential liquefaction, compression, dispensing into vehicles, etc. Quantifying these emissions from well-to-gate will aid in conducting a fair and unbiased competitive Section 45V tax credit program, helping to reduce subjectivity and supporting a scientific-based approach focused on decarbonizing systems. Clearly defined emissions parameters, including the stopping and starting points of calculation, can also help remove ambiguity from the process of determining "clean hydrogen" and lower the opportunity for market distortion and unfair competition (e.g., through congestion). As a technology-agnostic approach, this approach creates a common and an appropriately inclusive methodology, opening a pathway for competition to thrive if the hydrogen production can meet the desired LCA emissions threshold, regardless of technology, and gives more weight to proposals with the lowest emission profiles.

A lifecycle system boundary should enable consistent and comprehensive evaluation of diverse hydrogen production systems. ACP believes that the Department of Energy's (DOE) methodology in the proposed Clean Hydrogen Production Standard (CHPS) rulemaking includes the right steps and emissions that should be included in the well-to-gate accounting boundaries.[6] ACP believes that the use of the system boundary for hydrogen "production" employed by the International Partnership for Hydrogen in the Economy (IPHE),, as proposed in the CHPS, will enable the burgeoning domestic clean hydrogen industry in the U.S. to better integrate with global hydrogen markets. More than

[6] The Treasury draft only focused on production (excluding conditioning which includes liquefaction and conversions), but the current draft is expanding to conditioning with a third version through transport.

twenty countries have been coordinating since 2019 to harmonize emissions analysis methodologies and boundary conditions for hydrogen pathways through IPHE's Hydrogen Production Analysis Task Force (H2PA TF), which is co-led by the U.S.

This methodology appropriately accounts for the production emissions from each unit of hydrogen across the supply chain, including emissions upstream and downstream of the point of production. This system has been demonstrated by DOE and its National Laboratories in previous work and is consistent with international best practices. Thus, its use should provide confidence regarding boundary conditions.

The IPHE methodology is based on flexibility that will support the clean hydrogen market as it emerges. It provides transparency regarding the assumptions within the IPHE methodology that supports creating confidence in the approach and stimulating innovation. Its focus on compatibility is important for the emergence of the clean hydrogen market, since it will allow comparison of emissions from hydrogen production to emissions from other sources, supporting the growth of cleaner hydrogen production methods. Finally, the IPHE approach will mature along with the clean hydrogen market, ensuring that best practices are adopted domestically and abroad for clean hydrogen production.

(b)(i) How should lifecycle greenhouse gas emissions be allocated to co-products from the clean hydrogen production process? For example, a clean hydrogen producer may valorize steam, electricity, elemental carbon, or oxygen produced alongside clean hydrogen.

ACP encourages Treasury to allocate emissions to coproducts using a system expansion approach integrated within the GREET model. GREET model variations are robust frameworks capable of accounting for a wide range of electricity generation and hydrogen production methods, including associated coproducts. The model already accounts for coproducts, such as valorized steam, electricity, elemental carbon, and oxygen in hydrogen production, by apportioning carbon intensity among the total

products.[7] To ensure clarity for clean hydrogen project investment decisions, the allocation to co-products should not change for the duration of the PTC on a facility-by-facility basis.

(ii) How should emissions be allocated to the co-products (for example, system expansion, energy-based approach, mass-based approach)?

ACP believes that the Treasury should use a system expansion approach within the GREET model to allocate emissions to the co-products of hydrogen production, as this approach would account for the co-products' effect on total carbon emission intensity. System expansion best aligns with the intent of the IRA because it captures the environmental impact of hydrogen production to a greater extent as compared to a mass-based approach.[8] System expansion better accomplishes this aim since it uses a larger dataset to generate information on the full suite of environmental consequences for hydrogen production, namely the accounting of useful coproducts that otherwise would have been created through other means associated with their own carbon emissions.[9] If a system expansion approach is used, the allocation to co-products should not change for the duration of the PTC to ensure clarity for clean hydrogen project investment decisions.

