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Internal Revenue Service
CC:PA:LPD:PR (Notice 2022-58)
Room 5203
P.O. Box 7604, Ben Franklin Station
Washington, D.C. 20044

The Honorable Lily Batchelder
Assistant Secretary for Tax Policy
U.S. Department of the Treasury
1500 Pennsylvania Avenue, N.W.
Washington, D.C. 20220

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Acting Chief Counsel
Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, D.C. 20224

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

Dear Ms. Batchelder and Mr. Paul:

The Inflation Reduction Act of 2022 (the "IRA") provides the largest and most comprehensive legislative response to address climate change in history. The addition of a production tax credit ("PTC") for clean hydrogen under newly enacted Section 45V[1] or the optionality to elect an investment tax credit ("ITC") in lieu of the PTC under Section 48 (collectively "hydrogen tax credits") has the potential to stimulate the creation of a new clean hydrogen economy that will be critical in meeting the country's clean energy goals.

Constellation is the nation's largest producer of carbon-free energy and a leading supplier of competitive energy supply, including a variety of sustainable energy solutions, to millions of residential, public-sector and business customers, including three-fourths of Fortune 100 companies. Our fleet of nuclear, hydro, wind, natural gas, and solar facilities has the generating capacity to power the equivalent of approximately 15 million homes, producing 10 percent of the nation's emission-free energy. Constellation is helping to accelerate the

[1] All references to "Section" are to the Internal Revenue Code of 1986, as amended, unless otherwise indicated.

nation's transition to a carbon-free future with an annual output that is nearly 90 percent emission-free.

At Constellation, we believe hydrogen is an essential element of a fully carbon-free economy. Thanks to advances in technology, it is now possible to efficiently create hydrogen using carbon-free energy resources. Carbon-free hydrogen can be produced from clean electricity through electrolysis, a technology that splits water molecules to produce hydrogen and oxygen.[2] Unlike fossil fuel processes, electrolysis powered by nuclear energy is free of greenhouse gas emissions.[3]

Thanks to a Department of Treasury ("DOE") grant, Constellation's first clean hydrogen technology project is now under construction at our Nine Mile Point Clean Energy Center in New York.[4] This scaled demonstration project will be used to conduct additional research that will support deployment of hydrogen production at our other facilities to be used in the production of fuels and other products that will reduce pollution in all sectors of the economy. With support from NYSERDA, Nine Mile Point will also help demonstrate hydrogen fuel cell technology to provide long-duration energy storage for the electric grid. Our world class fleet of nuclear power plants are well-suited to produce clean fuels that can be stored and injected onto the grid when intermittent resources are not available.

In addition, Constellation is a participant in the Midwest Alliance for Clean Hydrogen ("MachH2"), a multistate coalition of public and private entities representing every phase in the hydrogen value chain formed to produce clean, carbon-free hydrogen.[5] The alliance is preparing an application for funding under the Infrastructure Investment and Jobs Act ("IIJA") for a regional clean hydrogen production and distribution hub capable of bringing more than 100,000 metric tons of clean hydrogen to the region. The MachH2 partners are united in a shared vision to create an immediately scalable hydrogen hub in the Midwest that uses the region's abundant nuclear and renewable power to create a clean hydrogen economy and reduce emissions across multiple heavy emitting sectors. Constellation also is a participant in two additional hydrogen hubs in the Northeast and Mid-Atlantic.[6] Throughout these initiatives, Constellation is collaborating closely with stakeholders at every level to create new job opportunities while reducing emissions and creating a sustainable, clean hydrogen product for our customers.

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[2] The remainder of this comment letter will largely focus on the use of electrolysis as a form of clean hydrogen production.

[3] For more information on Constellation's work to advance clean hydrogen as a climate solution, please see our website: https://www.constellationenergy.com/our-work/what-we-do/generation/clean-hydrogen.html

[4] Constellation Energy, *Constellation Joins State and Federal Officials to Celebrate Progress on Nation's First Nuclear-Powered Clean Hydrogen Facility* (Sept. 28, 2022), https://www.constellationenergy.com/newsroom/2022/Constellation-Joins-State-and-Federal-Officials-to-Celebrate-Progress-on-Nations-First-Nuclear-Powered-Clean-Hydrogen-Facility.html.

[5] https://machh2.com/

[6] *See* https://www.nyserda.ny.gov/About/Newsroom/2022-Announcements/2022-08-25-Governor-Hochul-Announces-Maine-and-Rhode-Island-Join-Multi-State-Agreement; https://www.connecteddmv.org/post/mid-atlantic-coalition-announces-bid-to-advance-its-sustainable-regional-hydrogen-hub .

It is with this backdrop that Constellation is responding to IRS Notice 2022-58 and is requesting Department of Treasury ("Treasury") and the Internal Revenue Service (the "IRS") implement Section 45V in a manner that is transparent and accomplishes Congress' underlying policy goals in enacting the IRA. Specifically, Constellation respectfully requests the following guidance from Treasury and the IRS:

First, Treasury should confirm that hydrogen produced via electrolysis using behind-the-meter electricity generated from a nuclear power plant or other carbon-free electric generation will result in a lifecycle greenhouse gas ("GHG") emissions rate of less than 0.45 kilograms of CO_2 per kilogram of hydrogen, consistent with the figures developed by Argonne National Laboratories using the Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies ("GREET") model.

Second, Treasury should require that taxpayers claiming a credit under Section 45V match the consumption of electricity used to power clean hydrogen production facilities which are not behind-the-meter with the location and time of the clean power production, commonly referred to as 24/7 carbon-free energy.

Third, Treasury should clarify that qualified clean hydrogen can be produced from electricity generated by facilities previously placed in service.

Fourth, Treasury should provide that the measurement of lifecycle GHG emissions determined when the qualified clean hydrogen production facility is placed in service can be relied upon by the taxpayer until such time that there is a material change in the facility's operations or power supply that results in a change in emissions rate.

Fifth, Treasury should clarify that clean hydrogen production facilities are eligible to qualify for both the domestic content and energy community bonuses for the ITC.

Sixth, Treasury should provide a definition of "facility" for purposes of electing direct pay and coordinating the hydrogen tax credits with other tax credits.

These issues are described in further detail in the following sections.

Issue 1: Confirmation of treatment for hydrogen produced using behind-the-meter carbon-free power

Under Section 45V(a), the hydrogen PTC is equal to the product of: 1) the kilograms of qualified clean hydrogen produced by the taxpayer during such taxable year at a qualified clean hydrogen production facility during the 10-year period beginning on the date such facility was originally placed in service, and 2) the "applicable amount" with respect to such hydrogen.

