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August 3, 2020

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Internal Revenue Service
CC:PA:LPD:PR (REG-112339-19)
Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, D.C. 20044

Re: Comments in Response to Notice of Proposed Rulemaking REG 112339-19 Regarding Section 45Q Credit for Carbon Oxide Sequestration

Ladies and Gentlemen:

We submit the attached comments in response to the request for comments on all aspects of the proposed regulations contained in Notice of Proposed Rulemaking REG-112339-19 (the "NPRM") regarding section 45Q Credit for Carbon Oxide Sequestration.

We applaud the IRS and Treasury for their hard work in grappling with difficult issues to provide the extensive guidance reflected in the NPRM. It is clear that preparation of the proposed regulations was a major undertaking. The product provides significant guidance on many issues and will abate the chilling effect that the lack of guidance has had on taxpayer investment in, and attraction of tax equity financing for, carbon capture projects.

We appreciate the opportunity to comment on the regulations. Section 45Q reflects important bipartisan policy objectives for Congress and the Administration and industry participants want to engage in the activity it incentivizes. Our comments are offered in the spirit of ensuring that implementation of the guidance provides the certainty needed to incentivize such activity.

If you have any questions regarding the attached comments or would like to discuss any of the issues addressed, please contact us at the above number.

Respectfully Submitted,

Baker Botts L.L.P.

By: Barbara S. de Marigny
Barbara S. de Marigny

52327816

Attachment: Comments in Response to NPRM

Cc: Holly Porter, Associate Chief Counsel (Passthroughs & Special Industries)
David Selig, Office of the Associate Chief Counsel
Maggie Stehn, Office of the Associate Chief Counsel
Jennifer C. Bernardini, Office of the Associate Chief Counsel

Comments Submitted by Baker Botts L.L.P. in Response to Notice of Proposed Rulemaking REG-112339-19 Regarding Section 45Q Credit for Carbon Oxide Sequestration

These comments are submitted in response to the Notice of Proposed Rulemaking REG-112339-19 regarding the section 45Q credit for carbon oxide sequestration.

General Comments:

The proposed regulations will provide greater clarity to taxpayers as to how to properly claim the section 45Q credit. The proposed rules will encourage taxpayers to invest in carbon capture technologies and projects. The proposed rules will beneficially impact a number of industries and reduce emissions of carbon oxide that would otherwise be released into the atmosphere as industrial emission of greenhouse gases.

As a law firm, we do not comment upon or address any scientific, environmental or technology issues, which would be outside our area of expertise, except to the extent that industry participants have flagged such issues to us, in which case we speak to such issues only to the extent relevant to evaluating procedural or administrative requirements of the proposed regulations.

Our discussion below follows the ordering of these topics in the NPRM.

Outline of Topics Addressed in These Comments

I. Installation of Additional Equipment

Prop. Reg. §1.45Q-1(g) restates the rule in section 45Q(b)(2) which is designed to allow application of the post-February 8, 2018 credit amounts to qualified carbon oxide that is captured

using equipment that is added to equipment placed in service before that date. The proposed regulation draws a distinction for this purpose between equipment the addition of which increases the carbon capture capacity of a facility and an increase in the amount of carbon oxide captured by existing equipment (for example, because it has increased its operation days or is operating more efficiently). Under the proposed regulation, an increase in the amount captured by existing equipment will not change the placed-in-service date treatment of the existing equipment.

Section 45Q(b)(2) provides that the higher credit amounts are available to the amount of qualified carbon oxide that exceeds the "capacity" of the carbon capture equipment in service, without defining "capacity." Accordingly, Prop. Reg. §1.45Q-1(g) also references the excess over the "capacity" of the carbon capture equipment without defining "capacity." Carbon capture facilities are typically designed and built with a "nameplate capacity," that is specified during the course of designing, engineering and building the facility. Carbon capture facilities (and, indeed, many industrial facilities of all types) frequently do not operate to the nameplate capacity level. For example, the number of days in a year spent on repairs, maintenance, shutdowns or turnarounds will often cause actual production to be significantly less than the nameplate capacity.

We suggest that "capacity" be defined for this purpose as "Effective Nameplate Capacity" which would mean the average annual carbon oxide captured in the three previous taxable years (or such shorter period as the equipment has been in operation). Use of a three-year average avoids issues such as turnarounds or unplanned disruptions that often occur in facilities of this nature and will average out one-time disruptions. Use of a definition such as this would mean that taxpayers would not be penalized in the calculation of their eligible credit when historic operations were less than 100 percent of nameplate capacity.

II. Contractually Ensuring Disposal, Use or Utilization

Prop. Reg. §1.45Q-1(h)(2) sets out the requirements for a taxpayer to contractually ensure capture, disposal or utilization by another party. The requirements are straightforward and give taxpayers room to negotiate the particulars of their contracts. It appears that such contracts do not need to be filed with Form 8933 in order to claim the credit, although there is no explicit statement in the proposed regulations to that effect.

The proposed regulations do not appear to address the question of effective date of the requisite contractual provisions. Many contracts of the type described are already in existence, pursuant to which sales of captured carbon have occurred for enhanced oil recovery ("EOR") or utilization. Those contracts would not have some of the provisions called for by the regulations and would presumably need to be amended to contain such provisions. This raises the question of the timing of such amendments.

Is it sufficient to amend those contracts to include the required provisions with effect from the date of finalization of the regulations? It is unlikely that the parties would agree to amend their agreements retroactively, especially when the parties will not know exactly to what they are agreeing. For example, Prop. Reg. §1.45Q-1(h)(2)(iii)(G) requires that contracts for the sale of carbon oxide to be utilized obligate the utilizing party "to comply with [the utilization] regulations" but, until the regulations are finalized, the scope or magnitude of such an obligation is not

knowable. Would failure to have such provisions in a contract with a current effective date prevent a valid claim for the credit for years before the regulations are finalized?

In addition, many contracts for utilization or use of the captured carbon are in existence today and those contracts reflect carefully negotiated pricing (and other terms) for the sale of carbon oxide. As a business matter, entering into discussions regarding amending a contract frequently risks re-opening for discussion the basic pricing and other terms of the contract. Therefore, it is quite likely that taxpayers, who would like to comply with the regulations and do not have a problem with including in their contracts the terms that are called for by the regulations, will be loathe to broach amending any particular provision in their contract for fear of providing the counterparty with leverage to demand re-negotiation of other terms. This concern might be somewhat ameliorated if the regulations were to provide that an amendment of a contract is not necessary as long as there is a unilateral undertaking, such as through a side letter or certification, that meets the terms required by the proposed regulations. Ideally, however, existing agreements (defined as agreements signed before the date final regulations are promulgated) would be grandfathered and deemed to include the required provisions so that taxpayers could negotiate conforming provisions when putting new agreements in place.

One aspect of the proposed regulation regarding the determination of the existence of a binding contract that appears potentially confusing is the question of liquidated damages. Prop. Reg. §1.45Q-1(h)(2)(i) provides that "A written contract is binding only if it is enforceable under State law against both the taxpayer and the party that physically carries out the disposal, injection, or utilization of the qualified carbon oxide, or a predecessor or successor of either, *and does not limit damages to a specified amount*." (emphasis added). Prop. Reg. §1.45Q-1(h)(2)(iii)(B) provides that contracts ensuring the disposal, injection or utilization of qualified carbon oxide "*may*, but are not required to, *include* long-term liability provisions, indemnity provisions, penalties for breach of contract, or *liquidated damages provisions*." The first provision prohibits a damages limitation but the second provision permits a liquidated damages provision. Although, on their face these two provisions may seem inconsistent, a potential way to reconcile them would be to interpret them to mean that a liquidated damages provision is permissible if it does not specify the amount of the liquidated damages and references only a calculation of the liquidated damages, such as a dollar amount per ton.

An analogous area of the tax law that defines "binding contract" can be found in the guidance relating to existence of a binding contract for a construction project in connection with a determination as to the date of beginning construction. For example, section 8.02 of Notice 2020-12, regarding beginning of construction for purposes of section 45Q, defines a binding contract for construction. Regulations under section 168, which are cross-referenced by Notice 2020-12, also define "binding contract." Treas. Reg. §1.168(k)-1(b)(4)(ii)(A)-(D) and Treas. Reg. § 1.168(k)-2(b)(5)(iii)(A) define the term "binding contract" as follows: "A contract is binding only if it is enforceable under state law against the taxpayer and does not limit damages to a specified amount (for example, by use of a liquidated damages provision)." These regulatory provisions explicitly equate a liquidated damages provision with an impermissible limitation on damages.[1] In contrast,

[1] Treas. Reg. § 1.168(k)-2(b)(5)(iii)(A). A contractual provision that limits damages to an amount equal to at least five percent of the total contract price is not treated as limiting damages to a specified amount, and in the case of a

the proposed section 45Q regulations contain the same prohibition on limiting damages to a specified amount but does not contain the same parenthetical regarding liquidated damages and then indicates in the list of permissive clauses that liquidated damages provisions are permissible.