(e) How should qualified clean hydrogen production processes be required to verify the delivery of energy inputs that would be required to meet the estimated lifecycle greenhouse gas emissions rate as determined using the GREET model or other tools if used to supplement GREET?

Treasury should work with DOE and other industry stakeholders to develop verification processes. As part of the verification process, ACP strongly urges Treasury to allow the use of power purchase agreements (PPAs) and/or virtual PPAs (vPPAs).

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[7] Available on p. 8 at https://greet.es.anl.gov/files/hydrogenreport2022.

[8] See, "Comparison of a system expansion and allocation approach for the handling of multi-output processes in life cycle assessment ,"by Theresa Krexner, Iris Kral*, Andreas Gronauer, Francisco Javier Medel-Jiménez, Alexander Bauer, published on 18 October 2021.

[9] *Available at* http://qpc.adm.slu.se/7_LCA/page_18.htm#:~:text=System%20expansion%20is%20part%20of,information%20on%20consequences%20of%20actions.

Currently available technology allows for accurate metering that is equivalent to a direct, behind-the-meter connection and which ensures matching between electricity production and consumption.

As discussed further below in the answer to question .01(4)(d), to effectively verify effective GHG emissions reductions, system-level modeling and grid emissions data should be required. A framework with expanded capabilities will be needed to establish a robust book-and-claim system for grid-connected projects, which can then be integrated with GREET. A book-and-claim approach would allow for regionally supplied clean energy to be carefully quantified to satisfy the "renewable" component of grid-connected hydrogen production. The use of indirect book accounting is strongly supported by the legislative intent of the IRA.[10] A book and claim system ensures that hydrogen production infrastructure need not be co-located with renewable energy production systems, which are often located in rural areas. By leveraging the existing electric grid, clean hydrogen producers can utilize procured renewable energy that is sourced elsewhere within the balancing authority.

To the extent that taxpayers are using such industry standards in practice, Treasury should allow taxpayers to continue to use the industry standards to verify their LCA until a more robust framework for verification is identified.

(i) How might clean hydrogen production facilities verify the production of qualified clean hydrogen using other specific energy sources?

As discussed further below in the answer to question .01(4)(d), and as discussed above, Treasury should work with DOE and other stakeholders to create a verification method.

[10] Senate Finance Committee Chairman Ron Wyden (D-OR) and author of the PTC Sen. Tom Carper (D-DE) confirmed Congress' intent to use a book and claim system in a colloquy during debate over passage of the Inflation Reduction Act.

(ii) What granularity of time matching (that is, annual, hourly, or other) of energy inputs used in the qualified clean hydrogen production process should be required?

Grid-tied electrolyzers are typically most economic when operating as close to 100 percent capacity as possible, which means that to meet a true green standard, they typically need to procure power as a block around the clock from wind, solar, and potentially storage resources—allowing the electrolyzers to run at high-capacity factors. If a green hydrogen production facility can only produce during hours when those resources are available, the low utilization rate can dramatically increase the price of the hydrogen produced. This is especially true in certain regions with lower renewable and storage liquidity. Limiting hydrogen production to times of renewable energy generation can significantly hinder the adoption of applications that need an uninterrupted flow of hydrogen and, in turn, impede investment in new green hydrogen infrastructure.[11]

In light of these realities, the initial time of use standard should be attainable without material price increases to foster development and scale of electrolyzer-produced hydrogen. Therefore, we encourage Treasury to adopt an annual basis for accounting the time of renewable energy generation relative to time of use of electricity by the electrolyzer (i.e., the carbon-free energy must be produced within the same year the hydrogen is produced).[12]

ACP nevertheless appreciates the need to consider the benefits and costs of various approaches to time matching to ensure the meeting of the emission goals of Section 45V. To that end, as we stated in our comments to DOE on the CHPS, we encourage Treasury, in conjunction with DOE, to establish a task force as soon practicable, involving a collaborative stakeholder process with ample opportunity for

[11] Furthermore, hydrogen's use as a feedstock in refining, ammonia and liquid hydrogen applications requires a constant and uninterrupted flow of hydrogen for the safe and reliable operation of these complex processes. Applications where hydrogen is a feedstock currently account for substantially all its existing uses and thus requiring co-located renewable generation would severely limit the adoption of green hydrogen.

engagement and comment, to explore the merits of various alternative temporal requirements between renewable electricity and hydrogen production.

