



## Occidental Petroleum Corporation

5 Greenway Plaza, Suite 110  
Houston, Texas 7704

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Internal Revenue Service

CC:PA:LPD:PR (REG-117631-23)

Room 5203

P.O. Box 7604

Ben Franklin Station

Washington, DC 20044

Re: **Notice of Proposed Rulemaking: Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property**

Ladies and Gentlemen:

We are writing on behalf of Occidental Petroleum and affiliates (together, Oxy), in response to IRS Notice of Proposed Rulemaking: Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property, REG-117631-23, 88 FR 89220 (December 26, 2023) (the Proposed Regulations).

Oxy is an industry leader in the exploration, development, and production of oil, natural gas and natural gas liquids, as well as carbon capture, direct air capture (DAC), and geological carbon sequestration. In addition to more than fifty years of experience permanently sequestering large quantities of carbon dioxide via its enhanced oil recovery operations, Oxy is advancing leading-edge technology and business solutions to reduce emissions. Oxy's subsidiary 1PointFive is working to help curb global temperature rise to 1.5°C by 2050 through the deployment of decarbonization solutions, including Carbon Engineering's DAC technology and geological sequestration hubs. Hydrogen is a key byproduct and zero-carbon fuel source in Oxy's chemical operations, and Oxy supports initiatives that encourage the production and use of hydrogen from all sources.

Oxy is committed to measuring and reducing methane emissions, and participates in numerous organizations in furtherance of this goal, such as the Oil and Gas Climate Initiative (OGCI), Aiming for Zero Methane Emissions Pledge, Oil & Gas Methane Partnership (OGMP) 2.0, and The Environmental Partnership (TEP). As part of such participation, Oxy has expanded its use of measured process data, leak detection surveys, and remote sensing technologies to refine emissions estimates. Oxy deploys significant resources, including through the development of proprietary technology and the dedication of personnel, to monitor, detect, and predict unplanned emissions.



Oxy commends IRS and Treasury for drafting the Proposed Regulations and affording taxpayers the opportunity to submit comments. This letter focuses on certain questions set out in, or raised by, the Proposed Regulations. Oxy will continue to review the impact of the Proposed Regulations, and may supplement this submission.

## I. Overview of Oxy's Emissions Mitigation Commitments

Oxy is committed to improving operational performance by implementing practices and technologies designed to reduce emissions and maximize the efficiency of its natural gas production.

Oxy was the first U.S. oil and gas company to endorse the World Bank's initiative for Zero Routine Flaring (ZRF) by 2030 and is an active participant in emissions reduction programs propagated through multiple associations, including OGCI, the Methane Guiding Principles, OGMP 2.0, and TEP. Oxy achieved ZRF in its Permian Basin operations in 2022, and Oxy's Rockies and Gulf of Mexico operations have sustained ZRF since 2020. Major gas compression and recycling projects were implemented by Oxy's international operations in 2022 to significantly reduce flaring, and Oxy expects such operations to achieve ZRF well ahead of the World Bank's 2030 target.

With respect to methane measurement, reporting, and verification, Oxy has achieved significant greenhouse gas emissions reductions in connection with operational assets since 2019, and is capable of substantiating such reductions through its work with an independent third-party verifier. More specifically, Oxy's operational carbon dioxide equivalent emissions have decreased by eighteen percent since 2019 and four percent since 2021. Similarly, Oxy's operational methane emissions have decreased by fifty-eight percent since 2019 and forty percent since 2021. Since 2019, Oxy has engaged ERM Certification and Verification Services, Inc., an independent external reviewer, to provide Independent Assurance Statements for its reported emissions.<sup>1</sup>

Oxy maintains an Emissions Technology Team that focuses on methane mitigation efforts. This team is engaged in a multi-year plan to achieve Oxy's greenhouse gas targets. These efforts include (i) undertaking capital projects in a manner that reduces emissions; (ii) expanding inspection, repair, and maintenance programs, including using fixed monitors and aerial and satellite surveillance; and (iii) changing operating practices to minimize releases and flaring during third-party plant or pipeline outages. Further, Oxy's Emissions Technology Team is implementing advanced remote emissions monitoring technologies using drones, aircraft, and satellites. These technologies help identify, detect, monitor, and predict unplanned emissions events and alert Oxy's operations, maintenance, and air quality personnel for rapid action. The Emissions Technology Team is also working with technology providers and data scientists to

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<sup>1</sup> ERM Certification and Verification Services, Inc. is an independent certification and verification body accredited by UKAS to ISO 17021:2015. More information on Oxy's reported greenhouse gas emissions is available in Oxy's annual Sustainability Report, which is publicly available at <https://www.oxy.com/sustainability/>.



evaluate improvements to techniques that estimate and measure methane emissions, which is a core component of Oxy’s carbon management program.