We believe that, as a practical matter, it is highly unlikely that parties to an arm's length contract in a commercial context for the performance of carbon capture or injection, disposal or utilization would agree to unlimited exposure to damages. Accordingly, some type of damage limitation will be an essential element of these contracts. Since liquidated damages provisions have previously been held out as an example of a limitation to a specific amount, it would be helpful if the final regulations clarified the nature of the damages limitation that is permissible. For example, the parties may wish to state that a specific dollar amount of damages per ton applies, which would not limit the aggregate damage amount absolutely, even though there is a specific amount referenced. In contrast to contracts for construction projects, a limitation by reference to a percentage of the *total* contract price is not practicable for contracts with respect to the ongoing provision of goods or services, such as the sale of captured carbon oxide. It might be possible to provide for damages as a percentage of sales over a specific time period, however, such as monthly or annually.

Finally, it should be clear from the policy behind section 45Q that there is no prohibition on qualifying disposal, injection or utilization contracts with parties that are related to the taxpayer. While such relationships in other contexts may call into question the arm's length nature of the pricing for the transactions, the contracts referenced by section 45Q are referenced with respect to securing the performance of certain activity, not with respect to the economic outcome of that activity. Even though it should be apparent that an ownership relationship between the contracting parties is not relevant for purposes of section 45Q, we believe that it would be helpful if the regulations contained an explicit statement that the taxpayers that are parties to the contract may be commonly owned or controlled or otherwise have some overlapping ownership relationship.

III. Election to transfer section 45Q credit to another – the section 45Q(f)(3)(B) election

Section 45Q(f)(3)(B) provides that a person that is entitled to claim the credit under subparagraph 45Q(f)(3)(A)(i) or subparagraph 45Q(f)(3)(A)(ii) may elect to allow the person that disposes of the qualified carbon oxide, utilizes the qualified carbon oxide, or uses the qualified carbon oxide as a tertiary injectant to claim the credit. Prop. Reg. §1.45Q-1(h)(3)(ii) provides that section 45Q(f)(3)(B) elections are to be made by filing a statement of election with the taxpayer's Federal income tax return on an annual basis no later than the time prescribed by law (including extensions) for filing the Federal income tax return. The proposed regulation provides that the election may not be filed with an amended Federal income tax return with the exception of amended returns for any taxable year ending after February 9, 2018 but not for taxable years beginning after June 2, 2020.

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contract with multiple provisions that limit damages, only the provision with the highest damages is taken into account in determining whether the contract limits damages.

The proposed regulations also set forth information to be provided as part of a section 45Q(f)(3)(B) election, requiring both an electing taxpayer and a credit claimant to include a Form 8933 (or successor forms, or pursuant to instructions and other guidance) with its timely filed Federal income tax return (including extensions) as applicable. An electing taxpayer must provide each credit claimant with a copy of the electing taxpayer's Form 8933, and each credit claimant must attach that copy of the electing taxpayer's Form 8933 to its own Form 8933.

The transfer of the credit achieved by a section 45Q(f)(3)(B) election involves, by definition, two taxpayers and can involve additional taxpayers in the case of transfers to multiple parties. In our experience, any time that two or more taxpayers are negotiating for the transfer of tax attributes, the amount of time needed to agree upon and coordinate the terms of the transfer multiplies exponentially with the number of parties involved. Therefore, the limitation restricting the ability to make the election to originally filed, and not amended, returns presents practical problems that are likely to be continually frustrating, when parties cannot agree upon terms of the transfer prior to the required filing date for the original return.

Limiting the election to transfer the credit to the original return is particularly harsh when the law allows taxpayers to use amended returns to claim credits. See Prop. Reg. §1.45Q-1(h)(1)(iii). If the owner of the carbon capture equipment does not even claim the credit until it files an amended return, a requirement that the transfer election be made on an original return effectively precludes the election completely since, at the time of the original return, the taxpayers would not have any information about the claimed amount.

We strongly urge the Service to reconsider the provision in the proposed regulations that prohibits the election on an amended return. If the credits can be claimed on an amended return and if the parties can agree upon the terms for the election, we fail to see a policy reason for a prohibition on making the section 45Q(f)(3)(B) election on an amended return. At most, the regulations could limit the transfer election to the same return on which the credit is claimed, whether that be an original or amended return, but even that restriction is likely to present practical problems when the taxpayer is ready to claim the credit but is not yet sure of the terms of the transfer.

Finally, if the proposed requirement that the transfer election be made on original returns is born out of a concern that a taxpayer might claim the credit on an original return and then make the transfer election on an amended return without relinquishing the previously claimed credit, the regulations could be revised to prevent such a whipsaw; that is, if a transfer election is made on an amended return with respect to a credit the taxpayer claimed on its original return, then the amended return must also reflect the taxpayer's reversal of the previously claimed credit to the extent transferred. That reversal should be implicit from the provision in Prop. Reg. §1.45Q-1(h)(1) that "the taxpayer that makes the election . . . may not claim any section 45Q credits that are allowable to a credit claimant." If there is a concern that such reversal would not happen, however, then the regulations could specify that a transfer election on an amended return would be invalid to the extent the taxpayer that is making the election to transfer the credit does not also amend its return to reflect relinquishment of the previously claimed credit.

IV. Definitions

A. Industrial facility

The section 45Q credit is available for qualified carbon oxide captured using equipment at a "qualified facility." Section 45Q(d) defines a "qualified facility" as any "industrial facility" or direct air capture facility meeting certain thresholds. The statutory provision does not define "industrial facility."

Prop. Reg. §1.45Q-2(d) provides that "an industrial facility is a facility that produces a carbon oxide stream from a fuel combustion source or a fuel cell, a manufacturing process, or a fugitive carbon oxide emission source . . . ." Prop. Reg. §1.45Q-2(d)(1) excludes from the definition of "industrial facility" a facility that "produces carbon dioxide from carbon dioxide production wells at natural carbon dioxide-bearing formations or a naturally occurring subsurface spring." The same proposed regulation provides, as an exception to the exclusion, that a deposit of natural gas that contains less than 10 percent carbon dioxide by volume is not a natural carbon dioxide-bearing formation.

Comments submitted in response to Notice 2019-32, 2019-21 I.R.B. 1187, made clear that gas drillers have a concern that they not be precluded from obtaining the credit for capturing carbon oxide that is a co-product of drilling for natural gas.[2] Certain comments also pointed out that a rule premised on whether the purpose of the drilling was to produce natural gas or to produce carbon dioxide is a rule that is difficult to administer because it calls for an assessment of the subjective intent of the driller of the well which is difficult, if not impossible, to determine.

The proposed regulations seem to address that concern by excepting from the exclusion for natural formations those deposits of natural gas that contain less than 10 percent carbon dioxide by volume. For those deposits with in excess of 10 percent carbon dioxide, however, the proposed regulations exclude facilities that produce carbon dioxide from carbon dioxide production wells at such deposits. However, even if the carbon dioxide is coming from a natural carbon dioxide-bearing formation, it would appear that the definition of "industrial facility" could still be satisfied if the taxpayer can show a manufacturing process by, for example, processing mixed gas and selling the non-carbon oxide gas.

Prop. Reg. §1.45Q-2(d)(4) provides an example in which a natural underground reservoir contains a gas that is 50% carbon dioxide and 50% methane by volume. This means that the reservoir does not satisfy the exception to the exclusion from the definition of industrial facility, so it presumably could have been excluded from being an industrial facility by virtue of being a natural carbon dioxide-bearing formation. However, the example goes on to analyze whether a manufacturing process is occurring, determines that it is not and therefore concludes that the credit is unavailable.[3] Engaging in that analysis suggests that, if a manufacturing process had been found

[2] Comment letters for Docket ID IRS-2019-0026 were posted and may be accessed at https://www.regulations.gov/docket?D=IRS-2019-0026.

[3] Actually, the analysis implicit in the example is more multi-step than that: the example concludes that the carbon dioxide captured by the process is not qualified carbon oxide; a determination that follows from the statutory

to exist (because, for example, the methane was intended to be sold at a profit), qualified carbon oxide could result.

