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VIA ELECTRONIC SUBMISSION

www.regulations.gov

Docket: IRS REG-112339-19

Honorable David Kautter
Assistant Secretary (Tax Policy)
Department of the Treasury
1500 Pennsylvania Ave., N.W.
Washington, D.C. 20220

David Selig, Esq.
Office of Associate Chief Counsel
(Passthroughs and Special Industries)
Internal Revenue Service

Re: Section 45Q Carbon Sequestration Credit – Comments of Tate & Lyle

Dear Assistant Secretary Kautter:

Tate & Lyle, a leading corn refiner in the United States, is pleased to submit these comments to assist the successful implementation of the Section 45Q tax credit incentive, which was enhanced by Section 41119 of the Bipartisan Budget Act of 2018, Pub. L. 115-123 (Feb. 9, 2018), with the goal of increasing incentives for capture and storage or utilization of industrial carbon oxide emissions. The Department of Treasury (“Treasury”) and Internal Revenue Service (“IRS”) have invited comment on proposed implementing regulations published at *Credit for Carbon Oxide Sequestration; Notice of proposed rulemaking*, 85 Fed. Reg. 34,050 (June 2, 2020).

The food processing sector – and corn refining in particular – has significant capacity to capture, store and utilize carbon dioxide from fermentation and other processes. Carbon dioxide captured from agricultural processing can be recycled and utilized in a number of existing commercial markets that either permanently sequester the carbon dioxide (for example, in underground storage, oil field recovery, or concrete products) or utilize the recycled CO₂ to displace non-recycled feedstocks (for example, in dry ice manufacturing, carbonate beverages, or biofuels) – thus reducing greenhouse gases on a net lifecycle basis. These are exactly the types of greenhouse gas reduction projects, and associated environmental benefits, that Congress intended to incentivize with the enhancements to the 45Q tax credit program. However, the investment necessary for carbon capture equipment is considerable and requires some degree of predictability



with respect to eligibility for the 45Q tax credit. Tate & Lyle encourages the IRS to adopt clear rules that are faithful to Congress' intention to incentivize a broad range of carbon capture and utilization projects in the United States.

About Tate & Lyle

Tate & Lyle is a global food ingredient manufacturer and a leading processor of corn in the United States. The company is headquartered in London, England and traded on the London Stock Exchange under the symbol TATE. We maintain our U.S. headquarters in Hoffman Estates, Illinois, where we also operate a state-of-the-art innovation center and customer collaboration space. The company has more than 4,500 employees worldwide, over 2,500 of whom are based in the United States. Tate & Lyle operates numerous corn wet mills and other processing facilities throughout the United States including Illinois, Indiana, Tennessee, Alabama, Ohio, Maine, Arkansas, and Minnesota. In our corn wet mills we process corn, grown locally on farms in the U.S., into food ingredients and industrial products. In addition to creating direct jobs for hard-working Americans, Tate & Lyle indirectly creates jobs in the farming, transportation, utility, and construction space via its capital-intensive operations. Over the past five years, Tate & Lyle has invested more than \$600,000,000 in additional capital in the United States.

In particular, we invested in carbon capture at our Loudon, Tennessee plant to recycle CO₂ from our ethanol manufacturing process. The corn fermentation process produces a nearly pure byproduct stream of CO₂, which is otherwise emitted to the atmosphere. The process CO₂ at the Loudon plant is captured and sold to co-located refrigeration companies who produce dry ice and liquefied CO₂ for commercial markets. The capture of CO₂ and displacement of non-recycled CO₂ that would otherwise be used by these companies results in an environmental benefit by reducing overall greenhouse gas emissions that would otherwise contribute to global warming.