Since 2022, Oxy has deployed over fifty-five unmanned aerial vehicles (UAVs), commonly known as drones, at several of Oxy’s oil and gas production facilities. At its DJ Basin facilities, Oxy uses UAVs to survey thousands of wellheads as part of a voluntary initiative to reduce emissions. In the Permian Basin, UAVs help identify emissions from hard-to-access areas of facilities, such as tank thief hatches. This program enhances safe access to equipment, reduces costs, and facilitates early identification of maintenance issues. Such rapidly evolving technology allows Oxy to acquire important operational and environmental data that support detection of emission sources, asset integrity inspection, and habitat conservation and restoration.

In addition, Oxy has employed aircraft-based methane monitoring solutions across large operated areas. For instance, in 2022 Oxy surveyed wellheads, facilities, and pipeline segments across U.S. operations with fixed-wing aircraft, deploying both broad coverage campaigns and individual asset surveys. Oxy has leveraged satellite-based methane monitoring programs internationally to provide weekly coverage of its operations in Oman, and deployed over seven hundred ground-based sensors at key facilities in the U.S. and Oman in 2023.

## II. Conditions in Which Fixed Assumptions May Become Foreground Data

As described below, Oxy respectfully suggests modifying Section 1.45V-4 of the Proposed Regulations to permit taxpayers to establish the actual values for inputs into their clean hydrogen production facility where the taxpayer produces verifiable evidence of such actual values. In particular, taxpayers like Oxy that have invested significant time and resources in developing verifiable methodologies to monitor, detect, and predict upstream methane emissions, or to secure natural gas from low-emission sources, should be permitted to use the actual values for upstream methane emissions when determining the lifecycle greenhouse gas (GHG) emissions for hydrogen produced at a clean hydrogen facility. The current 45VH2-GREET model’s fixed assumptions about upstream methane leakage inappropriately burden all producers with the excess emissions caused by a limited number of “super emitters,” and undermine the incentive that Section 45V should provide to producers to invest in new techniques to reduce emissions.

In determining eligibility for (and the amount of) the qualified clean hydrogen credit, the taxpayer’s lifecycle GHG emissions rate includes emissions “through the point of production (well-to-gate),” using the most recent GREET model.<sup>2</sup> As described in the GREET User Manual,

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<sup>2</sup> Section 45V(c)(1)(B). Proposed Regulation 1.45V-1(a)(8) would provide that the most recent GREET model generally means the latest version of 45VH2-GREET.



certain parameters in 45VH2-GREET are fixed assumptions, referred to as “background data,” which may not be changed by the user.<sup>3</sup>

Treasury and the IRS requested comments regarding “the readiness of verification mechanisms that could be utilized for certain background data in 45VH2-GREET if it were reverted to foreground data in future releases.” Specifically, comments have been requested on the “conditions, if any, under which the methane loss rate may in future releases become foreground data . . . .” The preamble to the Proposed Regulations indicates that background data are treated as such due to their inability to “be independently verifiable with high fidelity, given the current status of verification mechanisms.”

As described above, Oxy has invested significant resources in developing technology and protocols for measured process data, leak detection surveys, and remote sensing. Oxy may also acquire natural gas from third-party producers that employ their own technology and protocols to ensure low-emission natural gas production and processing. These investments allow Oxy to acquire natural gas with highly accurate, verifiable estimates of emissions associated with upstream production activities and incentivizes data collection and information sharing within the natural gas supply chain. Furthermore, aligning incentives driven by the clean hydrogen production credit under Section 45V with such investments will encourage gas processing plants and midstream pipeline operating companies to add their data to an ever expanding verified chain of natural gas emissions accounting. Product-level carbon accounting and verification mechanisms, such as CarbonSig,<sup>4</sup> are commercially available today and can help provide the required line-of-sight between the gas well and the hydrogen plant gate.