There are multiple approaches to achieving such time of use standards (*e.g.*, quarterly, monthly, weekly, intra-day on/off peak, multiple hour blocks hourly), ranging in complexity and rigor. They should each be carefully considered and modeled, with input and evaluation by stakeholders, before any alternative approach is chosen to ensure the market has developed and achieved sufficient scale (e.g., can operate at high utilization rates without material price increases). The task force should also determine the state of tools and technology required to perform and verify each of these alternative approaches (e.g., M-RETs,[13] EnergyTag,[14] or Powerledger[15]) to confirm the necessary accounting tools have sufficiently progressed. ACP looks forward to working with Treasury, DOE, and other stakeholders on weighing the respective benefits and limitations of these various alternative approaches.

In determining any recommendation with respect to more granular temporal requirements, the alternatives should be studied and modeled with the following objectives in mind: maximizing electrolyzer-produced hydrogen and renewable energy deployment, as well as effectively reducing carbon emissions and maintaining well-functioning electricity markets. Hydrogen production equipment remains expensive and requires high utilization to improve the overall facility economics. Any temporal matching regime should therefore serve to support the ability of the PTC to make green hydrogen cost competitive with other forms of hydrogen production. The higher production cost for green hydrogen as a result of implementing overly burdensome matching could risk snowballing, leading to reduced investment by equipment manufacturers, further slowing the pace of technological innovation and manufacturing scale-up. In addition, projects should only be subject to the time matching rules effective at the start of construction of the project and remain under those rules for the full PTC

lifetime of the facility. In short, any accounting mechanism recommended by the task force should ensure it supports the economics of clean hydrogen production and the certainty needed to invest in it, as well as aligning with the IRA's intent to accelerate investment in new green hydrogen infrastructure and, in turn, large-scale decarbonization.

.01(2) **Alignment with the Clean Hydrogen Production Standard. On September 22, 2022, the Department of Energy (DOE) released draft guidance for a Clean Hydrogen Production Standard (CHPS) developed to meet the requirements of § 40315 of the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58, 135 Stat. 429 (November 15, 2021). The CHPS draft guidance establishes a target lifecycle greenhouse gas emissions rate for clean hydrogen of no greater than 4.0 kilograms CO2-e per kilogram of hydrogen, which is the same lifecycle greenhouse gas emissions limit required by the § 45V credit. For purposes of the § 45V credit, what should be the definition or specific boundaries of the well-to-gate analysis?**

See answer to question .01(1)(a) above.

.01(3). **Provisional Emissions Rate. For hydrogen production processes for which a lifecycle greenhouse gas emissions rate has not been determined for purposes of § 45V, a taxpayer may file a petition with the Secretary for determination of the lifecycle greenhouse gas emissions rate of the hydrogen the taxpayer produces.**

(a) At what stage in the production process should a taxpayer be able to file such a petition for a provisional emissions rate?

A taxpayer should be able to file a petition for a provisional emissions rate as early in the process as possible but should be allowed the flexibility to file whenever is best for the project. After a review process by the Treasury, in consultation with DOE, the provisional emission rate should be guaranteed so the project can proceed in development. Early certainty of emissions rates will be essential for timely clean hydrogen project development. Once the project is operational, this provisional emissions rate can be verified via recordkeeping, metering, or other data to demonstrate that it meets the criteria for this provisional emissions rate.

***.01(4).* Recordkeeping and Reporting.**

(a) What documentation or substantiation do taxpayers maintain or could they create to demonstrate the lifecycle greenhouse gas emissions rate resulting from a clean hydrogen production process?