About Corn Refining

The corn refining sector utilizes various fermentation processes to convert harvested corn into starch, sugars and a vast array of plant-based products ranging from foods and food ingredients, pharmaceuticals, manufacturing intermediates, and renewable fuels. The use of plant-based products can significantly reduce environmental impacts associated with the use of petrochemical feedstocks. By using more renewable, plant-based materials as building blocks, these products become part of the circular bioeconomy – returning to the earth's soil as healthy compost. Taken together, these steps reduce carbon emissions, improve water quality, and curtail solid waste otherwise destined for landfills.¹

The biological processes employed in the fermentation process produce considerable volumes of “biogenic” carbon dioxide from the natural respiration of micro-organisms that convert agricultural grains into starches, oils, sugars. Depending on the particular fermentation unit, by

¹ For more information on the benefits of bioproducts, please visit the Plant Based Products Council website at <https://pbpc.com/>. The Plant Based Products Council is a group of organizations working to guide the global economy toward more sustainable and responsible consumer products and packaging through greater use of plant-based materials. The PBPC also supports and advocates for programs that support the circular bioeconomy.

using emissions control equipment and process adjustments, biogenic CO₂ can be captured from industrial processes and made available for utilization in a variety of end uses. Multiplying the benefits of CO₂ capture, the biogenic CO₂ from fermentation of agricultural feedstocks is itself carbon neutral, since the carbon in the agricultural product was captured from the atmosphere through photosynthesis just months earlier when the farmer grew the crop. Accordingly, when biogenic CO₂ is captured from the corn refining process, it actually has a double environmental benefit – the feedstock itself is carbon beneficial because of the natural capture from the atmosphere, and when the CO₂ is captured a second time at the industrial facility and geologically sequestered or beneficially utilized, the environmental benefit is doubled.

I. Background

Section 45Q was originally enacted by section 115 of the Energy Improvement and Extension Act of 2008, Pub. L. 110-343, 122 Stat. 3829 (Oct. 3, 2008), and amended by section 1131 of the American Recovery and Reinvestment Tax Act of 2009, Pub. L. 111-5, 123 Stat. 115 (Feb. 17, 2009) (“original 45Q”). Section 45Q provides a tax credit for carbon dioxide captured at a qualified facility and disposed in secure geological storage or enhanced oil recovery within the United States. *See* Notice 2009-83, 2009-44 I.R.B. 588, modified by Notice 2011-25, 2011-14 I.R.B. 604. Under Section 45Q(e), tax credits for existing facilities are available up to the end of the year in which EPA certifies that 75 million metric tons of qualified CO₂ have been taken into account for purposes of the section 45Q credit (the “sunset” provision).

The Bipartisan Budget Act expanded the section 45Q incentive (“new 45Q”) for taxable years beginning after December 31, 2017. New section 45Q provides a tax credit for each metric ton of qualified carbon oxide captured by the taxpayer and disposed of in secure geological storage, used as a tertiary injectant in a qualified enhanced oil or natural gas recovery (EOR) project, or utilized for commercial purposes as described in section 45Q(f)(5), including by displacing non-recycled carbon oxide. The 75-million-ton sunset provision no longer applies to carbon capture facilities or equipment placed in service on or after February 9, 2018; instead, section 45Q credits are allowed during a 12-year period.

Section 45Q(h) provides that the Secretary of the Treasury may prescribe regulations and other guidance as may be necessary or appropriate to carry out section 45Q. On May 20, 2019, the IRS solicited general comments on 45Q implementation by Notice 2019-32, 2019-21 I.R.B. 1187. Tate & Lyle submitted comments on July 2, 2019 (IRS-2019-0026-0019) and supplemental comments on November 7, 2019 (IRS-2019-0026-0107). Following stakeholder comments, IRS published Rev. Proc. 2020-12, 2020-11 I.R.B. 495, effective March 9, 2020, establishing a safe harbor for allocation of the 45Q tax credit in certain partnership structures and Notice 2020-12, 2020-11 I.R.B. 495, effective March 9, 2020, providing guidance on beginning construction under section 45Q(d)(1). The IRS has now proposed comprehensive implementing regulations to be codified at 26 C.F.R. §1.45Q-0 *et seq.* for public comment by August 3, 2020. *Credit for Carbon Oxide Sequestration; Notice of proposed rulemaking*, 85 Fed. Reg. 34,050 (June 2, 2020).

