American
Fuel & Petrochemical
Manufacturers

1800 M Street, NW
Suite 900 North
Washington, DC
20036

202.457.0480 office
202.457.0486 fax
afpm.org

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Internal Revenue Service
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Ben Franklin Station
Washington, DC 20044

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Re: Comments on Notice 2022-58, Credits for Clean Hydrogen and Clean Fuel Production

The American Fuel & Petrochemical Manufacturers (AFPM) respectfully submits these comments on Internal Revenue Service (IRS) Notice 2022-58 requesting comments on Credits for Clean Hydrogen and Clean Fuel Production. AFPM appreciates the opportunity to provide feedback on this guidance.

I. Background and Overview of AFPM

A. Introduction

AFPM is the leading trade association representing the makers of the fuels that keep us moving, the petrochemicals that are the essential building blocks for modern life, and the midstream companies that get our feedstocks and products where they need to go. We make the products that make life safer, healthier, and cleaner.

The U.S. fuel and petrochemical industries continue to advance clean fuels and clean hydrogen projects as innovators and significant enablers of this technology worldwide.

AFPM is committed to working with policymakers to identify ways to meet growing global demand for affordable energy while reducing carbon emissions. The U.S. refining and petrochemical industries are well-positioned to lead the world in this endeavor due to years of innovation and investment, in addition to competitive advantages offered by access to domestic crude oil and natural gas. In fact, U.S. refineries and petrochemical manufacturers invested more than $100 billion to improve efficiency, reduce emissions, and produce cleaner fuels over the last decade. The refining sector alone reduced the carbon intensity of its operations by 12 percent over the past decade.[1]

[1] Testimony of Derrick Morgan, U.S. Senate Committee on Energy and Natural Resources, *Full Committee Oversight Hearing of IMO 2020*, December 10, 2019.

Not only are the U.S. refining and petrochemical industries reducing their own emissions, but they are critical components in making products and processes more efficient to help customers reduce their emissions. High-tech petrochemicals are key to light-weighting vehicles, and are core components of electric vehicles, wind turbines, solar panels, and thousands of everyday products including vaccines, syringes, and personal protective equipment (PPE).

B. AFPM members are actively developing clean hydrogen projects.

A common theme throughout our industries' history has been a relentless focus on delivering new solutions to the world's most pressing problems. AFPM member companies have been integral participants in advancing clean hydrogen technology, investment, and deployment.

For example, Valero and the U.S. Department of Energy (DOE) have developed the first commercial scale retrofit system to capture the carbon dioxide (CO_2) byproduct created during the production of hydrogen at Valero's Port Arthur Refinery. The project captures more than one million tons of CO_2 per year while forging a successful new path for hydrogen production technology and emissions reduction.

In 2021, Air Liquide established the world's largest membrane-based low-carbon hydrogen production unit in Canada. Powered by 99 percent renewable energy, this unit has a daily production capacity of over 8.2 metric tons of low-carbon hydrogen — enough to fuel more than 2,000 cars, 16,000 forklifts, 275 buses, or 230 large trucks.

Phillips 66 is partnering with the Georgia Institute of Technology to advance the development of high-performance reversible solid oxide fuel cells (RSOFC). The project will demonstrate the commercial feasibility of a low-cost and highly efficient RSOFC system for hydrogen and electricity generation. Phillips 66 is a leader in solid oxide fuel cell (SOFC) technology, holding nine U.S. patents in its SOFC intellectual property portfolio, with 21 additional patents pending.

Marathon Petroleum, through its subsidiary Virent, is researching the potential for net-zero fuel and chemical products through wind, solar, clean hydrogen and regenerative agriculture activations. Aviation history was made in December 2021 when United Airlines flew an aircraft full of passengers using 100% sustainable aviation fuel (SAF), enabled by Virent's synthesized aromatic kerosene (SAK) derived in plant sugars, in one engine and petroleum-based jet fuel in the other.

C. AFPM members are pioneering clean fuel projects and technology.

Moreover, as the lead trade association representing the makers of liquid fuels, our members are pioneering the development of lower carbon fuels like renewable diesel and sustainable aviation fuel (SAF) that, according to the U.N. Intergovernmental Panel on Climate Change, have enormous potential to substantially reduce global emissions. Across the refining industry, early investments in these fuels are paying off, and new investments are ramping up.

Valero completed a major expansion in 2021 of the Diamond Green Diesel renewable diesel plant in Louisiana adjacent to the Valero St. Charles Refinery, increasing its production capacity to 700 million gallons of renewable diesel and 30 million gallons of renewable naphtha per year. An additional renewable diesel manufacturing facility started up in the fourth quarter of 2022, adjacent to the Valero Port Arthur Refinery in Texas, will increase annual renewable diesel capacity to 1.2 billion gallons and 50 million gallons of renewable naphtha.

HollyFrontier is investing more than $800 million for a renewable diesel unit and pre-treatment unit co-located at its Navajo Refinery in New Mexico and is converting its Cheyenne Refinery in Wyoming to renewable fuel production, with the target of eventually producing more than 200 million gallons of renewable fuel annually.

Marathon Petroleum started renewable diesel production at its converted Dickinson, North Dakota, refinery in 2021, with a production capacity of approximately 184 million gallons per year. Marathon Petroleum is also transitioning its Martinez, California, facility over to renewable fuel production, with an anticipated capacity of 730 million gallons per year.