The proposed regulation's presentation of the exclusion, the exception to the exclusion and the example designed to illustrate the operation of these rules is not entirely clear, possibly because the example attempts to illustrate the operation of multiple rules on one set of facts. Also, the example as drafted seems to implicitly assume that the 10% exception to the exclusion does not apply because the facility at issue is a processing facility rather than a production facility. If this is indeed a key point of the example, it should be expressly covered in the example by expanding it. It would also be very helpful if the example were expanded to illustrate a situation in which some of the methane from the processing facility is resold, causing the processing facility to qualify as an industrial facility. For example, it could be presented as follows:

> Revised example for Prop. Reg. §1.45Q-2(d)(4):
>
> (i) A natural underground reservoir contains a gas that is comprised of 50 percent carbon dioxide and 50 percent methane by volume. Because the reservoir is not a deposit of natural gas that contains less than 10 percent carbon dioxide by volume, it is a natural carbon dioxide-bearing formation within the meaning of paragraph (d)(1). Taxpayer A drills a well to remove gas from the reservoir. The production well is therefore a facility that produces carbon dioxide at a natural carbon dioxide-bearing formation and therefore the production well is not an industrial facility pursuant to the exclusion of paragraph (d)(1). The carbon dioxide produced from the well is not qualified carbon oxide.
>
> (ii) The raw gas from the production well is not usable without the application of a separation process to create two gases that are primarily carbon dioxide and methane. Taxpayer B constructs processing equipment that separates the raw gas into carbon dioxide and methane. The carbon dioxide is sold to a third party for use in a qualified enhanced oil recovery project. Some of the methane is used as fuel to power the processing equipment. In Year 1, the remainder of the methane is injected into the reservoir. The injection will increase the ultimate recovery of carbon dioxide. The injected methane can be produced later from the reservoir. At the end of the taxable year (Year 1), the taxpayer has not secured a contract to sell methane and does not have any plans to use the methane for a commercial purpose. Because, in Year 1, carbon dioxide is the only product manufactured that is intended to be sold at a profit or used for a commercial purpose, the separation process applied to the gases is not a manufacturing process within the meaning of

requirement that, in order to be qualified carbon oxide, the carbon oxide must be from an "industrial source." The proposed regulations define an "industrial source" as an emission of carbon oxide from an industrial facility. Therefore, failure to find a manufacturing process at the deposit in the example means failure to satisfy the definition of an industrial facility which means, in turn, that the carbon dioxide is not from an industrial source.

paragraph (d)(3). Therefore, the facility is not an industrial facility, so the carbon oxide is not from an industrial source and thus is not qualified carbon oxide.

(iii) In Year 2, Taxpayer B secures a contract to sell the methane at a profit and begins selling the methane rather than injecting it into the reservoir. Because, in Year 2, carbon dioxide is not the only product manufactured that is intended to be sold at a profit or used for a commercial purpose, the separation process applied to the gases is a manufacturing process within the meaning of paragraph (d)(3). The processing equipment is therefore an industrial facility and the carbon dioxide captured by the process is from an industrial source. The carbon dioxide captured by the process is qualified carbon oxide.

B. Qualified Facility - Annualization

Prop. Reg. §1.45Q-2(g)(3) provides that, for the year in which carbon capture equipment is placed in service at a qualified facility, annualization of the amount of qualified carbon oxide emitted and captured is permitted to determine if the facility meets the minimum threshold amounts required by subsection (g)(1) of the proposed regulations. As a result, even if the amount of qualified carbon oxide emitted or captured in its first year is less than the threshold requirements, the facility may be able to claim the credit, although the amount that may be claimed is limited to the amount actually captured, not the annualized amount.

We applaud the proposed regulations' recognition of the fact that a facility should not be excluded from access to the credit simply because it failed to satisfy an annual requirement due to a mid-year placed-in-service date. However, we suggest that consideration be given to extending the annualization concept to apply to production days lost due to a facility being shut down or non-operative and that annualization to account for such days be available in all years, not only the placed-in-service year, in order to determine whether a facility meets the minimum threshold amounts specified in section 45Q(d).

If a facility is of the type for which the credit was intended, it should not be penalized for failing to satisfy minimum annual thresholds merely because of operative downtime, especially if the downtime is due to unforeseen reasons, such as force majeure events, power outages, absence of feedstock or supplies, or even labor strikes. If a facility is close to the edge in meeting the minimums, loss of the credit for an entire year's capture and sequestration activity due to a few non-operative days (particularly if due to circumstances beyond a taxpayer's control), would seem to be a harsh result that serves only to heighten investors' concern that projected credits may not materialize. To give certainty to investors that the credits projected for a facility will be available despite such events, the annualization concept should be applied to such circumstances and to all years, not only the placed-in-service year.

Finally, the annualization concept should also be applied to determine satisfaction of another threshold amount in the statute: the requirement for the section 45Q(f)(6) election that the facility capture 500,000 or more metric tons of qualified carbon oxide. Similar to the application to the definition of qualified facility, application of the annualization concept to the minimum annual capture requirement for such election would allow taxpayers and investors in

these projects to have confidence that they will be able to elect into the post-BBA credit amounts without concern that an unforeseen temporary shutdown could have a radical impact on the value of their credits. As is the case with the proposed regulations' application of annualization to determine whether a facility is a qualified facility, the annualization could be applied solely to determine whether the taxpayer is eligible to make the (f)(6) election, while the credit amount could be limited to the tonnage actually captured and disposed of or utilized.

C. Election for applicable facilities (section 45Q(f)(6) election)

Prop. Reg. §1.45Q-2(g)(4) first restates section 45Q(f)(6) which provides that, in the case of an "applicable facility," for any taxable year in which such facility captures not less than 500,000 metric tons, the taxpayer may elect to have such facility and any carbon capture equipment at such facility deemed as having been placed in service on or after February 9, 2018. Section 45Q(f)(6)(B) provides that an "applicable facility" is one (i) which was placed in service before the date of the enactment of the Bipartisan Budget Act of 2018, and (ii) for which no taxpayer claimed a section 45Q credit for any taxable year ending before February 9, 2018.

Since an "applicable facility" is one that, although qualified, was placed in service before February 9, 2018, the effect of the election is to apply the higher credit amounts to the tons captured by such facility in such taxable year. In contrast to the thresholds specified in the definition of qualified facility, the 500,000 metric ton threshold of section 45Q(f)(6) does not distinguish between type of facility (i.e., electric-generating or otherwise), emission amount or amount utilized. The statute is clear that the election is with respect to "a" facility, not all the taxpayer's facilities.

Because eligibility for the election is with respect to and dependent upon the amount captured at "a" facility, the determination of what constitutes a single facility becomes important. It would be helpful if the regulations clarified the meaning of a facility for this purpose. For example, if a taxpayer performs two different manufacturing processes, each of which emits carbon oxide as a by-product, and each of which has carbon capture equipment to capture its emissions, would the entire operation be considered one "facility" for purposes of the election if the manufacturing occurs in locations that are geographically united? Conversely, if capturing carbon is a multi-step process that occurs over a wide area or, although occurring in a single location, captures carbon emitted from a number of geographically separate operations, is there a risk the captured carbon would be considered attributable to more than one facility, reducing the likelihood that the required threshold would be met?

Notice 2020-12, in section 8.01(1), sets out factors for a determination as to when multiple qualified facilities or units of carbon capture equipment will be considered to be a single "project" for purposes of determining beginning of construction. In addition to common ownership and geographic proximity, the list includes other criteria such as joint EPA permitting, joint contracting for sales and common debt financing. These rules are not currently applicable to the section 45Q(f)(6) election since the election is framed in terms of a threshold achieved at a "facility," not at a "project." Nevertheless, they provide a very useful methodology for determining how to decide whether carbon capture operations should be aggregated. Therefore,

we suggest that consideration be given to adapting these factors for application to the question of when multiple units of carbon capture equipment could be aggregated to constitute a single facility for purposes of section 45Q(f)(6).

D. Retrofitted Equipment (80/20 Rule)

Prop. Reg. §1.45Q-2(g)(5) provides that a qualified facility or carbon capture equipment may qualify as originally placed in service even if it contains some used property, provided the fair market value of the used components of property is not more than 20 percent of the qualified facility or carbon capture equipment's total value (the cost of the new components of property plus the value of the used components of property)(the "80/20 Rule").

Recognizing that one of the goals of the NPRM is to help provide certainty to taxpayers and investors with respect to their investments in carbon capture projects, we point out that use of the used components' fair market value, as opposed to their capitalized cost, in the 80/20 rule's calculation introduces uncertainty into whether an expansion project will satisfy the 80/20 rule. In considering whether to expand a carbon capture facility, the return on the investment will be modeled based on whether the expanded facility will be eligible for the higher credit amounts by satisfying the 80/20 rule. Part of the modeling will include the projected cost of the additional or expanded facility, which can be estimated with some certainty. The fair market value of the used equipment is, unfortunately, less certain.

We can foresee situations in which, despite a taxpayer's best efforts to model the cost of the new construction relative to the value of the existing equipment, market changes cause the existing equipment to have a higher than expected value and prevent satisfaction of the 80/20 rule when the planned-for new construction costs turn out to be insufficient relative to the increased value of the used equipment. It is possible that there could be market change which causes operating carbon capture equipment to have an unexpected higher value. If so, despite planning and modeling for the purchase and installation of additional equipment that would satisfy the 80/20 rule, a change in the value of the used equipment could ruin the expectation of the taxpayer that its revamped equipment would be considered newly placed in service.

