A&M Tax Reports on Section 45V Proposed Regulations

Published on Alvarez & Marsal | Management Consulting | Professional Services (https://www.alvarezandmarsal.com)

January 23, 2024

On December 22, 2023, the Internal Revenue Service ("IRS") and the Treasury Department released hotly anticipated proposed regulations on the implementation of the Section 45V credit for the production of clean hydrogen.

Section 45V was enacted as part of the Inflation Reduction Act in 2022. Generally, Section 45V allows a federal tax credit for the production of qualified clean hydrogen at a qualified clean hydrogen production facility. The credit is determined based on the kilograms of qualified clean hydrogen produced, multiplied by an amount that depends on the lifecycle greenhouse gas emissions rate resulting from such production. The credit ranges from 60 cents to $3.00 per kilogram, adjusted for inflation. Taxpayers begin to qualify for the credit where the lifecycle greenhouse gas emissions rate per kilogram of hydrogen produced is less than or equal to four kilograms of C02e, with the maximum rate available where such emissions rate per kilogram of hydrogen produced is less than 0.45 kilograms of C02e.

The proposed regulations were accompanied by a series of other releases from the executive branch.

- Text of Proposed Regulations
- Related Treasury Department Press Release
- EPA Letter to Treasury on the Definition of Lifecycle Greenhouse Gas Emissions
- DOE Whitepaper on Assessing Lifecycle Greenhouse Gas Emissions Associated with Electricity Use for the Section 45V Clean Hydrogen Production Tax Credit

The proposed regulations were issued on the heels of the circulation of a leaked draft earlier in December 2023, as reported by Bloomberg.[1] The contents of the leaked version were controversial to some, as they included what some consider to be strict requirements relating to the so-called three pillars requirement for purposes of determining emissions relating to the electricity used to power facilities that could be eligible for the credit. The proposed regulations issued on December 22, 2023, are consistent with the reporting around the leaked version and could require taxpayers to acquire Energy Attribute Certificates relating to the generation of clean electricity that meet the so-called "three pillars" to qualify for the credit and/or to maximize the amount of the credit.

Described a bit differently depending on the source, the three pillars for clean electricity used to power a hydrogen generating facility are as follows:

1. **Additionality** – clean electricity used to power the hydrogen production must be from a new generation facility or facilities;

2. **Deliverability** – clean electricity must be sourced from the same geographic region as the hydrogen production facility; and

3. **Matching** – the clean electricity must be generated during the same time period as the hydrogen production facility uses electricity in the production process.[2]

These three pillars are key to taxpayers claiming this credit, as the proposed regulations confirm that emissions from the generation of the electricity used to power a hydrogen production facility are considered for determining the lifecycle greenhouse gas emissions of the hydrogen production. As we describe in this report, the lifecycle greenhouse gas emissions of hydrogen production have a direct, material effect on the value of the credit to the hydrogen producer.

Though the three pillars are getting the most initial attention, there are many interesting and nuanced tax technical aspects of the proposed regulations that we cover in this report, specifically proposed rules on the Section 45V credit with the Section 45Q carbon sequestration credit as well as the contents and timing of the required third-party verification reports.

Written or electronic comments on the proposed regulation must be received by February 26, 2024. A public hearing is scheduled to be held on March 25, 2024, in Washington, DC.

SECTION 45V – CREDIT FOR PRODUCTION OF CLEAN HYDROGEN

Section 45V contains rules relating to the clean hydrogen production credit ("CHPC"). The CHPC is an amount equal to:

Kilograms of qualified clean hydrogen * the applicable amount[3]

The applicable amount is the applicable percentage of $0.60, subject to inflation adjustments.[4]

The applicable amount is increased to $3.00 for two categories of qualified clean hydrogen production facilities:

1. Facilities that began construction prior to January 29, 2023, and meet the prevailing wage requirements for any alterations or repairs on or after January 29, 2023, and

2. Facilities that meet the prevailing wage requirements for both the construction of such facility and any alterations or repairs of such facility and meet the apprenticeship requirements with respect to the construction of such facility.[5]

The applicable percentage is determined as follows:[6]

Qualified Clean Hydrogen which is produced through a process that results in a lifecycle greenhouse gas emissions rate of:	Applicable Percentage	Credit Rate – Prevailing Wage Requirements Not Satisfied	Credit Rate – Prevailing Wage Requirements Satisfied or Not Applicable
≤4 KG of CO2e and ≥2.5 KG of CO2e per KG of hydrogen	20 percent	$0.12 per KG of hydrogen	$0.60 per KG of hydrogen
<2.5 KG of CO2e and ≤1.5KG of CO2e per KG of hydrogen	25 percent	$0.15 per KG of hydrogen	$0.75 per KG of hydrogen
<1.5 KG of CO2e and ≥0.45 KG of CO2e per KG of hydrogen	33.4 percent	$0.20 per KG of hydrogen	$1.00 per KG of hydrogen
<0.45 KG of CO2e per KG of hydrogen	100 percent	$0.60 per KG of hydrogen	$3.00 per KG of hydrogen

Lifecycle greenhouse gas emissions means:

> the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the Administrator, related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.[7]

Lifecycle greenhouse gas emissions only include emissions through the point of production (well-to-gate), as determined under the most recent GREET (Greenhouse gases, Regulated Emissions and Energy use in Transportation) model.[8]

The CHPC is available for the 10-year period beginning on the date a qualified clean hydrogen production facility is originally placed in service.[9] Construction must begin before January 1, 2033, for a facility to be a qualified clean hydrogen production facility.[10]

