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SUBMITTED VIA FEDERAL RULEMAKING PORTAL

Internal Revenue Service
CC:PA: LPD:PR (REG-117631-23)
Room 5203
P.O. Box 7604 Ben Franklin Station
Washington, DC 20044

Re: Comments of Air Products in Response to Notice of Proposed Rulemaking for Clean Hydrogen Tax Credit

Air Products appreciates the opportunity to submit the following comments on issues pertaining to Proposed Regulations for the Production of Clean Hydrogen -- §45V Credit (REG-117631-23). To decarbonize the heavy-duty transportation and industrial sectors of the economy and encourage U.S.-based projects that will deliver real and verifiable emissions reductions from day one, a stringent clean hydrogen tax credit rule will be essential to deliver necessary emissions reductions, create stimulus for broader investments across the hydrogen value chain, and cement the U.S. global climate leadership.

Background on Air Products

Air Products is a global leader that provides essential industrial gases, related equipment, and applications expertise to over 250,000 customers across dozens of industries, including energy, chemicals, metals, electronics, manufacturing, water treatment, and food and beverage. Founded over eight decades ago, the company now has over 750 production facilities and over 23,000 employees in approximately 50 countries around the world. It is headquartered in Allentown, Pennsylvania, with significant operations throughout the United States.

Air Products is the world's largest producer of hydrogen, with over 65 years of experience in the industry. Air Products has a proven record of innovation—including researching, piloting, and adopting the best technologies available. Indeed, the company has invested billions of dollars in low-carbon hydrogen projects and focuses on delivering safe end-to-end solutions, developing clean energy projects at scale, and driving the industry forward to a cleaner future. Air Products leads efforts to decarbonize heavy-duty transportation such as trucks, buses, and ships, as well as industrial sectors that are difficult to electrify or where hydrogen is used as feedstock, such as steelmaking and chemicals processing.

Air Products has made an industry-leading commitment to invest at least $15 billion in clean energy investments. Some include:

• A multi-billion blue hydrogen clean energy complex in Louisiana, which represents the company's largest investment ever in the United States, and which will sequester more than 5 million tons of carbon dioxide (CO2) annually. This project will capture 95% of the facility's CO2 emissions and produce more than 750 million standard cubic feet per day (MMSCFD) blue hydrogen with near-zero carbon emissions.

• An investment to build-own-operate a green hydrogen facility based in Casa Grande, Arizona, just outside Phoenix, which is nearing completion and is anticipated to produce 10 metric tons per day of zero-carbon liquid hydrogen for the transportation market.

• A multi-billion major expansion project with World Energy to develop North America's largest sustainable aviation fuel production facility in Paramount, California. The project will expand the site's total fuel capacity to 340 million gallons annually and among other investments, includes an extension and capacity increase of Air Products' existing hydrogen pipeline network in Southern California.

• A $500 million large-scale facility to produce clean hydrogen at a greenfield site in Massena, New York. The facility will be powered by 94 megawatts (MW) of St. Lawrence River hydroelectric power producing 35 metric tons per day of liquid green hydrogen and creating 90 permanent jobs in New York.

• Air Products and The AES Corporation announced plans to build, own and operate a green hydrogen production facility in Wilbarger County, Texas. This mega-scale renewable power to hydrogen project would include approximately 1.4 gigawatts (GW) of wind and solar power generation, along with electrolyzer capacity capable of producing over 200 metric tons per day of green hydrogen, making it the largest green hydrogen facility in the United States.