One solution would be to refer to the used equipment's capitalized costs (either depreciated or undepreciated) rather than its fair market value. If a determination is made that the reference to fair market value in the proposed regulations should be maintained, however, then one way to provide certainty to taxpayers would be to cap the fair market value so determined for the used equipment at the aggregate capitalized costs for the used equipment. Thus, the rule would compare the cost of the new equipment to the fair market value of the used equipment with such fair market value not to exceed the aggregate capitalized costs for the used equipment. Taxpayers will be able to identify the capitalized costs of their existing equipment with certainty so that such a cap will set the maximum amount that the taxpayer would need to spend on new equipment in order to satisfy the 80/20 rule. Alternatively, if fair market value without a cap must be used, consideration might be given to specifying the fair market value of the used equipment at the time the decision is taken to construct the new equipment rather than at the time of completion of the project. The rules for the calculation do not necessarily need to make it easier to satisfy the 80/20

rule but it is necessary to give taxpayers a methodology for the calculation that will provide as much certainty as possible.

Another point for clarification in this section is the treatment of pipelines in the cost calculation. Prop. Reg. §1.45Q-2(g)(5) provides that, solely for purposes of the 80/20 Rule, costs may include the cost of "new equipment for a pipeline" owned and used exclusively by that taxpayer to transport carbon oxides captured from that taxpayer's qualified facility that would otherwise be emitted into the atmosphere. Thus, even though not included in the definition of carbon capture equipment generally, the cost may be included for this purpose, which will be quite helpful to taxpayers as they try to qualify their projects under the 80/20 rule. A parallel provision is included in Notice 2020-12 with respect to application of the 80/20 rule for purposes of determining "beginning of construction."

We are unsure, however, whether phrasing the inclusion as "new equipment for" a pipeline means that the costs of construction of a new pipeline may be included. This phrasing could be read to mean that, if there is an existing pipeline for which the taxpayer acquires additional or different equipment (e.g., heavier compressors or additional controls), such equipment may be included but the capitalized costs of constructing a pipeline, such as digging underground a line for laying pipe, design or permitting expenses or the cost of new pipes, are excluded. In order to maximize the opportunity to satisfy the 80/20 rule it would be helpful if the regulations clarify that pipeline construction costs may be counted, if that is what was intended.

V. Secure Geological Storage

Under section 45Q, a taxpayer must either physically or contractually dispose of captured qualified carbon oxide in secure geological storage or utilize qualified carbon oxide in a manner conforming with section 45Q(f)(5). Many of those who commented in response to Notice 2019-32, 2019-21 I.R.B. 1187, raised the question of the standard for secure geological storage.

Under Prop. Reg. §1.45Q-3(b), qualified carbon oxide is considered disposed of by the taxpayer in secure geological storage such that the qualified carbon oxide does not escape into the atmosphere if the qualified carbon oxide is

(1) **Stored**, and not used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project, in compliance with applicable requirements under 40 CFR Part 98 **subpart RR**.

(2) **Used** as a tertiary injectant in a qualified enhanced oil or natural gas recovery project and stored in compliance with applicable requirements under 40 CFR Part 98 subpart RR, or the International Organization for Standardization (ISO) standards endorsed by the American National Standards Institute (ANSI) under CSA/ANSI **ISO 27916:19**, Carbon dioxide capture, transportation and geological storage – Carbon dioxide storage using enhanced oil recovery (CO2-EOR).

(3) **Injected** into a well that complies with applicable Underground Injection Control regulations onshore or offshore under submerged lands within the territorial jurisdiction of States.

Prop. Reg. §1.45Q-3(d) provides that taxpayers that follow EPA reporting called for by 40 CFR Part 98 subpart RR may self-certify the claimed amount of qualified carbon oxide, while taxpayers that provide documentation pursuant to the ISO standard must provide third-party certification. In offering these alternative ways of satisfying the requirement for secure geological storage, the proposed regulations have balanced the policy goal of secure storage with the practical abilities of taxpayers to provide monitoring and reporting.

We note that the regulation provides that the third party must be a "qualified independent engineer or geologist." In comparison, we note that in Prop. Reg. §1.45Q-5(c)(2), with respect to performance of a lifecycle analysis, verification is required by an "independent third-party" and such party must provide an affidavit stating that it is independent from the taxpayer. Consideration might be given to coordinating the references in these two provisions. The first does not use the phrase "third-party," while the second uses both independent and third-party, suggesting that they may have separate meaning, and also calls for an affidavit as to independence, which is not required by the certifying geologist for secure geological storage. We suspect that "independent" is used to mean unrelated to, or not otherwise a full-time employee of, the taxpayer, not that the engineer in question must be independent in the sense of being a sole practitioner independent from any other organization, such as a consulting engineering firm. Further clarification of this standard in both of these provisions would be helpful.

VI. Utilization

Prop. Reg. §1.45Q-4(a) defines "utilization" of qualified carbon oxide, as defined in subparagraph 45Q(f)(5)(A), to mean: (i) fixation of qualified carbon oxide through photosynthesis or chemosynthesis; (ii) the chemical conversion of qualified carbon oxide to a material or chemical compound in which such qualified carbon oxide is securely stored; or (iii) the use of such qualified carbon oxide for any other purpose for which a commercial market exists (with the exception of EOR), as determined by the Secretary.

Subparagraph 45Q(f)(5)(B) provides a methodology to determine the amount of qualified carbon oxide utilized by the taxpayer. Prop. Reg. §1.45Q-4 tracks the statutory provision by providing that such amount is equal to the metric tons of qualified carbon oxide which the taxpayer demonstrates, based upon an analysis of lifecycle greenhouse gas emissions (the "LCA"), were (i) captured and permanently isolated from the atmosphere, or (ii) displaced from being emitted into the atmosphere, through use of a process described in subparagraph 45Q(f)(5)(A).

Subparagraph 45Q(f)(5)(B)(ii) provides that the term "lifecycle greenhouse gas emissions" has the same meaning given such term under subparagraph (H) of section 211(o)(1) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), as in effect on February 9, 2018, except that "product" is substituted for "fuel" each place it appears in such subparagraph. Accordingly, Prop. Reg. §1.45Q-4(c) provides that the term "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) related to the full product lifecycle, including all stages of product and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished product to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming according to Table A-1 of 40 C.F.R. Part 98, subpart A.

The proposed regulations provide that the LCA must be in writing and either performed or verified by a professionally-licensed third party that uses generally-accepted standard practices of quantifying the greenhouse gas emissions of a product or process and comparing that impact to a baseline. Although the section 45Q credit is only available with respect to qualified carbon oxides, all greenhouse gas emissions are to be taken into account under this analysis.

With respect to the approval of the LCA, the proposed regulations state that (i) the taxpayer must submit the written LCA report to the IRS and the Department of Energy (DOE); and (ii) the LCA will be subject to a technical review by the DOE, and the IRS, in consultation with the DOE and the EPA, will determine whether to approve the LCA.

The NPRM requests comments on how to achieve consistency in boundaries and baselines so that similarly situated taxpayers will be treated consistently. The NPRM states that the Treasury Department and the IRS are willing to consider issuing guidance on particular fact patterns.

A. Measurement and Verification

Prop. Reg. §1.45Q-4(c)(2) states that the taxpayer is to measure the amount of carbon oxide captured and utilized through a combination of direct measurement and LCA. The same proposed regulation provides that:

> *The measurement and written LCA report must be performed by or verified by an independent third-party.* The report must contain documentation consistent with the . . . ISO 14044:2006, "Environmental management — Life cycle assessment — Requirements and Guidelines," as well as a statement documenting the qualifications of the third-party, including proof of appropriate U.S. or foreign professional license, and an affidavit from the third-party stating that it is independent from the taxpayer. (Emphasis added.)

In providing that the measurement and the LCA must be performed or verified by an independent third-party it appears that a taxpayer with an appropriately-credentialed staff could prepare the LCA in the first instance if the independent third-party verifies the LCA. This is a useful option for taxpayers that have skilled engineering teams familiar both with the company's operations and the methodologies used in preparing LCAs.

In requiring third-party preparation or verification for measurement, however, even if the first measurements of amounts captured and utilized are taken by the taxpayer, the third party must verify those measurements. Thus, the proposed regulations are, in essence, requiring a pre-

filing audit by a third party of the taxpayer's claimed tonnage. Because of this third-party verification, we suggest consideration be given to including a statement similar to that found in Notice 2010-54, 2019-40 I.R.B. 403, section 6.03(1)(e)(with respect to the refined coal production tax credit with respect to which a similar pre-audit is required), that, if testing and verification that meets the outlined parameters is provided, then the taxpayer is entitled to rely on such verification and the Service will not, on examination, require any additional proof as to the amounts claimed. Similarly, because the LCA approval process may require considerable time, the Service might consider providing that filing a claim for a credit amount accompanied by an LCA which has not yet been reviewed and approved (by the three government agencies that will review it) will not give rise to a substantial understatement penalty pursuant to section 6662.

Under the proposed regulations, the LCA must contain a statement documenting the qualifications of the third party, including appropriate U.S. or foreign professional license. There is no additional description of what constitutes an "appropriate professional license." Because the regulations do not specify the license(s) that would be considered "appropriate," we would expect that the Service (or the DOE) would have difficulty declining to accept the measured amounts (or an LCA), solely on the basis that the certifying party did not have a particular professional license.