Taxpayers should be required to retain documentation of the sources of electricity used to generate clean hydrogen, as well as the type of mechanism used to produce clean hydrogen. Treasury should identify, in recordkeeping guidance, a reporting system and database that encompasses certain attributes. The Treasury should also allow applicants to substitute data for factors like the carbon intensity of regional grids, where available. Grid carbon intensity can vary significantly within NERC regions, which are utilized in the GREET model.

(b) What technologies or methodologies should be required for monitoring the lifecycle greenhouse gas emissions rate resulting from the clean hydrogen production process?

ACP generally believes the technology-agnostic approach taken in the IRA should be embraced for monitoring as well, so long as it is reliable and effective. Treasury should provide as much flexibility as possible in designating technologies and/or accounting systems, until further industry practices are established. Treasury could look at certain international standards for guidance, such as: (i) the Product Life Cycle Accounting and Reporting Standard under the Greenhouse Gas Protocol; (ii) ISO 14067; and (iii) PAS 2050 from the British Standards Institution.

(c) What technologies or accounting systems should be required for taxpayers to demonstrate sources of electricity supply?

Through the establishment of data or tools to assign unique attributes to the renewable power virtually consumed, projects should be able to verify the emission reductions associated with green hydrogen. Conventional metering technology can assist in this, and there is precedent for the use of third-party certifiers by the California Air Resources Board (CARB) for adherence to the Low Carbon Fuel Standard (LCFS). ACP

supports Treasury considering the development of additional infrastructure and mechanisms to help verify the use of market instruments in green hydrogen in a way that supports development of the industry and helps these instruments be accounted for as a source of clean electricity. For instance, a book-and-claim approach could be implemented in which regionally supplied clean energy can be carefully quantified to satisfy the "renewable" component of grid-connected hydrogen production. As noted in (1)(e) above, a book-and-claim accounting system is strongly supported by the legislative intent of the IRA, and for this reason ACP supports its use.

(d) What procedures or standards should be required to verify the production (including lifecycle greenhouse gas emissions), sale and/or use of clean hydrogen for the § 45V credit, § 45 credit, and § 48 credit?

With respect to green hydrogen, the Treasury should allow taxpayers to submit: (a) a life cycle analysis report that demonstrates compliance with the definition of the qualified facility and that the GHG emission rate for such facility determined in GREET—i.e., a standardized model life cycle analysis model; and (b) submit verification that the energy that it has come from a renewable source via a PPA and/or vPPA.[16] Currently available technology allows for accurate metering that is equivalent to a direct, behind-the-meter connection and which ensures annual matching between electricity production and consumption.

Initially, in preparing a life cycle analysis report, in addition to the GREET model, the life cycle analysis report should also be deemed as in compliance with the Section 45V requirements if it adheres to industry standards such as: (i) the Product Life Cycle Accounting and Reporting Standard under the Greenhouse Gas Protocol; (ii) ISO 14067; or (iii) PAS 2050 from the British Standards Institution.

Treasury should provide guidance on accurate reporting of methane leakage, as estimates can vary across models and regions. For instance, in Argonne's Hydrogen Life-Cycle Analysis in Support of Clean Hydrogen Production, GREET currently applies a

[16] The latter standard was adopted, subject to implementation, in Europe earlier in 2022.

nominal upstream methane leakage of 1% (or 2% for high) in the bottom-up/top-down hybrid approach.[17] Other studies, however, have found a much higher national average leak rate of 2.3%. Recent empirical studies have also indicated much larger values for certain wet-gas production basins.[18] Therefore, Treasury should continue to work with DOE to update current GREET estimates based on the best available data from published academic studies or verified third party measurement platforms utilizing established methodologies.

(f) Should indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions (also known as a book and claim system), including, but not limited to, renewable energy credits, power purchase agreements, renewable thermal credits, or biogas credits be considered when calculating the § 45V credit?

