Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022

Section 45V – Qualified Clean Hydrogen PTC
General Overview of Issues

Background

Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 (IRA), provides a new production tax credit (PTC) under section 45V for qualified clean hydrogen produced after 2022 at a qualified clean hydrogen production facility. The credit is available during the 10-year period beginning on the date the facility is originally placed in service. The value of the section 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. If the qualified clean hydrogen facility meets the prevailing wage and apprenticeship requirements or begins construction before 60 days after the Treasury Department issues guidance with respect to such requirements, the applicable amount ranges from $0.60 to $3.00 per kilogram of clean hydrogen produced. These comments should be read with the understanding that, under section 48(a)(15), a taxpayer may elect to claim the investment tax credit (ITC) in-lieu-of the PTC for clean hydrogen production facilities that otherwise qualify under section 45V.

Qualified clean hydrogen is defined 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 section 45V credit, the qualified clean hydrogen must be produced in the United States (or a possession) 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 section 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 section 45Q for the taxable year or any prior taxable year.

Issue

EEI is requesting the Treasury Department to provide guidance clarifying the following items with respect to hydrogen production and investment tax credits:

- Virtual power purchase agreements (PPAs) are taken into account in determining lifecycle greenhouse gas emissions if the hydrogen production is within the same geographic boundaries as the boundaries of the balancing authority with jurisdiction over

electricity production (or in the case where a single utility acts as the balancing authority, any adjacent or connected balancing authority). Additional background later in this document (page 6).

- Lifecycle greenhouse gas determination (and applicable hydrogen PTC rate) is determined on an annual basis. Additional background later in this document (page 4).
- All components necessary to produce clean hydrogen are included in a qualified clean hydrogen production facility including transformers, switchgear, electrolyzer, rectifier, water supply, water treatment, cooling system, hydrogen purifier, wiring and piping, compressed air supply system, nitrogen supply system, oxygen purification and recovery system, and electrolyte makeup systems.
- In addition to the credit for a qualified clean hydrogen production facility, property which prepares hydrogen produced from electricity for storage, stores the hydrogen and converts the hydrogen back to electricity is eligible for the energy storage ITC. With respect to property not described in the prior sentence, the energy storage ITC includes property that is necessary to prepare hydrogen for storage (such as compression and liquefaction equipment), that stores hydrogen (such as storage tanks), and that is necessary to convert stored hydrogen for commercial use (such as equipment to convert stored hydrogen to ammonia or transportation fuel).
- The rule set forth in Notice 2008-60, which treats sales of electricity to a related party where the electricity is resold to unrelated third parties as sales to the unrelated party, should be extended to apply to losses resulting from the sales of electricity and hydrogen.
- Clarify that the definition of a "facility" for purposes of Section 45V(d)(2) is limited to process trains necessary for the production of qualified clean hydrogen. Additional background later in this document (page 7).

Proposal

See attached draft regulations and proposed notice for specific language.

Support:

Treasury is granted broad authority to issue regulations under section 45V that may be necessary to carry out the purposes of this subsection, including regulations or other guidance for determining the lifecycle greenhouse gas emissions. The requested guidance is consistent with that authority.

Legislative history makes clear that grid-connected electrolyzers that use grid power and procure renewable energy to offset their consumption are eligible for the section 45V credit. The congressional intent is clear. Senator Tom Carper (D-DE), contributing author of the 45V credit and member of the Senate Finance Committee, explained the intent as follows:

> Mr. CARPER: It is also my understanding of the intent of section 13204, is that in determining ''lifecycle greenhouse gas emissions'' for this section, the Secretary shall recognize and incorporate

indirect book accounting factors, also known as a book and claim system, that reduce effective greenhouse gas emissions, which includes, but is not limited to, renewable energy credits, renewable thermal credits, renewable identification numbers, or biogas credits. Is that the chairman's understanding as well?

Mr. WYDEN. Yes.[1]

[1] 168 Cong. Rec. S4165 (Aug. 6, 2022), available at https://www.govinfo.gov/content/pkg/CREC-2022-08-06/pdf/CREC-2022-08-06-pt1-PgS4165-3.pdf.

