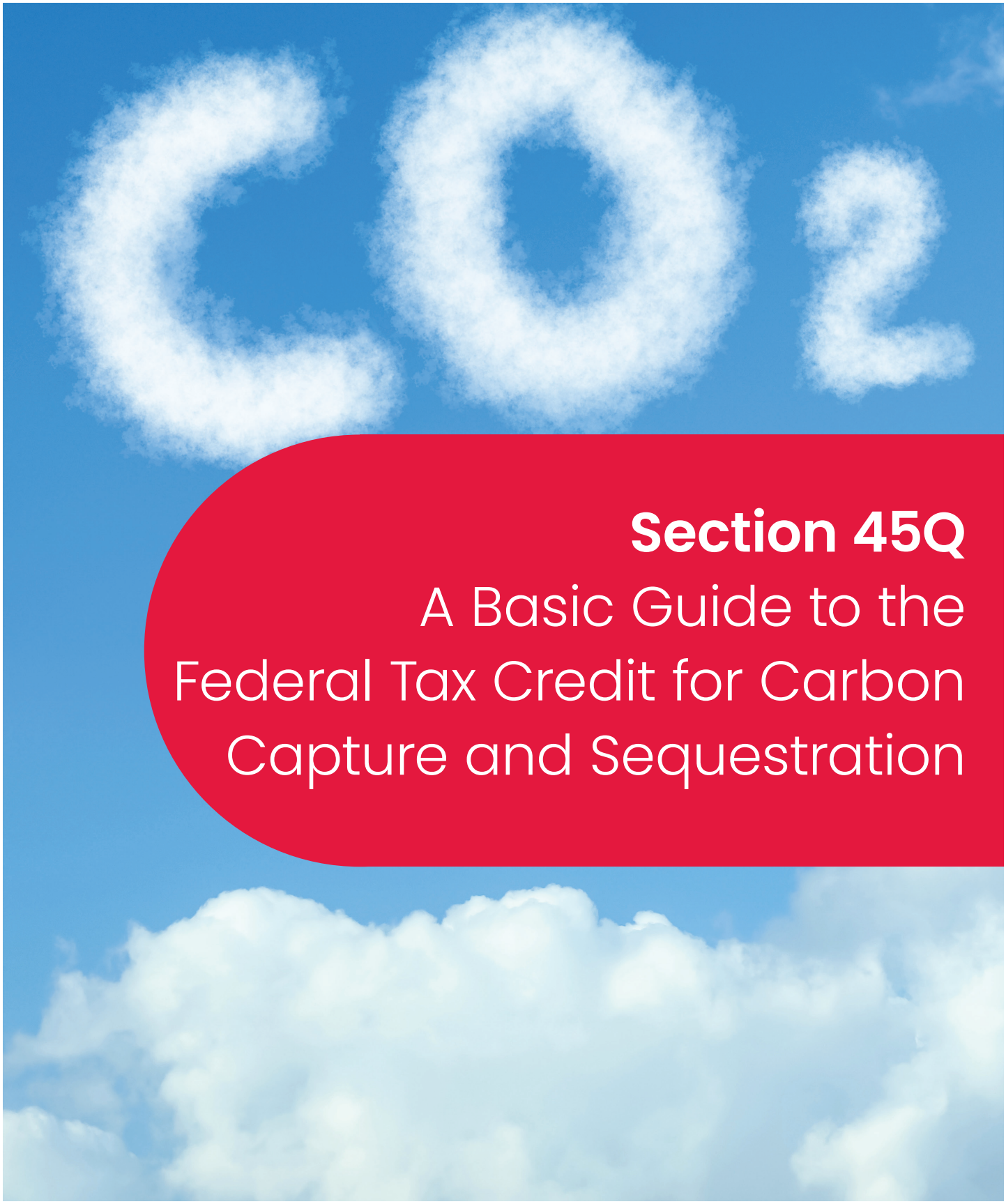


Section 45Q
A Basic Guide to the Federal Tax Credit for Carbon Capture and Sequestration

BAKER BOTTS

LEGAL PARTNER TO THE INNOVATORS

TABLE OF CONTENTS

ABOUT BAKER BOTTS L.L.P.

Baker Botts is an international law firm whose lawyers practice throughout a network of offices around the globe. Based on our experience and knowledge of our clients' industries, we are recognized as a leading firm in the energy, technology and life sciences sectors. Since 1840, we have provided creative and effective legal solutions for our clients while demonstrating an unrelenting commitment to excellence. For more information, please visit bakerbotts.com.

WHAT IS CARBON CAPTURE?