ACP supports a book-and-claim approach that could be implemented so that regionally supplied clean energy can be carefully quantified to satisfy the "renewable" component of grid-connected hydrogen production. The use of indirect book accounting is strongly supported by the legislative intent. Senate Finance Committee Chairman Ron Wyden (D-OR) and author of the PTC Sen. Tom Carper (D-DE) confirmed Congress' intent to use a book and claim system in a colloquy during debate over passage of the IRA. A book and claim system ensures that hydrogen production infrastructure need not be co-located with renewable energy production systems, which are often located in rural areas. By leveraging the existing electric grid, clean hydrogen producers can utilize procured renewable energy that is sourced elsewhere within the balancing authority.

[17] Argonne National Laboratory, Hydrogen Life-Cycle Analysis in Support of Clean Hydrogen Production, https://greet.es.anl.gov/publication-hydrogenreport2022; Alvarez et al., Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain, 361 Science 186 (2018), https://science.sciencemag.org/content/361/6398/186; Rutherford et al., Closing the Methane Gap in US Oil and Natural Gas Production Emissions Inventories, 12 Nature Comms. 4715 (2021), https://www.nature.com/articles/s41467-021-25017-4.

[18] See, e.g., Lin et al., Declining Methane Emissions and Steady, High Leakage Rates Observed Over Multiple Years in a Western US Oil/Gas Production Basin, 11 Sci. Reports 22291 (2021), https://www.nature.com/articles/s41598-021-01721-5 (finding a steady leak rate of 6-8% over six years in the Uinta Basin); Chen et al., Quantifying Regional Methane Emissions in the New Mexico Permian Basin with a Comprehensive Aerial Survey, Environ. Sci. Technol. 2022, 56, 7, 4317–4323 (2022), https://doi.org/10.1021/acs.est.1c06458 (finding a 9% leak rate in the New Mexico Permian)

Through the establishment of data or tools to assign unique attributes to the renewable power virtually consumed, projects should be able to verify the emission reductions associated with green hydrogen. As noted, ACP supports Treasury considering the development of additional infrastructure and mechanisms to help verify the use of these instruments with respect to green hydrogen in a way that supports development of the industry and helps these instruments be accounted for as a source of clean electricity.

(g) If indirect book accounting factors that reduce a taxpayer's effective greenhouse gas emissions, such as zero-emission credits or power purchase agreements for clean energy, are considered in calculating the § 45V credit, what considerations (such as time, location, and vintage) should be included in determining the greenhouse gas emissions rate of these book accounting factors?

- ***Regionality***

Regionality establishes a geographical boundary within which both the clean energy project and the electrolyzer must be located. ACP supports Treasury adopting a requirement that the electrolyzer be in the same region as the renewable project that it claims as the source of electricity. This enables operators of green hydrogen to draw power from the local utility, e.g., if they have a PPA, virtual PPA, or storage tolling agreement, so long as it is within the same financially settled, balancing authority or organized market. In the case where a single utility acts as the balancing authority, the boundaries should be extended to include any adjacent or connected balancing authority.

- ***Additionality***

To help ensure grid-connected electrolytically-produced hydrogen contributes to emissions reductions, ACP supports Treasury considering mechanisms that ensure electrolytic hydrogen is powered by renewable energy that is driven by new demand from electrolyzers. However, current mechanisms to demonstrate additionality could risk doing more harm than good to the nascent green hydrogen industry and, therefore, require further assessment by DOE. We encourage DOE, as part of the process discussed herein, to carefully evaluate a range of options regarding additionality in cooperation with stakeholders. However, at this time, the mechanisms to demonstrate additionality

require further assessment, and we encourage Treasury to carefully evaluate a range of options, in cooperation with stakeholders, before implementing any related requirements.

If an additionality restriction is adopted under the CHPS and then imported into Section 45V, the guidance should confirm that repowered facilities (i.e., those renewable energy facilities that have a new placed-in-service date under the 80/20 rule will be treated as newly-built renewable electricity facilities). The tax law has long recognized that repowered facilities should be treated the same as "new" facilities for tax law purposes because they have a similar useful life as a newly-built facility, as well as a similar capacity and production profile to match the state of current technology, but they also achieve efficiencies by re-utilizing and not wasting certain property and equipment from the "old" facility. While the tax law may treat "repowered" facilities the same as newly-built facilities, this treatment may not be clear under the future CHPS or other guidance on additionality from DOE. The guidance should therefore confirm the established tax law treatment of repowered facilities in the context of the Section 45V credit.