II. Comments on 45Q Proposed Rules

A. Lifecycle Analysis: Third-party Verification Safe Harbor

The proposed regulations require that a lifecycle analysis (“LCA”) for utilization projects be “performed by or verified by an independent third-party.” 85 Fed. Reg. at 34,073; §1.45Q-4(c)(2). Although third-party verification may work as a safe-harbor incentive for taxpayers to ensure that their lifecycle analysis is robust, there is no express authority in the statute to require third-party verification on a mandatory basis. The only relevant statutory provision is the measurement procedure for utilization projects under 45Q(f)(5)(B)(i) which requires that “the amount of qualified carbon oxide utilized” shall be “based upon an analysis of lifecycle greenhouse gas emissions and subject to such requirements as the Secretary, in consultation with the Secretary of Energy and the Administrator of the Environmental Protection Agency, determines appropriate.” This provision uses the phrase “which the taxpayer demonstrates” in reference to the measurement process to indicate that the taxpayer must undertake this measurement demonstration. 45Q(f)(5)(B)(ii) states that the term “lifecycle greenhouse gas emissions” has the same meaning as under the Clean Air Act Renewable Fuels Standard (“RFS”) program.² The RFS program itself does not mandate third-party verification.³ In contrast, Congress did specifically require verification in the context of measuring amounts of carbon oxide at the point of utilization;⁴ which demonstrates that Congress knew how to specify verification when it wished to. The absence of any reference to verification in 45Q(f)(5)(B) reinforces the reading that third-party verification of life cycle analyses is not required under the statute. Thus, although the 45Q language authorizes the Secretary to determine appropriate requirements, the statute cannot be fairly interpreted as mandating third-party verification as it would be inconsistent with the statute’s clear statement that the demonstration is made by the taxpayer, not by a third party. However, third-party verification can certainly be encouraged on a voluntary basis.

Rather than imposing an additional regulatory burden that Congress did not endorse, IRS could encourage third-party verification on a voluntary basis by offering a safe-harbor incentive to taxpayers that have their LCA approved by an accredited third-party verification entity. Once an LCA report is approved by an accredited, independent third-party verifier, there would be no

² Section 45Q(f)(5)(B)(ii) reads as follows: “(f) Special rules. * * * (5) Utilization of qualified carbon oxide. * * * (ii) Lifecycle greenhouse gas emissions. For purposes of clause (i), 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)), as in effect on the date of the enactment of the Bipartisan Budget Act of 2018 [enacted Feb. 9, 2018], except that ‘product’ shall be substituted for ‘fuel’ each place it appears in such subparagraph.”

³ See EPA Website, Quality Assurance Plans under the Renewable Fuel Standard Program (“The Quality Assurance Plan (QAP) is a voluntary program where independent third-parties may audit and verify that RINs have been properly generated and are valid for compliance purposes”) (available at https://www.epa.gov/renewable-fuel-standard-program/quality-assurance-plans-under-renewable-fuel-standard-program#:~:text=Contact%20Us-.Quality%20Assurance%20Plans%20under%20the%20Renewable%20Fuel%20Standard%20Program,be%20purchas ed%20by%20regulated%20parties)).

⁴ See, e.g., 45Q(c)(1)(A)(3) (“The term “qualified carbon oxide” means-- (A) any carbon dioxide which . . . (iii) is measured at the source of capture and verified at the point of disposal, injection, or utilization”).

need for duplicative review by IRS and its sister agencies (discussed below). If IRS were to offer a safe harbor for third-party verification on a voluntary basis, it is likely that the vast majority of taxpayers would retain accredited third-party verifiers, which would enhance the integrity of the LCA process and reduce administrative burdens on the government. IRS can establish a fraud exemption from the safe harbor and can conduct spot audits as needed to ensure that the third-party verification system is working. In terms of what third-party verifiers are acceptable, we suggest that IRS take advantage of existing accreditation programs, such as that used by the State of California⁵ or the voluntary program established under the Clean Air Act renewable fuels program.⁶

B. Review of Lifecycle Analysis: Redundant Agency Review

IRS's proposal to require submittal of all lifecycle analyses for review and/or consultation by three different agencies – IRS, DOE and EPA – also seems unworkable. Carbon oxides can be put to a wide variety of uses, such as building materials, food products, biofuels and bioproducts, all of which can displace non-recycled carbon oxide which would otherwise be emitted to the atmosphere. Given this reality, lifecycle analyses will address a wide array of product types, activities and fact patterns. In addition, each individual LCA will be based on a bespoke evaluation and measurement of the particular activity being analyzed, unless the IRS is willing to review and approve broadly applicable pathways that cover categories of similar projects such as is done in the RFS program. Although we agree that ISO 14044:2006 is an appropriate framework for commercial utilization projects that displace CO₂ emissions, the lifecycle analysis requires methods and procedures for which neither the 45Q regulations nor the RFS regulations provide precise guidelines, thus lifecycle analysis will require a considerable degree of professional judgment in adapting the general statutory reference to the Clean Air Act and applying it to carbon capture projects.