Phillips 66 plans to convert its San Francisco Refinery in Rodeo into one of the world's largest renewable fuel facilities. The project, known as Rodeo Renewed, stands to equip the facility with an initial production capacity of more than 800 million gallons per year of renewable diesel, renewable gasoline, and SAF. In April 2021, Phillips 66 and Southwest Airlines signed a memorandum of understanding (MOU) to advance the commercialization of SAF, focusing on public awareness and research and development.

Chevron is on track to triple renewable diesel volumes by 2025 and expects to have the capacity to produce 100,000 barrels per day of renewable diesel and SAF by 2030.

Exxon Mobil Corporation (ExxonMobil) has announced a five-year deal to purchase more than four million barrels of renewable diesel a year from Global Clean Energy's Bakersfield Biorefinery starting in 2022. ExxonMobil's majority-owned affiliate Imperial Oil Ltd. has announced plans to produce renewable diesel at a new complex at its Strathcona Refinery in Canada. Production will utilize blue hydrogen and the project is expected to produce approximately 20,000 barrels of renewable diesel daily that has the potential to reduce annual carbon emissions by about three million metric tons compared to conventional fuels. This reduction is comparable to taking more than 650,000 passenger vehicles off the road for one year, according to the U.S. Environmental Protection Agency (EPA).

PBF Energy is investing $600 million to transform an idled refinery unit at the company's Chalmette, Louisiana, refinery into a renewable diesel manufacturing plant. Scheduled for completion for the first half of next year, the Chalmette Renewable Diesel Unit (RDU) will produce 20,000 barrels per day – or 300 million gallons per year of low carbon renewable diesel fuel. Additionally, PBF envisions building a clean hydrogen and logistics hub adjacent to its Delaware City plant, supporting the community, state, and region. The project seeks to eventually build ample wind, solar, and possibly hydropower to fuel electrolyzers that will produce 55,000 metric tons of green hydrogen. This amount of hydrogen is enough to power

12,500 medium duty trucks, which is the average size of a major shipping company distribution center.

D. AFPM and our members look forward to using our expertise to achieve crucial energy goals and achieve the goals of the Inflation Reduction Act.

Put simply, this Administration seeks to maximize the benefits of the Inflation Reduction Act (IRA), and our members possess unparalleled expertise in scaling energy projects. Let us be a part of the solution. We hope that our robust engagement with the IRS comment process, and intended involvement throughout the rollout of draft regulations, demonstrates our willingness to materially contribute to the effective implementation of the IRA.

II. Definition of a "Qualified Facility"

A. Introduction

The definition of what constitutes a "facility" in sections 45Z and 45V is important because section 45Z(d)(4) provides that the term "qualified facility" excludes any "facility" for which the sections 45V and 45Q credit are allowed. In addition, section 45V(d)(2) prevents a section 45V credit at any qualified clean hydrogen facility that includes carbon capture equipment for which a section 45Q credit has been allowed.

B. Prior Treasury and IRS Guidance

Specifically, a "facility" should be defined to allow certainty for taxpayers owning separate facilities, at various stages of the fuel production supply chain, seeking to utilize various tax credits. These stages of fuel production might exist within the same fence line or geographically apart, but equipment that is separately operated or performs a discrete function within the process should be treated as its own "qualified facility."

Treasury and the IRS have previously adopted such an approach. For instance, in Revenue Ruling 94-31[2] the IRS defined a single wind turbine as a "qualified facility" because it operates independently as a piece of a larger power production facility. The ruling states that for section 45(c)(3), "each wind turbine on the windfarm *can be separately operated and metered* and can begin producing electricity when it is mounted atop a tower. Thus, the term 'facility' under Section 45(c)(3) means the wind turbine, together with the tower…is a 'separate facility.'"

Likewise, in Notice 2008-60[3] the IRS provided guidance on what constitutes an open-loop biomass facility, stating "an open-loop biomass facility is a power plant consisting of all components necessary for the production of electricity from open-loop biomass (and, if applicable, other energy sources)." It then goes on to conclude that "each power plant that is operated as a separate integrated unit" is treated as a facility for purposes of §45(d)(3)." Like Revenue Ruling 94-31, the Notice treats integrated units that can operate separately as a "facility."

[2] Revenue Ruling 94-31, 1994-1 C.B. 16.
[3] 2008-2 C.B. 178.

The definition of "facility" should be similar to the definition of plant property found in Treas. Regs. §1.263(a)-3(e)(3). In that regulation, the IRS defines parts of a plant that can operate independently as a unit of property, a definitional approach that parallels our requests. As defined in this regulation, the components of a plant "that are functionally interdependent comprise a single unit of property." However, items of property that "perform a discrete and major function or operation within the functionally interdependent machinery or equipment" are further defined as a single unit of property.

C. Facility Definitional Requests

1. Hydrogen

Treasury and the IRS should clarify the definition of a "facility" to address situations in which there are distinct process trains at a single site (i.e., within the same "fence line"). A site such as this should qualify for both the sections 45V credit and the 45Q credit as long as the credits are utilized for these distinct and separate processes. Any alternative could severely hinder the utilization and deployment of carbon capture technology at a facility that also, for example, produces clean fuels and/or hydrogen.