Section 45V(b)(1) defines the applicable amount to be the "applicable percentage" multiplied by $0.60 (or $3.00 if the prevailing wage and apprenticeship requirements broadly referenced in the IRA are met). The applicable percentages specified in Section 45V(b)(2) create a

tiered approach that essentially ties the hydrogen PTC to the lifecycle greenhouse gas ("GHG") emissions produced during the production of clean hydrogen. Lifecycle GHG emissions are defined to include only emissions through the point of production (well-to-gate), as determined under the most recent GREET model.[7] As the lifecycle GHG emissions rate is lowered, the applicable percentage increases, yielding a higher hydrogen PTC. The applicable percentage is 100% if the lifecycle GHG emissions rate is no more than 0.45 kg of GHG emissions per kg of hydrogen produced. If the lifecycle GHG emissions rate for a particular hydrogen production process has not been determined, a taxpayer may petition Treasury to determine it.

When hydrogen is produced using electrolysis, the electricity used to power the electrolyzer is typically the greatest potential source of GHG emissions; as a result, electrolysis-produced hydrogen's lifecycle emissions are closely related to the emissions produced by the generating facilities powering its production. The emissions profile of hydrogen produced using electricity from a specific electric generation source that supplies electricity via direct connection to the electrolyzer without flowing through the electrical grid (i.e., "behind-the-meter") is clear: it is based on the emissions of the specific behind-the-meter generator. If the hydrogen is produced using electricity generated solely by behind-the-meter carbon-free generation[8] including nuclear energy, it can be easily demonstrated that such production does not result in GHG emissions. Experts have observed that "[w]hen powered primarily with zero-carbon electricity from renewables or nuclear power, electrolysis-based hydrogen can provide some of the largest GHG reductions of the pathways we studied."[9]

The figure below developed by Argonne National Laboratories using the GREET model shows the well-to-gate lifecycle GHG emissions rate for hydrogen produced via electrolysis using carbon-free, behind-the-meter generation along with the lifecycle emissions associated with other hydrogen production pathways. In particular, electrolysis methodologies that are powered by nuclear power, including high temperature electrolysis or proton exchange membrane electrolysis (labeled as HTE-SOEC-LWR and LTE-PEM-LWR on the figure), result in among the lowest lifecycle GHG emissions and fall below the rate of 0.45 kg of

[7] See section 45V(c)(1)(B).

[8] Executive Order 14057 defines "carbon pollution-free electricity" as "electrical energy produced from resources that generate no carbon emissions, including marine energy, solar, wind, hydrokinetic (including tidal, wave, current, and thermal), geothermal, hydroelectric, nuclear, renewably sourced hydrogen, and electrical energy generation from fossil resources to the extent there is active capture and storage of carbon dioxide emissions that meets EPA requirements." Sec. 603(d).

[9] Dane McFarlane, Carbon LLC, *Hydrogen: A Climate Solution*, *available at* https://www.carbonsolutionsllc.com/hydrogen-a-climate-solution/; *see also* Carbon Neutrality in the UNECE Region: Integrated Life-cycle Assessment of Electricity Sources, UN Economic Commission for Europe, *available at* https://unece.org/sites/default/files/2022-04/LCA_3_FINAL March 2022.pdf (The report found that across their own lifecycle, nuclear power emits less greenhouse gases than the other power sources studied, including all variants of wind and solar.)

GHG emissions per kg of hydrogen that qualifies for the maximum 100% applicable percentage.[10]

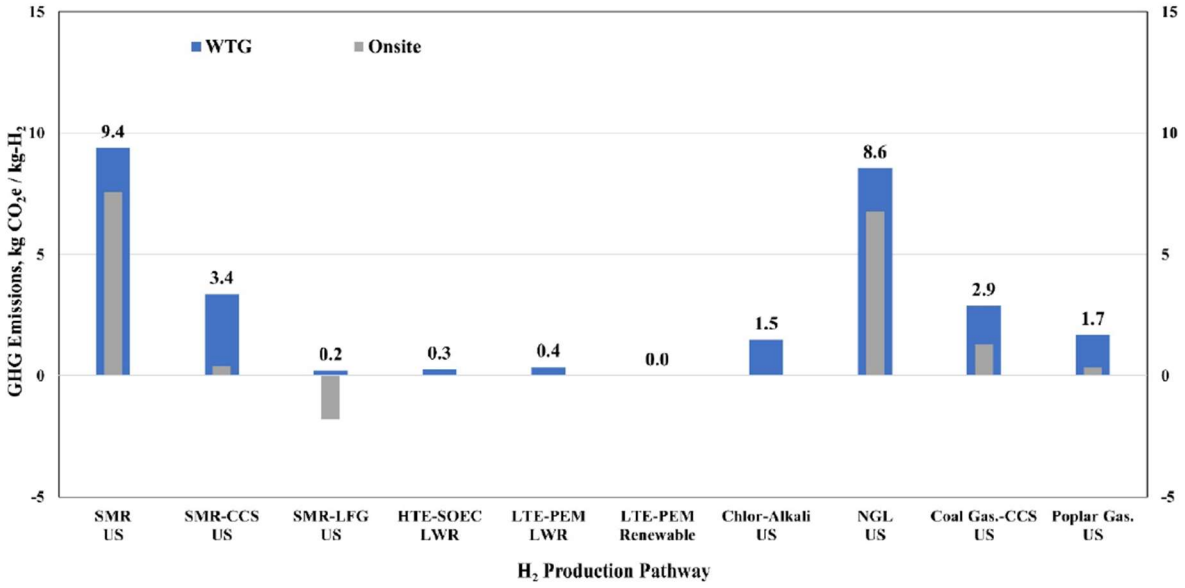

Figure 2. Well-to-gate GHG emission results for various energy sources and H_2 production technology pathways*

In light of the findings of Argonne National Labs using the GREET Model, Treasury should confirm that if hydrogen is produced via electrolysis at a facility that utilizes a behind-the-meter source of carbon-free generation, including nuclear energy, then it will be deemed to meet the 100% applicable percentage standard in Section 45V(a)(2) (e.g., has a lifecycle GHG emissions of less than 0.45 kg CO2 per kg of clean hydrogen produced) so long as the only power source for the hydrogen production process is the behind-the-meter carbon-free generator. This deemed emission rate should only apply if the hydrogen producer retires the energy attribute certificates associated with the behind-the-meter electricity consumed by the facility to ensure that the carbon-free electricity is only counted once for the purposes of earning the hydrogen PTC or for compliance with other clean energy programs, but not both.

