

IRC Section 45Q

Furthering carbon capture, Utilization,
Technology, Underground storage, and
Reduced Emissions Act or “FUTURE ACT”



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2008—IRC 45Q Carbon Sequestration Tax Credit enacted under Energy Improvement and Extension Act

- Business tax credit under IRC 38—reducing tax liability dollar-for-dollar
- Available for capture and disposal of carbon dioxide in USA
- 75,000,000 metric tons of carbon (“MTC”) cap for credit. The IRS reported on May 14, 2018 that 59,767,924 MTC of such credits have been utilized based upon information gathered through the reporting regime adopted in IRS Notice 2009-83. This volume cap did not provide the level of required long term certainty to incentivize significant CCUS investment.
- No transferability of tax credit
- Credit limited to:
 - storage in secure geologic formations, or
 - secure geologic storage through use of carbon dioxide as tertiary injectant (IRC 193(b)(1)) in a qualified enhanced oil or natural gas recovery project (EOR) as defined in IRC 43(c)(2) (substituting “Crude oil or natural gas” for “crude oil”)
- Credit value of \$20 per MTC for geologic storage and \$10 per MTC for EOR, subject to inflation adjustments provided in 45Q(f)(7)

Furthering carbon capture, Utilization, Technology, Underground storage, and Reduced Emissions Act or “FUTURE ACT”

- Introduced in 2017 by Senators **Heidi Heitkamp** (D-ND), **Shelley Moore Capito** (R-WV), **Sheldon Whitehouse** (D-RI) and **John Barrasso** (R-WY). It was cosponsored by one-fourth of the U.S. Senate, including 18 Democrats, six Republicans and one Independent. A companion bill, the Carbon Capture Act, was introduced in the House by Congressman Mike Conaway (R-TX) and cosponsored by 50 members, including 35 Republicans and 15 Democrats. In 2018, the bill was included in the Bipartisan Budget Act which was enacted February 9, 2018.
- The bipartisan support for both bills was unprecedented for legislation of its kind, spanning the political spectrum from all regions of the country and underscoring the breadth of support for carbon capture.
- The successful passage of the bill is largely the result of effective working relationships with both parties by the Carbon Capture Coalition supported by organized labor, ethanol producers, industrial and technology companies, coal and oil companies and environmental groups.
- New law largely leaves intact the tax credit regime in place for facilities using carbon capture equipment placed in service before February 2018. Provides pre-Act facilities which expand the benefits under the new law for incremental capacity.

2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration—Availability and Duration

Continues to be a Business Tax Credit under IRC 38

Credit on New Equipment No Longer Capped at 75,000,000 MTC

- Carbon capture equipment originally placed in service at a qualified facilities after Feb 2018 no longer subject to 75,000,000 cap.
- No allocation restrictions or limits
- No competitive process of awarding credits

Duration – Credit is now provided for **12 years** beginning on the date equipment is placed in service



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration— Credit Value

Dollar Value of Credit Increased

- For new carbon capture equipment, dollar value established by linear interpolation for geologic storage through EOR and other commercial uses from \$12.83 to \$35 per MTC (2016-2026) and for geologic storage between \$22.66 to \$50 per MTC. Credit for other commercial uses is based upon MTC emissions reduced in the process on a lifecycle basis, . Dollar value after 2026, calculated based on product of \$50/\$35 and inflation adjustment factor determined under IRC 43(b)(3)(B) for such year.
- Evidences legislative recognition of need to subsidize an activity such as carbon storage that may not be currently profitable. IRS provided interpolated credit values in publication issued December 17, 2018.
- Lifetime (12 yr) credit value for an industrial facility capturing 100,000 MTC py approx. \$42-\$60 million and for a large scale coal power plant capturing 90% of its CO₂ emissions py approx \$1.89-\$2.7 billion



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration—Deadlines and Capture Thresholds

Deadline for Start of Construction: Credit applies to industrial facilities and clean air capture facilities provided the **construction of which begins before January 1, 2024** and either the construction of the carbon capture equipment begins before such date or the original planning and design includes carbon capture equipment. Allows for “add-on” carbon capture equipment to existing facilities.

Capture Thresholds: Establishes separate carbon oxide capture thresholds for electricity generating facilities, direct air capture facilities, and facilities using carbon for other commercial purposes under 45Q(f)(5). These thresholds are lower than the that included in the 2008 legislation allowing for wider range of industries to participate.

- Facility emitting $\leq 500,000$ MTCY must capture at least 25,000 MTCY for 45Q(f)(5) use
- Electric generating facility (“EGU”) emitting $> 500,000$ MTCY must capture at least 500,000 MTCY
- Direct Air Capture and all industrial facilities other than EGUs for which credits for EOR and other geologic storage are being claimed, minimum capture not less than 100,000 MTCY



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration—Who Can Claim Credit?