A broad definition of the term "facility" in section 45V(d)(2) could fail to recognize plants that include distinct production sites, that are co-located at the facility, yet use different processes to produce entirely separate products. However, it is appropriate that if a site has a separate production train capturing carbon and another train utilizing clean hydrogen within the same fence line, both should be eligible for their respective credit. It would be entirely consistent with the prior guidance described above to narrowly define "facility" the way the IRS has done for other energy-related tax credits.

For example, consider where a hydrotreater unit in a refinery reduces the sulfur and nitrogen content of diesel fuel, using inputs from hydrogen and heat. The hydrogen is produced through a central hydrogen unit, which also supplies other separate and unrelated processes within the refinery. At the same refinery, there are several fired heaters that supply heat to other distinct processes within the refinery. These fired heaters release CO_2 emissions as a byproduct. To decarbonize the refinery, the taxpayer may sequester/utilize the CO_2 emissions released from its fired heaters. In this circumstance, the hydrogen production process is clearly delineated from the capture and sequestration of the CO_2 emissions from the fired heater. The taxpayer should be eligible to claim the section 45Q credit by capturing and utilizing the CO_2 emissions from the fired heater and the section 45V tax credit for the production of clean hydrogen.

Put simply, a "facility" for purposes of sections 45Q and 45V should be narrowly defined, consistent with prior guidance, to ensure the intended utilization of these incentives. Specifically, for purposes of section 45V a hydrogen facility should be defined as the equipment producing each independent clean hydrogen production train.

2. Liquid Fuels

A “facility” should be narrowly defined, for the purposes of section 45Z, for analogous reasons to those described in the Section 45V description above. “Facility” for the purpose of section 45Z should be defined as those pieces of a refinery that are separately operated and can function independently during the production process of qualifying clean fuels.

The typical refinery complex is comprised of various process units that take in feedstocks, catalysts, and energy inputs to separate, combine, or otherwise manipulate the physical characteristics of the fuels being produced. Refineries are often conducting unrelated processes within the same fence line at the same time. The definition of a facility for the purposes of determining eligibility for the section 45Z credit should consider only the inputs and processes that are directly related to the production of a clean fuel. A “facility” should start with a feedstock entering a process, and end with an eligible clean fuel. Equipment or processes unrelated to the production of a clean fuel, and whether the product is further processed at the same or other geographic location should not be considered relevant in determining eligibility for the credits.

For example, consider a refinery which owns and operates a Fluidized Catalytic Cracker (FCC) and a Renewable Diesel/Sustainable Aviation Fuel unit (RD-SAF Unit) at the same location. The FCC feeds petroleum feedstock and makes 100% fossil fuels. As part of the FCC process, a catalyst is used on which coke forms as a reaction byproduct. This coke is removed in a combustion process generating a flue gas rich in CO2 and is captured in a CO2 recovery process. The RD-SAF Unit processes 100% renewable feedstock, producing a qualified mixture of renewable fuels. In this case, the processes, while located on the same site, are completely independent and the taxpayer should be eligible to claim 45Q credit from carbon capture of the flue gases at the FCC and the 45Z credit for production of renewable fuels at the RD-SAF Unit.

Congress clearly intended to incentivize investment in clean fuel production, and that intent would be undermined by broadly defining “qualified facility.” We believe that treating an entire refinery complex as a single facility runs contrary to the intent of the statute. Various parts of a refinery can function as a separately operated and functionally independent process. Refineries are increasingly incorporating renewable feedstocks into their production streams to produce lower carbon fuels. Providing refiners with the opportunity to determine the appropriate mix of credits, consistent with the requirements in section 45Z(d)(4), will maximize the carbon reduction potential of the clean fuel production credit. Recognizing this fact by narrowly defining “facility” is the best way to ensure more clean energy projects are financed and that the greenhouse gas (GHG) emission goals outlined by Congress and the Administration are fulfilled.

Therefore, those pieces of a refinery that are separately operated and can function independently should be treated as independent “facilities” for purposes of section 45Z. Specifically, a “qualified facility" should be defined as the portion of a refinery that produces the qualifying fuel and not the unrelated property within the fence line that can function independently of the refining process.

D. Legislative Intent of the IRA

In addition to harmonizing the definition of "facility" with IRS precedent, a narrow definition is the only way for these credits to accomplish the Administration's and Congress's intent of lowering domestic GHG emissions.

The overarching goals of this Administration on climate matters are abundantly clear. Since taking office, President Biden has made addressing climate challenges a clear priority. In one of his first Executive Orders, he noted that efforts to address climate concerns "will require both significant short-term global reductions in GHG emissions and net-zero global emissions by mid-century or before." He later noted that tackling the climate concerns must include spurring economic growth, "especially through innovation, commercialization, and deployment of clean energy technologies and infrastructure."[4]

In remarks at the signing of the IRA, the President reiterated his commitment to climate action, calling the $369 billion investment "the most aggressive action ever in confronting the climate crisis and strengthening our energy security."[5] He further noted that the IRA, "provides tax credits that's going to create tens of thousands of good-paying jobs and clean energy manufacturing jobs, solar factories in the Midwest and the South, wind farms across the plains and off our shores, clean hydrogen projects and more — all across America, every part of America."[6]

While the Congressional legislative history on specific IRA provisions is sparse, the goals of this Administration are not. We believe that Treasury and the IRS can help achieve the goals articulated above through the promulgation of energy tax guidance that allows taxpayers the flexibility needed to maximize the benefits of these incentives.

