

Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production

Notice 2022-58

SECTION 1. PURPOSE

The Department of the Treasury (Treasury Department) and the Internal Revenue Service (IRS) plan to issue guidance under new § 45V and new § 45Z of the Internal Revenue Code (Code), as added to the Code by §§ 13204 and 13704, respectively, of Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 (IRA). This notice requests general comments on the clean hydrogen production credit under § 45V of the Code (§ 45V credit) and the clean fuel production credit under § 45Z (§ 45Z credit), as well as specific comments described in section 3 of this notice. Comments received in response to this notice will help to inform the development of guidance implementing § 45V (and associated incentives for clean hydrogen production in §§ 45 and 48) and § 45Z.

SECTION 2. BACKGROUND

.01 Credits for Clean Hydrogen.

The § 45V credit is allowable for qualified clean hydrogen produced after 2022 at a qualified clean hydrogen production facility during the 10-year period beginning on the date the facility is originally placed in service. The § 45V credit is calculated by multiplying the applicable amount by the kilograms of qualified clean hydrogen produced based on the lifecycle greenhouse gas emissions rate that results from the

production of qualified clean hydrogen. For facilities that do not meet certain prevailing wage and apprenticeship requirements, the applicable amount is determined by multiplying \$0.60 per kilogram by an applicable percentage that ranges from 20 percent to 100 percent depending on the lifecycle greenhouse gas emissions rate that results from the production of the qualified clean hydrogen. Therefore, for these facilities the applicable amount ranges from \$0.12 to \$0.60 per kilogram of qualified clean hydrogen produced. If the qualified clean hydrogen facility meets the prevailing wage and apprenticeship requirements, the credit amount is multiplied by five, resulting in an applicable amount that ranges from \$0.60 to \$3.00 per kilogram of clean hydrogen produced.¹ The applicable amount is adjusted annually for inflation.

If a lifecycle greenhouse gas emissions rate has not been determined for purposes of § 45V for hydrogen produced by a taxpayer, then the taxpayer may file a petition for the Secretary of the Treasury or her delegate (Secretary) to determine the emissions rate of the hydrogen.

Qualified clean hydrogen is defined in § 45V to include hydrogen that is produced through a process that results in a lifecycle greenhouse gas emissions rate of not greater than 4 kilograms of carbon dioxide equivalent (CO₂-e) per kilogram of hydrogen. To be eligible for the § 45V credit, the qualified clean hydrogen must be produced in the United States within the meaning of § 638(1) of the Code (or a U.S. possession within

¹ The higher credit amount also applies if the construction of the facility begins prior to the date that is 60 days after the Secretary publishes guidance with respect to the prevailing wage and apprenticeship requirements of § 45V(e)(3)(A) and (4), unless the facility is altered or repaired after that date. The IRA also provides an election for a taxpayer to receive a direct payment or to transfer the credit. Similar provisions were added by the IRA to several other Code provisions. See Notice 2022-51 requesting comments on prevailing wage and apprenticeship requirements and Notice 2022-50 requesting comments on direct payment and transferability issues for general applicability to these several Code sections.

the meaning of § 638(2)) in the ordinary course of the taxpayer's trade or business for sale or use. Additionally, the production and sale or use by the taxpayer must be verified by an unrelated party. A taxpayer may not claim a § 45V credit for qualified clean hydrogen produced at any facility that includes carbon capture equipment for which a credit is allowed to any taxpayer under § 45Q for the taxable year or any prior taxable year.

Section 13204(b) of the IRA amended § 45(e) relating to the credit for producing electricity from certain renewable sources (§ 45 credit) to provide a special exception to the requirement that electricity be sold to an unrelated party to be eligible for the § 45 credit. Electricity produced by a taxpayer after 2022 may be treated as sold by the taxpayer to an unrelated person during the taxable year if the electricity is used during the taxable year by the taxpayer or a related person at a qualified clean hydrogen production facility to produce qualified clean hydrogen. This production and use must be verified by an unrelated third party. Section 13204(c) of the IRA also amended § 48 relating to the energy investment tax credit (§ 48 credit) to allow a taxpayer that owns a qualified clean hydrogen production facility placed in service after December 31, 2022, to make an election to claim the § 48 credit in lieu of the § 45 credit.

.02 Section 45Z, Clean Fuel Production Credit.