- ***Double Counting***

Treasury should consider establishing requirements to ensure no double claiming of benefits so that any environmental attributes associated with the electricity used to produce green hydrogen are retired and not claimed under any other program.[19] For clarification, consideration of the renewable component of the carbon intensity of the regional grid should not be considered double counting, except to the extent that renewable component is driven by the same RECs purchased by the taxpayer under separate transaction.

- ***Temporal Accounting***

As discussed further above, we encourage Treasury to adopt a time of use standard based on an annual basis (i.e., the carbon-free energy must be produced within

[19] Some exceptions however should be provided; for instance, the electricity should be able to be claimed for the federal renewable fuel standard operated by the Environmental Protection Agency or for a regional cap-and-trade program (provided that the electricity is not claimed in the cap-and-trade program's voluntary renewable electricity program).

the same year the hydrogen is produced). ACP nevertheless appreciates the need to consider the benefits and costs of various approaches to time matching. To that end, we encourage Treasury, with DOE, to create a task force, involving a stakeholder process, with ample opportunity for engagement and comment, to explore the merits of various alternative temporal requirements between renewable electricity and hydrogen production.

***.01. (5)* Unrelated Parties.**

(a) What certifications, professional licenses, or other qualifications, if any, should be required for an unrelated party to verify the production and sale or use of clean hydrogen for the § 45V credit, § 45 credit, and § 48 credit?

Treasury should extend the exception set forth in Notice 2008-60, which allows related party sales of electricity for purposes of Section 45 where the electricity is resold to unrelated third parties, to losses resulting from sales of electricity or hydrogen.

(c) What existing industry standards, if any, should the Treasury Department and the Treasury consider for the verification of production and sale or use of clean hydrogen for the § 45V credit, § 45 credit, and § 48 credit?

See answer to question 4(d) above.

***.01(6).* Coordinating Rules.**

(a) Application of certain § 45 rules.

(ii) Section 45V(d)(1) states that the rules for facilities owned by more than one taxpayer are similar to the rules of § 45(e)(3). How should production from a qualified facility with more than one person holding an ownership interest be allocated?

Treasury should clarify the process for the treatment of facilities owned by more than one taxpayer, which the Act specifically says should be similar to the rules of Section 45(e)(3). Treasury should also clarify that it is permissible for the tax credit to be

claimed in the case of two separate entities that own the qualified facility described above and in Section 45V(d)(1).

(b) Coordination with § 48.

(i) What factors should the Treasury Department consider when providing guidance on the key definitions and procedures that will be used to administer the election to treat clean hydrogen production facilities as energy property for purposes of the § 48 credit?

Treasury should ensure that the definition of energy storage for the investment tax credit covers, at the minimum, mechanical storage of hydrogen (e.g., compression), thermal storage of hydrogen (e.g., liquefaction), and chemical storage of hydrogen (e.g., ammonia, net-zero electrofuels).

(c) Coordination with § 45Q. Are there any circumstances in which a single facility with multiple unrelated process trains could qualify for both the § 45V credit and the § 45Q credit notwithstanding the prohibition in § 45V(d)(2) preventing any § 45V credit with respect to any qualified clean hydrogen produced at a facility that includes carbon capture equipment for which a § 45Q credit has been allowed to any taxpayer?

If feedstock is sourced from unrelated processes, ACP would encourage the Treasury to allow the application of separate and additive tax credits for unrelated process trains.

II. OTHER AREAS WHERE GUIDANCE IS REQUESTED

A. Clarification on Producer for Energy Storage

Treasury should clarify that a taxpayer shall be treated as producer of hydrogen if such taxpayer produces and stores hydrogen because hydrogen storage should be considered a "use" of such hydrogen within the meaning of Section 45V(c)(2)(B)(i)(III).