This confirmation is explicitly contemplated by the language of Section 45V, which directs Treasury to use lifecycle emissions determined under the GREET model, and issuing guidance to that effect will provide certainty for investors and facilitate the administration of the hydrogen production tax credits for the IRS.[11] For example, this confirmation would

[10] Argonne National Laboratory, *Hydrogen Life-Cycle Analysis in Support of Clean Hydrogen Production*, available at https://publications.anl.gov/anlpubs/2022/10/179090.pdf (discussing nuclear light water reactors using proton exchange membrane electrolysis or high temperature electrolysis).

[11] U.S. Department of Energy, National Clean Hydrogen Strategy and Roadmap, Draft (Sept. 2022), https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf (noting that "DOE will work with other agencies through a coordinated and efficient 'whole of government' approach to accelerate progress" and highlighting the importance of "stimulating private investment to enable market lift-off"); *see also* pg. 91

significantly simplify the verification requirement that the delivery of energy inputs meets the estimated lifecycle GHG emissions rate as determined using the GREET model. It also eliminates the need for onerous and burdensome recordkeeping requirements for hydrogen produced using specified upstream technologies that have been verified as having zero or near zero GHG emissions rates.

Issue 2: Temporal and locational matching requirements

Section 3.01(1)(e)(ii) of IRS Notice 2022-58 solicits comments on the requirements for the granularity of time matching of energy inputs required to meet the estimated lifecycle GHG emissions rate as determined using the GREET model or other tools if used to supplement the GREET model. Section 3.01(4)(f) and (g) solicits comments on whether indirect book accounting factors that reduce a taxpayers' effective GHG emissions, such as renewable energy certificates, zero-emission certificates and power purchase agreements, should be considered when calculating the Section 45V credit and, if so, what considerations (such as time, location, and vintage) should be included in determining the GHG rate of these book accounting factors.

As part of its implementation of IIJA, DOE has also solicited comments in determining lifecycle GHG emissions for purposes of defining the "clean production hydrogen standard" or "CHPS." In soliciting feedback, DOE recognizes that generation of the electricity used to power a hydrogen electrolyzer may not be occurring at the electrolyzer's location and may not be behind-the-meter, but rather may utilize electricity drawn from the electric grid. So-called "grid-connected" electrolyzers require DOE and Treasury to determine where and when electricity from the grid is being produced so that they can ensure that the electricity used to create hydrogen is eligible for grants under the IIJA or credits under the IRA.

In the energy industry, it is common practice to use energy attribute certificates ("EACs"),[12] such as renewable, zero-emission or emission-free energy certificates and virtual power purchase agreements, to demonstrate that a consumer of electricity is using carbon-free electricity production to meet its demand. EACs represent the environmental attributes associated with a specified volume of carbon-free electricity produced from a particular carbon-free generator. EACs are tracked through public registries that verify production from the power source and ensure that only one customer is claiming the environmental attributes associated with the power output. Even in the case of power purchase agreements, where an end-use customer purchases renewable or emission-free energy directly from a generating facility, the attributes associated with that energy typically will be dedicated to the customer by retiring the EACs created when the facility delivers electricity to the grid. Historically,

(explaining that the "market penetration of hydrogen technologies will depend on numerous factors including . . . industry momentum and commitments, and unlocking private capital investment").

[12] EAC is the generic term for technology-specific terms such as renewable energy certificates ("RECs"), solar renewable energy certificates ("S-RECs"), offshore wind renewable energy certificates ("O-RECs"), zero-emission energy certificates ("ZECs"), and emission-free energy certificates ("EFECs"). The more specific terms are often used for various state renewable portfolio standards and other incentive programs and have a number of differing definitions. Use of the more general term EAC is reflective of the broad range of resources that can support GHG emission-reduction claims and avoids confusion with any state-specific program requirements.

EACs have been claimed on an annual basis, meaning that the consumer would claim EACs from any time and place on the grid, and match those EACs with its consumption even though that consumption was at a different time and in a different place from the production of clean energy.

In recent years, EACs have been evolving away from an annual tracking protocol to one that ensures that the electricity associated with those EACs is being produced at the same time and on the same electrical grid (referred to as the balancing area authority) as the electricity being consumed. This is so because there is widespread recognition that annual matching of carbon-free electricity to customer demand does not lead to actual reductions in GHG emissions that match the quantity of carbon-free electricity purchased.[13] When permitted to match annually with no location restrictions, there is an economic incentive to match 100% of annual demand with attributes from the lowest-cost carbon-free energy, which may be generated and delivered into the grid geographically far from and many hours (or months) removed from the place and time of hydrogen production. Meanwhile, the consumer – here the hydrogen producer -- continues to use the electricity currently on the grid, including fossil energy. As a result, an annualized approach to matching energy consumption allows a company to claim zero emissions associated with its electricity use while continuing to rely on fossil fuels for part of the year by buying a large quantity of EACs produced during a few months. Fossil generation, with its associated GHG emissions, simply fills the underproduction gaps.[14]

To overcome the shortcomings of these annual EAC frameworks, companies and policymakers are implementing structures that match consumption to the time and location of clean power production, commonly referred to as 24/7 carbon-free energy. In September 2021, Constellation joined a group of energy consumers, suppliers, and governments, in partnership with the United Nations, in signing a set of principles known as the 24/7 Carbon-Free Energy Compact.[15] The Compact is intended to accelerate the decarbonization of

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[13] *See, e.g.*, Melissa Lott and Bruce Phillips, Columbia Center on Global Energy Policy, *Advancing Corporate Procurement of Zero-Carbon Electricity in the United States: Moving from RE100 to ZC100* (Dec. 2011), available at https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/CorporateProcurement_CGEP_Report_120821.pdf; Jacques A. de Chalendar and Sally M. Benson, *Why 100% Renewable Energy is Not Enough*, Joule 3, 1389-1393 (June 2019), *available at* https://www.sciencedirect.com/science/article/pii/S2542435119302144; Long Duration Storage Council and McKinsey & Company, *A Path Towards Full Grid Decarbonization with 24/7 Clean Power Purchase Agreements* (May 2022), *available at* https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/decarbonizing-the-grid-with-24-7-clean-power-purchase-agreements; Anders Bjorn, et al., *Renewable Energy Certificates Threaten the Integrity of Corporate Science-Based Targets,* Nature Climate Change Vol. 12, 539-546 (June 2022), *available at* https://www.nature.com/articles/s41558-022-01379-5; Quinju Xu, et al., Princeton University Zero Lab, *System-Level Impacts of 24/7 Carbon-Free Electricity Procurement* (Nov. 2021), *available at* https://zenodo.org/record/7082212#.Y0w1tqTMKpc; Rocky Mountain Institute, *Clean Power by the Hour: Assessing the Costs and Emissions Impacts of Hourly Carbon-Free Energy Procurement Strategies* (July 2021), *available at* https://rmi.org/insight/clean-power-by-the-hour/.