The § 45Z credit is equal to the product of (1) the applicable amount per gallon (or gallon equivalent) with respect to any transportation fuel that is (a) produced by the taxpayer at a qualified facility, and (b) sold by the taxpayer in a manner described in § 45Z(a)(4) during the taxable year, and (2) the emissions factor for such fuel (as determined under § 45Z(b)).

Section 45Z(a)(2) defines the “applicable amount” for any transportation fuel produced at a qualified facility as (A) 20 cents in the case of a qualified facility which does not satisfy certain prevailing wage and apprenticeship requirements, or (B) \$1.00 in the case of a qualified facility that satisfies such requirements.² Section 45Z(a)(3) provides that the amounts listed in § 45Z(a)(2) are increased to 35 cents and \$1.75, respectively in the case of a transportation fuel that is sustainable aviation fuel. The applicable amounts will be adjusted annually for inflation. Section 45Z applies to transportation fuel produced and sold after December 31, 2024, and before January 1, 2028.

SECTION 3. REQUEST FOR COMMENTS

The Treasury Department and the IRS request comments on questions arising under § 45V (and the associated clean hydrogen production incentives in §§ 45 and 48) and under § 45Z that should be addressed in guidance. Commenters are encouraged to specify the issues on which guidance is needed most quickly as well as the most important issues on which guidance is needed. In addition to general comments, the Treasury Department and the IRS request comments that address the following specific questions:

.01 Credit for Production of Clean Hydrogen.

(1) Clean Hydrogen. Section 45V provides a definition of the term “qualified clean hydrogen.” What, if any, guidance is needed to clarify the definition of qualified clean hydrogen?

² These prevailing wage and apprenticeship requirements are provided in § 45Z(f)(6) and (f)(7). Similar provisions were added by the IRA to several other Code sections. See Notice 2022-51 requesting comments on prevailing wage and apprenticeship requirements. General comments pertaining to the prevailing wage and apprenticeship requirements should be submitted in response to Notice 2022-51.

(a) Section 45V defines "lifecycle greenhouse gas emissions" to "only include emissions through the point of production (well-to-gate)."³ Which specific steps and emissions should be included within the well-to-gate system boundary for clean hydrogen production from various resources?

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

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

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

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

(ii) How is byproduct hydrogen from these processes typically handled (for example, venting, flaring, burning onsite for heat and power)?

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

³ The well-to-gate system boundary for hydrogen production includes emissions associated with feedstock growth, gathering, and/or extraction; feedstock delivery to a hydrogen production facility; conversion of feedstock to hydrogen at a production facility; generation of electricity consumed by a hydrogen production facility (including feedstock extraction for electricity generation, feedstock delivery, and the electricity generation process itself); and sequestration of carbon dioxide generated by a hydrogen production facility.

only for the qualified clean hydrogen it produces, or should it be restricted from claiming the § 45V credit entirely for that taxable year?

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

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

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

(2) Alignment with the Clean Hydrogen Production Standard. On September 22, 2022, the Department of Energy (DOE) released draft guidance for a Clean Hydrogen Production Standard (CHPS) developed to meet the requirements of § 40315 of the Infrastructure Investment and Jobs Act (IIJA), Public Law 117-58, 135 Stat. 429 (November 15, 2021).⁴ The CHPS draft guidance establishes a target lifecycle greenhouse gas emissions rate for clean hydrogen of no greater than 4.0 kilograms CO₂-e per kilogram of hydrogen, which is the same lifecycle greenhouse gas emissions limit required by the § 45V credit. For purposes of the § 45V credit, what should be the definition or specific boundaries of the well-to-gate analysis?

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

⁴ <https://www.hydrogen.energy.gov/pdfs/clean-hydrogen-production-standard.pdf>

greenhouse gas emissions rate of the hydrogen the taxpayer produces.

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

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

(4) Recordkeeping and Reporting.

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

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

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

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

(e) If a taxpayer serves as both the clean hydrogen producer and the clean hydrogen user, rather than selling to an intermediary third party, what verification process should be put in place (for example, amount of clean hydrogen utilized and guarantee of emissions or use of clean electricity) to demonstrate that the production of clean hydrogen meets the requirements for the § 45V credit?