Carbon capture is the process of capturing carbon dioxide or monoxide that otherwise would have been emitted to the atmosphere as a result of industrial operations or, in the case of direct air capture, removing it from the atmosphere. The captured carbon oxide is then either put to some other use or stored by sequestration in secure underground geological storage. This process is referred to as Carbon capture use and storage (CCUS), sometimes shortened to carbon capture and storage (CCS). Carbon oxides, i.e., carbon monoxide and carbon dioxide, are greenhouse gases that contribute to global warming.

There are many point sources of carbon oxide emissions, such as power plants, refineries, petrochemical facilities, natural gas processing plants, ethanol plants and other manufacturing facilities. These facilities can capture the carbon oxide they otherwise would emit to the atmosphere as a by-product of their operations and store or sequester it so that it is not emitted into the atmosphere.

Another means of reducing the carbon oxide in the atmosphere is by direct air capture (DAC) facilities. Such facilities draw carbon dioxide out of the ambient air and then use or store the carbon dioxide. To prevent its return the atmosphere, the captured carbon oxide can be stored in permanent geological storage, used in enhanced oil or natural gas production (EOR), or utilized in certain chemical or commercial manufacturing. CCUS requires significant investments in equipment and infrastructure.

Carbon capture is the process of capturing carbon dioxide or monoxide that otherwise would have been emitted to the atmosphere as a result of industrial operations or, in the case of direct air capture, removing it from the atmosphere.

HOW MUCH IS THE SECTION 45Q CREDIT WORTH?

Section 45Q offers a federal tax credit of a specific dollar amount for each metric ton of "qualified carbon oxide" which is captured at a "qualified facility" and sequestered, used or utilized as required by the statute. The specific dollar amount for the credit depends on: (1) when the equipment was put into service; (2) if the system captures carbon from emitters or by DAC; (3) if the project meets certain labor requirements regarding the payment of prevailing wages to workers and use of apprentices in the construction, alteration and repair of the emitting facility and the carbon capture equipment (CCE); and (4) if the carbon oxide is geologically sequestered or if it is utilized in manufacturing or EOR. The credit amounts will increase with inflation starting in 2027. Pre-2022, the section 45Q credit amounts were not significant enough to stimulate investment in carbon capture. With the value of the credit enhanced by the Inflation Reduction Act, however, many developers consider the credit amount significant enough to support investment.

CCE Placed into Service Between 2/8/2018 and 12/31/2022

	Credit Amount as of 2024	Credit Amount as of 2025	Credit Amount as of 2026
Geological Storage	$43.92/mt	$46.96/mt	$50/mt
Used in EOR or manufacturing	$30.07/mt	$32.54/mt	$35/mt

CCE Placed into Service after 12/31/2022

	Emitting Facility*	Direct air Capture*
Geological storage	$85/mt	$180/mt
Used in EOR or manufacturing	$60/mt	$130/mt

*Assumes compliance with PWA requirements.

Section 45Q offers a federal tax credit of a specific dollar amount for each metric ton of "qualified carbon oxide" which is captured at a "qualified facility" and sequestered, used or utilized as required by the statute.

WHAT IS A "QUALIFIED FACILITY"

To qualify for the section 45Q tax credit, facilities must be either an "industrial facility" or a "direct air capture facility." Under Treas. Reg. § 1.45Q-2(d), industrial facilities are facilities that produce carbon oxide from a fuel combustion source, a fuel cell, a manufacturing process or a fugitive carbon oxide emission source that, absent its capture, would be released into the atmosphere. Industrial facilities generally do not include facilities that produce carbon dioxide from carbon dioxide production wells that contain 90% or greater carbon dioxide by volume.

To qualify for the section 45Q tax credit, facilities must be either an "industrial facility" or a "direct air capture facility."

The facility's construction must begin before 2033 and either the construction of the CCE must begin before 2033 or the facility's original plan and design must include CCE. The IRS, in Notice 2020-12, has clarified what it means for construction to have begun with respect to the facility and the CCE.

Facilities must also satisfy minimum capture amount requirements to qualify for the credit. The minimum capture amount for most facilities is 12,500 metric tons of qualified carbon oxide per year. For DAC facilities the requirement is 1,000 metric tons of qualified carbon oxide per year. For electric generating facilities the minimum amount is 18,750 metric tons of qualified carbon oxide and at least 75% of the carbon oxide emissions without the CCE.

FOR SEQUESTRATION PROJECTS, DO I NEED A CLASS VI PERMIT TO QUALIFY FOR THE CREDIT?