[14] EPA provides guidance on the method for calculating customer GHG inventories which are the basis of customer GHG claims. https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance

[15] UN Energy, 24/7 Carbon-Free Energy Compact, https://www.un.org/en/energy-compacts/page/compact-247-carbon-free-energy.

electricity grids by adopting, enabling, and advancing 24/7 carbon-free energy. Aligned with the Compact's goals, companies[16] and municipalities[17] are committing to 24/7 carbon-free energy in order to ensure their procurement activity is aligned with emissions reductions. President Biden recognized the importance of matching carbon-free energy needs on an hourly and regional basis in Executive Order 14057: "Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," issued on December 8, 2021.[18] This Executive Order establishes that the Federal Government will lead by example to achieve a carbon pollution-free electricity sector by 2035 and includes an interim goal of procuring 100% carbon pollution-free electricity on a net annual basis to power all federal installations by 2030, including 50% 24/7 carbon pollution-free electricity.[19]

As noted above, we recommend that Treasury clarify that the lifecycle emission rate of electrolytic hydrogen production powered solely by *behind-the-meter* configurations is equal to the GREET-determined rate for the specific generators involved. But for *grid-connected* electrolyzers, Treasury should require the taxpayer to determine the lifecycle emission rate using tools that ensure the electricity being used to create hydrogen is physically consistent with the Section 45V standard, such as a book and claim system of accounting with temporal and regional matching. [20]

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[16] *See, e.g.*, Sundar Pichai, *Our third decade of climate action: Realizing a carbon-free future,* Google Blog (Sept. 14, 2020), https://blog.google/outreach-initiatives/sustainability/our-third-decade-climate-action-realizing-carbon-free-future/ (commitment to operate on 24/7 carbon-free energy by 2030); Lucas Joppa and Noelle Walsh, *Made to measure: Sustainability commitment progress and updates*, Microsoft Blog (July 14, 2021), https://blogs.microsoft.com/blog/2021/07/14/made-to-measure-sustainability-commitment-progress-and-updates/ (commitment to have 100 percent of Microsoft electricity consumption, 100 percent of the time, matched by zero carbon energy purchases by 2030); *Iron Mountain Data Centers Among the First to Track, Renewable Energy by the Hour* (Apr. 14, 2021), https://www.ironmountain.com/about-us/newsroom/press-releases/2021/april/iron-mountain-data-centers-among-the-first-to-track-renewable-energy-by-the-hour (commitment to source 100% renewable energy aimed at matching the hourly usage of all of its facilities in Pennsylvania and New Jersey (over 60 buildings), including two data centers).

[17] *See, e.g.,* Shelby Fleig, *Des Moines sets ambitious targets to lower greenhouse gas emissions, go carbon-free by 2035*, Des Moines Register (Jan. 12, 2021), https://www.desmoinesregister.com/story/news/2021/01/12/des-moines-sets-ambitious-goals-lower-greenhouse-gas-emissions-climate-sustainability/6637271002/ (City of Des Moines, Iowa plans to achieve 100%, 24/7 carbon-free electricity by 2035).

[18] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/12/08/executive-order-on-catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability/; Statement by Secretary Granholm on the President's Executive Order Catalyzing America's Clean Energy Economy Through Federal Sustainability (Dec. 8, 2021), https://www.energy.gov/articles/statement-secretary-granholm-presidents-executive-order-catalyzing-americas-clean-energy (expressing DOE's "full support of the Administration's whole-of-government strategy.").

[19] Section 603(a) of the Executive Order defines 24/7 carbon pollution-free electricity as "carbon pollution-free electricity procured to match actual electricity consumption on an hourly basis and produced within the same regional grid where the energy is consumed."

[20] Section 3.01(2) of Notice 2022-58 recognizes that Treasury is soliciting feedback on to what extent there should be alignment with the IIJA CHPS. This framework is consistent with comments that DOE has received in defining CHPS.

The text of the IRA supports this conclusion. The IRA hinges the level of the Section 45V credit on the "lifecycle greenhouse gas emissions rate" of hydrogen produced by the qualifying facility.[21] As described above, the lifecycle emissions rate of hydrogen production is heavily influenced by the physical electricity used to produce it – not an EAC saying that clean electricity was created at some different time and place. Electricity consumed to produce clean hydrogen at one point in time and location, however, is not fungible with other electricity sold across the country at different times of the year. To account for that reality, Treasury should require locational and temporal matching of EACs for all electricity used to produce clean hydrogen.

Others may say that using hourly and locational matching will increase the cost of producing clean hydrogen. But studies show that 24/7 carbon-free electricity procurement will accelerate the power sector transition to cleaner energy production by "driv[ing] early deployment of advanced, 'clean firm' generation and / or long-duration energy storage, creating initial markets for deployment, innovation, and cost-reductions that make it easier for societ[y] at large to follow the path to 100% carbon-free electricity."[22] It will also support one of the IRA's central goals of reducing localized pollution that disproportionately impacts overburdened environmental justice communities.[23] Without location and time matching, hydrogen production could be considered "clean" even if it is powered by local polluting generators, so long as the hydrogen producer buys carbon-free power generated somewhere else in the country at another time during the year.

Others may also say that the mechanisms to track hourly are not fully developed. While there are price implications to locational and temporal matching, both the IIJA and IRA were enacted to drive investments in technologies that will catalyze the production of clean hydrogen. Given the amount of hourly matched clean energy currently on the system, early movers will have far more modest costs of compliance. As demand for clean energy increases, trading systems can be implemented to drive efficiencies and lower costs for consumers.[24] Setting an expectation of hourly matched clean energy will provide a market signal for the clean energy investments needed to further drive decarbonization in the power sector.

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[21] 26 U.S.C. § 45V(b)(2)(A).

[22] Qingyu Xu and Jesse Jenkins, Princeton University Zero Lab, *Electricity System and Market Impacts of Time-based Attribute Trading and 24/7 Carbon-free Electricity Procurement*, Sept. 15, 2022, *available at* https://acee.princeton.edu/24-7/.

[23] FACT SHEET: Inflation Reduction Act Advances Environmental Justice, White House, Aug. 17, 2022, *available at* https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/17/fact-sheet-inflation-reduction-act-advances-environmental-justice/ ("Most Significant Climate Legislation in U.S. History Delivers for Overburdened Communities"); *see also* U.S. Department of Energy, National Clean Hydrogen Strategy and Roadmap, Draft (Sept. 2022), https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-strategy-roadmap.pdf, at pg. 40 (recognizing the importance of "promoting energy and environmental justice.")