Executive Summary

1. **Three Pillars: Incrementality, Temporal Matching, and Deliverability.** Air Products applauds the Treasury and the Internal Revenue Service (IRS) for imposing strict standards for the use of electricity in the production of clean hydrogen that will assure the reduction of GHG emissions consistent with the intent of the IRA. With respect to hourly matching, Air Products strongly opposes any extension of the phase-in period past December 31, 2027, or the exemptions for hydrogen production facilities based on a begun construction or placed in service date. Air Products does not support exempting avoided retirement or curtailment from meeting incrementality. Air Products also opposes creating any general percentage rule allowing 5% (or any other percentage) of all generated power as a proxy general curtailment. Any deviation from the three pillars would unfairly disadvantage compliant projects and slow down rather than accelerate decarbonization. Projects relying on a 5% or other percentage exemption could have a lower cost, be located closer to customers, and have less intermittency at the cost of polluting the environment compared to the ones built based on stringent environmental guardrails. If you allow these non-compliant projects to flourish, you disincentivize complaint projects because of the

economic disadvantage. Any plans for developing compliant projects may come to a halt since looser standards would incentivize project developers to maximize their revenue at the cost of increased emissions.

2. **Use of Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model.** Entities must have certainty for the full crediting period to support development and financing. Air Products strongly encourages the Treasury to provide for applying the version of GREET or the PER methodology initially used by the taxpayer over the 10-year crediting period.

3. **Provisional Emissions Rate (PER).** It is critical that the submission of a PER be promptly reviewed and approved so as not to delay the development of clean hydrogen projects. Air Products suggests that the government commit to the timely processing of such requests. Air Products believes that a request for a PER should be accepted earlier than the completion of a front-end-engineering and design study (FEED), where sufficient information to determine the projected GHG emissions of a project based on engineering, design, and other factors can be determined.

4. **Well-to-Gate Definition.** The definition of "well-to-gate" should provide greater clarity that post-production emissions related to downstream purification, compression, liquefaction, transport, storage, and other activities are not included for the purposes of calculating carbon intensity.

5. **Protection Against Double Counting.** Final regulations should protect against duplicate credit claims by limiting the availability of the §45V credit for hydrogen production from a feedstock that has been produced from clean hydrogen, such as ammonia or e-methane, that has already claimed the §45V credit so that the §45V credit can be claimed only once.

6. **Annual Averaging of GHG Emissions Rate.** The final regulations should provide for the lifecycle GHG emissions rate to be determined on a less than annual basis where a hydrogen production facility that does not produce qualified clean hydrogen makes operational changes, including changes in a feedstock or production pathways, or modifications to the hydrogen production facility that result in the facility producing qualified clean hydrogen mid-year. The short period calculation of emissions rate should apply to a facility only once and in the first taxable year in which changes or modifications are made to produce qualified clean hydrogen. Clean hydrogen producers should be allowed to claim credits for 10 full years from a new placed in service date for a modification.

7. **Co-Product Allocation.** Air Products recommends that Treasury prioritize the expansion of GREET to incorporate additional pathways for hydrogen production.

8. **Facility Definition**. The final regulations should specifically provide, by example or otherwise, that a qualified hydrogen production facility does not include upstream facilities that generate and supply any electricity, fuel, feedstock, water, ammonia, or other inputs into or for use at the hydrogen production facility (including any such facilities or property

that may be located at the same site as the hydrogen production facility). Likewise, the final regulations should specifically provide that a facility also does not include any downstream property or facility that receives and uses the hydrogen produced as a feedstock or fuel.

Proposed Regulations for Production of Clean Hydrogen §45V Tax Credit

1. *Three Pillars: Incrementality, Temporal Matching, and Deliverability.*
Air Products applauds the Treasury and the IRS for imposing strict standards for the use of electricity in the production of clean hydrogen that will limit and reduce GHG emissions consistent with the intent of the legislation. In calculating the GHG emissions associated with the production of clean hydrogen with electricity, the Treasury and the IRS have provided that the use of Energy Attribute Certificates (EACs) must meet certain requirements under the so-called three pillars. EACs are treated as representing the attributes of electricity generated by a specific facility or source where they satisfy the following requirements:

***Incrementality*.** The incrementality requirement in proposed §1.45V-4(d)(3)(i) would require qualifying EACs to represent incremental source electricity, such as electricity from an electricity generating facility that has a recent commercial operation date (COD). The Proposed Regulations adopt a standard that the COD of the electricity generating source must be within three years of the placed in-service date of the hydrogen production facility.