Additionally, particularly in the context of methane emissions, the efforts of taxpayers like Oxy in developing verifiable measurement mechanisms could be supplemented by combining existing self-reporting regimes and measurement-informed protocols. For instance, many natural gas producers are currently required to report emissions data (including methane emissions data) attributable to facilities and components of the natural gas supply chain to the Environmental Protection Agency (EPA) under the Greenhouse Gas Reporting Program (GHGRP).<sup>5</sup> With respect to verification, the GHGRP implements protocols to ensure that data submissions are accurate and complete.<sup>6</sup> However, the protocols do not attest to the validity of the data submissions which are a combination of engineering estimates and direct field measurements. Measurement informed protocols, such as GTI Energy’s Veritas Protocol,

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<sup>3</sup> U.S. Department of Energy (DOE), GUIDELINES TO DETERMINE WELL-TO-GATE GREENHOUSE GAS (GHG) EMISSIONS OF HYDROGEN PRODUCTION PATHWAYS USING 45VH2-GREET 2023 (Dec. 2023), avail. at [https://www.energy.gov/sites/default/files/2023-12/greet-manual\\_2023-12-20.pdf](https://www.energy.gov/sites/default/files/2023-12/greet-manual_2023-12-20.pdf).

<sup>4</sup> Oxy, through its subsidiary Oxy Low Carbon Ventures, has invested in software platforms that provide for product-level carbon accounting. OxyChem utilizes this platform to conduct product-level carbon accounting for various commodity chemicals. An overview of the CarbonSig platform can be found at <https://carbonsig.com>.

<sup>5</sup> See generally 40 CFR Part 98.

<sup>6</sup> See generally EPA, GREENHOUSE GAS REPORTING PROGRAM REPORT VERIFICATION (last visited Feb. 20, 2024), avail. at [https://www.epa.gov/sites/default/files/2017-12/documents/ghgrp\\_verification\\_factsheet.pdf](https://www.epa.gov/sites/default/files/2017-12/documents/ghgrp_verification_factsheet.pdf) (providing an overview of the GHGRP verification process).



provide standardized, science-based, technology neutral, and measurement-informed protocols that are verified by direct field measurements that can and should be utilized for incentives such as the clean hydrogen production credit. Such protocols will need to be combined with innovations in technology and large-scale data collection and processing to strike the necessary balance between the administrative burden of information management and timely reporting. In addition, industry is developing a differentiated natural gas certificate market that is based on consistent, verifiable standards. Allowing hydrogen producers to utilize this market to establish foreground data associated with their methane supply would encourage a robust market for such certificates, further incentivizing responsibly sourced methane.

Embracing innovative technologies, existing infrastructure, and developing market-based solutions to aggressively mitigate methane and other emissions is in-line with the intent of the Inflation Reduction Act (IRA)<sup>7</sup> and the policy objectives of the current administration. For instance, Oxy notes that when the EPA recently adopted regulations under the Clean Air Act to mitigate methane emissions, it sought to encourage the deployment of innovative technologies that currently exist to rapidly and cost-effectively detect and reduce methane pollution and promote further innovation that is already under way to find even more efficient and effective ways to mitigate this pollution.<sup>8</sup> The Section 45V regulations and the 45VH2-GREET model should align with this policy by encouraging innovative producers who can achieve measurable and verifiable reductions in their emissions. Adoption of fixed assumptions, such as a default leakage rate, runs counter to this policy.

To illustrate, Oxy notes that the 45VH2-GREET model currently assumes that methane leakage during recovery, processing, and transmission sums to approximately 0.9% of methane consumed by the reformer.<sup>9</sup> Materials cited by the GREET User Manual<sup>10</sup> discuss how the GREET model's methane leakage estimate has historically incorporated emissions rates reported in the annual Greenhouse Gas Inventory (GHGI) developed by the EPA.<sup>11</sup> However, in a series of studies, researchers identified significant discrepancies between the emissions reported in “bottom-up” inventory-based analyses such as the GHGI as opposed to atmospheric “top-down”

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<sup>7</sup> See Inflation Reduction Act, Pub. L. No. 117-169, tit. VI, § 60133 (including an appropriation of \$1.55 billion to the EPA administrator for methane monitoring and mitigation).

<sup>8</sup> See 40 CFR Part 60, Preamble, Executive Summary (Nov. 30, 2023) (noting that “[t]he EPA believes this program will allow owners and operators to leverage advanced technologies that are already available to detect methane emissions rapidly with accuracy, as well as to incorporate promising new technologies that are emerging in this rapidly evolving field.”).

<sup>9</sup> GREET User Manual, *supra* note 3 at 16.

<sup>10</sup> See A. Burnham, Argonne National Laboratory Systems Assessment Center, UPDATED NATURAL GAS PATHWAYS IN GREET 2022 (October 2022).