In this instance, a sweeping definition of "facility" would slow adoption and emission improvements; conversely, a narrower definition of "facility" would enable potential employment of multiple tax incentives within one plant's fence line and alleviate the barriers to investment – accelerating the reduction in GHG emissions and moving the United States one step closer to energy security.

E. Conclusion

Simply put, a broad definition of "facility" will slow adoption and improvement. Whereas a narrower definition of the "facility" boundaries could enable potential employment of multiple tax incentives within one fence line and alleviate the barriers to investment. AFPM supports a definition of "facility" that acknowledges the scale of modern refineries and chemical facilities through a unit-by-unit approach that provides flexibility to maximize investment in lower carbon technologies.

III. Feedback to Treasury Questions

[4] Exec. Order No. 13,985, 86 Fed. Reg. 7009 (Jan. 20, 2021).
[5] Remarks by President Biden At Signing of H.R. 5376, The Inflation Reduction Act of 2022 (Aug. 16, 2022), *available at* https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/08/16/remarks-by-president-biden-at-signing-of-h-r-5376-the-inflation-reduction-act-of-2022/.
[6] *Id.*

AFPM feedback is provided in response to the specific questions published by IRS that are replicated in *italicized text*.

.01 Credit for Production of Clean Hydrogen

(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?

The system boundary should include all direct emissions, all direct emissions embedded in heat/power/steam, and all direct emissions embedded in upstream feedstocks (e.g., methane leakage associated with natural gas production). It should not incorporate emissions associated with construction of facilities along the manufacturing chain, or any emissions associated with distribution or use of final hydrogen product.

For example, the Electrolysis Production Pathway should include electrolysis plant emissions from power supply, water extraction, treatment, and delivery. Including emissions from power supply for hydrogen produced through electrolysis ensures renewable power use to qualify for section 45V. The Natural Gas Production Pathway should include emissions from natural gas production (wellhead, gathering pipeline system, booster compression), natural gas processing (plant facility emissions), and transmission system emissions (transmission pipeline, compression).

We strongly encourage Treasury to adopt an already governmental (state or federal) established method and process for determining well-to-gate emissions. This will help drive consistency across the industry, reduce risk of misinterpreting regulations/processes, reduce the burden to create the regulations/processes, and reduce the duplication of efforts by industry to adjust to varying regulations/processes. California Air Resources Board (CARB) Tier 1 methodology for Renewable Natural Gas (RNG) is an example of an acceptable method, but not the only allowable method.

In addition to upstream low/zero-carbon intensity (CI) energy inputs it is critical to account for post-production emissions management that reduce/eliminate emissions in the lifecycle GHG emissions as part of the well-to-gate analysis. Some examples of post-production emissions management include Carbon Capture and Underground Sequestration (CCUS), use of CO_2 as a co-product to replace existing CO2 sources in industrial uses.

(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.

Where a clean hydrogen production process produces co-products, the hydrogen producer should have the flexibility to select the methodology for allocating lifecycle GHG emissions to co-products. The methodology used should be an industry recognized method such as displacement

method, Btu-based allocation, mass-allocation, or the Argonne Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies (GREET model).

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

The allocation methodology used should allow for flexibility and different methods may be used depending on the nature and use of the co-product, such as:

- If a co-product is being used as a fuel, then energy allocation would be appropriate.
- If a co-product is a chemical feedstock, then mass allocation should be used.
- If a co-product is an energy stream (i.e., heat, steam, or power) then a system expansion methodology with a government-defined credit for heat, steam, or power should be used EXCEPT in cases where a contractual agreement on the carbon intensity of this product exists.
- Economic allocation should only be used in cases where none of the above methodologies are appropriate and use government-provided look up tables for economic values.

(iii) What considerations support the recommended approaches to these issues?

This aligns with the methodology outlined in ISO 14067 "Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification." Hydrogen has a high energy content relative to its mass – so where co-products are being used as fuel, energy allocation ensures emissions are allocated evenly. By contrast most chemical by-products have very low to zero energy value (e.g., chlorine ($Cl_{2)}$, oxygen ($O_{2),}$ or carbon oxide (CO)) and so should have emissions mass allocated to enable even allocation. For steam/power/heat the aim should be to avoid double accounting of emissions. If a contractual arrangement exists to sell this steam/power/heat as zero carbon, then no emissions should be allocated to the steam/power.

(c)(i) How should lifecycle greenhouse gas emissions be allocated to clean hydrogen that is a by-product of industrial processes, such as in chlor-alkali production or petrochemical cracking?

As outlined in the response to section (b)(ii) these should be mass allocated. This should also include processes where the principal product is carbon monoxide produced through gas steam methane reforming or partial oxidation.

(d) If a facility is producing qualified clean hydrogen during part of the taxable year, and also produces hydrogen that is not qualified clean hydrogen during other parts of the taxable year (for example, due to an emissions rate of greater than 4 kilograms of CO2-e per kilogram of hydrogen), should the facility be eligible to claim the §45V credit only for the qualified clean hydrogen it produces, or should it be restricted from claiming the §45V credit entirely for that taxable year?