Finally, as noted above with respect to the determination of "secure geological storage," the proposed regulation as drafted raises questions as to the meaning of "independent" and "third party," since for secure geological storage certification a "qualified independent engineer or geologist" is required, whereas, in Prop. Reg. §1.45Q-5(c)(2), verification is required by an "independent third-party" and such party must provide an affidavit stating that it is independent from the taxpayer. Consideration might be given to coordinating the references in these two provisions: one does not use the phrase "third-party," while the other uses both "independent" and "third-party," suggesting that they may have separate meaning and also calls for an affidavit as to independence, which is not required by the certifying geologist for secure geological storage. We suspect that independent is used to mean unrelated to, or not otherwise a full-time employee of, the taxpayer, not that the engineer in question must be independent in the sense of being a sole practitioner independent from any other organization, such as a consulting engineering firm. Further clarification of this standard would be helpful.

B. Standards and Boundaries for the Lifecycle Analysis

With respect to standards for the LCA, the proposed regulation states that the LCA must contain documentation consistent with the requirements of ISO 14044:2006 but the section that would cover standards for the LCA is "reserved." In the Preamble, the IRS describes the ISO standard as calling for an analysis of all greenhouse gas emissions, even though the section 45Q credit is only available with respect to carbon oxide. The DOE has posted an LCA guidance toolkit for carbon utilization,[4] but use of the DOE's template and database in preparing an LCA is not mentioned in the proposed regulations. However, since the DOE must review the LCA, it can be assumed that conformity of the LCA to the DOE's template, to the extent it does not differ from

[4] Accessible at https://www.netl.doe.gov/LCA/CO2U.

the ISO standard, would assist in acceptance of the LCA and so consideration might be given to referencing the DOE's template and database for LCA preparation in the regulations.

The question of the geographic and chronological boundaries for an LCA is one of the most difficult questions with respect to LCAs. A number of the comment letters submitted to Treasury last summer in response to Notice 2019-32, 2019-21 I.R.B. 1187, spoke to the question of LCA boundaries and such commenters were almost unanimous in their view that an LCA should not have to follow through to an "end of life" analysis when there was no difference between the "incumbent process" and the tested process (using captured carbon oxide) with respect to those latter stages of the product reaching the consumer and being used by the consumer.[5] Such commenters proposed that the consumer use component of LCAs in these circumstances be limited to an evaluation of the change in amount of greenhouse gas emissions resulting from the use of carbon that had been captured rather than obtained elsewhere.

Subparagraph 45Q(f)(5)(B)(ii) references the Clean Air Act definition of lifecycle greenhouse gas emissions and now Prop. Reg. §1.45Q-4(c) has imported that definition, which defines the lifecycle as reaching the consumer use phase. The Clean Air Act provision, however, was written with renewable fuel production and usage in mind. In the instance when the product at issue is itself a fuel, the use of which has a different greenhouse gas emission profile than another fuel the consumer could have chosen, it makes sense to include the emissions from the consumer's use of the product in the LCA to give a full picture of the effect of production and use of the renewable fuel on the overall net carbon emissions.

In the case of utilization of captured carbon oxide in a non-fuel product, however, it will often be the case that use of the product does not generate emissions of greenhouse gas that differ from the amount that would have been generated had another source of carbon oxide been used for the product. In those cases, there is not a benefit to be gained by requiring tracking through to the consumer's use as part of the LCA since the product and the consumer's selection and use of it are unaffected regardless of whether it is produced using captured carbon. Put another way, the comparison made in the LCA should not require additional information to be gathered, analyzed and considered for the product-use or product-disposal phases when the baseline or incumbent process (using non-captured carbon oxide) and the proposed process (using captured carbon oxide) have substantially identical carbon intensities with no significant difference in the product quality, distribution or markets, end use, disposal or recycling.

Finally, another very significant problem with respect to preparation of LCAs is solved by placing the LCA information gathering boundary at the facility gates when there is no change in the carbon intensity in the product-use or product-disposal phases regardless of the source of the carbon oxide in the product. That problem is the lack of information available to the taxpayer (or the third-party preparer of the LCA) with respect to the ultimate product-use and product-disposal phases of products that, unlike fuel, may be used in multiple applications and do not have a use that, in and of itself, generates greenhouse gas emissions. Requiring a taxpayer to gather this information will be costly and time consuming and will yield no meaningful benefit

[5] Access comment letters at: https://www.regulations.gov/docket?D=IRS-2019-0026.

since it can be expected that the result of the data-gathering and analysis exercise is to plug net zero values with respect to these phases into the overall LCA.

Implicit in the LCA reference in the proposed regulations to "consumer" is the assumption that a taxpayer can effectively trace the carbon it is capturing from its facility and processes through the supply chain to the end user in order to determine whether the carbon remains captured. Tracing to end users is not feasible in certain markets, for example, the chemical, cement and fertilizer industries. Carbon captured in such industrial processes is frequently sold to industrial gas distributors, wholesalers, traders and even competitors within the industry. In the basic and intermediate chemical industry, the products into which the captured carbon has been converted are usually sold to chemical plants that use the basic or intermediate chemicals to produce a variety of products that will be used in a variety of ways. Competitors within a market often purchase product from other manufacturers with whom they compete in order to cover shortages or as part of a practice of product swaps. For obvious competitive reasons, these competitors would not disclose the end market use for the product.

A further complication for an LCA analysis that includes the consumer use phase arises from the fact that some products that are made using captured carbon oxide can be put to a variety of different uses. For example, urea is a chemical substance for which a primary ingredient is carbon dioxide. It can, in turn, be used as an ingredient in the manufacture of formaldehyde resins that are used in adhesives and fiberboard. It can be used as an ingredient in melamine, another resin with a variety of uses. When diluted with water, it is used as diesel exhaust fluid. When applied to plants, it is a fertilizer. If an LCA were required to follow through to the consumer use phases, which use would be studied or, if all of them were to be studied, in what proportions?

Thus, carrying the LCA out to the consumer use and disposal phases raises numerous problematic informational questions the answers to which may not be readily available or obtainable, require overly burdensome investigation in terms of cost and time and ultimately result in unclear answers. Therefore, imposing such an extended analysis requirement in the context of utilization of captured carbon oxide would create further uncertainty regarding eligibility for the credit on the part of taxpayers required to provide an LCA and create an impediment to investment and innovation in this arena without any meaningful benefit.[6]

Prop. Reg. §1.45Q-4(c) defines the lifecycle as reaching the consumer use phase (importing the statutory cross-reference to the Clean Air Act). In drafting the regulations that address the boundaries of the LCA, however, the regulations could acknowledge that, in cases in which the consumer's use or carbon footprint is no different regardless of whether the product uses captured carbon, it is not necessary to include measurements from that phase, on the assumption that the difference between the incumbent and tested process is "net zero" in that phase. A recognition in the LCA that the difference in greenhouse gas emissions for the product-use and product-disposal phases between a product produced with captured versus non-captured carbon is

[6] The DOE's CO2U LCA guidance document prepared by the National Energy Technology Laboratory includes, at section 2.1.4, a straightforward explanation of these and other reasons for setting the boundary at cradle-to-gate rather than cradle-to-grave. Accessed at: https://www.netl.doe.gov/energy-analysis/details?id=3732.

net zero should satisfy the statutory mandate to consider the aggregate quantity of greenhouse gas emissions through the distribution and delivery and use of the product by the ultimate consumer.

Drafting the regulations in this manner would be consistent with the statutory definition since it considers the net effect of the consumer-use phase but it would obviate the need for time-consuming, expensive and likely inconclusive analysis that would, in any event, show no difference in total greenhouse gas emissions. We urge the Service to consider developing regulations that effectively set the LCA boundary at the facility gate for at least all products other than fuels, since the carbon intensity for such products outside the boundary gates, i.e., in the use or disposal phase, will not vary between the process that uses captured carbon oxide and the process that sources its carbon oxide elsewhere. If the Service feels bound to require that the analysis extend beyond the factory gates to the consumer use phase due to the statutory reference to such phase, then perhaps it could develop regulations that contain a presumption that would obviate the need for such analysis, such as a presumption that there is no difference in the carbon intensity between the incumbent and tested process in the consumer phase.

C. Submission of the LCA

The subsection of the proposed regulations that would cover "Submission of the LCA" is also "reserved." The proposed regulations do state that the LCA is to be submitted to the IRS and the DOE and then the IRS, in consultation with the DOE and the EPA, will decide whether to approve the LCA.

The Service also indicates in the NPRM that it "is contemplating" making changes to the form on which the credit is claimed (Form 8933) to take the proposed regulations into account. The revised Form 8933 could require submission of the LCA itself as part of completing the form or Form 8933 could call for an affirmation from the verifying party without a copy of the LCA. In order to provide certainty to taxpayers, who will want to know whether their claims will be accepted, the regulations should clarify that the LCA can be submitted for approval in advance of the return filing on which the credit is claimed. If separate submission for approval in advance of the return filing is possible, does the submission and approval process take the form of, and follow the policies and procedures with respect to, for example, the private letter ruling process?