The IRS should not underestimate the time and resources that it must commit if LCA's are to be reviewed by agency personnel or an inter-agency review team. Each of the agencies involved would have to assemble a team with necessary professional competence and familiarity with lifecycle analysis methods. These staff must have adequate bandwidth and financial resources to review every LCA quickly and accurately. For agency review to be workable in the business world, the agencies would have to complete their review within a reasonable time, which in this case would be a matter of weeks rather than months, as a taxpayer has only a limited amount of time between the end of the tax period and the return filing date to collect data from carbon capture and utilization operations, complete a lifecycle assessment, and prepare its tax returns. That leaves no time for lengthy agency review and procedures, especially if third-party verification is undertaken which could itself take several months.

⁵ For example, the California Air Resources Board certifies verifiers for greenhouse gas reporting laws <https://ww2.arb.ca.gov/our-work/programs/mandatory-greenhouse-gas-emissions-reporting/verification/mandatory-ghg-reporting>.

⁶ On a related topic, although perhaps a technicality, the proposed regulations refer to a “professional license” but we are not aware of licensing programs per se, but rather accreditation programs.

Because there is no explicit statutory mandate for agency review, review by agency personnel would be more appropriately reserved for audits or as an element of periodic program review. Also, because the Bipartisan Budget Act contains no authorization for expenditures on the 45Q program, nor to our knowledge have there been specific appropriations as would typically be expected if agency reviews were contemplated, it is unclear whether there is any budgetary authority for any agency to expend funds on review teams. An additional important concern is how the IRS could share taxpayer information with other agencies without running afoul of taxpayer privacy rules; the 45Q statute does not provide any such authority or exemption.

In terms of substance of the review, a reviewing agency could not legally reject a lifecycle analysis submitted by a taxpayer except if the analysis is shown to be inconsistent with generally accepted carbon accounting principles. The statute ties eligibility for the tax credit to an LCA approvable under the RFS program, and does not delegate to the IRS (or any other agency) any authority to devise new requirements or make policy judgments about what projects will be ‘winners or losers.’ Because the statute reflects Congress’s intent to incentive all utilization projects with existing commercial markets, the agency review process should not be a platform for policy decisions about what types of projects a particular agency may prefer or would prioritize.

In sum, we suggest that the IRS create a safe harbor for taxpayers as an effective incentive that will likely result in many, if not all, significant carbon utilization projects retaining qualified third-party verifiers. This will ensure the integrity of the greenhouse gas lifecycle analysis, minimize regulatory burdens, speed tax preparation, and avoid unwarranted delays and agency expenditures, while remaining within the scope of delegated statutory authority.

C. Commercial Markets

The enhanced statutory language under Section 45Q(f)(5)(A) expanded the allowable uses of captured carbon oxide to include “the use of such qualified carbon oxide for ***any other purpose for which a commercial market exists*** [except EOR], as determined by the Secretary.”⁷ The term “commercial market” is not defined in the statute, but in light of the congressional intent to incentivize a broad range of CO₂ uses, the IRS should recognize that CO₂ has many existing and potential uses in commercial markets, such as for building products, fuels, food production and refrigeration.

The proposed regulations appropriately define “utilization of qualified carbon oxide” as including “any other purpose for which a commercial market exists . . . as determined by the

⁷ 45Q(f)(5) provides in pertinent part: “(f) Special rules * * * (5) Utilization of qualified carbon oxide (A) In general For purposes of this section, utilization of qualified carbon oxide means—(i) the fixation of such qualified carbon oxide through photosynthesis or chemosynthesis, such as through the growing of algae or bacteria, (ii) the chemical conversion of such 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 use as a tertiary injectant in a qualified enhanced oil or natural gas recovery project), as determined by the Secretary.” (Emphasis added.)