Qualified clean hydrogen must be produced (i) in the United States or a possession thereof, (ii) in the ordinary course of a trade or business of the taxpayer, (iii) for sale or use, and the production and sale or use of such hydrogen must be verified by an unrelated party.[11]

No CHPC is available for any qualified clean hydrogen produced at a facility which 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.[12]

Facilities placed in service prior to 2023 that did not originally produce qualified clean hydrogen but are subsequently modified to produce qualified clean hydrogen are deemed to have been originally placed in service on the date the property required to complete the necessary modification is placed in service.[13]

Taxpayers may elect to treat clean hydrogen production facilities as energy property to claim a Section 48 investment tax credit in lieu of the Section 45V production credit.[14] Rules similar to the applicable percentage regime discussed above apply for purposes of determining the energy percentage for such facilities based on the design and reasonable expectations of the facility's lifecycle greenhouse gas emissions.[15]

The energy percentage is determined as follows:[16]

Qualified Clean Hydrogen produced by a facility which is designed and reasonably expected to produce qualified clean hydrogen with a lifecycle greenhouse gas emissions rate of:	Energy Percentage
≤4 KG of CO2e and ≥2.5 KG of CO2e per KG of hydrogen	1.2 percent
<2.5 KG of CO2e and ≤1.5KG of CO2e per KG of hydrogen	1.5 percent
<1.5 KG of CO2e and ≥0.45 KG of CO2e per KG of hydrogen	2 percent
<0.45 KG of CO2e per KG of hydrogen	6 percent

The actual lifecycle greenhouse gas emissions of the facility must be verified by an unrelated third party.[17]

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

This section sets forth an overview of the proposed regulations and also includes several defined terms for purposes of the proposed regulations.

Facility is defined for purposes of the definition of qualified clean hydrogen production facility. A facility for these purposes is a single production line that is used to produce qualified clean hydrogen. A single production line includes all components of property that function interdependently to produce qualified clean hydrogen. Components of property 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.[18]

Of note, the term facility does not include:

1. Equipment that is used to condition or transport hydrogen beyond the point of production, or

2. Electricity production equipment used to power the hydrogen production process, including any carbon capture equipment associated with the electricity production process.[19]

However, components with a purpose in addition to the production of qualified hydrogen may be part of a facility if such components function interdependently with other components to produce qualified clean hydrogen.[20]

The proposed regulations provide an example distinguishing (i) carbon capture equipment used in the production of the electricity that powers the hydrogen production process that is not part of the facility from (ii) carbon capture equipment that is used in the hydrogen production process itself that is part of the facility.[21]

A&M Observation – This definition of facility is critically important in the context of determining whether the same facility that produces qualified clean hydrogen also includes carbon capture equipment that earned a Section 45Q credit. If a Section 45Q credit is allowed to any taxpayer, in any prior year, for carbon capture equipment that is part of a qualified clean hydrogen production facility, such facility is disqualified from being eligible for the CHPC. In stark contrast, carbon capture equipment for which a Section 45Q credit is allowed may be part of a facility that produces the electricity used by a facility that produces qualified clean hydrogen without limiting the availability of the CHPC as to such qualified clean hydrogen production facility.

The proposed regulations include some further color on the definition of lifecycle greenhouse gas emissions:

1. The most recent GREET model means the latest version of 45VH2-GREET developed by Argonne National Laboratory that is

publicly available.[22] If a new version of 45VH2-GREET becomes publicly available during a taxable year, then a taxpayer may choose between the new version and the prior version for such taxable year.[23]

2. Emissions through the point of production (well-to-gate) includes emissions associated with feedstock growth, gathering, extraction, processing and delivery to a hydrogen production facility.[24] It also includes the emissions associated with the hydrogen production process, inclusive of the electricity used by the hydrogen production facility and any capture and sequestration of carbon dioxide generated by the hydrogen production facility.[25]

Finally, the proposed regulations address the timing of a taxpayer's claim of the CHPC where verification and/or sale or use occur in a taxable year after the taxable year of production.[26]

A&M Observation – It appears this rule requires a taxpayer to claim the CHPC in the year of production but does not allow a taxpayer to make such claim until verification and sale or use occur. This implies that a taxpayer may be required to amend returns for the year of production if the verification and/or sale or use do not occur in time for the taxpayer to include the claim on its originally-filed returns.

A&M Observation – Taxpayers who need to amend to claim the CHPC would be disqualified from receiving any amounts relating to a "direct pay" election under Section 6417 as such election must be made on a timely originally-filed return (including extensions).[27] Such taxpayers would also be precluded from transferring the CHPC to an unrelated third party for cash under Section 6418 as the deadline for such a transfer is the transferor taxpayer's extended return filing due date.[28] Even where taxpayers expect the verification to take place in time to claim the credit on an originally-filed return, this timing rule is likely to create friction in credit transfer situations as transferee taxpayers may not be willing to execute a transfer transaction prior to the verification being complete, or at the very least prior to receiving assurance that the verification will be completed timely.