Carbon Capture Equipment Owner (“CCE Owner”)— Except as otherwise provided in any regulations prescribed by Secretary, the credit shall be **“attributed to”** in the case of qualified carbon oxide captured using carbon capture equipment originally placed in service at a qualified facility after Feb 2018, **the person that owns the carbon capture equipment and physically or contractually ensures the capture and disposal, utilization or use as a tertiary injectant of such qualified carbon oxide.**

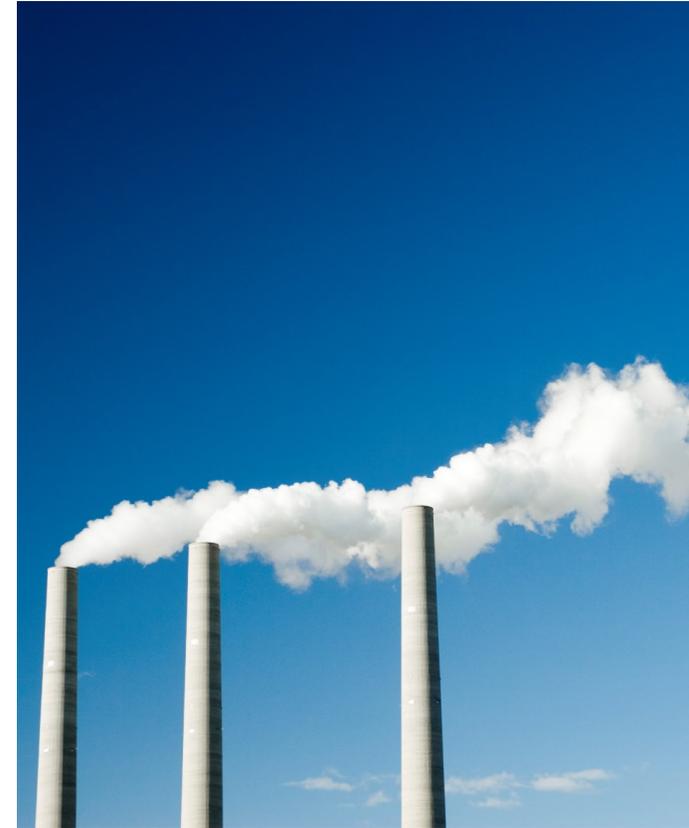
- Will lead to establishment of partnerships with flip structures similar to those in the wind industry and safe harbor rules established under Rev. Proc. 2007-65



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration—Who Can Claim Credit?

Transferable by CCE Owner to Carbon User—CCE Owner may **elect to transfer credit**—in such time and manner as the Secretary may prescribe—to a person disposes of, utilizes the qualified carbon oxide or uses the qualified carbon as a tertiary injectant.

- 45Q(f)(3)(B)(i) silent as to whether a Carbon User may similarly “contractually ensure” the capture and disposal, utilization or use” of carbon.
- More flexible approach to address situations where the CCE Owner lacks tax appetite, including in the case of electric cooperatives, municipal utilities or developers.
- This ambiguity will need to be addressed in regulations to provide clarity to financial parties interested in monetizing the credit using structures where they are not a CCE Owner.



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration—Use Cases Expanded

Expands use of carbon eligible for Credit to include other commercial activities beyond EOR, including:

- Photosynthesis or chemosynthesis—algae, bacteria growth
- Chemical conversion to material or chemical which stores carbon—utilization of carbon in the making of concrete
- Other commercial uses as determined by the Secretary

Expanded definition of “qualified carbon oxide”

- Now includes both “carbon dioxide” or “carbon oxide” which is captured from an industrial source by carbon capture equipment which would otherwise be released into the atmosphere as industrial emission of greenhouse gas or lead to such release and measured at point of capture and verified at point of disposal, injection or use.
- Expansion allows capture of carbon monoxide from industrial facilities, notably steel.
- Direct air capture, any carbon dioxide which is captured from the ambient air.
- In the case of EOR, only CO₂ that is stored based upon monitoring and reporting the mass balance of CO₂, after subtracting any recycled CO₂, may attract the credit.



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration—Terminology Used

“Secure Geologic Storage”—45Q(F)(2) —regulations to be established by Secretary in consultation with EPA, DOE and DOI. To include deep saline formations, oil and gas reservoirs and un-minable coal seams under conditions as determined under regulations to be promulgated. An overview of the current state of the law is discussed in https://carboncapturecoalition.org/wp-content/uploads/2018/11/Carbon_Capture_Coalition_Overview_Accounting_CO2Storage_EOR.pdf

“Lifecycle Greenhouse Gas Emissions”—Term used only in the context of determining the amount of credits claimed for commercial use of carbon (other than EOR) and is defined as “the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the EPA/Administrator, related to the full fuel 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 potential.”