Air Products Response:
Air Products fully supports these requirements to ensure the environmental integrity of the program and meet the legislative intent. Air Products believes that the overriding policy must be to assure that there is no increase in overall grid emissions as a result of the use of low emission electricity to produce hydrogen and these proposed requirements are necessary to provide this assurance. Treasury and the IRS have asked for comments on certain specific issues related to the incrementality requirement:

- Avoided Retirement and Curtailment. Air Products does not support exceptions to the incrementality requirement for existing minimal emission generating facilities on the theory that such facility might otherwise be retired if not used for production of hydrogen. Given the existence of other IRA tax credits, such as §§45, 45U, and 48, there are other incentives to avoid retirement of existing minimal emission generating facilities. Air Products also opposes the creation of any general percentage rule allowing 5% (or up to 10%) of all generated power as a proxy for general curtailment or avoided retirement, which could result in diversion of substantial amounts of currently utilized power and increase overall grid emissions. If you allow these non-compliant projects to flourish, you disincentivize complaint projects because of the economic disadvantage. Any plans for developing compliant projects may come to a halt since looser standards would incentivize project developers to maximize their revenue at the cost of increased emissions.

- Uprates, Upgrades and Incremental Production. Assuming that an existing minimal emission generating source undergoes modifications or upgrades to equipment, including

the addition of new generating units, that result in the actual production of incremental electricity, Air Products agrees that such new incremental power should satisfy the incrementality requirement for production of clean hydrogen. Air Products believes that such incremental production must be established through approval of an amended or modified operating license or similar approval by a governmental or quasi-governmental agency, such as the NRC, FERC, or a regional grid operator.

- Zero or Minimal Induced Grid Emissions Through Modeling or Other Evidence. Air Products recommends that the Treasury Department and the IRS should not allow clean hydrogen producers or electricity generating facilities to submit data demonstrating zero or minimal induced grid emissions in any given case (or category of cases) through modelling or other evidence. It would be significantly challenging for the Treasury to ensure robustness of input assumptions and models applied by individual taxpayers for their specific facilities.

***Temporal Matching*.** The temporal matching requirement in proposed §1.45V-4(d)(3)(ii) would provide the general rule that an EAC satisfies the temporal matching requirement if the electricity represented by the EAC is generated in the same hour that the taxpayer's hydrogen production facility uses electricity to produce hydrogen. Proposed §1.45V-4(d)(3)(ii)(B) would provide a transition rule to allow an EAC that represents electricity generated before January 1, 2028 to fall within the general rule if the electricity represented by the EAC is generated in the same calendar year that the taxpayer's hydrogen production facility uses electricity to produce hydrogen.

Air Products Response:
Air Products strongly supports hourly matching of electricity with hydrogen production and applauds Treasury and the IRS in adopting the standard. Hourly matching is critical to assuring that there will not be increased grid emissions from electricity generation. While Air Products understands that a reasonable phase-in period may be necessary, Air Products strongly opposes any extension of the phase-in period past December 31, 2027, or the exemption of hydrogen production facilities based on a begun construction or placed in-service date. It is critically important to send a firm signal now so the necessary systems can be put in place, so hourly matching commences in all cases and for all hydrogen production facilities beginning January 1, 2028.

Deliverability. The deliverability requirement in proposed §1.45V-4(d)(3)(iii) would require qualifying EACs to represent electricity that was produced by an electricity generating facility that is in the same region as the relevant hydrogen production facility.

Air Products Response:
Air Products supports the requirement for deliverability based on the regions identified in the Proposed Regulations to assure that emissions are not increased in the region where the load is added for hydrogen production, better manage grid congestion, and avoid the negative impact on power pricing from increased load without matching production. Once a final investment decision (FID) has been completed for a hydrogen production facility based on the regions set by the Treasury in a particular taxable year, taxpayers should be entitled to rely on those regions for

establishing its commercial arrangements, such as long-term power purchase agreements, without risk of the need to make changes to contracts or the facility if the regions are changed or subdivided in a following or a subsequent year. A facility should be evaluated against deliverability requirements at the time of FID.