<sup>11</sup> With respect to the GHGI, *see generally* INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS (last updated on Feb. 14, 2024), avail. at <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>. The GHGI collects emissions data from approximately 8,000 facilities that are required to report their emissions annually to the EPA pursuant to the GHGRP.



analyses, finding that the former significantly underestimated emissions.<sup>12</sup> One study found that the higher top-down atmospheric measurements point to “a small fraction of ‘superemitters’ (e.g. sources with extremely high emissions, much larger than normal operation) [as] likely an important reason why the estimates from airborne measurements were typically higher than [bottom-up] inventories.”<sup>13</sup> Although more recent GREET models such as 45VH2-GREET adopt a hybrid of both bottom-up and top down approaches in setting upstream methane leakage assumptions,<sup>14</sup> they nevertheless disadvantage natural gas producers investing in innovative techniques to reduce emissions, and taxpayers who source their natural gas from such producers.

Likewise, although 45VH2-GREET permits users to account for steam as a co-product if the steam is produced from process heat integral to the hydrogen production, the quantity of steam that users may input “may not exceed 17.6% of the total energy content of all steam and hydrogen produced (using the LHV of the hydrogen).”<sup>15</sup> Further, for methane reformer hydrogen production technologies utilizing carbon capture and sequestration, 45VH2-GREET does not allow users to account for steam co-products because it assumes that excess steam would be used to power the carbon capture and sequestration plant, rather than being valorized. As with other data discussed above, Oxy does not agree that these assumptions are fair or accurate, and believes that Treasury and the IRS should consider any alternative approach that would permit such data to be foreground data.

To align the Proposed Regulations with the underlying intent and policy of the IRA, Oxy proposes that Treasury and the IRS revise the Proposed Regulations in a manner that permits taxpayers to establish and use actual upstream methane emissions associated with their feedstock instead of the assumed values in the background data under 45VH2-GREET. Taxpayers adopting this approach would be required to produce verifiable evidence of such actual values and product-level allocation to the natural gas supplying the clean hydrogen production facility. To be effective, such revisions must be flexible enough to account for rapid development in self-reporting and third-party certification mechanisms, as well as changes to the GREET model itself.<sup>16</sup> Not only would such an approach reward, rather than punish, taxpayers like Oxy that

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<sup>12</sup> Burnham, *supra* note 10 at 1-2.

<sup>13</sup> *Id.*; cf. James Littlefield et al., *Life Cycle GHG Perspective on U.S. Natural Gas Delivery Pathways*, 56 *Environ. Sci. Technol.* 16033 (2022) (noting that recent methane emission measurement campaigns indicate that “a small number of emitters contribute a large share to total supply chain emissions.”).

<sup>14</sup> Burnham, *supra* note 10 at 2.

<sup>15</sup> GREET User Manual, *supra* note 3 at 18.

<sup>16</sup> *Cf. id.* at 16-17 (“It is important to note that the landscape for methane emissions monitoring and mitigation is changing rapidly. For example, the EPA proposed enhanced data reporting requirements for petroleum and natural gas systems under its Greenhouse Gas Reporting Program and is in the process of finalizing requirements under New Source Performance Standards and Emission Guidelines that will result in mitigation of methane emissions from petroleum and natural gas systems. DOE-funded research is also expected to collect important emissions data and inform mitigation approaches. With these changes, it is expected that the quality of upstream data will improve, and methane emissions rates will change over time. As GREET models continue to be updated to reflect these changes, future versions of these models may include different upstream methane leak rate estimates.”).



have already made significant investments in technology, personnel, reporting processes, and other mechanisms to reduce upstream emissions – it would incentivize those taxpayers who have not.

Accordingly, Oxy suggests that Proposed Section 1.45V-4(b) be revised to include a verifiable process under which taxpayers may use the actual data on the upstream methane emissions associated with their feedstock instead of the assumed emissions in the 45VH2-GREET model's background data. More specifically, Oxy suggests that Proposed Section 1.45V-4(b) be revised to read as follows:

(b)(1) *Use of the most recent GREET model.* For each taxable year during the period described in section 45V(a)(1), a taxpayer claiming the section 45V credit determines the lifecycle GHG emissions rate of hydrogen produced at a hydrogen production facility under the most recent GREET model separately for each hydrogen production facility the taxpayer owns. This determination is made following the close of each such taxable year and must include all hydrogen production during the taxable year. In using the most recent GREET model to calculate the lifecycle GHG emissions rate for purposes of determining the amount of the section 45V credit under section 45V(a) and § 1.45V-1(b), the taxpayer must accurately enter all information about its facility requested within the interface of 45VH2-GREET (as described in § 1.45V-1(a)(8)(ii)). Certain parameters in 45VH2-GREET are, and certain parameters in subsequent models may be, fixed assumptions (background data). Users of the most recent GREET model may only change background data if the taxpayer qualifies for a “permitted modification,” as defined in § 1.45V-4(b)(2). Information regarding where taxpayers may access 45VH2-GREET and accompanying documentation will be included in the instructions to the Form 7210, *Clean Hydrogen Production Credit*, or any successor form(s).