[24] Electricity System and Market Impacts of Time-based Attribute Trading and 24/7 Carbon-free Electricity Procurement, *supra* note 27.

Regarding tracking capabilities, Constellation agrees that accurate emissions accounting will be critical in ensuring the effectiveness of regulatory efforts.[25] It is true that historically EACs have been tracked and used on an annual basis and that most state clean energy programs and corporate procurement structures are currently built around annual compliance frameworks. That reinforces, rather than undermines, the reason for temporal and locational matching, to ensure that hydrogen characterized as clean actually meets the target level of lifecycle emissions. As discussed above, policymakers and customers are adopting 24/7 carbon-free energy goals and the systems and compliance frameworks needed to realize those goals are being implemented. EAC registries covering most of the electrical grids in the U.S. are already tracking, or will soon be tracking, carbon-free electricity production on an hourly basis. M-RETS, a widely-used EAC tracking platform, developed technical tools to collect hourly data in January 2019 and has used them to facilitate hourly EAC claims since January 2021.[26] Another widely-used EAC registry, PJM GATS, anticipates implementing hourly functionality by the end of this year. M-RETS covers 15 middle-America states[27] and is expanding to host the registry for the entire West,[28] and PJM GATS covers 13 states and the District of Columbia.

To be sure, more work needs to be done to perfect these hourly EAC tracking systems. Many of the automated systems available for annual EAC tracking and reporting are not yet in place for hourly tracking. Additional EAC registries are evaluating the potential implementation of hourly tracking, and customers are exploring their own tracking and compliance systems. Incorporating temporal and location matching will spur the improvement of these systems and provide a catalyst for their harmonization with broader industry practices, including achievement of the U.S. government's own 24/7 carbon-free electricity procurement goal. On the other hand, waiting to require real clean energy usage in the production of hydrogen until all the systems are developed will greatly delay the emissions impact of the IIJA and IRA, contrary to Congress' intent.

Constellation's comments above are consistent with our comments in the IIJA implementation process. For the above-mentioned reasons, Treasury should adopt temporal and locational matching requirements for environmental attributes associated with the energy inputs used in the production of clean hydrogen.

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[25] Gregory Miller, Kevin Novan, and Alan Jenn, *Hourly accounting of carbon emissions from electricity consumption*, Environmental Research Letters (Apr. 8, 2022), *available at* https://iopscience.iop.org/article/10.1088/1748-9326/ac6147

[26] Ben Gerber, M-RETS, *A Path to Supporting Data-Driven Renewable Energy Markets*, March 2021, *available at* https://www.mrets.org/wp-content/uploads/2021/02/A-Path-to-Supporting-Data-Driven-Renewable-Energy-Markets-March-2021.pdf.

[27] https://www.mrets.org/about/tracking/

[28] Environmental Markets Association, *WECC Signs Multi-Year Agreement With M-RETS for Software Services*, Apr. 4, 2022, *available at* https://www.enviromarkets.org/news/12693765.

Issue 3: Sourcing of electricity and alignment with CHPS

Constellation is aware that some commenters to Treasury Notice 2022-49 have asked that Treasury only credit the purchase of grid-connected carbon-free electricity for hydrogen production if the electricity comes from new "additional" clean generation and not existing clean generation (referred to as "additionality" hereafter). This approach is inconsistent with the plain text of the IRA.

The text of the IRA, and specifically Section 45V itself, does not support an "additionality" requirement.[29] Section 45V defines "qualified clean hydrogen" as "hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of not greater than 4 kilograms of CO2e per kilogram of hydrogen."[30] Nowhere in Section 45V is there a requirement that the energy generation facilities used to generate clean hydrogen be built after enactment of the IRA. As noted above, the text only requires that the credit amount be based on the "lifecycle greenhouse gas emissions rate" of the hydrogen produced. Whether the electricity powering electrolytic hydrogen production is produced by a new or existing generator is irrelevant to the emissions profile of the electrolyzer's operation and is not part of the GREET-determined emissions rate. If the electricity powering the electrolyzer is connected behind-the-meter with a carbon-free generator, it is by definition time and location-matched with production from the carbon-free generator. If it is grid-connected, that matching can be verified through the retirement of EACs. In either case, no carbon emissions are associated with that electricity. This is true whether the carbon-free generator powering the electrolyzer is existing or new and, therefore, must be treated the same under the statute.

It is settled law that a federal agency may not introduce a limitation not found in the statute – particularly when there are examples elsewhere of Congress including exactly that type of limitation. Congress routinely legislates on the basis of the age of facilities[31], and in fact did so in the provision at issue here *for the electrolyzer itself*. The definition of "qualified clean hydrogen production facility" in Section 45V(c)(3) expressly limits the credit only to production at facilities the construction of which begins before 2033.[32] But no other age-of-

[29] "Statutory interpretation … begins with the text," *Ross v. Blake,* 578 U.S. 632, 638 (2016), and courts "presume that [the] legislature says in a statute what it means and means in a statute what it says there." *Conn. Nat. Bank v. Germain,* 503 U.S. 249, 253–254 (1992).

[30] 26 U.S.C. § 45V(c)(2)(A).

[31] Numerous provisions within the IRA have explicit date limitations that are clearly expressed in the statute. For example, the definition of "Qualified Nuclear Power Facility" in Section 45U includes the age limitation: "which is placed in service before the date of the enactment of this section." 26 U.S.C. 45U(b)(1)(C). The definition of "Qualified Clean Hydrogen Production Facility" in Section 45V includes the age limitation: "the construction of which begins before January 1, 2033." 26 USC 45V(c)(3)(C). The "Domestic Content Bonus Credit Amount" has sequential percentages linked to specific time periods. Sec. 45Y(e)(11)(C)(i). *See also Rotkiske v. Klemm*, 140 S. Ct. 355, 361 (2019) ("Atextual judicial supplementation is particularly inappropriate when, as here, Congress has shown that it knows how to adopt the omitted language or provision.").

[32] Section 45V(c)(3) defines "qualified clean hydrogen production facility" as a facility that is owned by the taxpayer, which produces qualified clean hydrogen, and the construction of which begins before January 1, 2033.

facility limitation is present in Section 45V. Proponents of additionality are asking Treasury to read an additional sentence into the text limiting *the source of the electricity powering the electrolyzer* to facilities constructed after 2022. Treasury cannot add a requirement that Congress chose to omit.[33]

Moreover, Section 45U – the newly created nuclear PTC created under the IRA – specifically authorizes existing nuclear plants to receive both the hydrogen PTC and the nuclear PTC when output from the nuclear plant is being used to produce hydrogen, a provision that would be rendered superfluous[34] if electricity from existing nuclear plants were not eligible to receive Section 45V credits.[35] The IRA also creates separate Section 45Y and 48E tax credits for new carbon-free electric generators, including new nuclear plants, again demonstrating that Congress knew how – and chose not – to distinguish between existing and new resources under 45V.