The facility should be able to claim credit for the portion of qualified hydrogen it produces on a pro-rata basis using a mass balance calculation. This approach ensures facilities can recover after an upset or unforeseeable issue. To restrict the claiming of section 45V entirely for that taxable

year would drive undesirable outcomes due to the large operating costs associated with producing clean hydrogen. For example, a producer who experiences an upset for a period as short as one day that caused the carbon intensity to increase should not be restricted from claiming the section 45V credit for that entire taxable year.

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

The carbon footprint of products should be based on actual emissions as described in our response in (1)(a) above. Where possible, suppliers of inputs should provide embedded emissions on an actual basis, utilizing an already governmental recognized model such as ANL-GREET, CA-GREET, or other databases available for use.

Utilizing an already governmental recognized model will help drive consistency across the industry, reduce the risk of misinterpreting regulations/processes, reduce the burden to create new models/regulations, and reduce the duplication of efforts by industry to adjust to varying models and regulations.

Verification of the lifecycle emissions is critical to ensure credit is awarded appropriately under the statute. We support a consistent approach with other governmental GHG reduction programs' verification processes and requirements. One example is California's Low Carbon Fuel Standard (LCFS) verification process as outlined in Title 17, CCR Section 95500. The IRS should solicit feedback on verification, auditing, and other aspects of this, and other candidate modeling approaches. This will help drive consistency within the industry.

(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?

Gathering of actual data will be time-consuming and costly, therefore granularity should be selected carefully. Quarterly or annual would give a good balance of timeliness to administrative burden. Quarterly would match with California's LCFS approach, and periods less than quarterly would become burdensome. A quarterly or annual approach provides a sufficient requirement for business to monitor emissions throughout the year to ensure the section 45V emissions targets are met.

Hydrogen production facilities are complex and costly to construct. Operators of such facilities want to maximize the use of their asset. For certain technologies (i.e., electrolyzer) that can be somewhat flexible in their operation, the operators of the equipment will maximize their use when the variable costs (i.e., electricity) are low and minimize their use when the variable costs are high. This corresponds well to situations when the cost of electricity is high when additional non-renewable energy sources are utilized (and thus higher than average emissions) to ensure reliable power.

Using an annual average emission factor for a particular region/grid is necessary to ensure that the emissions are appropriately counted for. While a small number of balancing authorities are beginning to provide less than annual granular marginal emission rates, there are many that do

not.[7] Without complete approved datasets available calculating the emissions associated with the production of hydrogen becomes guesswork and is not scientific in nature. It is critically important to ensure the datasets utilized are valid and without complete datasets relying on annual average emission factors is necessary.

Many of the other GHG reduction programs operate on a quarterly reporting basis and require annual carbon intensity calculations (i.e., CA-LCFS[8]). As part of the annual carbon intensity calculations the emissions associated with the electricity use are calculated, which relies on the annual regionalized grid emission factor. We urge the IRS to maintain a schedule and approach consistent with other well established GHG reduction programs. This will help reduce duplication of efforts by both industry and by the IRS and will help incentivize growth in the clean hydrogen market by providing consistency.

(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).4 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 response to section (1)(a).

(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?

The "provisional emissions rate" concept is available to hydrogen production processes "for which a lifecycle GHG emissions rate has not been determined" for the purposes of section 45V. Taxpayers should have the ability to petition the Secretary for a provisional emissions rate in either of the following scenarios:

- Facility-specific conditions differ from those represented in an already governmental recognized model such as ANL-GREET, CA-GREET, or other databases available for use in a way that impacts lifecycle emissions (e.g., GHG emissions associated with renewable feedstocks are lower than the values incorporated into GREET); or

[7] Karen Palmer et al., Resources for the Future, Options for EIA to Publish CO2 Emissions Rates for Electricity 21-22(2022) https://perma.cc/6VAA-JEQX.
[8] https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/reportingtool/compliancecalendar.pdf see Mar 31 Annual Fuel Pathway Reports.

- Novel hydrogen production processes that are not included in an already governmental recognized model such as ANL-GREET, CA-GREET, or other databases available for use.

In either scenario, the taxpayer should be able to engage with the IRS or its designee at any point in the project development process, from initial project design and investment decision through project commencement and production.

Allowing taxpayers to engage with the relevant entities responsible for making an emissions rate determination at any stage in the project development process affords taxpayers a higher degree of certainty regarding project development and investment decisions than would be available under any other timing requirements.

A taxpayer should be able to file a formal petition to establish a provisional emissions rate at any stage in the project development process, as long as the petition includes verification by an unrelated party of the lifecycle analysis and proposed emissions rate. Upon receipt of a complete petition to establish a provisional emissions rate, the IRS should be obligated to issue a determination within 90 days. As part of the verification process established in section 45V(c)(2)(B)(ii), a reconciliation must occur, in which the provisional emissions rate is corrected based on actual operating data, and section 45V tax credits are adjusted accordingly.

Unless and until the lifecycle GHG emissions rate can be determined using an already governmental recognized model such as ANL-GREET, CA-GREET, or other databases available for use, the taxpayer and the taxpayer's verifier/auditor should be able to rely upon the provisional emissions rate and accepted methodology agreed to between the taxpayer and the relevant issuing entities for calculating the applicable section 45V tax credit.