The proposed regulations as drafted are silent as to the timing implications of the LCA approval process and coordination of the timing of the LCA and its approval with the claiming of the credit. The Preamble, on p. 50, states that "The proposed regulations require a taxpayer submit an LCA report to the IRS and the DOE *prior to* the taxpayer claiming the section 45Q credit" (emphasis added), however, we were unable to locate such a pre-claiming submission requirement in the proposed regulations as drafted.

Because of the length of time likely to be necessary for multi-governmental agency review, however, it is important that failure to receive approval prior to filing the claim for credit not invalidate the claim. That way, a taxpayer can make a timely claim for a credit on its regularly filed return, recognizing that if the LCA is not approved or adjustments are required after the LCA is reviewed, they can be addressed separately, without forcing taxpayers to have to file an amended return to claim a credit because the government review of their LCA had not yet been completed.

It can also be expected that, now that regulatory guidance exists (even if only in the form of proposed regulations), a number of taxpayers will want to claim section 45Q credits by filing amended returns for 2018 or 2019. The regulations should clarify that governmental approval of an LCA is not required prior to submission as part of a credit claimed on an amended return; if it were, the taxpayer's claim, especially on an amended return, may be limited by the statute of limitations before such approval is received.

Finally, because of the length of time likely to be necessary for multi-governmental agency review, it would be good for the regulations to clarify the effect of delays in receiving the outcome of such review. We assume that, if the statute of limitations runs on the return on which the credit claim was made and to which the LCA was attached, thereafter, any subsequent negative determination of the IRS with respect to the LCA would have no effect on the credit claim for such year.

The proposed regulations do not discuss whether any of the information submitted with the LCA will be treated as proprietary or taxpayer confidential information. The Preamble notes that many commenters requested that the LCAs be made publicly available. As drafted, because the proposed regulations call for the LCA to be submitted in the first instance to the DOE, it appears that there is not an intention to treat the LCA as taxpayer confidential information. If that submission process is retained in the final regulations, perhaps the DOE could agree to public dissemination only after the taxpayer has been allowed to redact confidential information.

D. Repeating or Updating Measurement and LCA

The proposed regulations have not addressed the question of *how often* the third-party preparation or verification of the measurement and LCA must occur. Once the LCA validates the methodology for determining total greenhouse gases related to the product lifecycle, the LCA should not need to be repeated unless the production process is changed in a manner that results in a significant increase in the total greenhouse gas emissions during production of the product.

One can easily envision that there may be regular minor changes to improve the efficiency of a process. A requirement that any production process change would necessitate a new LCA would seem to be unduly burdensome. It may be difficult to quantify the amount of change to a process that should trigger the need to repeat the LCA. Because it would be difficult to determine the level of change to a process that would be significant enough to necessitate a repeat of an LCA, consideration might be given to using an increase in tonnage of carbon oxide that is captured as a proxy for a significant change to the process. For example, the regulations could provide that repeating an LCA is necessary only if the tonnage claimed as captured at a facility in a taxable year increases by more than x% over the prior year or x% over any prior year (to eliminate distortions from unusual events, such as a sudden drop in production due to a pandemic). That way, a change in production process that does not result in a significant change over a prior year's tons claimed would not necessitate a repeated study.

As discussed above, it appears that under the regulations as proposed, measurement of the tons of carbon oxide captured and utilized must be performed by the independent third party, or if not performed by, at least verified by, such third party. The measurement and verification

would therefore need to occur every year that the taxpayer claims to have captured and utilized qualified carbon oxide. While the LCA may not need to be repeated once it has established the greenhouse gas emissions associated with a certain process per ton of carbon captured, the measurement and verification of the tons of qualified carbon oxide captured and disposed of or displaced through utilization would presumably have to occur every year in which a claim is made since such tonnage defines the credit amount. For this reason, if the final regulations clarify when an LCA must be repeated, they should distinguish between those instances when it is necessary to repeat the LCA and those instances when the third party must simply measure or verify the taxpayer's measurement of the carbon oxide.

The approval process for the LCA that is outlined in the proposed regulations calls for review of the LCA by three government agencies: the DOE, the IRS and the EPA. The time required for such review could be lengthy. In addition to defining those circumstances in which an LCA must be repeated or renewed and presumably resubmitted for approval, consideration should be given to whether subsequent LCAs with respect to a revised process might be eligible for a more streamlined approval process. For example, after the LCA is approved initially, perhaps subsequent updates would not need to have a three-agency review.

E. "Commercial Market" Use of Captured Carbon Oxide

Section 45Q(f)(5) treats utilization of the captured carbon as equivalent to sequestration of the captured carbon for purposes of awarding the credit when there is either (i) fixation of the captured carbon oxide through photosynthesis or chemosynthesis; (ii) chemical conversion of such qualified carbon oxide to a material or chemical compound in which the carbon oxide is securely stored; or (iii) when the carbon oxide is used for *any other purpose for which a commercial market exists* (with the exception of use in EOR), *as determined by the Secretary of the Treasury*. The proposed regulations did not address other purposes for which a commercial market might exist but in the Preamble there is a request for comments on the topic.

Because the statute clearly and separately addresses chemical conversion in subparagraph 45Q(f)(5)(A)(ii) and distinguishes chemical conversion from "other uses for which a commercial market exists" described in subparagraph 45Q(f)(5)(A)(iii), the uses described by subparagraph 45Q(f)(5)(A)(iii) must be something different than uses in which the carbon oxide is chemically converted. Rather, to give a separate meaning to subparagraph 45Q(f)(5)(A)(iii), it must at least cover uses that do not involve secure storage by chemical conversion of the captured carbon. Note too, that while the statute provides that the utilization of carbon in a chemical conversion must place the carbon in a material or chemical compound in which the carbon is "securely stored," there is no reference to secure storage as being a required element of the commercial market use.

Accordingly, it is reasonable to interpret subparagraph 45Q(f)(5)(A)(iii) as being directed at sales of carbon oxide that is not securely stored by chemical conversion into another substance. Therefore, the sales covered by subparagraph 45Q(f)(5)(A)(iii) must be: (i) sales of captured carbon oxide *as such*, for example, sales of carbon dioxide gas to industrial gas distributors or (ii) sales of a substance into which carbon oxide has been converted but is not securely stored, for example, sales of a substance that when used or applied, releases carbon oxide.

This interpretation of the provision is also consistent with the statute's exclusion from this provision of use as a tertiary injectant: since carbon oxide that is sold for use as a tertiary injectant is not chemically converted and is a sale of the gas as such, it would have been encompassed by subparagraph 45Q(f)(5)(A)(iii) unless this explicit exclusion were placed in the provision.

The statutory provision that requires that the taxpayer provide an LCA applies equally to utilization of carbon oxide which is chemically converted as it does to utilization for any other purpose for which a commercial market exists. The provision requires that the taxpayer use the LCA to demonstrate how greenhouse gas is "captured and permanently isolated from the atmosphere" or "displaced from being emitted into the atmosphere." If captured carbon oxide is sold for use as such (and it is not being chemically converted), it is unlikely to have been permanently isolated from the atmosphere, since its use may lead to release (for example, beverages that grow flat once opened). Application of the principle of statutory construction that effect should be given, if possible, to every clause and word of a statute so as to avoid rendering superfluous any provision (i.e., no provision is "mere surplusage")[7]would lead to the conclusion that amounts "displaced from being emitted into the atmosphere" is a separate, stand-alone basis for determining the amount utilized and one that does not require that the amount be "permanently isolated from the atmosphere."

Pursuant to this analysis, the carbon utilized as described in subparagraph 45Q(f)(5)(A)(iii) need not be permanently isolated from the atmosphere as long as its use *displaces carbon oxide from being emitted* into the atmosphere. When a taxpayer captures carbon oxide in order to sell it into a commercial market, and such carbon oxide would have been emitted into the atmosphere had the taxpayer not captured it, the taxpayer should be considered to have satisfied the statutory requirement, even if the carbon oxide is not securely stored or permanently isolated from the atmosphere.

With this interpretation of the statutory provision, it should be clear that the rationale for allowing the credit under such circumstances is that, if the purchasers of the captured carbon were not able to obtain it from the parties that had captured the carbon, they would have obtained it from the original source, i.e., natural underground deposits of carbon oxide, thereby introducing additional carbon oxide into the atmosphere. In other words, the credit is available for capturing carbon and selling it to a party, even if such party's use does not permanently isolate the carbon oxide from the atmosphere, because, had that party not been able to obtain the carbon oxide from the capturer, it would have obtained it by introducing additional carbon dioxide into the atmosphere from, for example, natural underground deposits.