Proponents of an additionality requirement point to a colloquy between Senator Carper and Senator Wyden during floor debate of the IRA in attempting to contravene the plain text of the statute.[36] As a threshold matter, the Treasury should not use legislative history to

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[33] *See Jama v. Immigration and Customs Enforcement*, 543 U.S. 335, 341, 125 S.Ct. 694, 160 L.Ed.2d 708 (2005) ("We do not lightly assume that Congress has omitted from its adopted text requirements that it nonetheless intends to apply, and our reluctance is even greater when Congress has shown elsewhere in the same statute that it knows how to make such a requirement manifest.").

[34] Longstanding canons of statutory construction dictate that every statutory provision should be read to have an effect and statutes should be interpreted as a harmonious whole. See, e.g., Hibbs v. Winn, 542 U.S. 88, 101 (2004) ("A statute should be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant"); Mackey v. Lanier Collection Agency & Serv., 486 U.S. 825, 837 (1988) ("As our cases have noted in the past, we are hesitant to adopt an interpretation of a congressional enactment which renders superfluous another portion of that same law."); Marx v. Gen. Revenue Corp., 568 U.S. 371, 386 (2013) ("the canon against surplusage is strongest when an interpretation would render superfluous another part of the same statutory scheme"); FDA. v. Brown & Williamson Tobacco Corp., 529 U.S. 120, 133 (2000) ("A court must therefore interpret the statute 'as a symmetrical and coherent regulatory scheme,' and 'fit, if possible, all parts into an harmonious whole.'").

[35] See Section 45U(c)(2) which indicates that rules similar to rules of Section 45(e)(13) shall apply. Section 45(e)(13) waives the related party sale rule for power used by the taxpayer at a qualified clean hydrogen production facility. Roughly two-thirds of Constellation's nuclear plants are operating under state support programs implemented to prevent premature retirement of the plants for economic reasons, and the Section 45U tax credit was enacted to address economic challenges faced by the nation's entire nuclear fleet. Preventing nuclear plants from participating in hydrogen production through a "new-only" requirement would be contrary to congressional objectives in the IRA.

[36] These commenters also point to a study published by Princeton University arguing that an additionality requirement is necessary to avoid an increase in emissions when existing carbon-free generation is used for hydrogen production. The modeling underlying that study, however, assumes that all EACs from existing wind and solar facilities are available for hydrogen production. This conflicts with the commercial reality that most renewable projects sell their EACs to customers through long-term power purchase agreements or other arrangements as the projects are being developed, and those customers use those EACs to comply with state mandates or their own clean energy goals. Because these otherwise-committed EACs are in reality not available for hydrogen production, the Princeton model overstates the potential impact of an additionality requirement and understates the impact of a requirement to secure time- and region-matched EACs to document

contradict plain statutory text.[37] That rule holds even more strongly to floor statements.[38] But in any event, the legislative history does not support an "additionality" requirement. In the relevant colloquy, the two senators agreed that, "in determining 'lifecycle greenhouse gas emissions,'" the Treasury "shall recognize and incorporate indirect book accounting factors" that "reduce effective greenhouse gas emissions" such as "renewable energy credits, renewable thermal credits, renewable identification numbers, or biogas credits."[39] That exchange merely confirms that the Treasury shall permit the use of EACs in the lifecycle emissions analysis, so long as they effectively capture reductions in GHG emissions delivered by using clean, rather than carbon-based, electricity. Requiring a nexus between hydrogen production and carbon-free energy generation, as through time- and location-matching, are just the type of "indirect book accounting factors" that the senators referenced and, as discussed above, follows the legislative directive to use emissions rates determined by the GREET model. By contrast, limiting the tax credit to hydrogen produced by electricity from new facilities bears no connection to the senators' colloquy, the GREET model, or statutory text.

Furthermore, an additionality requirement would not be a rational or feasible means for implementing the IRA or meeting the Congress' goals of developing a domestic clean hydrogen economy. As the White House has recognized, "Hydrogen is expected to become a staple of the new clean energy system."[40] Clean hydrogen is especially promising as a vehicle for reducing the carbon footprint of the industrial sector and manufacturing, which has historically been hard to decarbonize.[41] To meet the 2050 emissions reductions goals envisioned by the IIJA and IRA, we need to begin deploying clean hydrogen production

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that the clean energy being used to power a grid-connected electrolyzer is not being claimed by any other customer for a different use.

[37] *See, e.g., Milner v. Dep't of the Navy*, 562 U.S. 562, 572 (2011) ("Those of us who make use of legislative history believe that clear evidence of congressional intent may illuminate ambiguous text. We will not take the opposite tack of allowing ambiguous legislative history to muddy clear statutory language.").

[38] *NLRB. v. SW Gen., Inc.*, 580 U.S. 288, 137 S. Ct. 929, 943 (2017) ("[F]loor statements by individual legislators rank among the least illuminating forms of legislative history.")

[39] 168 Cong. Rec. S4165 (Aug. 6, 2022).

[40] "Launching A Transformative Decade of Climate Action," Remarks of OSTP Deputy Director for Energy Sally M. Benson (Sept. 20, 2022), *available at* https://www.whitehouse.gov/ostp/news-updates/2022/09/20/launching-a-transformative-decade-of-climate-action/.

[41] Kiran Julin, *Hydrogen Can Play Key Role in U.S. Decarbonization*, News from Lawrence Berkeley National Laboratory (Oct. 8, 2021), *available at* https://newscenter.lbl.gov/2021/10/08/hydrogen-can-play-key-role-in-u-s-decarbonization/ ("We see hydrogen as something that can really help decarbonize hard-to-decarbonize sectors. Such applications include industrial usages such as a reductant in steel manufacturing or making green ammonia for fertilizers, using its thermal energy for thermal processes, or heavy-duty transportation such as long-haul trucking, maritime, trains, and aviation, to name a few."); Jay Bartlett & Alan Krupnick, Resources for the Future, *Decarbonized Hydrogen in the US Power and Industrial Sectors: Identifying and Incentivizing Opportunities to Lower Emissions* (Dec. 2020), *available at* https://www.rff.org/publications/reports/decarbonizing-hydrogen-us-power-and-industrial-sectors/ ("green hydrogen has broad potential: for long-term energy storage, industrial heat, and as a feedstock for refining, chemicals, and steel").

technology immediately, powered by both existing and new sources of carbon-free generation, in order to be ready to meet future hydrogen demand.[42] The IRA will spur the continued growth of renewables, but there is wide recognition of significant barriers to quickly bringing new sources online including the multi-layered permitting process,[43] supply chain constraints,[44] and transmission bottlenecks.[45] An exclusive focus on new resources would severely impair the efficiency of producing clean hydrogen. If most electrolytic hydrogen were to be produced by renewable power, which has output that varies by hour, month, and season, there would be a mismatch between supply and demand profiles given that electrolyzers perform best with a predictable power supply. Economic incentives are vital to ensuring that the gaps in renewable output are filled by firm carbon-free resources, reinforcing the need for time and location matching discussed above.[46]

For the above-mentioned reasons, Treasury should clarify that the tax credits for clean hydrogen production is not limited to electricity sourced only from new facilities.