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Section 45V – Qualified Clean Hydrogen PTC
Annual Matching

Background

Annual measurement of lifecycle greenhouse gas emissions is critical to supporting the development of clean hydrogen production infrastructure. Hourly matching is estimated to increase the cost of green hydrogen production by 70-170%[2] versus annual matching, eliminating the ability of the production tax credit (PTC) to make green hydrogen cost competitive with other forms of hydrogen. This is because hourly matching would require a green hydrogen project to buy time-correlated renewables during periods of under-generation, which corresponds to higher market price periods, increasing the overall cost of green hydrogen. If time-correlated renewables are not available, the green hydrogen project may curtail its electrolyzer, leading to long idle times. Hydrogen production equipment remains expensive and requires high utilization to make hydrogen production facilities economic. If a green hydrogen production facility can only produce during hours when wind and solar are available, the low utilization rate will dramatically increase the price of the hydrogen produced. Furthermore, applications requiring an uninterrupted flow of hydrogen represent substantially all existing hydrogen uses, and thus, requiring hourly matching would severely limit the adoption of green hydrogen.

In September 2022, the European Parliament voted to scrap its own EU-wide additionality regulations that required hourly matching over concerns that such requirements would be too complex to implement, hinder growth of the green hydrogen sector in the absence of breakthroughs in long-duration storage, and drive investment to the United States.

Issue

Although hourly matching may be achievable more quickly in certain regions of the United States with the appropriate renewable generation mix, it will take longer in many other parts of the United States. Guidance should not favor certain regions over others simply as a result of current renewable resource availability.

Proposal

See attached draft regulations and proposed notice for specific language.

Support

Treasury is granted broad authority to issue regulations under section 45V that may be necessary to carry out the purposes of this subsection, including regulations or other guidance for

[2] Assumes 95% electrolyzer capacity for annual matching and 70%, 60%, and 50% capacity for hourly matching at high, mid, and low renewable resource, respectively.

determining the lifecycle greenhouse gas emissions. The requested guidance is consistent with that authority.

Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022

Section 45V – Qualified Clean Hydrogen PTC
Virtual PPAs

Background

Regionality establishes a geographical boundary within which both the clean energy project and the electrolyzer must be located. Having an electrolyzer be in the same region as the renewable project enables operators of green hydrogen to draw power from the local utility, through a tariff, PPA, virtual PPA (contract to procure electricity without requiring physical delivery of such electricity), or storage tolling agreement, so long as it is within the same financially settled, balancing authority or organized market. If those balancing areas are too small, the boundaries should be extended to include connected, adjacent balancing authorities.

Regionality incentivizes a more balanced build out of renewable energy projects and infrastructure, including storage, contributing to grid stability and lower market volatility. Further, this approach ensures that the emissions that are physically associated with the electricity consumption are properly offset by the clean energy produced in that same region by the local utility. Without this approach, regional carbon emissions could increase due to a need to identify local resources for baseload generation (i.e. existing natural gas or coal).

Issue

Under the IRA, it is not clear whether an electrolyzer must be in the same region as the renewable project providing electricity. EEI supports IRS adopting a requirement that the electrolyzer be in the same region as the renewable project that it claims as the source of electricity (or in the case where a single utility acts as the balancing authority, any adjacent or connected balancing authority).

Proposal

See attached draft regulations for specific language.

Support

Treasury is granted broad authority to issue regulations under section 45V that may be necessary to carry out the purposes of this subsection, including regulations or other guidance for determining the lifecycle greenhouse gas emissions. The requested guidance is consistent with that authority.

Public Law 117-169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022

Section 45V – Qualified Clean Hydrogen PTC
Coordination with Section 45Q

Background

Section 45V(d)(2) states that no clean hydrogen production tax credit shall be allowed for facilities that include carbon capture equipment for which a credit is allowed under section 45Q. While language in the IRA addresses the situation in which a qualified clean hydrogen production facility is a standalone facility, a significant portion of hydrogen produced in the United States is produced in facilities that include other processes. Any facility in which there are multiple unrelated process trains should qualify for both the section 45V credit and the section 45Q credit if the credits are generated from unrelated processes.