Pursuant to the above analysis, carbon oxide which is captured and sold as such into commercial markets (other than for EOR), is eligible for the credit. Detailed information about the size, location and operation of such markets is available from industry associations, however, it might be useful to provide a description of some of those uses or markets here. For

[7] *See, e.g., Bailey v. United States*, 516 U.S. 137, 146 (1995) ("We assume that Congress used two terms because it intended each term to have a particular, nonsuperfluous meaning.")

example, there are active markets in the sale of carbon dioxide for the following uses, among others:

- Food and Beverage
    - Beverage carbonation (soda, beer)
    - Food preparation (cooling through use of CO2 "snowing")
    - Flour and dough cooling
    - Freezing and chilling
    - Greenhouse growing (injection of CO2 to promote photosynthesis)
    - Meat processing, packing and mixing (e.g., injection of liquid CO2 to promote uniform cooling)
- Health and Medical
    - In laparoscopic surgery, for insufflation
    - As a respiratory stimulant
    - Liquid CO2 for cryosurgery
- Pulp and Paper (use to enhance pulp yield)
- Water and Wastewater Treatment (as a solvent, to reduce pH)
- Welding and Metal Fabrication

None of these uses involves secure, permanent storage of carbon dioxide. All of these uses do, however, represent a significant, legitimate and longstanding commercial or industrial need for carbon dioxide which, if not supplied through captured carbon would have to be supplied some other way, such as through the production of carbon dioxide out of underground natural carbon dioxide-bearing formations.[8] When carbon oxide is displaced from being emitted

[8] As a striking, current example of the significance of these markets, we refer you to recent news items regarding the distress of food and beverage manufacturers over the CO2 shortage resulting from pandemic-related cutback in ethanol production. See, e.g., https://www.reuters.com/article/us-health-coronavirus-ethanol-beer/beer-may-lose-its-fizz-as-co2-supplies-go-flat-during-pandemic-idUSKBN2200G3 (April 18, 2020); https://www.forbes.com/sites/lanabandoim/2020/04/28/surprising-shortage-of-carbon-dioxide-threatens-food-and-beverage-industries/#3a0e119e1ea3 (April 28, 2020); https://www.desmoinesregister.com/story/news/2020/04/24/iowa-ethanol-plant-restarted-production-help-des-moines-water-works-co-2-levels-covid-19/3014751001/ (April 24, 2020).

into the atmosphere in order to sell it into such markets, the utilization requirements of section 45Q(f)(5) should be considered to have been satisfied.

The NPRM did not provide any information as to the government's current thinking with respect to commercial markets and simply requested comments on this topic. We should note that in developing rules in this area, the Secretary's discretion does not appear to be unlimited. The statute refers to: "the use of such qualified carbon oxide for any purpose for which a commercial market exists . . ., as determined by the Secretary." If the phrase "as determined by the Secretary" qualifies the word "exists," then the Secretary is to determine whether or not a market exists. As such, it would appear that the Secretary does not have discretion that extends to imposing requirements as to the nature of the use of the carbon oxide by the market but, rather, is limited to determining whether a market exists. Such existence should be readily determinable based on the volume of transactions in a market. As the statute reads, having determined that a market exists, use of the qualified carbon oxide for *any purpose* is sufficient to constitute utilization under the statute. It should therefore be clear that utilization under subparagraph 45Q(f)(5)(A)(iii) includes sales into the food, beverage, healthcare, medical and other markets listed above once the Secretary determines that such markets "exist."

It would be extremely helpful if the final regulations (or re-proposed regulations) include specific acknowledgement of those markets the Secretary has determined exist. A statement in the regulations that recognizes the existence of such markets would mean that taxpayers would not have to ask for individual guidance as to the treatment of each of the markets into which they sell. For example, the regulations could state that sales of carbon oxide for use in food or beverage manufacturing, agriculture and plant cultivation, health and medical treatments, pulp, paper and water treatment and welding applications are existing markets for carbon oxide, thereby relieving taxpayers of the need to obtain private guidance or letter rulings on each possible market.

Because the statute gives no indication as to the basis upon which the Secretary is to determine existence of markets, a practice of issuing private letter rulings with respect to sales into particular markets based on discretionary authority of the Secretary would not provide the certainty of outcome taxpayers need and could cause government resources to be burdened with a huge number of requests for private letter rulings on similar or identical facts. Whatever practice is adopted with respect to the determination of the existence of commercial markets, given the constant research and scientific advancements that are being made in uses for carbon oxide, such practice should accommodate such new uses and allow them to be quickly recognized for purposes of this provision. For example, new markets could be identified, determined to exist and recognized through a practice of periodic published notices.

VII. Recapture

A. Recapture Events

The proposed regulations define a "recapture event" as one occurring when qualified carbon oxide ceases to be captured, disposed of, or used as a tertiary injectant and such leaked amount exceeds the amount of qualified carbon oxide disposed of in secure geological

storage or used as a tertiary injectant in the same year. This provisions tracks section 45Q(f)(4), however, it would be helpful if the regulations also make clear that recapture events are not a concern with respect to captured carbon oxide that is utilized as described in section 45Q(f)(5) and that carbon oxide that is utilized as described in section 45Q(f)(5) does not offset the amount considered to have ceased being captured, disposed of or used as a tertiary injectant in determining the amount to be recaptured. This interpretation should be clear from section 45Q(f)(5), which refers to utilization for a commercial use without requiring "secure storage" as part of that commercial use. Confirming that interpretation would, however, be useful in case there is a question as to whether utilized carbon oxide must be part of a recapture event calculation.

Prop. Reg. §1.45Q-5(a) states that "recapture events" are determined separately for each project involving capture, disposal, or use of qualified carbon oxide as a tertiary injectant. Project-by-project determination of recapture events would seem to narrow a taxpayer's exposure to a recapture event, however, there is no definition of "project" for this purpose. Therefore, it raises a question as to whether a project includes a site at which carbon is being captured and *all* the various locations it might have been sent to for burial, injection or disposal. If the intent of the reference to a project-by-project determination is an injection or disposal site-by-site determination, then the provision should be changed to make that clear. This could be achieved by a cross-reference to Prop. Reg. §1.45Q-3(b) which refers to "qualified enhanced oil or natural gas recovery *projects*" and also to injections into wells. However, the regulation could also be revised to state explicitly that each disposal well or EOR site is separately evaluated for recapture.[9]

Prop. Reg. §1.45Q-5(b) states that qualified carbon oxide ceases to be captured, disposed of, or used as a tertiary injectant only if the leaked amount in a taxable year exceeds the amount disposed of or used in the same taxable year. Limiting the recaptured amount to the excess over the leaked amount is a helpful way to solve the problem of identifying leaked amounts when the carbon oxide molecules are fungible. However, although the first statement (in -5(a)) refers to a determination of a recapture event separately for each project, there is no mention of a project-by-project determination in the second statement (in -5(b)), which raises the question of whether both the leakage and the disposal that are netted must have occurred at the same project. Assuming the meaning of "project" is further defined as described above, it would also be helpful if the regulations clarified that the -5(b) test is determined separately for each project, site or disposal well.

Prop. Reg. §1.45Q-5(c) defines the "leaked amount" of qualified carbon oxide. We suggest that the leaked amount not include any amount that leaked after the end of the recapture period. As currently drafted, the recapture period begins on first injection and has an end date that is defined by when the taxpayer claimed a credit. However, the taxpayer may have claimed a

[9] As discussed above in connection with our comments on section 45Q(f)(6), Notice 2020-12, in section 8.01(1), sets out factors for a determination as to when multiple qualified facilities or units of carbon capture equipment will be considered to be a single "project" for purposes of determining beginning of construction. In that context, "project" is defined based on carbon capture equipment and focuses on the carbon capture function. For purposes of recapture, "project" seems to be focused on the sequestration or EOR site. Clarification of the meaning of "project" for recapture purposes would be helpful.

credit for disposal at a different site than the one that leaked. Therefore, we suggest that the regulation provide also that "the leaked amount of qualified carbon oxide does not include any amount of qualified carbon oxide determined to have leaked after the end of the applicable recapture period," with "applicable" recapture period being the recapture period as defined in Prop. Reg. §1.45Q-5(f) but modified to state that the recapture period "*for an injection or disposal site* begins on . . . ."

Similarly, references to the recaptured amount in Prop. Reg. §1.45Q-5(d) and Prop. Reg. §1.45Q-5(g)(1)(second sentence) currently focus on occurrences within a taxable year but do not indicate that the test is applied on a per-project, not a per-taxpayer, basis. An example, perhaps similar to the following, could illustrate that leakage at multiple projects does not mean that all projects are considered to have a recapture event:

> Example (7).
>
> (A) A owns direct air capture Facility X. No other taxpayer has owned Facility X, and A has never allowed another taxpayer to claim any section 45Q credits with respect to qualified carbon oxide captured by Facility X. Facility X captured 100,000 metric tons of carbon dioxide in each of 2021 and 2030. All captured carbon dioxide in 2021 was sold to B for use as a tertiary injectant in a qualified enhanced oil recovery project, and all captured carbon dioxide in 2030 was sold to B for use as a tertiary injectant in a separate qualified enhanced oil recovery project. B provided contractual assurance that the carbon dioxide would be sequestered in secure geological storage. A claimed section 45Q credit amounts in 2021 and in 2030. In 2031, B determined that 10,000 metric tons of carbon dioxide injected during 2021 had leaked from the containment area of the reservoir and will eventually migrate to the atmosphere.
>
> (B) Because the leakage determined in 2031 occurred outside the recapture period applicable to the qualified enhanced oil recovery project for which the carbon dioxide was utilized in 2021, a recapture event did not occur in 2031.