2. Use of Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) Model.

In general, the Proposed Regulations require taxpayers to determine the lifecycle GHG emissions rate for any taxable year under the "most recent GREET model" for purposes of §45V. The Proposed Regulations define the "most recent GREET model" as the latest version of 45VH2-GREET developed by Argonne National Laboratory that is publicly available on the first day of the taxable year during which the qualified clean hydrogen for which the taxpayer is claiming the §45V credit was produced. If a version of 45VH2-GREET becomes publicly available after the first day of the taxable year of production (but still within such taxable year), then the taxpayer may, at its discretion, treat such later version of 45VH2-GREET as the most recent GREET model.

Air Products Response:

Under the above rule, the lifecycle GHG emissions rate for a hydrogen production facility, and the associated tax credit, may vary over the 10-year credit life of a facility solely because of changes to the GREET model. To be clear, in the case of a model change, it is not necessary for there to be any change to the physical configuration of the facility, its operations, or its feedstock or pathways to production for there to be a change in its tax credit rate. This creates an unacceptable level of uncertainty regarding the availability of the tax credit for developing and financing hydrogen production facilities.

The proposed rules regarding PER are equally restrictive. Proposed §1.45V-4(a) would provide that in the case of any hydrogen for which a lifecycle GHG emissions rate has not been determined under the most recent GREET model for purposes of §45V, a taxpayer producing such hydrogen may file a petition with the Secretary for a determination of the lifecycle GHG emissions rate with respect to such hydrogen. Proposed §1.45V-4(c)(6) would provide that a taxpayer may use a PER determined to calculate the amount of the clean hydrogen production credit under §45V(a) beginning with the first taxable year in which a PER has been obtained and for any subsequent taxable year during the 10-year period beginning on the date such facility was originally placed in service, provided all other requirements of §45V are met, and until the lifecycle GHG emissions rate of such hydrogen has been determined under the most recent GREET model. As with the case of updates to the GREET model, the provision that a taxpayer who has obtained a PER can only rely on it until its process or pathways are included in the GREET model creates significant uncertainty about the future availability of the tax credit.

The §45V credit for production of hydrogen is the key economic support and driver for development of clean hydrogen production. Some anticipated projects to be developed will cost in the many hundreds of millions of dollars and in some cases over a billion dollars. These projects cannot be developed without assurance of the availability of the associated tax credit over the full crediting period. Capital authorizations and financing of these projects require that a taxpayer have certainty on the availability and amount of the § 45V credit for the 10-year credit life of the project. Uncertainty over potential future changes to the GREET model or loss of ability to rely on a PER

due to changes in the most recent GREET model, either of which could affect the availability or amount of the tax credit, will create significant issues in capital authorizations or financing to develop these projects.

We strongly encourage the Treasury to provide for fixing of the GREET version or the PER methodology for hydrogen production processes, once determined, over the 10-year crediting period. It is important for entities to have this investment certainty for the full crediting period. All equipment process, design, and economic feasibility, including projected tax credits, is determined in connection with the FEED or comparable management studies subject to future operations. It is important to be able to lock in the GREET version or the PER methodology at that time consistent with the plan. We request that a taxpayer be able to satisfy the statutory emissions rate and establish the proper tiered credit amount for the §45V credit by applying the most recent GREET model at the documented time of its FID. For example, if the most recent GREET model in place at the documented time of its FID produces a lower GHG emissions rate than a subsequent updated version, the taxpayer may rely on the version of GREET applicable at the time of FID to calculate its lifecycle GHG emissions rate for purposes of the §45V credit.

Similarly, rules should apply to the PER methodology over the entire crediting period. If an updated version of the GREET modeling platform includes the process or pathways addressed in the PER, the taxpayer may elect to continue to apply the PER methodology in determining its GHG emissions.

To be clear, these rules would not relieve a taxpayer from the obligation to substantiate and verify that its ongoing operations and production are consistent with the modeling assumptions and pathways set forth in the GREET model on which it relies or the PER that it has received.