2018 Updates to 45Q Tax Credit for Carbon Oxide Sequestration— Open Issues for Regulators to Address

- Recapture of Tax Credits—for carbon leakage or release (45Q(f)(4))
- Allocations of Tax Credits—45Q(h)(1)
- Beginning Construction requirements—45Q(h)(2) – Carbon Capture Coalition (CCC) suggests reliance on existing IRS guidance for wind and solar
- Refinements to Transfer Election—suggestions made by the Carbon Capture Coalition include clarity as to ability to transfer to multiple parties over the 12 year period and to ability of transferee to “contractually ensure” use or disposal of carbon
- Additional “commercial use” cases for carbon
- Measurement methodology for alternative commercial use cases of carbon permanently captured and isolated from the atmosphere or displaced from being emitted into the atmosphere based upon an analysis of lifecycle greenhouse gas emissions and subject to requirements as the Secretary in consultation with EPA, DOE determines



Status Update to 45Q Tax Credit for Carbon Oxide Sequestration

February 9, 2018—45Q amendment enacted under BBA

February 28, 2018—IRS Office of Chief Counsel Memorandum (Passthroughs and Special Industries) on Refined Coal Tax Credit under IRC 45(e)(8)(A) and related partnerships; Number: AM2018-002
Release Date: 3/9/2018. This may provide a useful framework for 45Q partnership analysis.

November 21, 2018—CCC submitted model guidance to Treasury and the IRS for implementation of 45Q which suggests:

- Clarify “Contractually ensure” to mean entry into a contract with a third party containing “commercially reasonable terms” to permit enforcement, rather than dictating specific remedies or enforcement mechanisms
- Clarify that transferee of credit may “contractually ensure” disposal
- Clarify that transfers of credit may be in part or over less than the full 12 year credit term (akin to IRC 45J credit)
- Advocates for “safe harbor” for recapture of tax credits for projects and operators thereof complying with Subpart RR of EPA Greenhouse Gas Reporting Program or an “Equivalent Program” with a one year lookback



May 20, 2019—IRS Issues Request for Comment on Issues Raised by 45Q

May 20, 2019—IRS Notice 2019-32 Request for Comment on Credit for Carbon Oxide Sequestration

July 4, 2019 – Responses due on IRS Notice 2019-32

Questions posed by IRS include:

- Should different or additional technical criteria should be used to demonstrate secure geologic storage besides what is currently required in the EPA’s Greenhouse Gas Reporting Program? Are there existing guidelines available?
- Reporting requirements—should the EPA’s rules continue to be the reporting requirements and should an approved EPA MRV Plan be a precondition to receipt of 45Q credits? Are there viable alternatives to the subpart RR reporting requirements?
- Recapture standards, triggers and measurements
- Is further clarification of these terms needed—“carbon capture equipment, qualified carbon oxide, direct air capture facility, qualified facility, tertiary injectant utilization, lifecycle greenhouse gas emissions?

May 20, 2019—IRS Issues Request for Comment on Issues Raised by 45Q

- Is guidance needed on certain new utilization cases and boundaries for lifecycle emissions analysis?
- Comments sought on types of contractual arrangements that investors anticipate with parties that will capture or dispose of carbon. What common terms are found in contracts today? What should be the result if terms are determined to be insufficient?
- How should transfer election be accomplished and what issues arise regarding such transfer?
- What constitutes “beginning construction”?
- Guidance with respect to partnership structures, credit allocations and recapture among partners?
- Issues relating to measurement of carbon subject to tax credit for purposes of new commercial use cases.



2018 Updates to 45Q—May 2019—CCC Additional Suggested Comments and Clarifications

CCC is also developing additional guidance recommendations relating to:

- Implementation of the statutory lifecycle greenhouse gas analysis requirement for projects claiming the 45Q tax credit for emissions reductions achieved through beneficial utilization of CO₂ captured from power plants and industrial facilities;
- Extending allowed time for continuous construction (after beginning construction) for a period longer than currently provided by the IRS for wind and solar projects, given the longer project development timeframes required for carbon capture projects;
- Defining a power plant to allow distributed generation for primarily non-grid applications to qualify for lower industrial 45Q thresholds (100,000 MTPY for industrial facilities, rather than 500,000 MTPY for electric generating units); and
- Allowing for aggregation of individual facilities below statutory 45Q thresholds for annual CO₂ capture into a single project that reaches the threshold.

CCC is also exploring the compatibility and potential application of the recently finalized [ISO 27916](#) standard—*Carbon dioxide capture, transportation and geological storage—Carbon dioxide storage using enhanced oil recovery*—as part of an equivalent methodology in addition to the existing federal Subpart RR for demonstration of secure geologic storage through CO₂-EOR for the purposes of qualifying for the 45Q tax credit.

**THANK
YOU**

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