Proposed Treas. Reg. § 1.45V-2 – Special Rules

This next section covers a grab bag of three special rules for taxpayers claiming the CHPC:

1. Coordination with the Section 45Q carbon capture credit;

2. An anti-abuse rule; and

3. A list of recordkeeping requirements.

COORDINATION WITH THE SECTION 45Q CARBON CAPTURE CREDIT

This section confirms the statutory rule that no CHPC is allowed for any qualified clean hydrogen produced at a qualified clean hydrogen facility that includes carbon capture equipment for which a Section 45Q credit is allowed for the taxable year or has been allowed for any prior taxable year.[29]

This section does go on to provide an exception to the general CHPC limitation for facilities where a taxpayer has been allowed a Section 45Q credit in situations where the "80/20 Rule" under the Section 45Q regulations is satisfied with respect to a retrofit of the carbon capture equipment included at the qualified clean hydrogen production facility. Under this exception, the satisfaction of the 80/20 Rule as to the carbon capture equipment itself results in such equipment being treated as other than carbon capture equipment for which a Section 45Q credit was allowed for any prior taxable year.[30]

A&M Observation – As we discuss below, it is important to hold this application of the 80/20 Rule to the carbon capture equipment itself separately from instances where the 80/20 Rule is applied to an entire facility for purposes of starting or restarting the 10-year CHPC period.

As a result of a successful retrofit under the 80/20 Rule of carbon capture equipment that is treated as part of a qualified clean hydrogen production facility, the qualified clean hydrogen production facility becomes eligible for the CHPC, so long as the Section 45Q credit is not allowed to any taxpayer with respect to the retrofitted carbon capture equipment.

> **A&M Observation** – There does not appear to be a mechanism by which a taxpayer can officially elect out of the Section 45Q credit to ensure eligibility for the CHPC after a retrofit of the carbon capture equipment that satisfies the 80/20 Rule. As such, it appears that the Section 45Q credit must not be "allowed" to any taxpayer even in situations where Section 45Q credits are "allowable" to a taxpayer; i.e., situations where a taxpayer owns a qualified clean hydrogen production facility containing carbon capture equipment that is eligible for the Section 45Q credit.

This analysis may turn on the distinction between a tax benefit that is allowable versus a tax benefit that is allowed. The IRS has clarified the difference in the depreciation context, stating that "[d]epreciation allowed is depreciation you actually deducted (from which you received a tax benefit). Depreciation allowable is depreciation you are entitled to deduct."[31] It follows that the absence of a claim to an available Section 45Q credit on a taxpayer's return may be sufficient to assert that no Section 45Q credit has been "allowed." Given the importance of the requirement that a taxpayer not be "allowed" a Section 45Q credit for a facility to be eligible for the CHPC for the same facility, a clarification or confirmation as to this point would be welcomed in future guidance; for example, through the creation of a mechanism by which a taxpayer may affirmatively disclaim any right to a Section 45Q credit.

> **A&M Observation** – Our discussion in this report generally assumes the value of the CHPC credit will always outstrip that of the Section 45Q credit for facilities where both are available. Of course, taxpayers in this situation will need to run confirmatory models to rule out a situation where the Section 45Q credit is more valuable than the CHPC.

ANTI-ABUSE RULE

The anti-abuse rule is intended to limit the availability of the CHPC to qualified clean hydrogen that is produced for beneficial use, and should not be allowable if the "primary purpose" of such production is to obtain the benefit of the CHPC in a manner that is wasteful, for example, in cases where the taxpayer knows or has reason to know that the qualified clean hydrogen will be vented, flared or used to produce hydrogen.[32] The proposed regulations contain an example of the application of the anti-abuse rule to a fact pattern where a taxpayer produces qualified clean hydrogen for $2 per kilogram and is eligible for a CHPC of $3 per kilogram, the taxpayer sells the qualified clean hydrogen to a customer at a below-market price, and the taxpayer knows or reasonably expects that the customer will vent or flare a portion of the qualified clean hydrogen.[33] The example concludes that this production and sale is "wasteful," and therefore no CHPC is allowed to the taxpayer for the qualified clean hydrogen sold to the customer that is subsequently vented or flared by the customer.[34]

A&M Observation – The example illustrates a few limitations of the proposed anti-abuse rule. For one, a non-economic production and sale of qualified clean hydrogen is not, by itself, subject to the anti-abuse rule if the customer puts the hydrogen to a productive use.[35] Further, even where the customer may vent or flare the hydrogen, the example suggests the anti-abuse rule only applies to the extent the hydrogen is actually vented or flared. This suggests that a taxpayer who knows or reasonably expects venting or flaring by a customer would need to receive information from the customer as to the actual amounts vented or flared, which could be commercially impracticable.

RECORDKEEPING REQUIREMENTS

Finally, this section of the proposed regulations sets forth recordkeeping requirements for taxpayers claiming the CHPC.[36] Required records to be kept include:

1. Records to substantiate the information required to be included in the verification report (discussed below);

2. Records establishing that the facility meets the definition of a qualified clean hydrogen production facility;

3. Records of past credit claims under Section 45Q by any taxpayer with respect to carbon capture equipment included at the facility;

4. Records establishing the facility's placed in service date; and

5. Records establishing satisfaction with the prevailing wage and apprenticeship requirements, as applicable.[37]

Taxpayers must also retain all raw data used in connection with a request for an emissions value to the Department of Energy for at least six years following the applicable due date of the taxpayer's return.[38]

Proposed Treas. Reg. § 1.45V-4 – Procedures for Determining Lifecycle Greenhouse Gas Emissions Rates for Qualified Clean Hydrogen[39]

This section sets forth procedures for determining lifecycle greenhouse gas emissions rates for the purpose of determining the applicable percentage. Of greatest interest to most if not all hydrogen-producing taxpayers are the Energy Attribute Certificate (EACs) acquisition requirements for purposes of establishing the emissions relating to the electricity used to produce qualified clean hydrogen absent reliance on the emissions created by the applicable regional grid itself.