(b)(2) *Permitted Modification.* If a taxpayer determines a lifecycle GHG emissions rate for hydrogen produced at a hydrogen production facility using the most recent GREET model, the taxpayer may make a “permitted modification” to modify background data within the most recent GREET model to reflect the taxpayer's actual data (specific values) only under the following circumstances:<sup>17</sup>

- i. With respect to hydrogen produced using a natural gas feedstock, the taxpayer may treat such hydrogen production facility's use of such feedstock as being from a specified source of natural gas for purposes of determining the taxpayer's upstream methane leakage rate for recovery and processing activities (as represented in in the most recent GREET model) only if the taxpayer acquires and retires eligible DGCs (as defined in paragraph (i)(A)(2)

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<sup>17</sup> Oxy's intent with respect to the design of this proposal would be to provide the framework for an exclusive list of “permitted modifications” that could be further tweaked to include specific suggestions made by other taxpayers, rather than a proposal limited only to upstream methane emissions rates.



of this section) for each unit of natural gas the taxpayer claims from such source. For example, one BTU of natural gas used to produce hydrogen would need to be matched with one BTU of eligible DGCs. Further, to satisfy this requirement, a taxpayer's acquisition and retirement of eligible DGCs must also be recorded in a qualified DGC registry or accounting system (as defined in paragraph (i)(A)(3) of this section) so that the acquisition and retirement of such DGCs may be verified by a qualified verifier (as defined in § 1.45V-5(h)). The requirements of this paragraph (b)(2)(i) apply regardless of whether the natural gas production facility is connected to a local distribution system.

(A) Definitions. For purposes of this section—

1. *Differentiated gas certificate.* The term *differentiated gas certificate* (DGC) means a contractual instrument, issued through a qualified DGC registry or accounting system, that represents the energy attributes of a specific unit of natural gas produced. A DGC must be acquired with the underlying natural gas it represents, and may not be traded separately from such natural gas. A DGC can be retired by or on behalf of its owner, which is the party that has the right to claim the underlying attributes represented by a DGC.
2. *Eligible DGC.* The term *eligible DGC* means a DGC that, with respect to the natural gas to which the DGC relates, provides, at a minimum, the following information—
  - a. A description of the natural gas field, production facility, and production process;
  - b. The type, amount and units of natural gas;
  - c. The upstream methane leakage rate attributable to recovery and processing activities, presented as an emissions intensity value consistent with that which is reflected in the most recent GREET model;<sup>18</sup>
  - d. A description of the DGC registry; and
  - e. The project identification number or assigned identifier.
3. *Qualified DGC registry or accounting system.* The term *qualified DGC registry or accounting system* means a tracking system that—

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<sup>18</sup> GREET typically reports methane leakage on an energy basis, i.e. kg methane /MJ natural gas.





- a. Assigns a unique identification number to each DGC tracked by such system;
- b. Enables verification that only one DGC is associated with each unit of natural gas;
- c. Verifies that each DGC is claimed and retired only once;
- d. Identifies the owner of each DGC; and
- e. Provides a publicly accessible view (for example, through an application programming interface) of all currently registered natural gas production facilities in the tracking system to prevent the duplicative registration of such facilities.

Once the taxpayer uses a specific value for a certain attribute of the most recent GREET model to determine the lifecycle GHG emissions rate for any qualified clean hydrogen facility pursuant to a permitted modification, the taxpayer may not use background data for that attribute or, with respect to any successor model, the successor of such attribute, in any subsequent taxable year with respect to such facility. Instead, the taxpayer will continue to use differentiated natural gas feedstock and the energy attributes from the DCG's with such natural gas in each succeeding year of the 10-year Section 45V credit period.

Example:

Company X owns and operates a natural gas processing facility within the United States, which recovers significant quantities of natural gas from Company X's reserves. Unrelated Taxpayer A owns and operates a steam methane reformation facility utilizing carbon capture technology to produce blue hydrogen. Taxpayer A enters into a contract pursuant to which it will acquire certain quantities of natural gas from Company X at the prevailing market value to use in its hydrogen production. Such natural gas is transmitted from Company X to Taxpayer A via transmission infrastructure owned and operated by an unrelated party.