(f) Should indirect book accounting factors that reduce a taxpayer's effective

greenhouse gas emissions (also known as a book and claim system), including, but not limited to, renewable energy credits, power purchase agreements, renewable thermal credits, or biogas credits be considered when calculating the § 45V credit?

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

(5) Unrelated Parties.

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

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

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

(6) Coordinating Rules.

(a) Application of certain § 45 rules.

(i) Section 45V(d)(3) includes a reduction for the § 45V credit when tax-exempt bonds are used in the financing of the facility using rules similar to the rule under § 45(b)(3)). What, if any, additional guidance would be helpful in determining how to

calculate this reduction?

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

(b) Coordination with § 48.

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

(ii) What factors should the Treasury Department and the IRS consider when providing guidance on whether a facility is "designed and reasonably expected to produce qualified clean hydrogen?"

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

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

.02 Clean Fuel Production Credit (§ 45Z).

(1) Sale Definition.

(a) What factors should the Treasury Department and the IRS consider in determining whether an unrelated person purchases transportation fuel for use in a

trade or business for purposes of § 45Z(a)(4)(B)?

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

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

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

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

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

(4) Special Rules. Section 45Z(f)(1) provides several requirements for a taxpayer to claim the § 45Z credit, including for sustainable aviation fuel a certification from an unrelated party demonstrating compliance with the general requirements of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) or in the case of any similar methodology, as defined in § 45Z(b)(1)(B)(iii)(II), requirements that

are similar to CORSIA's requirements. With respect to this certification requirement for sustainable aviation fuel, what certification options and parties should be considered to support supply chain traceability and information transmission requirements?

(5) Coordinating Rules. Section 45Z(f)(4) states that under regulations prescribed by the Secretary, rules similar to the rules of § 52(d) apply in the case of estates and trusts. Section 45Z(f)(5) states that rules similar to § 45Y(g)(6) apply to patrons of agricultural cooperatives. Section 45Z(f)(6)(A) states that rules similar to the rules of § 45(b)(7) apply for the prevailing wage requirement. Section 45Z(f)(7) states that rules similar to the rules of § 45(b)(8) apply for the apprenticeship requirement. Is the application of the cross-referenced rules for purposes of the § 45Z credit adequately clear? What aspects of the cross-referenced rules should apply to the § 45Z credit without modification and what aspects should be modified?

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

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

SECTION 4: SUBMISSION OF COMMENTS

.01 Written comments should be submitted by December 3, 2022. Consideration will be given, however, to any written comment submitted after December 3, 2022, if such consideration will not delay the issuance of guidance. The subject line for the comments should include a reference to Notice 2022-58. Comments may be submitted

in one of two ways:

(1) Electronically via the Federal eRulemaking Portal at www.regulations.gov (type IRS-2022-58 in the search field on the regulations.gov homepage to find this notice and submit comments).

(2) Alternatively, by mail to: Internal Revenue Service, CC:PA:LPD:PR (Notice 2022-58), Room 5203, P.O. Box 7604, Ben Franklin Station, Washington, DC 20044.

.02 All commenters are strongly encouraged to submit comments electronically. The Treasury Department and the IRS will publish for public availability any comment submitted electronically or on paper to its public docket on www.regulations.gov.

SECTION 5. 60-DAY RULE NOT EFFECTUATED FOR THE PREVAILING WAGE AND APPRENTICESHIP REQUIREMENT

For purposes of §§ 30C, 45, 45L, 45Q, 45U, 45V, 45Y, 45Z, 48, 48C, 48E, and 179D of the Code, the publication of this notice requesting comments is not the publication of guidance with respect to the prevailing wage and apprenticeship requirements, and it is not relevant in determining whether the prevailing wage and apprenticeship requirements are satisfied under such sections. The Treasury Department and the IRS will explicitly identify when guidance with respect to the prevailing wage and apprenticeship requirements that is relevant for determining whether such requirements have been satisfied for purposes of §§ 30C, 45, 45L, 45Q, 45U, 45V, 45Y, 45Z, 48, 48C, 48E, and 179D is published.

SECTION 6. DRAFTING INFORMATION

The principal author of this notice is the Office of Associate Chief Counsel (Passthroughs & Special Industries). However, other personnel from the Treasury Department and the IRS participated in its development. For further information

regarding this notice, call the energy security guidance contact number at (202) 317-5254 (not a toll-free call).