As set forth in Section 45V, the applicable percentage used for calculating the annual amount of the CHPC is determined according to the lifecycle greenhouse gas emissions rate of all hydrogen produced at a hydrogen production facility during the taxable year using the most recent GREET model.[40] Where a GREET model determination has not been made, a hydrogen-producing taxpayer may file a petition for a provisional emissions rate (PER) with the IRS for the Secretary's determination of the lifecycle greenhouse gas emissions rate for such hydrogen.[41] The PER may only be used until an updated version of the GREET model includes the required information regarding a facility's hydrogen production pathway.[42] The proposed regulations provide detailed requirements for how a taxpayer acquires a PER.[43]

As discussed above, a facility's lifecycle greenhouse gas emissions rate through the point of production (well-to-gate) includes the emissions associated with the electricity used by the hydrogen production facility.[44] For this purpose, a taxpayer is treated as using electricity from the regional electricity grid **unless** the taxpayer acquires and retires qualifying EACs for each unit of electricity the taxpayer claims from such source.[45]

EAC means a tradeable contractual instrument, issued through a qualified EAC registry or accounting system, that represents the energy attributes of a specific unit of energy produced.[46] Notably, renewable energy certificates (or RECs) and other similar energy certificates issued through a registry or accounting system are forms of EACs.[47]

Qualifying EACs allow the taxpayer to measure its lifecycle greenhouse gas emissions based on the emissions created from the production of the electricity to which the EAC relates.[48] A taxpayer's acquisition and retirement of qualifying EACs must be recorded in a qualified EAC registry or accounting system so that the acquisition and retirement may be verified by a qualified verifier.[49]

For an EAC to be "qualifying," it must meet three requirements pertaining to the "additionality" or "incrementality" of the electricity underlying the EAC:[50]

1. The EAC must relate to a unit of electricity produced by an electricity generation facility with a commercial operation date not more than three years prior to the placed in service date for the applicable hydrogen production facility;[51]

2. The electricity represented by the EAC must be generated in the same hour that the taxpayer's hydrogen production facility uses electricity to produce hydrogen, with a transition rule allowing for annual matching through 2027;[52] and

3. The electricity represented by the EAC must be generated by a facility that is in the same region as the hydrogen production facility.[53]

To reiterate, absent the acquisition of EACs with these three requirements, a taxpayer is treated as using electricity from the regional electricity grid for purposes of determining lifecycle greenhouse gas emissions under the GREET model.

A&M Observation – The requirement to include the emissions from the electricity used to generate qualifying clean hydrogen in the lifecycle greenhouse gas emissions calculation likely will impact the viability of constructing and operating some new hydrogen production facilities. While the ability to acquire qualifying EACs from clean energy sources could mitigate the impact of including such emissions, it is not clear that sufficient qualifying EACs from clean electricity production will be available for a hydrogen producer given the requirement that the EAC must come from a relatively newly constructed clean energy facility to be a qualifying EAC. The regionality and hourly matching requirements further complicate the ability of a hydrogen producer to acquire sufficient qualifying EACs to achieve the desired applicable percentage. Considerable debate about this section of the proposed regulations is expected.[54]

Proposed Treas. Reg. § 1.45V-5 – Procedures for Verification of Qualified Clean Hydrogen Production and Sale or Use

This section sets forth procedures for verification of qualified clean hydrogen production and sale or use of such qualified clean hydrogen. Recall that the Section 45V statute requires the production and sale or use of qualified clean hydrogen to be verified by an unrelated party.[55] A verification report must be attached to the taxpayer's Form 7210 (Clean Hydrogen Production Credit) for each qualified clean hydrogen production facility and for each taxable year in which the taxpayer claims the CHPC.

The verification report must be prepared by a qualified verifier under penalties of perjury and must contain:

1. Attestations from the qualified verifier regarding:
   a. The taxpayer's production of qualified clean hydrogen for sale or use;[56]
   b.The amount of qualified clean hydrogen sold or used;[57] and
   c. Conflicts of interest;[58]

2. Information about the qualified verifier;[59]

3. Information about the taxpayer's hydrogen production facility where production is verified;[60] and

4. Any documentation necessary to substantiate the verification process based on the relevant facts, including the standards and best practices prescribed by the qualified verifier's accrediting body.[61]

A qualified verifier is any individual or organization with active accreditation as a (i) validation and verification body from the American National Standards Institute National Accreditation Board; or (ii) verifier, lead verifier, or verification body under the California Air Resources Board Low Carbon Fuel Standard program.[62]

Generally, the qualified verifier must be able to demonstrate independence from the qualified clean hydrogen production process.[63] Of note, a qualified verifier must be unrelated to the taxpayer claiming the CHPC or an employee thereof.[64]

Where a taxpayer elects to transfer CHPCs under Section 6418, the qualified verifier must also demonstrate independence from the transferee taxpayer.[65]

Where a taxpayer also produces the electricity used to produce qualified clean hydrogen and claims a Section 45 (renewable energy production credit) or Section 45U (zero-emission nuclear power production credit) for such electricity production, the verification report must also contain attestations supporting such credit claims.[66]

The verification report must be signed and dated by the qualified verifier no later than:

1. The due date, including extensions, of the taxpayer's Federal income tax return or information return for the taxable year during which the verified hydrogen is produced;[67] or

2. In the case of a CHPC claimed on an amended return or administrative adjustment request, the date on which such

amended return or administrative adjustment request is filed.[68]

A&M Observation – The verification report requires a great amount of detail, at least some of which will not be available until year end. The timeliness of the verification report is critical for (i) direct pay elections under Section 6417, (ii) transfer elections under Section 6418 and (iii) preventing recapture where a taxpayer elects to treat the qualified clean hydrogen production facility as energy property under Section 48. As such, the selection of a qualified verifier and the establishment of procedures to ensure the qualified verifier can issue a timely report will be crucial for taxpayers eligible for the CHPC (or the investment tax credit in lieu of the CHPC).