Issue

The clear intent of both credits is to move the technology and deployment of carbon capture and sequestration (CCS) and clean hydrogen production forward. Limiting the use of CCS at a facility that also produces hydrogen, or vice versa, would run contrary to the intent of the credits. Additionally, precluding a hydrogen producer from claiming section 45Q credits generated from unrelated processes will have a chilling effect on the carbon capture industry and will likely result in significant uncaptured carbon emissions that would have otherwise been captured and sequestered.

Proposal

One potential way to address this is to define a "facility" for purposes of Section 45V(d)(2) as related process trains necessary for the production of qualified clean hydrogen. Process trains unrelated to the production of qualified clean hydrogen are not considered part of the same facility. Please see draft regulations.

Support

Treasury is granted broad authority to issue regulations under section 45V that may be necessary to carry out the purposes of this subsection, including regulations or other guidance for determining the lifecycle greenhouse gas emissions. The requested guidance is consistent with that authority.

Reg § 1.45V-1. Credit for Production of Clean Hydrogen.

(d) Special Rules.

…

(#) Coordination With Credit For Carbon Oxide Sequestration. The term facility within the meaning of section 45V(d)(2) means related process trains necessary for the production of qualified clean hydrogen at a qualified clean hydrogen production facility. For purposes of section 45V(d)(2), process trains unrelated to the production of qualified clean hydrogen are not considered part of the same facility as the qualified clean hydrogen production facility.

…

(u) Definitions.

…

(#) Qualified clean hydrogen production facility. The term qualified clean hydrogen production facility (within the meaning of section 45V(c)(3)) generally includes all components of property that are functionally interdependent (unless such equipment is an addition or modification to a qualified clean hydrogen production facility). Components of property are functionally interdependent if the placing in service of each component is dependent upon the placing in service of each of the other components in order to generate hydrogen. Components of a qualified clean hydrogen production facility that are functionally interdependent include transformers, switchgear, electrolyzer, rectifier, water supply, water treatment, cooling system, hydrogen purifier, wiring and piping, compressed air supply system, nitrogen supply system, oxygen purification and recovery system, electrolyte makeup systems, and any other equipment necessary to produce hydrogen.

(#) Qualified renewable energy resource. The term qualified renewable energy resource means-

(i) Wind,

(ii) Solar energy,

(iii) Nuclear energy,

(iv) Hydropower energy, and

(v) Any other renewable energy resource that produces electricity without carbon dioxide emissions (as determined by the Secretary, in consultation with the Secretary of Energy).

…

(x) Determination of lifecycle greenhouse gas emissions.

…

(#) Sources of electricity to produce hydrogen. For purposes of determining the lifecycle greenhouse gas emissions of a hydrogen production facility (as determined under section 45V(c)(1)), electricity procured pursuant to an agreement to acquire electricity produced from qualified renewable energy resources, without regard to whether the agreement requires the physical delivery of the electricity, shall be taken into account in an amount up to the total electricity used in the production of hydrogen. This [paragraph (x)] shall only apply if the hydrogen is produced within the same geographic boundaries as the boundaries of the balancing authority that has jurisdiction over the production of the electricity (or in the case where a single utility acts as the balancing authority, any adjacent or connected balancing authority). In no event shall the determination of lifecycle greenhouse gas emissions take into account an amount of electricity procured (whether from a renewable energy resource or a non-renewable energy resource) that is greater than the total amount of electricity used in the production of hydrogen.

(#) Annual determination. The determination of whether hydrogen is 'qualified clean hydrogen' (as defined in section 45V(c)(2)) and the 'applicable percentage' (for purposes of section 45V(b)(2)) shall be determined based on an annual measuring period. For purposes of this paragraph [X], an "annual measuring period" is the calendar year.