B. Clarify That a § 45V Facility that Elects the § 48 ITC is Eligible for The Full-Value Credits

With respect to a Section 45V hydrogen project that elects the Section 48 ITC under § 48(a)(15), Treasury should clarify that the prevailing wage and apprenticeship requirements under Section 48(a)(9) apply and allow the taxpayer to claim the full value tax credit (i.e., by multiplying the energy percentage by 5) if those requirements are met. Treasury should also clarify that the grandfathering rules under Section 48(a)(9)(B)(ii) apply to such facilities, notwithstanding that the grandfathering rules under Section 45V(e)(2)(A) are different with respect to alterations and repairs.

C. Direct Pay and Transferability

ACP requests guidance clarifying that direct pay elections may be made by a transferee of tax credits under Section 6418 An applicable entity that receives all or a portion of an eligible credit pursuant to an election made under Section 6418 should, to the extent such eligible credit is also an applicable credit as defined in Section 6417(b), be entitled to make an election under Section 6417 with respect to that credit. Guidance is also requested to clarify that if direct pay is elected under Section 6417 for any years under Section 45V, transferability may be elected for the remaining years under Section 6418.

D. Clarify Components of Qualified Clean Hydrogen Production Facility for Purposes of § 45V

Treasury should clarify that the term "qualified clean hydrogen production facility" (within the meaning of Section 45V(c)(3)) generally includes all components of property that are functionally interdependent (unless such equipment is an addition or modification to a qualified clean hydrogen production facility). Components of property are functionally interdependent if the placing in service of each component is dependent upon the placing in service of each of the other components in order to generate

hydrogen. Components of a qualified clean hydrogen production facility that are functionally interdependent include transformers, switchgear, electrolyzers, rectifiers, water supply, water treatment, cooling systems, hydrogen purifiers, wiring and piping, compressed air supply systems, nitrogen supply systems, oxygen purification and recovery systems, electrolyte makeup systems, and any other equipment necessary to produce hydrogen (and should not include "upstream" electricity, feedstock, or fuel facilities, even if co-located with the hydrogen facility, under the same development plan, or owned by the same taxpayer, and should not extend past the point that hydrogen is produced and is ready to deliver or store).

E. Hydrogen Storage Investment Tax Credit

Section 48(c)(6)(A) defines "energy storage technology" as, inter alia, "property (other than property primarily used in the transportation of goods or individuals and not for the production of electricity) which receives, stores, and delivers energy for conversion to electricity (or in the case of hydrogen, which stores energy), and has a nameplate capacity of not less than 5 kilowatt hours."

Clarification is required to determine hydrogen storage property that qualifies as energy storage technology. Treasury regulations should provide that energy storage technology includes:

- With respect to property that that converts electricity to hydrogen for storage and conversion back to electricity, property (other than property that is part of a qualified clean hydrogen production facility (as defined in Section 45V(c)(3)) for which a credit is allowed under Sections 45V or 48(a)(15)) that (i) converts the electricity to hydrogen (such as transformers, switchgear, electrolyzers, rectifiers, water supply, water treatment, cooling systems, hydrogen purifiers, wiring and piping, etc.); (ii) is necessary to prepare the hydrogen for storage (such as compression, liquefaction, and ammonia synthesis equipment); (iii) stores the

hydrogen (such as storage tanks, pipelines, geological formations, mobile hydrogen tube trailers, and mobile hydrogen cryogenic trailers); and (iv) converts the hydrogen back to electricity (such as turbines primarily fueled by hydrogen and step-up transformers to convert stored energy to electricity); and

- With respect to property that is not described in the prior paragraph and that stores hydrogen, property that is necessary to prepare the hydrogen for storage (such as compression and liquefaction equipment), that stores hydrogen (such as storage tanks), and that is necessary to convert stored hydrogen for commercial use (such as equipment to convert stored hydrogen to ammonia or transportation fuel).

III. CONCLUSION

We appreciate the opportunity to respond to this request for comments on Section 45V credits and look forward to continuing engagement with Treasury on this issue.

Sincerely,

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