3. *Provisional Emissions Rate*.
The Preamble provides that an applicant for a PER may request an emissions value from the DOE only after a FEED study or similar indication of project maturity, as determined by the DOE, such as project specification and cost estimation sufficient to inform that a final investment decision has been completed for the hydrogen production facility. Treasury and the IRS seek comments on appropriate indicators of project readiness that should be in place before an applicant requests an emissions value to ensure that requests correspond to hydrogen production facilities with significant commercial interest, and standards against which these indicators could be measured.

Air Products Response:
It is imperative that the processing of a PER not cause unnecessary delays in development of important hydrogen projects and infrastructure. Prompt review and processing of a PER request by DOE will be essential to maintaining the project development timeline and avoiding costly delays. Air Products suggests that the government commit to the timely processing of such requests.

An experienced developer like Air Products will often move quickly to an FID once a FEED study is complete. For some projects, Air Products may move forward with an FID and project development without the need to complete a full FEED study. A requirement that a FEED study must be completed before the taxpayer can request a PER will cause unnecessary delay as the

provisional request is under consideration. Air Products believes that a request for a PER should be accepted earlier than completion of a FEED where sufficient information to determine the projected GHG emissions of a project based on engineering design and other factors is available. The last stages of FEED are usually cost estimating work that would not impact the carbon intensity. Air Products believes taxpayers should be able to request a PER before full completion of a FEED once the process data used for carbon intensity is determined as part of a project's FEED study. This will help reduce delays in project development.

To help ensure that requests for provisional rates are not speculative and that there is legitimate project readiness, the Treasury and the IRS may want to consider imposing a user fee to ensure that such requests are only submitted for legitimate projects that are commercially viable.

4. *Well-to-Gate Definition*.
For purposes of §45V, GHG emissions are measured only up to the point of production, known as "well-to-gate." The definition of "well-to-gate" should provide greater clarity that post-production emissions related to downstream purification, compression, liquefaction, transport, storage, and other activities are not included.

Proposed §1.45V-1(a)(8)(i) provides "For purposes of §45V, lifecycle GHG emissions include emissions only through the point of production (well-to-gate), as determined under the most recent Greenhouse gases, Regulated Emissions, and Energy use in Transportation model (GREET model) developed by Argonne National Laboratory, or a successor model." Proposed §1.45V-1(a)(8)(iii) further provides:

> Emissions through the point of production (well-to-gate). The term emissions through the point of production (well-to-gate) means the aggregate lifecycle GHG emissions related to hydrogen produced at a hydrogen production facility during the taxable year through the point of production. It includes emissions associated with feedstock growth, gathering, extraction, processing, and delivery to a hydrogen production facility. It also includes the emissions associated with the hydrogen production process, inclusive of the electricity used by the hydrogen production facility and any capture and sequestration of carbon dioxide generated by the hydrogen production facility.

Air Products Response:
Air Products agrees with the above definition but requests further clarity on the point where production ends by specifically stating that postproduction processes are not included in the boundary of well-to-gate. We suggest the following language be added to the end of Prop. Reg. 1.45V-1(a)(8)(iii):

> The well-to-gate system boundary does not include any downstream processes or activities beyond the point of production of the hydrogen, including liquefaction, purification, compression, storage, dispensing into vehicles, transport, use of hydrogen, or other post-hydrogen production processes or activities.

Further, the final regulations should adopt standards to maintain consistency in the future determination of the well-to-gate system boundary under the GREET model. In order to provide consistency in evaluating the GHG emissions of hydrogen produced at different facilities, the GREET model requires users to specify both the pressure and purity of the hydrogen they produce. The impact of hydrogen pressure and impurities (both type and concentration) are captured in well-to-gate GHG emissions calculation by GREET. The regulations should fix the pressure and impurities impact on the well-to-gate calculation using the method set forth in the current 45VH2-GREET version to maintain consistency over the life of the tax credit.

5. ***Protection Against Double-Counting*****.**
As hydrogen is a feedstock for the synthesis of various feedstocks such as ammonia and e-methane, it raises the possibility that the §45V credit could be available for both the original production of the hydrogen feedstock and subsequent hydrogen production, e.g., from ammonia cracking.