Company X has implemented technology and processes to mitigate and monitor methane leakages in its recovery processes and reports its methane emissions data under the EPA's greenhouse gas reporting regulations at 40 CFR §§ 98.230-98.238. Such protocols and reporting evidence that the methane leakage rates attributable to recovery and processing of natural gas by Company X are lower than those assumed as background data by the most recent GREET model. Because the natural gas purchased by Taxpayer A is transmitted through a common distribution system, neither Company X nor Taxpayer A is capable of verifying the actual methane leakage rate associated with transmission of such natural gas.



Company X holds an account on a DGC registry that meets the requirements of a qualified DGC registry or accounting system. Company X issues an eligible DGC to Taxpayer A that is unique to each unit of natural gas sold. Taxpayer A uses the natural gas acquired from Company X to produce hydrogen at its hydrogen production facility, and subsequently retires the associated DGCs acquired from Company X. Taxpayer A has adhered to this process with respect to all natural gas feedstock used to produce hydrogen at its facility during the taxable year.

Taxpayer A may treat its hydrogen production facility's use of such feedstock as being from a specified source of natural gas, as certified pursuant to the DGCs that it has acquired and retired. In doing so, Taxpayer A may use specific values for its upstream methane leakage rate attributable to recovery and processing activities rather than the assumed background data in the most recent GREET model. Taxpayer A will continue to use background data for its methane leakage rate attributable to transmission and distribution activities in determining its aggregate well-to-gate methane leakage rate for the taxable year with respect to the applicable hydrogen production facility. Taxpayer A will be required to use specific values for its actual upstream methane leakage rates attributable to recovery and processing activities in such determination in all future years with respect to such facility.

Oxy also suggests that Treasury and the IRS expand the provisional emission rate process (PER) for some period of time to accommodate similar use of actual values in place of what is currently background data. Under the Proposed Regulations, a taxpayer may only submit a PER to the DOE if the taxpayer is (i) utilizing a hydrogen production pathway that consumes a feedstock not represented in the most recent GREET model or (ii) using a hydrogen production technology that is not represented on the most recent GREET model.<sup>19</sup> For similar reasons to those already discussed, limiting the PER process in this manner risks penalizing taxpayers who have made investments in more efficient processes and technologies, undermining the policy goals and intent of the IRA.

### III. Recognition of Fossil Electricity Generation with Carbon Capture and Sequestration as a New Clean Electricity Source

In the preamble to the Proposed Regulations, Treasury and the IRS acknowledge that “there are circumstances in which an existing higher-emitting electricity generating facility may make upgrades to subsequently deliver minimal-emitting electricity.” Treasury and the IRS go on to specifically request comments as to the circumstances under which electricity generated by a higher-emitting facility which has been upgraded to include carbon capture and sequestration should be considered incremental, provided that the facility has a recent post-upgrade commercial operations date (COD). Oxy agrees that such electricity should be considered incremental, but strongly encourages Treasury and the IRS to consider electricity from such facilities as incremental when the post-upgrade COD occurred no more than sixty, rather than

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<sup>19</sup> Prop. Treas. Reg. § 1.45V-4(c)(2).



thirty-six, months before the relevant hydrogen production facility was placed in service. This sixty-month period would allow much needed flexibility in the coordination of timing between the post-upgrade COD of the generation facility and when the hydrogen production facility is placed in service.

In addition, Oxy believes that under certain circumstances, it may be appropriate to treat such generation facilities as new sources of minimal-emitting generation on the grid that would not be associated with grid-induced emissions. For example, Treasury and the IRS could borrow from concepts utilized under the “80/20 Rule,” discussed below, to implement criteria for when such treatment would be appropriate. Due to the high cost of incorporating carbon capture and sequestration equipment into an existing fossil-based generation facility, addition of such equipment could result in an essentially “new” generation facility in terms of respective fair market values.

In conjunction with these issues, Treasury and the IRS have also requested comments as to “what information would be needed to allow for qualifying energy attribute certificates (EACs) representing existing fossil fuel-powered electricity from facilities that have added CCS.” In response, Oxy notes that an EAC which includes a calculation of (i) the sum of the generation facility’s uncaptured carbon dioxide equivalents and any leakage from secure geological storage divided by (ii) the net megawatt hours of electricity delivered to the grid would provide sufficient verification for purposes of hydrogen production.

#### IV. Request for Clarification Regarding Proposed 80/20 Rule

##### *Interaction of 45V and 45Q 80/20 Rules*

Oxy respectfully requests that Treasury and the IRS modify the Proposed Regulations to include an example discussing how the Proposed Regulations apply to retrofitted hydrogen production facilities that include retrofitted units of carbon capture equipment.

