



Practical, Environmentally Sound CO₂ Sequestration

Section 45Q of the U.S. Internal Revenue Code was first introduced in 2008 as part of the Energy Improvement and Extension Act. This section, referred to as the 45Q tax credit, incentivizes investment and development in carbon capture, utilization, and storage (CCUS) projects. Since 2008, the code has been updated and expanded, allowing more projects to qualify for the tax credit.

2008 Energy Improvement and Extension Act offered \$20 per tonne of stored CO₂ in dedicated storage projects and \$10 per ton for associated storage. Associated storage encompasses enhanced oil recovery (EOR), enhanced gas recovery (EGR), and other CO₂ utilization projects.

2018 Bipartisan Budget Act (BBA) expanded Section 45Q to provide \$50 per tonne of CO₂ stored in dedicated storage and \$35 per tonne in associated storage. The BBA removed the 75-million-ton cap on CO₂ qualifying for the tax credit but specified that the credit must be claimed over a 12-year period after operations begin. Further, construction or operation must have begun before 2026 in order to qualify.

2022 Inflation Reduction Act (IRA) expanded on the BBA and raised the credit available to \$85 per tonne of CO₂ stored in dedicated storage and \$60 per tonne in associated storage. Additionally, the IRA implemented a direct pay option for qualifying facilities, reduced the capacity requirements for eligible projects, and extended the availability of 45Q. Projects in the construction phase by 2033 are now eligible for the tax credit. The major enhancements to 45Q in the IRA are summarized in Table 1 (<https://www.irs.gov/credits-and-deductions-under-the-inflation-reduction-act-of-2022>).

Table 1. 45Q Tax Credit Enhancements in Inflation Reduction Act

CO ₂ Sequestration Method	Annual Carbon Capture Threshold by Facility Type (metric tons)			Tax Credit (\$/tonne CO ₂)	
	Power facility	Industrial facility	Direct air capture facility	Capture and storage or utilization	Direct air capture
Dedicated Storage	18,750	12,500	1000	85	180
EOR/Utilization				60	130

The PCOR Partnership, funded by the U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL), the North Dakota Industrial Commission's Oil and Gas Research Program and Lignite Research Program, along with more than 230 public and private partners, is accelerating the deployment of CCUS technology. The PCOR Partnership is focused on a region comprising ten U.S. states and four Canadian provinces in the upper Great Plains and northwestern regions of North America. It is led by the University of North Dakota Energy & Environmental Research Center (EERC), with support from the University of Wyoming and the University of Alaska Fairbanks.

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Visit the PCOR Partnership Web site at www.undeerc.org/PCOR. New members are welcome.

What Is the Tax Credit?

45Q tax credits are available based on where the CO₂ is sourced and how it is stored:

- \$85/tonne for dedicated storage from carbon capture on power or industrial facilities.
- \$60/tonne for associated storage from carbon capture on power or industrial facilities.
- \$180/tonne for dedicated storage from direct air capture.
- \$130/tonne for associated storage from direct air capture.

When Is the Tax Credit Available?

Projects that have entered the construction phase by January 1, 2033, are eligible for 45Q tax credits. The credit is available to qualified facilities for 12 years once equipment is placed in service.

How Do Taxpayers Receive the Credit?

In order to qualify for the tax credit, project operators of dedicated storage projects must report CO₂ volumes under the U.S. Environmental Protection Agency (EPA) Greenhouse Gas Reporting Program (GHGRP) Subpart RR. Subpart RR requires an EPA-approved monitoring, reporting, and verification (MRV) plan and outlines methods for calculating stored CO₂ (<https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98/subpart-RR>).

Who Receives the Tax Credit?

The annual carbon oxide sequestration credit provided by 45Q is generally granted to the taxpayer that owns the capture equipment and physically or contractually ensures secure geologic storage, which is formally defined in Subpart RR.