The credit is available if the captured carbon oxide is sequestered in secure geological storage (or, as discussed elsewhere, used in EOR or certain manufacturing). The regulations for section 45Q do not specify a type of injection permit that is needed to qualify for the credit. Instead, under Treas. Reg. § 1.45Q-3(b), taxpayers are required to comply with the applicable EPA regulations. The EPA has promulgated extensive regulations regarding the injection underground of substances such as carbon oxide and those regulations provide for different types of permits depending upon the use of the injection well. A Class VI permit is generally required for injection of carbon oxide, however, a Class II permit may be used for injection of waste from natural gas production or processing.

Currently, the time to process a Class VI permit is significantly longer than the time to process a Class II permit. Therefore, if the source of the carbon oxide is the processing of natural gas (instead of, for example, a by-product of combustion of coal or manufacture of ethanol), it may be preferable to inject based on a Class II permit. In the preamble to the final regulations promulgated under section 45Q, the IRS noted that when sequestration is used for disposing of carbon dioxide from natural gas production or processing waste, Class II permits may be sufficient.

WHAT IS "QUALIFIED CARBON OXIDE"?

Any carbon dioxide which would have been released into the atmosphere but for its capture qualifies for the section 45Q tax credit. For DAC facilities, any carbon oxide which is captured directly from the atmosphere qualifies for the credit. The carbon oxide must be measured when captured and verified when disposed of or used.

Only carbon oxide which is captured and sequestered or used in the United States can qualify for the section 45Q tax credit.

WHAT ARE THE PREVAILING WAGE AND APPRENTICESHIP (PWA) REQUIREMENTS?

Prevailing wage rates are published by the federal government for each trade, in each locality.

Section 45Q offers a 5x multiplier on the base credit rate for projects that satisfy the prevailing wage and apprenticeship requirements. To satisfy the prevailing wage requirement, taxpayers must ensure that laborers or mechanics employed by the taxpayer, or any contractor or subcontractor of the taxpayer, are paid at least the prevailing rates for similar labor in the locality where the facility is located. Prevailing wage rates are published by the federal government for each trade, in each locality. This requirement exists during construction and for alterations or repairs that occur during the 12 years of the section 45Q credit period.

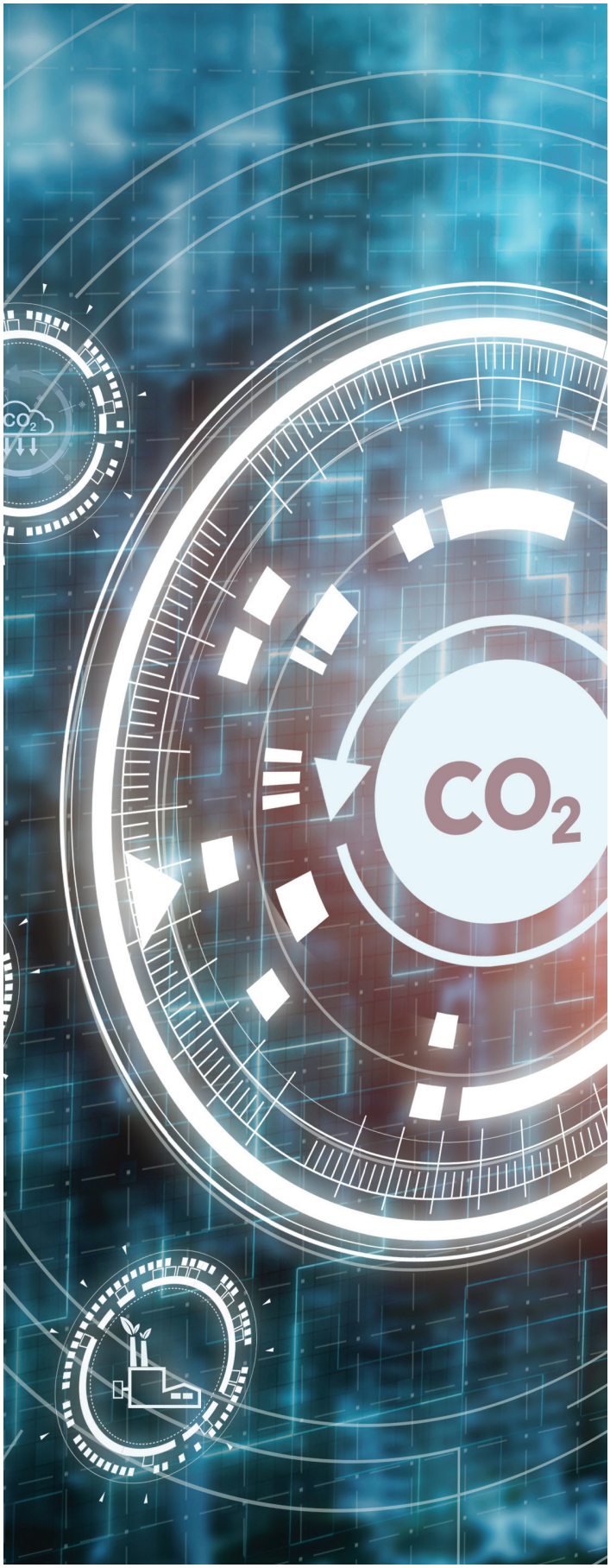
To satisfy the apprenticeship requirement, taxpayers must ensure that at least 15% of the construction work is performed by apprentices for projects the construction of which begins after 2023.