Proposed Treas. Reg. § 1.45-6 – Rules for Determining the Placed in Service Date for an Existing Facility That is Modified to Produce Qualified Clean Hydrogen

The final section provides rules for determining the placed in service date for an existing facility that is modified or retrofitted to produce qualified clean hydrogen.

Reiterating the above discussion, the Section 45V statute provides that facilities placed in service prior to 2023 that did not originally produce qualified clean hydrogen but are subsequently modified to produce qualified clean hydrogen are deemed to have been originally placed in service on the date the property required to complete the necessary modification is placed in service.[69]

Specifically, a modification (other than a modification that satisfies the 80/20 Rule) must be made to a facility that could not produce hydrogen with a lifecycle greenhouse gas emissions rate less than or equal to four kilograms of CO2e per kilogram of hydrogen but for the modification.[70] This means a taxpayer may not achieve a higher applicable percentage through a non-80/20 Rule modification of a facility that already has a lifecycle greenhouse gas emissions rate of less than or equal to four kilograms of CO2e per kilogram of hydrogen produced to restart the 10-year clock for the CHPC.

The proposed regulations contain a special set of rules for modifications that satisfy the 80/20 Rule.[71] As discussed above, the 80/20 Rule generally provides that a credit-eligible facility may be treated as originally placed in service following a retrofit if no more than 20 percent of the value of a facility's value post-retrofit is attributable to used components of property (with the value of the facility equal to the cost of the new components of property plus the value of the used components of property).[72] Where a modification satisfies the 80/20 Rule, a facility is entitled to a new placed in service date (and a new 10-year clock) even where the facility previously produced qualified clean hydrogen or was originally placed in service in 2023 or later.[73]

A series of five examples in the proposed regulations illustrates the application of the 80/20 Rule in this context.[74] Of note, if a facility is modified through the addition of carbon capture equipment, the facility may qualify for a new placed in service date so long as no Section 45Q credit has been allowed for the new carbon capture equipment.[75] However, where a facility included carbon capture equipment for which a Section 45Q credit was allowed to the taxpayer, even a modification to the overall facility that satisfies the 80/20 Rule does not cleanse the Section 45Q credit taint, meaning such modification does not create the ability for the taxpayer to claim the CHPC.[76]

A&M Observation - Recall that one of the special rules discussed above suggests that a modification to the carbon capture equipment itself contained within a facility that satisfies the 80/20 Rule does cleanse the Section 45Q taint as to such carbon capture equipment, and therefore as to the facility as a whole, so long as a Section 45Q credit is not allowed post-modification.[77]

The following tables summarize the impact of modifications that do and do not satisfy the 80/20 Rule with respect to an overall facility and with respect to the carbon capture equipment within a facility:

Original placed in service date pre-2023			**Modification to overall facility does not satisfy 80/20 Rule**	**Modification to overall facility satisfies 80/20 Rule**
Facility could not produce qualified clean hydrogen pre-modification	**No Section 45Q credit claimed pre- or post-modification**		Facility is eligible for CHPC Facility has new placed in service date	Facility is eligible for CHPC Facility has new placed in service date
	Section 45Q credit claimed pre-modification	**80/20 Rule not independently satisfied as to carbon capture equipment within facility**	Facility is not eligible for CHPC	Facility is not eligible for CHPC
		80/20 rule independently satisfied as to carbon capture equipment within facility	Facility is eligible for CHPC Facility has new placed in service date	Facility is eligible for CHPC Facility has new placed in service date
Facility could produce qualified clean hydrogen pre-modification	**No Section 45Q credit claimed pre- or post-modification**		Facility is eligible for CHPC Facility retains original placed in service date	Facility is eligible for CHPC Facility has new placed in service date
	Section 45Q credit claimed pre-modification	**80/20 Rule not independently satisfied as to carbon capture equipment within facility**	Facility is not eligible for CHPC	Facility is not eligible for CHPC
		80/20 rule independently satisfied as to carbon capture equipment within facility	Facility is eligible for CHPC Facility retains original placed in service date	Facility is eligible for CHPC Facility retains original placed in service date

Original placed in service date post-2022			Modification to overall facility does not satisfy 80/20 Rule	Modification to overall facility satisfies 80/20 Rule
Facility could not produce qualified clean hydrogen pre-modification	No Section 45Q credit claimed pre- or post-modification		Facility is eligible for CHPC Facility retains original placed in service date	Facility is eligible for CHPC Facility has new placed in service date
	Section 45Q credit claimed pre-modification	80/20 Rule not independently satisfied as to carbon capture equipment within facility	Facility is not eligible for CHPC	Facility is not eligible for CHPC
		80/20 rule independently satisfied as to carbon capture equipment within facility	Facility is eligible for CHPC Facility retains original placed in service date	Facility is eligible for CHPC Facility has new placed in service date
Facility could produce qualified clean hydrogen pre-modification	No Section 45Q credit claimed pre- or post-modification		Facility is eligible for CHPC Facility retains original placed in service date	Facility is eligible for CHPC Facility has new placed in service date
	Section 45Q credit claimed pre-modification	80/20 Rule not independently satisfied as to carbon capture equipment within facility	Facility is not eligible for CHPC	Facility is not eligible for CHPC
		80/20 rule independently satisfied as to carbon capture equipment within facility	Facility is eligible for CHPC Facility retains original placed in service date	Facility is eligible for CHPC Facility retains original placed in service date