Reg § 1.48-1. Definition of Energy Storage Technology. [SAME DEFINITION FOR SECTION 48E]

(u) Hydrogen storage. 'Energy storage technology' includes:

(1) with respect to property that converts electricity to hydrogen for storage and conversion back to electricity, property (other than property that is part of a qualified clean hydrogen production facility (as defined in section 45V(c)(3)) for which a credit is allowed under sections 45V or 48(a)(15)) that

(i) converts the electricity to hydrogen (such as transformers, switchgear, electrolyzer, rectifier, water supply, water treatment, cooling system, hydrogen purifier, wiring and piping);

(ii) is necessary to prepare the hydrogen for storage (such as compression, liquefaction, and ammonia synthesis equipment);

(iii) stores the hydrogen (such as storage tanks, pipelines, geological formations, mobile hydrogen tube trailers, and mobile hydrogen cryogenic trailers); and

(iv) converts the hydrogen back to electricity (such as turbines primarily fueled by hydrogen and step-up transformers to convert stored energy to electricity); and

(2) with respect to property that is not described in [paragraph (1)] and that stores hydrogen, property that is necessary to prepare the hydrogen for storage (such as compression and liquefaction equipment), that stores hydrogen (such as storage tanks), and that is necessary to convert stored hydrogen for commercial use (such as equipment to convert stored hydrogen to ammonia or transportation fuel).

Notice 2023-XX, IRC Sec(s). 267, 707

Losses attributable to depreciation of renewable facilities

1. Purpose

This notice provides guidance on the provisions in §§ 267 and 707 of the Code involving a sale of the output from certain renewable facilities to an unrelated person through a related intermediary.

2. Background

.01. Accelerated Depreciation for Renewables. Since its establishment in 1986, the Modified Accelerated Cost Recovery System (MACRS) has assigned a 5-year recovery period to most renewable energy property, including solar and wind property. Section 168(e)(3)(B)(vi). The Inflation Reduction Act of 2022 expanded this assignment to include technology neutral clean generation and energy storage projects. Section 168(e)(3)(B)(viii). In addition, clean hydrogen production facilities are entitled to a 7-year recovery period. Section 168(e)(3)(C)(v). The policy behind entitling these renewable assets to 5-year and 7-year MACRS is to incentivize capital investment in renewable energy projects. *See General Explanation of the Tax Reform Act of 1986, Staff of the Joint Committee on Taxation* (May 4, 1987).

.02. Depreciation Capitalized under § 263A. Section 263A requires depreciation on equipment and facilities to be capitalized into the product produced as an indirect cost of production. Treas. Reg. § 1.263A-1(e)(3)(ii)(l). The IRS has concluded that the generation of electricity constitutes the production of tangible personal property and that all direct and indirect costs attributable to the production of the electricity are subject to capitalization. *See* CCA 200152013 (Sept. 25, 2001), TAM 200543050 (July 29, 2005), Priv. Ltr. Rul. 200146009 (June 20, 2001), Priv. Ltr. Rul. 200146033 (Aug. 14, 2001), Priv. Ltr. Rul. 200151018 (Sept. 18, 2001), and Priv. Ltr. Rul. 200151035 (Sept. 24, 2001). Capitalized amounts are recovered through cost of goods sold when electricity or hydrogen is sold. The accelerated depreciation deduction for wind, solar, and hydrogen property generally causes the sale of electricity or hydrogen to result in a loss for federal income tax purposes.

.03. Depreciation Disallowed Under §§ 267 and 707. Section 267(a) disallows losses on the sale or exchange of property, directly or indirectly, between persons related under § 267(b). For this purpose, losses resulting from cost of goods sold being greater than sales proceeds are subject to § 267(a) loss disallowance. *See Estate of Edwin H. Johnson*, 42 T.C. 441 (1956) ("[I]n a going business if a sale is made between persons specified in [§] 267(b) which results in a loss determined by subtracting from the sales price of the property the 'cost of goods sold' such loss would be the minimum amount of 'loss' from such sale for which no deduction is to be allowed."), ***aff'd by Johnson's Est. v. Comm'r***, 355 F.2d 931 (6th Cir. 1965); *Paul Proganan*, T.C. Memo 1969-166 (Aug. 13,