Issue 4: Measurement of lifecycle GHG emissions

Section 3.01(4) of Notice 2022-58 solicits feedback on recordkeeping and reporting requirements for the clean hydrogen credits. Specifically, the Notice asks what documentation or substantiation taxpayers should maintain or create to demonstrate the lifecycle GHG emissions rate resulting from a clean hydrogen production process (i.e., the emissions attributable to operating the qualified clean hydrogen production facility, but not including the emissions attributable to electricity or other inputs).

Determining and measuring lifecycle GHG emissions is a challenging and time-consuming process requiring expert input and significant resources. Further, once a qualified clean hydrogen production facility is operational, ceasing operations for periodic testing would be

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[42] Constellation has already begun investing in clean hydrogen production at our nuclear plants. https://www.constellationenergy.com/newsroom/2022/Constellation-Joins-State-and-Federal-Officials-to-Celebrate-Progress-on-Nations-First-Nuclear-Powered-Clean-Hydrogen-Facility.html; https://www.constellationenergy.com/newsroom/2021/exelon-generation-receives-doe-grant-to-support-hydrogen-production-project-at-nine-mile-point.html

[43] Rayan Sud and Sanjay Patnaik, *How does permitting for clean energy infrastructure work?*, Brookings, Sept. 28, 2022, *available at* https://www.brookings.edu/research/how-does-permitting-for-clean-energy-infrastructure-work/

[44] Clean Power Quarterly Market Report | Q3 2022, American Clean Power, *available at* https://cleanpower.org/resources/clean-power-quarterly-market-report-q3-2022/ ("In total, 14 GW of clean power capacity was delayed this quarter, adding to a growing backlog of delayed projects that totals 36 GW – 63% of which are solar projects.")

[45] Princeton University Zero Lab, *Electricity Transmission is Key to Unlock the Full Potential of the Inflation Reduction Act* (Sept. 2022), *available at* https://repeatproject.org/docs/REPEAT_IRA_Transmission_2022-09-22.pdf

[46] *See also* Hydrogen Production From Carbon-Free Nuclear Energy, Nuclear Hydrogen Initiative (July 2022), *available at* https://cdn.nuclear-hydrogen.org/wp-content/uploads/2022/07/25201728/NHI_NHProduction_Report_07.25.22.pdf (noting that nuclear has "benefits not available from any other energy source" for clean hydrogen production, including "operat[ion] at capacity factors above 90%").

disruptive and inefficient. This testing would require measurement of both the fuel used to power the electrolyzer, as well as the efficiency of the electrolyzer itself. Measurement of the former (the fuel) could be challenging, and the complexities may vary depending on the type of fuel used. Using nuclear fuel as an example, measuring carbon content for nuclear fuel is not typically done by the mining, enrichment, fabrication and transport vendors in the nuclear fuel supply chain, and it would be extremely cumbersome, costly, and labor intensive to impose these requirements on said vendors.[47] Argonne National Laboratory has published the average carbon intensity of nuclear fuel, and this is included in the GREET model. Relying on this guidance should be sufficient and makes periodic measurement of nuclear fuel carbon intensity redundant.

Measurement of the efficiency of the electrolyzer will also be challenging and may also depend on the underlying production process used to produce clean hydrogen. For example, if one were computing the efficiency of a nuclear power source with a PEM hydrogen electrolyzer – this type of electrolyzer typically comes in various sizes of up to about 10 megawatts electric ("MWe"), there may be multiple electrolyzers tested. For a large plant made up of multiple 10 MWe electrolyzer units (e.g. 40 units for 400 MWe) it would be necessary to test each electrolyzer individually, which would require taking the individual electrolyzer unit's electrical, cooling and hydrogen system out of service to install highly accurate and calibrated instruments to measure: 1) electrical power, and 2) hydrogen flow and pressure along with, 3) cooling water and ambient air temperature. Corrections may also be needed to align with GREET input assumptions based on the output pressure (e.g. at the gate) of the electrolyzer which could vary based on manufacturer. Overall, a performance test for a single 10 MWe electrolyzer will take about 24 hours per specified period (40 days of individual 10MWe unit testing for a 400 MWe facility). This length of time could increase further depending on individual plant factors, including the fuel used to power the electrolyzer units. In short, periodic testing of the efficiency of the electrolyzer will be time-consuming and burdensome.

In addition to the points above on the disruptions caused by periodic testing, if Treasury allows for safe harbors, then such periodic measurement would be redundant. Constellation, therefore, recommends that testing and review of operations required to determine lifecycle GHG emissions should leverage GREET model data where possible, but otherwise be performed only once, upon placing the qualified clean hydrogen production facility in service unless a facility changes its operations in a manner that materially changes its lifecycle GHG emissions rate.

Assuming a taxpayer's production methodology remain unchanged year over year, and assuming in the case of electrolytic hydrogen that the source of electricity used in the hydrogen production process does not change, then no further testing or review of operations should be required. If, however, the clean hydrogen production facility changes its procurement of electricity used in electrolysis or makes material changes to operations or the facility itself, a new measurement should be required to determine the lifecycle GHG emissions of the facility. This could be achieved through a requirement of taxpayers

[47] An August 2006 Argonne National Laboratory GREET report shows that this process has about 11 steps (each with their own level of carbon intensity) to go from ore mining to the point that the fuel is delivered to the nuclear reactor site.

claiming a Section 45V credit to attach a statement to their tax return disclosing to what extent (if any) their operations have changed since the facility was originally placed in service.