A&M Observation – The allowance of a Section 45Q credit in connection with the production of qualified clean hydrogen does not disqualify a taxpayer from claiming the CHPC with respect to a qualifying clean hydrogen production facility in the following situations:

- The CHPC is available when a Section 45Q credit is or has been allowed for carbon capture equipment used in connection with the generation of electricity used by a qualifying clean hydrogen production facility because the electricity generating property is not treated as part of the qualifying hydrogen production facility.
    - No remedial action is required for the CHPC to be available.
    - The Section 45Q credit may continue to be allowed to the owner of the electricity-generating property.
- The CHPC is available even when a Section 45Q credit is or has been allowed for carbon capture equipment that is part of the qualifying clean hydrogen production facility itself if:
    - (i) the carbon capture equipment itself is retrofitted in a manner that satisfies the 80/20 Rule AND
    - (ii) no Section 45Q credit is allowed to any taxpayer post-retrofit even if the carbon capture equipment is eligible for the Section 45Q credit.

A&M Observation – All permutations and combinations of the application of the 80/20 Rule highlight the importance of ensuring that modifications or retrofits satisfy the 80/20 Rule. Given the inherent complexities in applying the 80/20 Rule, especially as to the valuation of the used property, it will be important for taxpayers to ensure satisfaction is viable before engaging in a modification or retrofit.

Proposed Treas. Reg. Section 1.48-15 – Election to Treat Clean Hydrogen Facility as Energy Property

Finally, the guidance includes proposed regulations under Section 48 relating to taxpayers who elect to receive an investment tax credit under Section 48 in lieu of the CHPC for a qualified clean hydrogen production facility.

For jointly-owned facilities, the energy property election by any one of the owners is binding on all direct and indirect owners.[78] In the case of a facility owned by a partnership or an S corporation, such an election is made at the partnership or S corporation level and is binding on all ultimate credit claimants.[79]

The election is only available for property placed in service after 2022.[80] If property began construction prior to 2023 and is placed in service after 2022, the investment tax credit is only available to the extent of the basis of such property that is attributable to construction, reconstruction or erection occurring after 2022.

A taxpayer must obtain an annual verification report for the taxable year in which such an election is made and for each of the five subsequent taxable years that make up the special recapture period discussed immediately below.[81] The requirements for this Section 48 verification report cross-reference the CHPC verification report requirements.[82] The verification report must be signed and dated by the qualified verifier no later than the due date, including extensions, of the Federal income tax return for the taxable year in which the hydrogen undergoing verification was produced.[83]

The investment tax credit received because of such an election is subject to a special recapture period (i.e., distinct from the general five-year recapture period for the investment tax credit that begins on the placed in service date) for the five-year period beginning on the first day of the taxable year following the taxable year in which the facility is placed in service.[84] The special recapture rule applies to "emissions tier recapture events," which take place if and when:

1. The taxpayer fails to obtain an annual verification report by the deadline for filing its Federal income tax return (including extensions) during the special recapture period;[85]

2. The relevant clean hydrogen production facility has a lifecycle greenhouse gas emissions rate that cannot support the energy percentage identified for such facility but can support a lower energy percentage;[86] or

3. The relevant clean hydrogen production facility has a lifecycle greenhouse gas emissions rate of greater than four kilograms of CO2e per kilogram of hydrogen.[87]

An emissions tier recapture event caused by (2) in a taxable year during the special recapture period results in recapture equal to 20 percent of the difference in the investment tax credit available for the identified energy percentage and the actual supported energy percentage.[88] An emissions tier recapture event caused by (1) or (3) results in a recapture of 20 percent of the entire investment tax credit allowed for the facility.[89] An example in the proposed regulations illustrates that the determination of an emissions tier recapture event is made on a year-by-year basis during the special recapture period, meaning an emissions tier recapture event in the first year of the special recapture period does not have any bearing on whether there would be an emissions tier recapture event in the following four years of the special recapture period.[90]

An emissions tier recapture event is tested only after the application (or non-application) of the recapture rules in Section 50(a) (the general investment tax credit recapture rules) and Section 48(a)(10)(C) (the recapture rules for a project that claims a bonus credit for prevailing wage compliance), in that order.[91]

A&M Observation – When a taxpayer elects to treat a qualified clean energy hydrogen production facility as energy property eligible for the investment tax credit, the verification report must be completed by the extended due date of a taxpayer's originally filed return or the portion of the investment tax credit relating to that year will be recaptured. As such, timely

verification reports will be very important for taxpayers who elect to treat a qualified clean hydrogen production facility as energy property.

Contrast this requirement with the general verification report requirement for the Section 45V credit for a taxpayer who does not make an energy property election. In that case, a delayed verification report does not impact the availability or amount of the CHPC (though it does eliminate the ability to make a direct pay election under Section 6417 or a transfer election under Section 6418); the delay only impacts the timing of when a taxpayer may claim the CHPC.

---

[1] *See* https://www.bloomberg.com/news/articles/2023-12-05/hydrogen-industry-raises-alarm-over-leaked-us-tax-credit-rules, retrieved on January 7, 2024.