Pursuant to Section 45V(d)(2), taxpayers are generally prohibited from claiming Section 45V credits when the hydrogen production facility includes carbon capture equipment for which a Section 45Q credit has been allowed. Section 1.45V-2(a) of the Proposed Regulations would provide an exception to this prohibition for units of carbon capture equipment retrofitted in accordance with the “80/20 Rule” as set forth under Treasury Regulations 1.45Q-2(g)(5) (45Q 80/20 Rule), provided that no new Section 45Q credit has been allowed to any taxpayer. The 45Q 80/20 Rule generally provides that carbon capture equipment that is retrofitted may receive a new placed in service date if at least eighty percent of the retrofitted equipment’s fair market value is comprised of properly capitalized new components.

Section 1.45V-6(b) of the Proposed Regulations would implement a similar 80/20 Rule with respect to retrofitted hydrogen production facilities (45V 80/20 Rule). The 45V 80/20 Rule is illustrated in Examples 4 and 5 to Section 1.45V-6(c) of the Proposed Regulations. Example 5, illustrates that a taxpayer who retrofits an existing hydrogen production facility in compliance



with the 45V 80/20 Rule will nonetheless be prohibited from claiming the Section 45V credit if a Section 45Q credit has been allowed with respect to carbon capture equipment included in the hydrogen production facility. However, Example 5 does not address application of the 45V 80/20 Rule when the hydrogen production facility includes carbon capture equipment that has been retrofitted pursuant to the 45Q 80/20 Rule.

Oxy believes that it would be beneficial for Treasury and the IRS to include an additional example within the Proposed Regulations to clarify the coordination of the two credits in such situations. For instance, a new Example 6 could be added to Section 1.45V-6(c) of the Proposed Regulations as follows:

*(6) Example 6: Retrofit of an Existing Facility (80/20 Rule) and coordination with section 45Q credit previously allowed with respect to retrofitted CCE—(i) Facts.* The facts are the same as in paragraph (c)(5) of this section (*Example 5*), except that the CCE represents a unit of carbon capture equipment (as defined § 1.45Q-2(c)(3)) that has been retrofitted in accordance with § 1.45Q-2(g)(5). No new section 45Q credit has been allowed to any taxpayer for such CCE.

*(ii) Analysis.* Under paragraph (b) of this section and § 1.45V-2(a), Facility Z is deemed to be originally placed in service on January 1, 2026, because Facility Z meets the 80/20 Rule. Because the CCE has been retrofitted in accordance with § 1.45Q-2(g)(5) and no new section 45Q credit has been allowed with respect to such CCE, a section 45V credit may be allowed for qualified clean hydrogen produced at Facility Z during the 10-year period beginning on January 1, 2026.

#### ***Scope of 45V 80/20 Rule and Definition of “Used Property”***

Oxy respectfully requests that Treasury and the IRS clarify the meaning of “used property” in Section 1.45V-6(b) of the Proposed Regulations. Under the Proposed Regulations, a retrofit would only qualify for the 45V 80/20 Rule if “the fair market value of the used property is not more than 20 percent of the *facility’s* total value, calculated by adding the cost of the new property to the value of the used property . . . .” (Emphasis added). Although “used property” is not defined in the Proposed Regulations, its corollary “new property” would be defined to mean “all properly capitalized costs of the new property included *within the facility.*” (Emphasis added).

To avoid ambiguity, Oxy suggests that Treasury and the IRS clarify whether “used property” in this context refers to the fair market value of all components of property that comprise a single production line – i.e., all components of property that function interdependently to produce qualified clean hydrogen – as such terminology is used within the definition of “facility” set forth in section 1.45V-1(a)(7) of the Proposed Regulations.<sup>20</sup> For

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<sup>20</sup> Cf. Revenue Ruling 94-31, 1994-1 C.B. 16 (concluding that a “facility” for purposes of the Section 45 production tax credit as applied to a windfarm is confined to “the property on the windfarm necessary for the production of electricity from wind energy.”).



instance, with respect to a project or plant with multiple production lines that are capable of independently producing qualified clean hydrogen, Oxy asks that Treasury and the IRS confirm that the 45V 80/20 Rule would apply separately to each such production line.<sup>21</sup>

Provided that this is the correct understanding of “used property” in this context, further guidance would be appreciated with respect to the scope of “facility” for purposes of the 45V 80/20 Rule. Oxy recognizes that there may be circumstances in which components of property owned by the taxpayer and used to produce hydrogen may be functionally interdependent with components of property owned by another taxpayer (for instance, transmission lines used to import methane to the production facility). Oxy respectfully requests that Treasury and the IRS clarify whether such property owned by another taxpayer (e.g., the transmission lines, etc.) must be taken into account as “used property” (assuming that it is not replaced by “new property”) in applying the 45V 80/20 Rule. Similarly, additional guidance would be helpful with respect to clarifying the circumstances, if any, when ancillary property such as roads, fences, buildings, and land may be considered part of a qualified hydrogen production “facility” that must be accounted for in connection with the 45V 80/20 Rule.