The comments above are based on our interpretation of "provisional emissions rate" and an assumed process by which a provisional emissions rate is applied for and a determination granted. In the event that Treasury and IRS interpret the meaning of "provisional emissions rate" or the accompanying procedure differently, AFPM would appreciate a response from Treasury and IRS and an opportunity to engage with Treasury and IRS on their interpretation, or resubmit limited comments to the same.

(b) What criteria should be considered by the Secretary in making a determination regarding the provisional emissions rate?

The provisional emissions rate should be calculated using forecast usages and input emissions sourced from ANL-GREET, CA-GREET, or other databases defined by Treasury.

(4) Recordkeeping and Reporting.

(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?

It is critical that book-and-claim processes be allowed for determining the emissions rate for clean hydrogen. Book and claim provides a viable pathway to allow the producer of inputs (electricity, RNG, etc.) to capitalize their lower GHG products while the clean hydrogen producer utilizes those lower GHG products in their process without having to expend additional GHG emissions needlessly. A robust tracking system must be in place to ensure that no double counting of GHG savings occurs. Book and claim is used in various other regulatory programs, such as the Regional Greenhouse Gas Initiative (RGGI).

Power Purchase Agreements (PPAs) are another example of a contractual relationship that should be allowed in characterizing the carbon intensity of electricity emissions used during the production of clean fuel under section 45V. PPAs are direct or indirect contractual structures that can vary depending on whether the local electricity market is regulated or deregulated. PPAs are effective tools to match electricity producers and consumers within a regional market that are similar to the well-established "book-and-claim" accounting processes applied to natural gas and consistent with other Federal, State, and International GHG and carbon reduction standards, including: the U.S. Renewable Fuels Standards, California LCFS legislation (Cal. Code Regs. Tit. 17 §95488.8(i)(2)(B)), and European programs (REDII and RTFO). When contracts are established between generators and consumers within the same ISO or RTO, Treasury and IRS should allow the clean fuel producer to apply the environmental attributes of the low carbon electricity within the production process, as allowed for in the Argonne GREET model. IRS should not allow PPAs where a feasible grid interconnection does not exist between the electricity generator and consumer.

(5) Unrelated Parties.

(b) What criteria or procedures, if any, should the Treasury Department and the IRS establish to avoid conflicts of interest and ensure the independence and rigor of verification by unrelated parties?

IRS should look to the types of certifications and licenses required by EPA for auditors authorized to perform Quality Assurance Plan (QAP) audits under 40 C.F.R Part 80, and the CARB for third-party verifiers under the California LCFS program.

Similarly, EPA and CARB have established auditor training, certifications, and rules which clearly address conflict of interest. IRS should allow an auditor to address compliance across multiple programs (e.g., RFS, LCFS, CFR etc.), without such activities constituting a conflict of interest. In line with EPA's QAP program, IRS should allow an auditor to perform auditing for a taxpayer across multiple programs and without requiring an arbitrary and frequent rotation of auditors, as required by CARB. Such rotation is unnecessary and places an unreasonable demand on the market availability of auditors with specialized skills and certifications to perform such services.

(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?

Generally, tax obligations are addressed in joint venture (JV) contractual agreements. Treasury should maintain flexibility for companies to manage the taxes of a JV as well as the allocation of any fuel production credits amongst the multiple owners.

.02 <u>Clean Fuel Production Credit</u> (Section 45Z).

(1) <u>Sale Definition</u>.

In general, Treasury should consider that section 45Z includes multiple types of sales and all classes of sales by the producer of a qualified fuel are eligible for a reduction of their tax liability, including sales where federal taxes are not due to the IRS. Therefore, IRS should not establish limitations that would unnecessarily preclude producers of qualified fuels from being eligible to claim a tax credit across all types of sales.

(a) What factors should the Treasury Department and the IRS consider in determining whether an unrelated person purchases transportation fuel for use in a trade or business for purposes of §45Z(a)(4)(B)?

Treasury should consider whether the qualified fuel was designated as suitable as a transportation fuel by the producer, and if there is a contractual agreement between the producer of the qualifying transportation fuel, and the person using the fuel is in trade or business. Fuels that are most often used for non-transportation consumption, such as hydrogen, RNG, and electricity, must also include contractual terms that establish that equivalent amount of qualified fuel is used in transportation as evidenced through a book-and-claim system.

Treasury should provide clarity on the definition of "sale" and the phrase "for use by such person in a trade or business." In the example an eligible activity should include a producer that sells to a marketer/trader, and marketer/trader that sells to third parties other than ultimate consumer. Treasury and IRS also should clarify that the sale of fuel or operation of a company with a "profit motive" will continue to satisfy the test for whether an unrelated person purchases transportation fuel for use in a trade or business.[9] IRS also should consider that sales to government and non-profit organizations should be included in the scope.

Treasury should ensure its regulation makes clear that qualifying transportation fuels may be used in off-highway applications, such as marine, locomotive, heating, and agriculture. The definition of transportation fuel at section 45Z(d)(5)(A)(i) establishes eligibility for fuels "suitable for use in as a fuel in a highway vehicle or aircraft" and does not place requirements on

[9] [1] Profit Motive: There can be no trade or business unless the taxpayer enters into and carries on an activity with a good faith intention to make a profit or in the belief that a profit can be made from the activity. *Doggett v. Burnet*,

the product's ultimate use. This can be achieved by providing a list of specific standards qualifying fuels can meet, including ASTM D4814, ASTM D975, D7467, D6751, D5797, ASTM D5798, SAE J2719, ASTM, SAE J1616, SAE J2699.