WHO RECEIVES AND WHO CAN CLAIM THE SECTION 45Q CREDIT?

For CCE placed into service before February 9, 2018, the taxpayer that "captures and physically or contractually ensures the disposal or use of the qualified carbon oxide" receives the section 45Q tax credit. For CCE placed into service on or after February 9, 2018, the taxpayer that "owns the carbon capture equipment and physically or contractually ensures the capture and disposal" or use of the qualified carbon oxide receives the section 45Q tax credit. Therefore, for current projects, it is not necessary for the credit claimant to be the party that captures the carbon oxide as long as it has contractually ensured its capture.

Under Treas. Reg. § 1.45Q-2(c), CCE includes all the equipment used to capture and process the qualified carbon oxide until it is ready to be transported for disposal or use. CCE generally does not include transportation equipment, except gathering and transmission lines which collect and transport carbon oxide away from the qualified facility. For each independently operating carbon capture process train, only one taxpayer can claim the section 45Q tax credit. Under Revenue Ruling 2021-13, 2021-30 IRB 152, the taxpayer claimant does not have to own every piece of CCE in the single process train but must own at least one piece of the CCE.

For each independently operating carbon capture process train, only one taxpayer can claim the section 45Q tax credit.



IS THERE A LIMIT ON THE AMOUNT OF THE SECTION 45Q CREDIT?

The amount of credit a taxpayer can claim is unlimited in the 12-year period after the CCE is placed into service. A taxpayer cannot claim any section 45Q credit for carbon oxide captured more than 12 years after the CCE was first placed in service.

HOW CAN THE SECTION 45Q CREDIT BE MONETIZED?

Under section 6418, all or a portion of a section 45Q credit may be transferred (sold) to an unrelated person. Alternatively, as discussed below, a taxpayer may elect "direct pay" with respect to the section 45Q credit for the first five tax years of the 12-year credit period. Pursuant to a direct pay election, a taxpayer receives the full value of the credit as a refund upon claiming the credit on its return. Taxpayers cannot transfer (sell) and elect direct pay for the same section 45Q credit.

Under section 45Q(f)(3), the entity or person to whom the section 45Q credit is attributable can elect to transfer the credit to those who dispose of or use the captured carbon oxide. The credit can be transferred to multiple taxpayers who dispose of or use the captured carbon oxide. However, the recipient of the credit in such a transfer, under current regulations, will not be able to elect to either transfer (sell) or receive direct pay with respect to such a credit.

IS DIRECT PAY AVAILABLE AS A MEANS OF MONETIZING A SECTION 45Q CREDIT?

Under section 6417(d), certain credit claimants can elect to receive a refund equal to the full credit amount, i.e., direct pay. For section 45Q credits, taxpayers (other than tax-exempts and certain governmental entities) are limited to receiving direct pay for credits earned in the first five years after the project is placed in service. For tax-exempt and governmental entities, direct pay is available for the full 12 years of the section 45Q credit period. Direct pay is only available for section 45Q credits attributable to equipment placed in service after 2022.

To make a direct pay election, claimants must first complete the pre-filing registration process in the year the equipment is placed into service and make a direct pay election on their annual tax return.

Direct pay is only available for section 45Q credits attributable to equipment placed in service after 2022.

IS IT POSSIBLE TO OBTAIN THE RECENTLY-ENHANCED SECTION 45Q CREDIT AMOUNTS WITH OLD CCE?

Under Treas. Reg. § 1.45Q-2(g)(5), taxpayers can retrofit CCE which was built before 2022 into a new carbon capture process train and still qualify for the increased credit amounts for facilities built after 2022. The requirement is that the old CCE must be worth no more than 20% of the value of the entire carbon capture process train after retrofit (the "80/20 rule"). The 80/20 rule applies when the existing CCE comprises a completed carbon capture process train; if the facility has some pieces of CCE, such as an amine unit, or acid gas removal unit, but not a completed carbon capture process train, then the 80/20 rule is inapplicable and the taxpayer may receive the current section 45Q credit by creating a completed carbon capture process train, regardless of cost.