[2] The proposed regulations would allow annual matching through 2027, with an hourly matching requirement beginning in 2028. Proposed Treas. Reg. § 1.45V-4(d)(3)(ii).

[3] Section 45V(a).

[4] Section 45V(b)(1) and (b)(3).

[5] Section 45V(e). Section 45V(e)(3) describes the prevailing wage requirements, and Section 45V(e)(4) cross-references the description in Section 45(b)(8) for the apprenticeship requirements.

[6] Section 45V(b)(2).

[7] Section 45(c)(1)(A), cross-referencing 42 USC 7545(o)(1)(H) as in effect on August 16, 2022.

[8] Section 45V(c)(1)(B). The GREET model refers to the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model developed by Argonne National Laboratory, or a successor model (as determined by the Secretary). The Department of Energy hosts the GREET model at this link.

[9] Section 45V(a)(1).

[10] Section 45V(c)(3)(C).

[11] Section 45V(c)(2)(B).

[12] Section 45V(d)(2). The use of the term “any taxpayer” means that a Section 45Q(f)(3)(B) election to shift the Section 45Q credit to a taxpayer who does not capture the carbon could still lead to disqualification for the CHPC.

[13] Section 45V(d)(4).

[14] Section 48(a)(15).

[15] Section 48(a)(15)(A)(ii).

[16] *Id.*

[17] Section 48(a)(15)(C)(iii).

[18] Proposed Treas. Reg. § 1.45V-1(a)(7)(i).

[19] Proposed Treas. Reg. § 1.45V-1(a)(7)(ii).

[20] Proposed Treas. Reg. § 1.45V-1(a)(7(iii).

[21] Proposed Treas. Reg. § 1.45V-1(a)(7)(iv).

[22] Proposed Treas. Reg. § 1.45V-1(a)(8)(ii).

[23] *Id.*

[24] Proposed Treas. Reg. § 1.45V-1(a)(8)(iii).

[25] *Id.*

[26] Proposed Treas. Reg. § 1.45V-1(c).

[27] Section 6417(d)(3)(A)(i)(I). Direct pay under Section 6417 for the CHPC is available to all taxpayers, and not just applicable entities (e.g., tax-exempts and governments), for the first five years of hydrogen production by a qualified clean hydrogen production facility. Section 6417(d)(1)(B); (d)(3)(D)(i)(III)(aa). There does not appear to be an explicit rule as to when amounts available for direct pay must be claimed in Years 2-5 in cases where a valid five-year election was made timely, as technically there is no "election" requirement for Years 2-5. Absent a clear rule to the contrary, taxpayers would be well advised to include any Year 2-5 direct pay claims on a timely filed return (including extensions).

[28] Section 6418(e)(1).

[29] Proposed Treas. Reg. § 1.45V-2(a); see also Section 45V(d)(2).

[30] Proposed Treas. Reg. § 1.45V-2(a); cross-referencing the 80/20 Rule found in Treas. Reg. § 1.45Q-2(g)(5). The 80/20 Rule generally provides that a credit-eligible facility may be treated as originally placed in service following a retrofit if no more than 20 percent of the value of a facility's value post-retrofit is attributable to used components of property (with the value of the facility equal to the cost of the new components of property plus the value of the used components of property). The 80/20 Rule is relevant in many contexts; one of its most common application pre-IRA was generally to determine if a wind facility had been "repowered" to allow for a new 10-year Section 45 production tax credit period. See Rev. Rul. 94-31, 1994-1 C.B. 16.

[31] IRS 2022 Publication 946, Chapter 1, Page 12.

[32] Proposed Treas. Reg. § 1.45V-2(b)(1).

[33] Proposed Treas. Reg. § 1.45V-2(b)(2)(i).

[34] Proposed Treas. Reg. § 1.45V-2(b)(2)(ii).

[35] Such a transaction is not dissimilar to generators of electricity from wind turbines who may sell power at a negative price in lieu of shutting down as the Section 45 production tax credit is still available for such electricity produced.

[36] Proposed Treas. Reg. § 1.45V-2(c).

[37] Id.

[38] Id.

[39] Note that Proposed Treas. Reg. § 1.45V-3 is reserved for future use.

[40] Proposed Treas. Reg. § 1.45V-4(a).

[41] *Id.* Such situations include those where either the feedstock used by the facility or the facility's hydrogen production technology is not included in the most recent GREET model. See Treas. Reg. § 1.45V-4(c)(2)(i).

[42] Proposed Treas. Reg. § 1.45V-4(c)(2)(ii).

[43] Proposed Treas. Reg. § 1.45V-4(c)(3)-(6).

[44] Proposed Treas. Reg. § 1.45V-1(a)(8)(iii). This position requiring consideration of the emissions of electricity inputs is backed by a letter from the Environmental Protection Agency to Treasury as well as a Department of Energy White Paper.

[45] Proposed Treas. Reg. § 1.45V-4(d)(1). For example, one MWh of electricity used to produce hydrogen would need to be matched with one MWh of qualifying EACs.

[46] Proposed Treas. Reg. § 1.45V-4(d)(2)(ii).

[47] Id.

[48] Proposed Treas. Reg. § 1.45V-4(d)(1).

[49] *Id.* A "qualified verifier" is defined under Proposed Treas. Reg. § 1.45V-5(h) as any individual or organization with active accreditation as a (i) validation and verification body from the American National Standards Institute National Accreditation Board; or (ii) verifier, lead verifier or verification body under the California Air Resources Board Low Carbon Fuel Standard program.