(b) What factors should the Treasury Department and the IRS consider in determining whether fuel is sold at retail for purposes of 45Z(a)(4)(C)?

The IRS should consider whether the qualified fuel was designated as suitable as a transportation fuel by the producer, and if there is a contractual agreement between the producer of the qualifying transportation fuel and the retailer. The retail volume should not exceed the qualified amount produced, and the product sold at retail should not need to be the same material as was qualified by the producer.

(2) Establishment of Emissions Rate for Sustainable Aviation Fuel. Section 45Z(b)(1)(B)(iii) provides that the lifecycle greenhouse gas emissions of sustainable aviation fuel shall be determined in accordance with the Carbon Offsetting and Reduction Scheme for International Aviation or "any similar methodology which satisfies the criteria under §211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), as in effect on the date of enactment of this section." What methodologies should the Treasury Department and IRS consider for the lifecycle greenhouse gas emissions of sustainable aviation fuel for the purposes of §45Z(b)(1)(B)(iii)(II)?

Treasury should clarify what is included in the use of the term "methodology" as it can mean different things. For the methodology adopted, Treasury should accept either the latest version of models that assess the aggregate quality of GHG emission or version of models that are utilized by other domestic federal or state jurisdictions. The latest versions of an already governmental recognized model such as ANL-GREET, CA-GREET, or other databases as published at the beginning of the fiscal year should be recognized as "similar" under (b)(1)(B)(iii)(II) of the statute.

Treasury should provide robust guidance permitting a producer to demonstrate a fuels lifecycle carbon intensity using methodologies that include models utilized by the EPA in the implementation of section 211(o)(2) the Clean Air Act (42 U.S.C. 7545(o)(2); those models utilized in the implementation of the California LCFS, Oregon Clean Fuels Program, Washington Clean Fuels Program, or other domestic state programs enforced during same period that the Clean Fuels Production Credit is active; or any pathways approved by those jurisdictions including facility or company specific pathways.

(3) Provisional Emissions Rates. Section 45Z(b)(1)(D) allows the taxpayer to file a petition with the Secretary for determination of the emissions rate for a transportation fuel which has not been established.

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

A taxpayer should be able to able to file a petition for a provisional emission rate concurrent with any application for a provisional pathway that is submitted to federal or state regulatory program that approve provisional emission rates. This would include California LCFS, Oregon Clean Fuels Program, Washington Clean Fuels Program, or other domestic state programs enforced during same period that the Clean Fuels Production Credit is active. Treasury should adopt a simple and transparent petition process that does not require rulemaking or other time-consuming evaluations.

Taxpayers should be able to petition the IRS at any time for a provisional emission rate utilizing the version of an already governmental recognized model such as ANL-GREET, CA-GREET, or other databases adopted by the IRS for that fiscal year. All fuel production that complies with the provisional pathway should be eligible for the tax credit.

In addition, Treasury should develop a process for taxpayers to seek engagement, conceptual review, and open dialogue with IRS (or DOE/Argonne as a surrogate) on credit-applicable projects. The process should allow taxpayers to rely on "agreement-in-principle" to make design and investment decisions that minimize turnaround timing from IRS.

(b) What criteria should be considered by the Secretary to determine the provisional emissions rate?

Consistent with our response to an alternative for ICAO for aviation fuel, IRS should accept either the latest version of models that assess the aggregate quality of GHG emission or the version of models that are utilized by other domestic federal or state jurisdictions for provisional pathways. The latest version of the GREET model developed by the Argonne National Laboratory as published at the beginning of the fiscal year should be the primary methodology.

Treasury should provide robust guidance if a producer considers other methodologies that include models utilized by the EPA in the implementation of section 211(o)(2) the Clean Air Act (42 U.S.C. 7545(o)(2)), or those models utilized in the implementation of the California LCFS, Oregon Clean Fuels Program, Washington Clean Fuels Program, or other domestic state programs enforced during same period that the Clean Fuels Production Credit is active, or any pathways approved by those jurisdictions including facility or company specific pathways should be permitted as a basis for fuel producers to demonstrate a fuels lifecycle carbon intensity.

(4) <u>Special Rules</u>. Section 45Z(f)(1) provides several requirements for a taxpayer to claim the §45Z credit, including for sustainable aviation fuel a certification from an unrelated party demonstrating compliance with the general requirements of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) or in the case of any similar methodology, as defined in §45Z(b)(1)(B)(iii)(II), requirements that are similar to CORSIA's requirements. With respect to this certification requirement for sustainable aviation fuel, what certification options and parties should be considered to support supply chain traceability and information transmission requirements?

Treasury should provide robust guidance if an aviation fuel producer is not directly complying with the referenced CORSIA requirements, and wants to employ any third party verifier certified

through a state level GHG program, or a party qualified by the EPA for conducting attests for the Renewable Fuels Standard (40 CFR 80 Subpart M). These options may be acceptable if they provide an equivalent level of supply chain traceability and ensure information transmission requirements are met.