Air Products Response:
Final regulations should address this potential for duplicate credit claims by limiting the availability of the §45V credit for hydrogen production from feedstocks made from clean hydrogen such as ammonia (e.g., via ammonia cracking) and e-methane when the §45V credit has already been claimed for the hydrogen feedstock so that the §45V credit can be claimed only once. The operator of the clean hydrogen production facility (such as an ammonia cracker) who desires to claim the credit should be required to ensure that the credit has not been claimed previously. Regulations should include language similar to the following:

> A taxpayer may qualify for the §45V credit with respect to hydrogen that is produced from feedstocks such as ammonia (NH_3), e-methane, or other feedstocks produced from hydrogen. An example is hydrogen production through a process known as "cracking" where the ammonia is dissociated in the presence of heat to produce hydrogen and nitrogen. The hydrogen recovered by the taxpayer through this process will be treated as qualified clean hydrogen provided that the production process does not exceed the statutory emissions rate after the consideration of any feedstock or energy source used in the production process as determined under the GREET or successor model. Qualified clean hydrogen does not include hydrogen produced from a cracking process where the ammonia used in this process was synthesized by using hydrogen on which a §45V credit was claimed by the taxpayer or another person. A taxpayer claiming the §45V credit for hydrogen produced from ammonia, e-methane, or other feedstock produced from hydrogen is required to verify that such ammonia, e-methane, or other feedstock produced from hydrogen was not synthesized by using hydrogen on which a §45V credit was previously claimed.

6. ***Annual Averaging of GHG Emissions Rate*****.**
The Proposed Regulations would require that a single GHG emissions rate, and associated credit tier, be determined for all hydrogen produced at a qualified clean hydrogen production facility during the taxable year.

Air Products Response:

Air Products believes the final regulations should provide for the lifecycle GHG emissions rate to be determined on a less than annual basis where a hydrogen production facility that does not produce qualified clean hydrogen makes operational changes, including changes in feedstock or production pathways, or modifications to the hydrogen production facility mid-year, which result in the facility producing qualified clean hydrogen following such changed or modifications. The average emission rate should be determined only with respect to production after the date that the changes or modifications are made that result in the production of qualified clean hydrogen through the end of that taxable year. The short period calculation of emissions rate should apply to a facility only once and in the first taxable year in which changes or modifications are made to produce qualified clean hydrogen and will have no impact on the total length of time taxpayers are allowed to claim credits.

7. *Co-Product Allocation*.
The 45VH2-GREET allows users to input the quantity of valorized co-products and allocates emissions to those co-products (rather than to the hydrogen production) as described in the Guidelines to the GREET model. As described in that document, 45VH2-GREET utilizes the "system expansion" approach for all co-products if possible but restricts the amount of steam co-product that reformers can claim based on the quantity of steam that an optimally designed reformer is expected to be capable of producing.

Air Products Response:
Air Products requests the Treasury and IRS to prioritize the expansion of GREET to incorporate the following pathways:

- Currently, in the existing Steam Methane Reforming (SMR) and Autothermal Reforming (ATR) with CCS pathways in GREET, it is assumed that the excess heat will be used for CCS and no steam is available for export. However, in practice, hydrogen plants with CCS can and do export steam to customers. This export steam provides valuable emissions reductions by, for example, avoiding use of fossil fuel fired boilers. Hence, when carbon capture is used for SMR/ATR pathways within 45VH2-GREET, steam should be allowed as a coproduct. In addition, some carbon capture systems are powered by electricity so that steam production can be maintained after CCS is added. Using electricity to power the carbon capture equipment will be increasingly beneficial as the electric grid becomes lower carbon in the future, as compared to steam-driven fossil-based technology.

- Carbon monoxide and syngas should be allowed as coproducts in 45VH2 GREET.

- Argon should be allowed as a coproduct in 45VH2 GREET for the hydrogen plants that have an Air Separation Unit (ASU) onsite.