MAY SECTION 45Q CREDITS BE ADDED TO OR "STACKED" WITH OTHER CREDITS?

Many projects which are eligible for a section 45Q tax credit are also eligible for other tax credits, such as the credit for clean hydrogen production (section 45V), clean fuel production (section 45Z) or the credit for investment in clean energy projects (section 48/48E). Section 45Q does not prohibit a taxpayer from claiming other credits with respect to the carbon capture project, however, many other credits restrict their availability to taxpayers who do not claim the section 45Q credit. Therefore, care should be exercised in assuming the availability of multiple credits for a CCUS project.

CAN THE SECTION 45Q CREDIT BE LOST OR "RECAPTURED"

A taxpayer risks the loss of a previously claimed section 45Q credit if the captured carbon oxide subsequently leaks. Recapture of a previously claimed credit causes the taxpayer to have a current tax liability in the amount of the previously claimed credit. If the qualified carbon oxide for which a taxpayer claimed a section 45Q credit ceases to be geologically sequestered during the recapture period, then a recapture event occurs.

The recapture period begins on the day when the qualified carbon oxide is injected for geological sequestration or use in EOR. The recapture period ends on the earlier of three years after the last taxable year when the taxpayer claimed a section 45Q credit or the day when monitoring ends.

A recapture event occurs only when the amount of qualified carbon oxide leaked exceeds the amount of qualified carbon oxide stored in a taxable year. (If the amount of qualified oxide leaked does not exceed the amount of qualified carbon oxide stored in a taxable year, then the qualified carbon oxide leaked simply decreases the amount of qualified carbon oxide stored that is eligible for the credit.) A recapture event does not occur if the cause of the leakage is not related to the selection, operation, or maintenance of the geological storage facility, such as volcanic activity or terrorism.

Determining the amount of recapture is done on a last-in/first-out basis. The amount of qualified oxide leaked which exceeded the amount of qualified oxide stored in the same taxable year is applied to the first preceding year, then to the second preceding year, and finally to the third preceding year.

If multiple taxpayers claimed a section 45Q credit for a single carbon capture process train which is subject to recapture, then the recapture amount will be allocated among them on a pro rata basis.

A recapture event occurs only when the amount of qualified carbon oxide leaked exceeds the amount of qualified carbon oxide stored in a taxable year.

BARBARA DE MARIGNY

Partner | Houston
P: +1.713.229.1258
F: +1.713.229.7958
barbara.demarigny@bakerbotts.com

Barbara focuses her practice on tax structuring for transactions, with a particular emphasis on federal income tax issues arising in partnership, joint venture and alternative investment structures, including the use of partnership structures for strategic acquisitions by corporate groups, in IPOs, securities offerings and for tax equity financing.

Her practice has an energy industry concentration, including transactions involving Fortune 50 corporations, master limited partnerships (MLPs), private equity investors and portfolio companies in all aspects of the energy industry, upstream, midstream, and downstream, oil field services and petrochemicals. Barbara has a particular focus on the taxation of climate and clean energy initiatives, such as the section 45Q federal tax credit for carbon capture, use and sequestration ("CCUS"), tax incentives for hydrogen energy, alternative fuel vehicles and carbon pricing proposals. She is a frequent speaker and author on section 45Q topics, including the provision of comments and testimony to the IRS on the proposed regulations and regularly advises clients on credit-maximizing structures.

Additionally, she is board certified in tax law by the Texas Board of Legal Specialization. Barbara has been the Chair of the Partnership and LLC Tax Committee of the ABA Section of Taxation, is a recipient of the committee's Larry M. Katz Award for Distinguished Service for 2009 and was the founder and first Chair of the Section's LLC Task Force.

Prior to joining Baker Botts, Barbara was a partner at another international law firm and has also served as managing director in the M&A tax group of KPMG LLP.

AUSTIN
BRUSSELS
DALLAS
DUBAI
HOUSTON
LONDON
NEW YORK
PALO ALTO
RIYADH
SAN FRANCISCO
SINGAPORE
WASHINGTON

bakerbotts.com

©Baker Botts L.L.P., 2024. Unauthorized use and/or duplication of this material without written permission from Baker Botts L.L.P. is strictly prohibited. Excerpts and links may be used, provided that full and clear credit is given with appropriate and specific direction to the original content.