[50] Proposed Treas. Reg. § 1.45V-4(d)(3)(i).

[51] Proposed Treas. Reg. § 1.45V-4(d)(3)(i)(A). An EAC meets this requirement if it is produced by an electricity generating facility that had an uprate during the same three-year window. Proposed Treas. Reg. § 1.45V-4(d)(3)(i)(A). An uprate results in the need to pro-rate the electricity generation facility's output based on pre-uprate capacity compared to post-uprate capacity. See the Example in Proposed Treas. Reg. § 1.45V-4(d)(3)(i)(C). Though not entirely clear, it seems an uprated electricity generation facility could sell two categories of EACs, those not related to the uprate and those related.

[52] Proposed Treas. Reg. § 1.45V-4(d)(3)(ii).

[53] Proposed Treas. Reg. § 1.45V-4(d)(3)(iii). For this purpose, the term "region" means a region derived from the National Transmission Needs Study that was released by the Department of Energy on October 30, 2023. Alaska, Hawaii, and each U.S. territory will be treated as separate regions. Proposed Treas. Reg. § 1.45V-4(d)(2)(vi).

[54] *See, e.g.,* a press release issued by Senator Joe Manchin's office on the day the proposed regulations were released, quoting Senator Manchin as saying "it makes no sense to kneecap the hydrogen market before it can even begin."

[55] Section 45V(c)(2)(B)(ii).

[56] Proposed Treas. Reg. § 1.45V-5(b)(1), with detailed requirements set forth in Proposed Treas. Reg. § 1.45V-5(c).

[57] Proposed Treas. Reg. § 1.45V-5(b)(2), with detailed requirements set forth in Proposed Treas. Reg. § 1.45V-5(d).

[58] Proposed Treas. Reg. § 1.45V-5(b)(3), with detailed requirements set forth in Proposed Treas. Reg. § 1.45V-5(e).

[59] Proposed Treas. Reg. § 1.45V-5(b)(4), with detailed requirements set forth in Proposed Treas. Reg. § 1.45V-5(f).

[60] Proposed Treas. Reg. § 1.45V-5(b)(5), with detailed requirements set forth in Proposed Treas. Reg. § 1.45V-5(g).

[61] Proposed Treas. Reg. § 1.45V-5(b)(6).

[62] Proposed Treas. Reg. § 1.45V-5(h).

[63] *See* Proposed Treas. Reg. § 1.45V-5(e), including a rule that the qualified verifier may not receive a fee determined to any extent on the value of the resulting CHPC. Proposed Treas. Reg. § 1.45V-5(e)(1)(i).

[64] Proposed Treas. Reg. § 1.45V-5(e)(1)(iii), with relatedness tested under Sections 267(b) and 707(b)(1).

[65] Proposed Treas. Reg. § 1.45V-5(e)(2).

[66] Proposed Treas. Reg. § 1.45V-5(j). The unrelated party sale requirement for the Section 45 and 45U credits is not applicable where a taxpayer or a related person uses the generated electricity at a qualified clean hydrogen production facility to produce qualified clean hydrogen and such use and production is verified by an unrelated third party. See Sections 45(e)(13), 45U(c)(2) (cross-referencing, in part, Section 45(e)(13)).

[67] Proposed Treas. Reg. § 1.45V-5(k)(1).

[68] Proposed Treas. Reg. § 1.45V-5(k)(2).

[69] Section 45V(d)(4).

[70] Proposed Treas. Reg. § 1.45V-6(a)(2).

[71] Proposed Treas. Reg. § 1.45V-6(b).

[72] *Id.*

[73] *Id.*

[74] Proposed Treas. Reg. § 1.45V-6(c).

[75] Proposed Treas. Reg. § 1.45V-6(c)(3).

[76] Proposed Treas. Reg. § 1.45V-6(c)(5).

[77] See above A&M Observation on how to determine when a Section 45Q credit is "allowed" where a taxpayer owns property that is eligible for the Section 45Q credit.

[78] Proposed Treas. Reg. § 1.48-15(d)(1).

[79] Proposed Treas. Reg. § 1.48-15(d)(2). The preamble to the proposed regulations requests comments as to whether separate elections for different owners should be available where a facility is owned in a tenancy-in-common or in an organization that has made an election out of Subchapter K under Section 761(a).

[80] Proposed Treas. Reg. § 1.48-15(d)(4).

[81] Proposed Treas. Reg. § 1.48-15(e)(1).

[82] Proposed Treas. Reg. § 1.48-15(e)(2)(i)(A).

[83] Proposed Treas. Reg. § 1.48-15(e)(2)(v).

[84] Proposed Treas. Reg. § 1.48-15(f)(3).

[85] Proposed Treas. Reg. § 1.48-15(f)(2)(i).

[86] Proposed Treas. Reg. § 1.48-15(f)(2)(ii).

[87] Proposed Treas. Reg. § 1.48-15(f)(2)(iii).

[88] Proposed Treas. Reg. § 1.48-15(f)(4)(i).

[89] Proposed Treas. Reg. § 1.48-15(f)(4)(iii).

[90] Proposed Treas. Reg. § 1.48-15(f)(5).

[91] Proposed Treas. Reg. § 1.48-15(f)(6).

Source URL:https://www.alvarezandmarsal.com/insights/am-tax-reports-section-45v-proposed-regulations

Authors:
Kyle Seipert
Michael Farkas