- Hydrogen production via partial oxidation (POX) is not currently a pathway withing 45VH2-GREET. The inputs for POX processes are the same as those for the ATR pathway. Hence, Air Products recommends that the current ATR pathway be renamed to ATR/POX.

8. *Facility Definition*.
Proposed §1.45V-1(a)(7)(i) would provide that, for purposes of the definition of a qualified clean hydrogen production facility, the term "facility" means a single production line that is used to

produce qualified clean hydrogen. A "single production line" would include all components of property that function interdependently to produce qualified clean hydrogen. 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 to produce qualified clean hydrogen. Proposed §1.45V-1(a)(7)(ii) would provide that a facility does not include equipment used to condition or transport hydrogen beyond the point of production. Proposed §1.45V-1(a)(7)(iii) would provide that components that have a purpose in addition to the production of qualified hydrogen may be part of a facility if such components function interdependently with other components to produce qualified clean hydrogen.

Air Products Response:
While the functionally interdependent test is an appropriate tool in defining a hydrogen production facility, application of the rule may not be clear in many cases. To avoid uncertainty, the final regulations should provide a clear statement or example that a hydrogen production facility is not functionally interdependent with and does not include upstream facilities that generate and supply any electricity, fuel, feedstock, water, ammonia, or other inputs into or for use at the hydrogen production facility (including any such facilities or property that may be located at the same site as the hydrogen production facility). Likewise, final regulations should also specifically provide that a hydrogen production facility does not include any downstream property or facility that receives and uses the hydrogen produced as a feedstock or fuel. Clear statements to this effect will eliminate uncertainty and enhance project development.

The Proposed Regulations appear to use the terms "functionally interdependent" and "function interdependently" interchangeably. However, as explained below, the terms could potentially have different meanings. Proposed §1.45V-1(a)(7)(i) provides the correct definition in stating:

> 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* to produce qualified clean hydrogen.

As provided above, the term "functionally interdependent" has an established meaning under the tax law. It describes the relationship between components or units of equipment where the placing in service of each component is dependent upon the placing in service of each of the other components. Air Products agrees the "functionally interdependent" standard is an appropriate way to determine whether two units of equipment or components are part of a single facility. If components or units of equipment can only be placed in service together, they should constitute a single unit of property or facility. On the other hand, where units of property are capable of being independently placed in service, they are not functionally interdependent and are not a single facility.

Treasury and the IRS have applied this standard historically and in other rulemakings under the IRA. For example, in connection with the definition of energy property under §48, recently issued Proposed §1.48–9(f)(2)(ii) would provide: "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 or to store electricity, thermal energy, or hydrogen, or otherwise perform its intended function as provided in §48(c) and as described in

proposed §1.48–9(e)." The §48 proposed regulations would then define a "unit of energy property" as "all functionally interdependent components of property . . . owned by the taxpayer that are operated together and that can operate apart from other energy properties within a larger energy project (as defined in §1.48–13(d))."

Air Products supports defining a facility based on the "functionally interdependent" standard as defined above, subject to the regulations providing a clear statement with respect to upstream and downstream facilities as noted above. We are concerned, however, that the term "function interdependently" could be interpreted differently. For example, proposed §1.45V-1(a)(7)(iii) would provide:

> Multipurpose components. Components that have a purpose in addition to the production of qualified hydrogen may be part of a facility if such components *function interdependently* with other components to produce qualified clean hydrogen.

The term "function interdependently" could be argued to mean that any two units of equipment that function or work together are included within a single facility. That is different from the "functionally interdependent" standard, as defined above, which is based on the units of equipment being dependent on each other to be placed in service. The final regulations should either consistently use the term "functionally interdependent" or clarify that "function interdependently" is based on the same standard as "functionally interdependent." Further, the final regulations should make clear that any upstream or downstream facilities shall be treated as separate facilities regardless of whether the qualified hydrogen production facility and such upstream or downstream facility are co-located on the same site or constructed pursuant to the same development plan.

Air Products appreciates the opportunity to provide this feedback and we are available to discuss further or work through draft language. Please feel free to contact me at GuterEJ@airproducts.com.

Respectfully,

Eric J. Guter

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