#### V. Request for Clarification on Application of “Facility”

Section 1.45V-1(a)(7) of the Proposed Regulations includes a definition of the term “facility” as used in the definition of a “qualified clean hydrogen production facility” under Section 45V(c)(3) and Proposed Regulation Section 1.45V-1(a)(10). For this purpose, the Proposed Regulation states, the term “facility” means “a single production line that is used to produce qualified clean hydrogen.” The definition further states that “[a] single production line includes all components of property that function interdependently to produce qualified clean hydrogen 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.”

Although Oxy supports the use definition of “facility” under Proposed Section 1.45V-1(a)(7), it is critical that this definition not apply in the context of Section 45Q and the regulations thereunder, which include and define their own term: “industrial facility.” Under Section 1.45Q-2(d), “industrial facility” means “a facility, including an electricity generating facility, that produces a carbon oxide stream from a fuel combustion source or fuel cell, a manufacturing process, or a fugitive carbon oxide emission source that, absent capture and disposal, injection, or utilization, would otherwise be released into the atmosphere as industrial emission of greenhouse gas or lead to such release.” As explained in Oxy’s December 2, 2022 comments in response to Notice 2022-57, a DAC facility may include multiple sources of qualified carbon oxide (CO) that would independently be qualified facilities under different paragraphs of Section 45Q. For example, a DAC facility may capture CO<sub>2</sub> from the ambient air, and capture CO<sub>2</sub> from “industrial sources” that are integral to the DAC facility (e.g., CO<sub>2</sub> emissions from heating units, Net Power, or other electric generating units).

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<sup>21</sup> This approach would be broadly consistent with the 45Q 80/20 Rule, under which the relevant unit of retrofitted carbon capture equipment is an independently functioning process train. *See* Treas. Reg. § 1.45Q-2(g)(5).



The Proposed Regulations under Section 45V include helpful, limiting language, which states that the Section 45V definition of “facility” applies “[f]or purposes of the definition of qualified clean hydrogen production facility provided at section 45V(c)(3) and paragraph (a)(10) of [Proposed 1.45V-1] . . . .”<sup>22</sup> Nevertheless, given the importance of avoiding confusion regarding the scope of the term “facility” under Proposed Section 1.45V-1(a)(7) and the term “industrial facility” under Section 1.45Q-2(d), Oxy respectfully requests that Treasury and the IRS confirm explicitly that the definition of “facility” as used under the Proposed Regulations does not impact how that term may be used pursuant to Section 45Q.

For instance, a taxpayer may own a DAC facility that is comprised of interdependent components of property, some of which may be carbon capture equipment. One unit of such carbon capture equipment may capture from an industrial source, and another from the ambient air. The taxpayer’s Section 45Q credit amount may differ depending on from which of these sources carbon oxides are captured. This treatment aligns with the IRA’s general policy of promoting carbon capture, utilization, and sequestration in both contexts. Though it seems relatively clear to Oxy that Treasury and the IRS do not intend that the definition of “facility” under the Proposed Regulations would be referenced in applying Section 45Q, Oxy respectfully requests that this be made explicit.

## VI. Public Hearing

Oxy respectfully requests an opportunity to present oral comments at the March 25, 2024 hearing. We will submit a written outline of the topics to be discussed by March 4, 2024.

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<sup>22</sup> Prop. Treas. Reg. § 1.45V-1(a)(7)(i); *see also id.* at § 1.45V-1(a)(1) (“Paragraphs (a)(2) through (13) of this section provide generally applicable definitions of terms that, unless otherwise provided, apply for purposes of section 45V, the section 45V regulations, and any other provision of the Code or this chapter that expressly refers to any provision of section 45V or the section 45V regulations.”).



Oxy appreciates the opportunity to provide these comments in response to the Proposed Regulations. If you have any questions regarding this submission, please contact Jennifer L. Buchanan at (713) 366-5365 or [Jennifer\\_Buchanan@oxy.com](mailto:Jennifer_Buchanan@oxy.com).

Sincerely,

A handwritten signature in black ink that reads "Jennifer L. Buchanan". The signature is written in a cursive style and is positioned above a horizontal line.

Jennifer L. Buchanan

cc: David B. Blair