(6) Multiple Owners. How should production from a qualifying facility with more than one person having an ownership interest in such facility be allocated to such persons for purposes of §45Z(f)(2)? Should rules similar to the rules under §45(e)(3) apply for this purpose? If so, which aspects of §45(e)(3) should apply without modification for this purpose and which aspects should be modified?

In general, tax obligations are addressed in JV contractual agreements. Treasury must maintain flexibility for companies to manage the taxes of a JV as well as the allocation of any fuel production credits amongst the multiple owners.

(7) Please provide comments on any other topics related to §45Z credit that may require guidance.

- Treasury should include guidance on how to account for co-processing and bio-intermediates as part of section 45Z. AFPM suggests mass/balance accounting to determine share of renewable content going into transportation fuel.

- Treasury and the IRS should clarify whether fuel with negative lifecycle GHG emissions can receive credit for the portion of the lifecycle GHG value below zero.

- Treasury and the IRS should specifically exclude the use of energy efficiency ratio (EER) in assessing an emissions rate for electricity or any other transportation fuel, as it is outside the scope of the statute. Similarly, a determination that the "gallon equivalent" amount in section 45(Z)(a)(1)(A) for non-liquid fuels at 60 degrees Fahrenheit should be based on energy equivalency basis compared to gasoline or diesel.

- Treasury and IRS should clarify that under section 45Z a qualified clean fuel production facility will have the ability to concentrate the environmental attributes of the low-carbon feedstocks processed at a qualified facility to lower the emissions rate of a certain volume of fuel produced at such qualified facility. Allowing for the concentration of environmental attributes is consistent with other Federal and International GHG and carbon reduction standards, including the U.S. Renewable Fuels Standards and European programs (RTFO). To facilitate the concentration of environmental attributes, Treasury and IRS should recognize book-and-claim accounting for feedstocks and fuels and the use of PPAs or RECs for electricity used on site as allowable methodologies for concentration environmental attributes.

- IRS should allow for the use of book-and-claim for the movement of low carbon intensity natural gas, RNG, and other renewable gases that are supported by commercial contracts and subject to annual audit for verification.

Book and claim accounting refers to the chain-of-custody model in which decoupled environmental attributes are used to represent the ownership and transfer of transportation fuel under low carbon fuel programs without regard to physical traceability. While physical supply chains are being built, the book-and-claim option drives demand via the sale and purchase of certificates or credits. While creating a critical mass of certified material, book-and-claim also provides market access to all within the industry, regardless of their global location or size. Allowing for book-and-claim use of low carbon natural gas and RNG in the production of clean fuel will facilitate meaningful investment in clean fuel production, while ensuring the projects meet the lifecycle GHG emissions requirements of the program.

Power Purchase Agreements (PPAs) are another example of a contractual relationship that should be allowed in characterizing the carbon intensity of electricity emissions used in during the production of clean fuel under section 45Z. PPAs are direct or indirect contractual structures that can vary depending on whether the local electricity market is regulated or deregulated. PPAs are effective tools to match electricity producers and consumers within a regional market that are similar to the well-established "book-and-claim" accounting processes applied to natural gas and consistent with other Federal, State, and International GHG and carbon reduction standards, including: the U.S. Renewable Fuels Standards, California LCFS legislation (Cal. Code Regs. Tit. 17 §95488.8(i)(2)(B)), and European programs (REDII and RTFO). When contracts are established between generators and consumers within the same ISO or RTO, Treasury and IRS should allow the clean fuel producer to apply the environmental attributes of the low carbon electricity within the production process, as allowed for in the Argonne GREET model. IRS should not allow PPAs where a feasible grid interconnection does not exist between the electricity generator and consumer.

Similar to the other audit requirements referenced throughout these comments, IRS should require an audit of any qualifying contractual commitments and low carbon supporting documents used by a producer to concentrate the environmental attributes in any volume of clean fuel produced at a qualifying facility.

- IRS should permit the attribution of facility or project-based programs (e.g., carbon intensity reduction driven by CCS, heat integration) that contribute to the reduction of GHG in the calculation of fuel emissions rates.

- In establishing emissions factors, IRS is obligated under section 45Z(b)(1)(B)(i) to annually publish a table of lifecycle GHG emissions rates for taxpayers to use. IRS should utilize the latest published version of the GREET model for this annual update of the emissions factors.

- Treasury should follow the Administrative Procedure Act (APA) process in soliciting public feedback, and the expected subsequent "Guidance." Guidance of this significance should follow APA procedures, including publication in the Federal Register, documentation and transparent analysis of the comments received, following Paperwork Reduction Act obligations, submission to the Office of Management and Budget for

interagency review, and the issuance of final regulatory guidance in the Federal Register with an effective date at least 30 days after publication. Comments submitted should be publicly available and considered part of the administrative record.

IV. Conclusion

AFPM appreciates the opportunity to comment on Notice 2022-58 and welcomes the opportunity to have additional discussions on these issues. Please do not hesitate to contact me with any questions or if AFPM or I can otherwise be of assistance.

Sincerely,

Conner Brace
Senior Manager, Government Relations

cc: The Honorable Lily L. Batchelder, Assistant Secretary for Tax Policy
Mr. William M. Paul, Principal Deputy Chief Counsel and Deputy Chief Counsel (Technical)