Secretary of the Treasury.”⁸ §1.45Q-4(a)(3). This language, which generally mirrors the statute, is facially unobjectionable. However, the preamble suggests that IRS might intend to specify which commercial uses qualify as CO₂ utilization rather than merely confirm that commercial markets exist for the products for which CO₂ is utilized.⁹ But the legislation only delegates to IRS the responsibility to determine whether there is a commercial market for CO₂ (*i.e.*, a binary yes or no determination whether a market exist for CO₂). Congress itself made the determination to incentivize *all* commercial uses.

Congress intended section 45Q to incentivize deployment of carbon capture, utilization and sequestration projects broadly. The tax credit enables taxpayers to recoup some of the investment for adding carbon capture equipment to their manufacturing processes. To this end, Congress has already decided that all commercial uses are eligible to take advantage of the credit program. Accordingly, a definition of “commercial markets” is probably not necessary in the regulations, but if a definition is provided, it should focus on whether the market exists, rather than making a policy judgment about which uses or markets should be incentivized. An appropriate definition might read: “*commercial market* means a market in which carbon oxide is sold or transacted on commercial terms.”

To the extent that IRS does intend to identify particular uses or markets that qualify for the 45Q tax credit, we suggest that IRS develop a positive list of markets that have been shown to exist. Markets on a positive list should qualify categorically and not be subject to reexamination. That list can start with the markets identified by government agencies or third-party research organizations. As just a few examples, dry ice manufacturing, meat packing and carbonated beverages have unquestionably been recognized as existing commercial markets. The Department of Energy has identified a constellation of CO₂ uses which are depicted in the following illustrative diagram. The IRS should recognize each of these uses as a valid “use for which a commercial market exists” for purposes of section 45Q without requiring each taxpayer to seek a separate ruling on each particular use or market.

⁸ The proposed regulation adds the phrase “or his [her] delegate” which does not appear in the statute.

⁹ 85 Fed. Reg. at 34057 (“The proposed regulations do not define commercial markets . . . The Treasury Department and the IRS continue to study these issues and request comments”); 85 Fed. Reg. at 34064 (“The Treasury Department and the IRS also request specific comments regarding the definition of commercial markets . . .”).



Figure 1 - Congressional Research Service report “Carbon Capture and Sequestration (CCS) in the United States” Fig. 5 (p. 11) (Aug. 9, 2018); citing Source: U.S. DOE, National Energy Technology Laboratory, CO₂ Utilization Focus Area, at <https://www.netl.doe.gov/research/coal/carbon-storage/research-and-development/CO2-utilization>.

As one specific example, Tate & Lyle operates a fermentation facility at which the company has installed equipment including CO₂ capture, scrubbers, blowers, and related piping to capture and remove pollutants and impurities from the CO₂. The pure CO₂ is then piped to the input side of a nearby third-party facility which operates a dry ice manufacturing plant using refrigeration equipment. Dry ice is manufactured by compressing the captured CO₂ gas to make dry ice products, which are sold in commercial markets. Gas flow meters are located on the pipes between the fermentation plant’s scrubbers and the refrigeration facilities. The meters are connected to a control room and daily reports are generated to monitor the amount of CO₂ being produced and sold to the refrigeration facility. If the refrigeration facility did not use the CO₂ captured from the Tate & Lyle fermentation process, the refrigeration facility would have to purchase “natural CO₂” (that is, carbon dioxide mined from geological formations and newly introduced to the atmosphere) rather than the captured and recycled CO₂ provided by Tate & Lyle. The 45Q tax credit was clearly intended to incentivize the continued operation or expansion of this type of CO₂ recycling and utilization project – and to encourage economic investment in more projects like it – all of which deliver the benefits of environmental protection, economic development (particularly, in the case of agricultural processing, in the Heartland and rural areas), and jobs.

* * *

TATE & LYLE

Tate & Lyle greatly appreciates this opportunity to comment on these important issues. If you have any questions or would like to discuss our CO2 displacement project, please contact me at Lawrence.Pociask@tateandlyle.com. We would be pleased to meet with your team in Washington, D.C. if helpful.

The commenter respectfully requests a public hearing.

Respectfully submitted,



Lawrence Pociask
Vice President Global Head of Tax