In Prop. Reg. §1.45Q-5(h), recapture events are defined to include the intentional removal of carbon oxide from storage: "If qualified carbon oxide for which a credit has been claimed is deliberately removed from a secure geological storage site, then a recapture event would occur in the year in which the qualified carbon oxide is removed from the storage site pursuant to §1.45Q-5(a)."

Prop. Reg. §1.45Q-5(h) may be overinclusive. It is possible, and in fact not an uncommon occurrence, for previously stored carbon oxide to be intentionally removed or withdrawn from sequestration in order to use it in some other function or purpose. The use to which such withdrawn carbon oxide is put may well be a sanctioned section 45Q use, such as tertiary injection or utilization. Had such qualified carbon oxide been put to such use at the time it was originally captured, there would have been no question but that the credit was available.

Simply because the qualified carbon oxide is stored and then later so used, its intentional removal from storage should not cause a recapture of the credit. We recommend that consideration be given to revising the proposed regulation to add the words at the end of the provision: " . . . unless such removed carbon oxide is put to use in a manner described in section 45Q(a)(2)(B) or 45Q(a)(4)(B), in which case the recapture amount is reduced for the amount so used." If there is a concern that the use or utilization receives a lower credit amount than sequestration, the regulations could recognize that the recapture amount is to reflect such change in credit amount.

Recapture provisions are a necessary element of the regulations because subsection 45Q(f)(4) specifically requires recapture upon leakage. As is evidenced by the number of examples devoted to illustrating the recapture rules in the proposed regulations, recapture raises nuanced and complicated questions, both of policy and technology. Consideration might be given, however, to whether technological and regulatory advancements with respect to the sequestration of carbon oxide are such that, with respect to certain wells, leakage is a sufficiently unlikely enough event that such wells could be excluded from exposure to recapture risk. In this regard, we note that Prop. Reg. §1.45Q-5(i) provides an exception from the definition of recapture events for loss of containment of qualified carbon oxide resulting from actions not related to the selection, operation, or maintenance of the storage facility, such as volcanic activity or terrorist attack. Wells in which captured carbon oxide is stored in compliance with applicable requirements under 40 CFR Part 98 subpart RR (Class VI wells with MRV plans) are subject to extensive regulation by the EPA designed to make leakage highly unlikely, perhaps as unlikely as the volcanic activity or terrorist attacks currently referenced as exceptions to the definition of recapture events. Accordingly, it might be appropriate to consider expanding this exception to reduce exposure to recapture for those wells that are subject to such extensive regulation.

B. Recapture Period

In the Preamble and the proposed regulations, the Service has indicated an intention to circumscribe the time period over which claimed credits may be recaptured. This limitation is an extremely important element in providing the security needed to incentivize investment in these projects. Investors do not want to be exposed to recapture of the credits they have claimed, especially if the event causing the recapture is one over which they have no control, such as improper sequestration long before their investment was made.

The Preamble correctly notes that taxpayers will be able to obtain third-party recapture insurance to protect against recapture, however, it would be preferable if the regulations did not put in place a structure that has such potential for recapture that the cost of recapture insurance is an additional cost or "tax" imposed on such investments. In this regard, we note that, under the rules as drafted, it is possible for a leak due to poor or improper sequestration that occurred up to 17 years earlier to cause a recapture event.

For example, suppose sequestration of 6x tons occurs in Year 1 and a credit is claimed. No further sequestration occurs and no further credit is claimed until there is investment in new carbon capture equipment by a tax equity investor in Year 12, when captured carbon of 4x tons is buried in the same sequestration site. In Year 17, that site leaks 3x tons. It is not possible to know whether the leakage was of carbon oxide buried in Year 1 or Year 12 because the

molecules of carbon oxide are fungible. Assume, however, that it were possible to identify which carbon oxide leaked and it is identified as the carbon oxide sequestered in Year 1. In that case, the investor's Year 12 credit is recaptured, even though the leakage is not related to the carbon oxide buried in Year 12, the inadequate sequestration did not occur during the investor's involvement in the project and the leak was of carbon oxide buried 17 years earlier.

The exposure could certainly be minimized if, in addition to the limited look-back (five years on a LIFO basis as to the credits claimed) currently in the proposed regulations, a recapture event was not consider to occur until the leaked amount (as an absolute value, not after netting against burying) was sufficiently large that it would necessarily be the case that the originally buried amount plus the more recently buried amount must have leaked (in other words, determining which carbon oxide leaked by applying a FIFO rule). Put another way, the regulation could provide that, for a recapture event to occur when burying has been going on for more than five years, the absolute value of the leaked amount must exceed the amounts buried at the project in all years prior to the period that is the five years before the leak (if five years remains the recapture period). In the example described in the preceding paragraph, this would mean that, if 6x tons leaked, the investor would not be exposed to recapture but if 8x tons leaked, there would be recapture of the Year 12 credit as to 2x tons. Only in this way would it be possible for a later investor to know that it would not be on the hook for leakage of previous amounts sequestered. If a taxpayer started sequestering 17 years ago, it should not need to be concerned about recapture of its recent credits until a leak is sufficiently large that it exceeds everything it previously buried prior to the recapture period.

C. Applying Recapture Provisions to Carryforward of Credits

Under Prop. Reg. §1.45Q-5(e), the recaptured amount is equal to the recaptured tonnage amount multiplied by the "appropriate" statutory credit, which is presumably the per ton credit rate in the year the recaptured tonnage was claimed. Under Prop. Reg. §1.45Q-5(g), the recapture amount is to be taken into account in the taxable year in which the leak is identified and reported but the recapture amount is to be calculated on a LIFO basis, i.e., the leak is deemed attributable first to the prior taxable year, then to the taxable year before that and then up to a maximum of the fifth preceding year.

The NPRM requests comments on how to apply the recapture provisions to section 45Q credits that are carried forward to future taxable years due to insufficient income tax liability in the current taxable year. Application of the recapture provision when there has been a carryforward of the section 45Q credit presents several issues.

First, the regulations should clarify that the carryforward of a credit does not somehow increase the recapture period. Prop. Reg. §1.45Q-5(f) defines the recapture period as beginning on the date of first injection and ending, generally, "five years after the last taxable year in which the taxpayer claimed a section 45Q credit." If carrying forward the credit meant that the recapture period could be extended to five years after the year to which the credit was carried forward, with a twenty-year carryforward, recapture risk would be present for as many as 25 years after initial injection. Therefore, in addressing recapture in the context of carryforwards, the regulations should specify (or -5(f) should be revised to make clear) that the recapture period ends

five years after the last taxable year in which the taxpayer claimed a section 45Q credit or was eligible to claim a section 45Q credit which it elected to carry forward.

A separate issue is the effect of the proposed look-back to achieve recapture on a credit which has been carried forward. The proposed regulations provide a LIFO recapture rule: a leak is deemed attributable first to the prior taxable year, then to the taxable year before that, and then up to a maximum of the fifth preceding year. This rule limits as much as possible the period during which the taxpayer must be exposed to recapture because the oldest claimed amounts are only recaptured after the more recent claimed amounts are recaptured.

In the case when there has been a carryforward, however, the question arises as to the effect of the LIFO recapture rule on the carryforward. Even though the credit has not yet been claimed (because it has been carried forward), because the year *from which* the credit is carried falls within the five year recapture period, the recapture process should cause the taxpayer to be unable to carry forward a credit from a year within the five-year credit period to the extent the amount is less than the recaptured tonnage.

For example, assume a taxpayer who claims a credit in years 1 through 4. In year 5, it could again claim a credit for capturing qualified carbon oxide but cannot use the credit. Therefore, the taxpayer carries the year 5 credit forward to year 6 (or if unusable in year 6 and succeeding years thereafter, perhaps all the way to year 25, assuming 20-year carryforwards are permissible). If a leak occurred in year 7, the recapture rules would look first to year 5 to determine the recapture amount. Because no credit was claimed in year 5, however, there is no amount to be added to the taxpayer's tax due in the year of the leak. With no credit claimed in year 5, the proposed regulations might be read to mean that the IRS then skips year 5 and looks to year 4, year 3, and so on, to recapture a total tonnage equal to the tonnage of the leak.

A better solution, however, might be to clarify that the recaptured tonnage will prevent the taxpayer from having an amount available to carry forward. Therefore, consideration might be given to providing that the calculation of the recapture amount includes tonnage as to which a credit, although available, had not been claimed. The exclusion of such tonnage would not increase the taxpayer's tax due in the year of the leak (because it had not yet claimed the credit) but it would prevent the taxpayer from claiming a carryforward to that extent. Then, to the extent that the recaptured tonnage exceeds the amount carried forward from year 5, such excess would be applied to recapture the amount claimed in year 4, year 3, etc. In this manner, although the taxpayer risks losing the amount of the credit it intended to carry forward for up to five years after the tonnage was captured, once five years after the year of capture have passed, the carry forward would no longer be at risk of recapture.