Issue 5: Domestic content and energy community bonus ITCs

The IRA created potential additional ITC opportunities if certain domestic content rules are met or if facilities are located in an "energy community." However, when electing the ITC for clean hydrogen production, it is not entirely clear that clean hydrogen production ITCs would qualify for the additional ITC percentages from meeting the domestic content and "energy community" rules. Treasury should clarify that clean hydrogen ITCs would be eligible for the additional credits available for domestic content and being located in an "energy community" presuming the underlying criteria for these additional credits are met.

Section 48(a)(12) allows an eligible taxpayer for up to a 10% bonus adder to the ITC related to a qualified energy project if domestic content requirements are satisfied. Section 48(a)(14) allows an eligible taxpayer for up to a 10% bonus adder to the ITC related to a qualified energy project if located in a qualified energy community.

Both Sections 48(a)(12)(a) and 48(a)(14)(a) have a qualifier which states the operation of these sections shall apply "in the case of any energy project… for purposes of applying *paragraph (2)* with respect to such property." The cross-reference to the italicized section is to Section 48(a)(2), which relates to the energy percentage used for various renewables technologies, including (but not limited to): fuel cell property, small wind energy property, waste energy property, energy storage property, biogas property, and solar property. Clean hydrogen property is not included in this section (nor, for that matter, is Section 45-qualified property such as wind energy), which might suggest that a qualifying clean hydrogen production (or Section 45) facility that elects an ITC is not eligible for the bonus adder ITCs. This outcome would be inconsistent with the IRA's overall goal of aggressively combating the problems presented by climate change, as well as its more specific goal of providing incentives to invest in clean hydrogen production facilities which use domestically-sourced materials or are located in energy communities.

A better reading is that if a Section 48 ITC is elected for a facility that also qualifies for a PTC, such technologies qualify for the bonus adders because Sections 48(a)(5)(A)(i) and 48(a)(15)(A)(i) treat such property "as energy property for purposes of this section [48]," including for purposes of the bonus adders.

Therefore, Treasury should issue clarifying guidance that the ITC bonuses related to domestic content in Section 48(a)(12) and energy communities in IRC Section 48(a)(14) were intended to apply broadly for any Section 48 energy property, including qualified hydrogen production facilities.

Issue 6: Definition of "facility"

In order for taxpayers to have clarity regarding Section 45V and related credits, Treasury and the IRS need to clearly define what assets (or equipment) constitute a qualified clean

hydrogen production facility. The production of clean hydrogen is merely the first step in the new hydrogen supply chain. Clean hydrogen can also be used to help decarbonize industries such as steelmaking, aviation, agriculture and long-haul transportation.

Congress has created separate tax credits for energy storage facilities under Sections 48 and 48E and for clean fuel production facilities (including Sustainable Aviation Fuel ("SAF")) under Sections 40B and 45Z. Accurately defining a qualified clean hydrogen production facility will allow certainty for taxpayers owning separate facilities at various stages of the hydrogen supply chain seeking to utilize these various tax credits. Taxpayers owning multiple hydrogen-related facilities within a consolidated group also need clarity on applying the five-year direct pay provisions in Section 6417 of the IRA.

The IRS could look to Revenue Ruling 94-31[48] as a model for defining a qualified clean hydrogen production facility. In the ruling, the IRS determined a single wind facility is measured by a turbine, tower and pad that can be individually metered, even if such single facility is part of a broader windfarm project. Therefore, Treasury and IRS should more narrowly define a qualified clean hydrogen production facility using electrolysis as its production method to consist of a single electrolyzer assembly (typically referred to as a "stack") and the related supporting equipment needed to produce such clean hydrogen. Similar to a wind generation project, a hydrogen production project composed of multiple electrolyzer stacks would thus be treated as multiple discrete facilities. Different tailored definitions of qualified clean production hydrogen facility will be required for hydrogen production pathways that do not use electrolysis but should follow the same principle of basing the facility definition on the most granular, discrete production module. A clear definition of a qualified clean hydrogen production facility will give certainty to owners of related facilities consisting of storage, carbon capture, and clean fuels that may be partnering with the qualified clean hydrogen production facility and will be consistent with Revenue Ruling 94-31.

The absence of this guidance could lead to potential unintended consequences. For example, without additional clarity, a taxpayer that operates a qualified facility under Section 45Z may be inadvertently prohibited from claiming such credit if the qualified clean hydrogen production facility feeding into the clean fuel facility is also allowed a credit under Section 45V, even if the owners of the qualified clean hydrogen production facility and the clean fuel facility are different. It is clear that Congress intended to incentivize investment in clean hydrogen. This intent would be undermined if one taxpayer owning a Section 45V clean hydrogen production facility sells hydrogen to a separate taxpayer owning a qualifying Section 45Z separate SAF facility, yet the facilities would be considered in aggregate for credit purposes.

A similar issue exists where a taxpayer owns direct air capture ("DAC") equipment nearby to that on which clean hydrogen production equipment resides and where both owners may be in the same consolidated tax group. If there is no operating or functional relationship between the DAC equipment and the hydrogen production equipment and the qualified clean hydrogen production facility is narrowly defined, then the separate DAC facility would have

[48] 1994-1 C.B. 16. The ruling is premised on the fact that a single turbine, tower, and pad can produce electricity independently of the other similar facilities that are part of a bigger project.

certainty in being able to claim 45Q credits, which seems to clearly reflect Congressional intent.

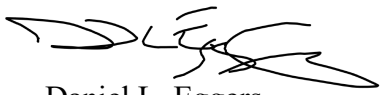
In addition, the availability of a direct pay option was added as part of the IRA for taxpayers claiming a Section 45V credit. A taxpayer must make an election to apply direct pay separately for each qualified facility. A taxpayer owning multiple qualified clean hydrogen production facilities within a consolidated tax group should be able to make a direct pay election for each separate facility when placed in service. Consider, for example, a taxpayer placing in service a qualified clean hydrogen production facility on January 1, 2024 and electing the 5-year direct pay option. If the same taxpayer then places in service a new qualified clean hydrogen production facility on January 1, 2028, at or near the first facility, this new facility should then be able to elect a new 5-year direct pay option. It would be inconsistent with Congressional intent to have the second facility in the example above be limited to only one year of direct pay. Treasury and IRS should clarify how a facility is defined for taxpayers in consolidated groups with staggered placed-in-service dates for separate hydrogen facilities.

By clearly defining a clean hydrogen production facility consistent with past Treasury guidance in similar functional areas, Treasury and IRS can provide clarity to taxpayers owning separate facilities in the hydrogen supply chain for the production, storage and commercial use of clean hydrogen.

Thank you for your consideration and recognition that guidance in this area is critical to the nuclear industry and in furtherance of the country's climate goals.

We would be pleased to meet with Treasury and the IRS to discuss the contents of this letter at your earliest convenience.

Regards,



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