1969) (office expenses are "costs" that enter into the basis of produce sold to a related party; losses from the sale of produce were disallowed under Section 267(a)); *Melvin W. McGrew*, T.C. Memo 1965-256 (Sept. 22, 1965) (losses arising from the sale of lumber between related parties disallowed under § 267; loss calculated as sales minus cost of goods sold); FSA 5099 (Feb. 18, 1998) (§ 267(f) deferred loss is determined by including in the computation all direct and indirect costs properly includible in cost of goods sold under § 263A). Furthermore, § 707(b) disallows losses from the sale or exchange of property (other than an interest in a partnership), directly or indirectly, between certain related partners and partnerships. Losses that are disallowed pursuant to § 267(a) or § 707(b) are permanently disallowed, except that any gain realized by the purchaser from a subsequent sale of the property must be recognized only to the extent that it exceeds the previously disallowed loss. Sections 267(d)(1) and 707(b)(1).

.04. Intermediary sales allowed for Renewable PTCs. Section 45, which was enacted in 1992 to promote the development of wind and certain other renewable energy projects (*see* U.S. Congress, House Committee on Ways and Means, *Comprehensive National Energy Policy Act*, committee print, 102nd Cong., 2nd sess., May 5, 1992, H. Rept. 102-474, pp. 41-42), generally provides a tax credit for electricity produced by the taxpayer from "qualified energy resources" at a "qualified facility" that is sold to an "unrelated person" during the taxable year. Pursuant to § 45(e)(4), persons are treated as related for purposes of § 45 if they would be treated as a single employer under the Treasury Regulations prescribed under § 52(b). Persons are treated as a single employer if the trades or businesses (whether or not incorporated) of such persons are under "common control," which for this purpose generally requires common ownership of more than 50 percent (similar to §§ 267(b) and 707(b)). *See* Treas. Reg. § 1.52-1(b)-(e).

Section 45(e)(4) provides that sales of electricity between members of a consolidated group will not be treated as sales between related persons for purposes of § 45 if the purchased electricity is resold to an unrelated person. *See also* §§ 45Y(g)(4) and 45Z(f)(3) (adopting an identical definition and exception for related person for purposes of the clean electricity production credit and the clean fuel production credit). Significantly, the IRS, in Notice 2008-60, expanded this exception to include all related persons, even if such persons are not members of the same consolidated group:

> Electricity or coal will be treated as sold to an unrelated person for. . . purposes [of § 45] if the ultimate purchaser of the electricity or coal is not related to the person that produces the electricity or coal. The requirement of a sale to an unrelated person will be treated as satisfied in these circumstances if the producer sells the electricity or coal to a related person for resale by the related person to a person that is not related to the producer.

3. Expansion of Intermediary Sale Exception to Depreciation

The expanded exception in Notice 2008-60 was included in recognition of the fact that the denial of the § 45 production tax credit in circumstances involving transitory ownership of electricity by a related intermediary would frustrate the public policy of encouraging the development of renewable energy projects that Congress intended to promote in enacting § 45. Accordingly, consistent with Congress's intent to incentivize the development of certain renewable projects by allowing these projects to qualify for accelerated depreciation deductions, this notice extends the intermediary sale exception in Notice 2008-60 to this depreciation.

Accordingly, electricity produced at a clean energy project qualifying for 5-year MACRS under § 168(e)(3)(B)(vi) or § 168(e)(3)(B)(viii), or hydrogen produced at a qualified clean hydrogen production facility as defined in section 45V(c)(3), will be treated as sold to an unrelated person for purposes of § 267(a) and § 707(b) if the ultimate purchaser of the electricity or hydrogen, respectively, is not related to the person that produces the electricity or hydrogen. The requirement of a sale to an unrelated person will be treated as satisfied in these circumstances if the producer sells the electricity or hydrogen to a related person for resale by the related person to a person that is not related to the producer.