

45Q Tax Credit

History, and Current Status

**The Carbon Utilization and Storage Partnership of the
Western USA**

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What is 45Q?

- 45Q is a part of the US tax code heavily modified in 2017 by a bipartisan congress and signed into law by the President
 - Modified slightly in 2021 Omnibus to extend deadline to start projects
 - Most recently significantly modified by 2022 Inflation Reduction Act
- 45Q provides tax credits for geologic storage of Carbon Oxides (CO₂)
 - Originally up to \$35/tonne of CO₂ stored in EOR or other uses, **now \$60/tonne**
 - Originally up to \$50/tonne of CO₂ stored in other formations, **now \$85/tonne**
 - Originally DAC fell under the other categories,
 - Added DAC credit of **\$180/tonne**
 - Added DAC EOR credit of **\$130/tonne**
- 45Q is designed to jumpstart carbon storage projects in the US
 - Foundation of the idea is in enabling “clean coal”
 - Geologic storage of carbon is perceived as a needed solution to address climate change

Efforts to Make 45Q More Effective

2020-2021 CATCH Act was proposed

- Increase Credits up to \$85 per tonne for saline storage and \$60 per tonne for EOR
- Eliminate or reduce thresholds for project size

2021-2022 ACCESS Act was proposed

- Make the tax credit directly payable
- Extend duration of credit by 10 years

Efforts to Make 45Q More Effective

- Broad bipartisan support for these two bills and a combination of the two were likely to have passed in December (2021)
- However, the language was instead rolled into the Build Back Better Bill, which failed to pass
- Similar and expanded language was included in the Inflation Reduction Act of 2022 which did pass

Efforts to Make 45Q More Effective

2020-2021 CATCH Act *incorporated in IRA*

- Increase Credits up to \$85 per tonne for saline storage and \$60 per tonne for EOR, **included in IRA**
- Eliminate or reduce thresholds for project size, **included in IRA**

2021-2022 ACCESS Act *incorporated in IRA*

- Make the tax credit directly payable, **first five years allowed in IRA, 12 years if a tax-exempt organization**
- Extend duration of credit by 10 years, **further extended to 2033**
- **Also significantly included:**
 - **Expanded transferability to taxpayers outside of operational partners**

So, Why Should Companies be Interested in 45Q? (...and carbon reduction in general)

- Economic benefits of tax credit can be substantial
 - 1 tonne of CO₂ is approximately 18 mmcf of gas
 - 1 million tonnes per year from each of 4 gas plants in San Juan, for example
 - **Under 2022 rules this could generate a tax credit of \$60 -85 million per year per plant if the CO₂ were stored**
- Other tangible benefits of reducing carbon emissions
 - Stored CO₂ counts against emissions for EPA or State reporting purposes
 - Reduces CO₂ footprint of the company
 - Reduces exposure to carbon taxes or emissions penalties which could be imposed by state or federal entities
- Sustainability of operations for oil and gas producers
 - Improved public perception of operations
 - Reduced economic risk from future regulatory or policy changes

How Could a Company Access the Credit?

- Install “capture” equipment at facilities to capture CO₂ streams
 - For the San Juan basin example you essentially need to add compression to get gas to ~1500 PSI
 - Estimated cost at About \$15 million for San Juan Gas separation plants
- Build pipelines to transport CO₂ to storage location(s)
 - For local use or storage it would be a matter of construction or adaptation of existing lines
- Secure access to geologic storage site(s) or takers of CO₂
 - Need at least one, and preferably several places to deliver CO₂ into geologic storage
 - Could be “disposal wells” similar in concept to water disposal, or could be in EOR projects.
 - Existing CO₂ pipelines can provide an additional outlet and offset natural CO₂

You Made That Sound Easy...

- **It's not.**
- There are a lot of moving parts, permits, certifications, and operational issues to contend with

- **But...**
- This is well established technology with 50+ years of EOR experience and two decades of intense Department of Energy sponsored projects
- Is being commercially practiced at many sites in the US today
- Could provide significant economic benefits which are at least partially disconnected from commodity prices

Part I Information About You

- Check the applicable box(es). See instructions before completing this form.
- 1 Captured qualified carbon oxide during the tax year
 - 2 Physically disposed, used, or utilized captured qualified carbon oxide during the tax year
 - 3 Elected to allow another taxpayer to claim the carbon oxide sequestration credit that you would've otherwise been entitled to
 - 4 Another taxpayer elected to allow you to claim the carbon oxide sequestration credit that they would've otherwise been entitled to
 - 5 Reserved for future use
 - 6 Reserved for future use
 - 7 Reserved for future use
 - 8 Reserved for future use

Part II Facilities at Which Qualified Carbon Oxide Qualifies for a Credit Under Section 45Q(a)(1) or (2), or for Which an Election Was Made Under Section 45Q(b)(3)

1	Qualified carbon oxide captured using carbon capture equipment originally placed in service at a qualified facility before February 9, 2018, disposed of in secure geological storage, and not used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project, nor utilized as described in section 45Q(f)(5).			
a	Metric tons captured and disposed of and for which you didn't elect for another taxpayer to claim the carbon oxide sequestration credit. See instructions for attaching Model Certificates CF, DISP-Operator, and DISP-Owner	1a		
b	Inflation-adjusted credit rate (see instructions)	1b		
c	Multiply line 1a by line 1b		1c	
2	Qualified carbon oxide captured using carbon capture equipment originally placed in service at a qualified facility before February 9, 2018, disposed of in secure geological storage, and used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project.			
a	Metric tons captured and disposed of and for which you didn't elect for another taxpayer to claim the carbon oxide sequestration credit. See instructions for attaching Model Certificates CF, EOR-Operator, and EOR-Owner	2a		
b	Inflation-adjusted credit rate (see instructions)	2b		
c	Multiply line 2a by line 2b		2c	
3	Qualified carbon oxide captured using carbon capture equipment originally placed in service at a qualified facility before February 9, 2018, and utilized as described in section 45Q(f)(5).			
a	Metric tons captured and utilized and for which you didn't elect for another taxpayer to claim the carbon oxide sequestration credit. See instructions for attaching Model Certificates CF and UTZ	3a		
b	Inflation-adjusted credit rate (see instructions)	3b		
c	Multiply line 3a by line 3b		3c	

Part III Qualified Facilities Under Section 45Q(a)(3) or (4) for Which No Election Was Made Under Section 45Q(b)(3)

4	Qualified carbon oxide captured using carbon capture equipment originally placed in service at a qualified facility on or after February 9, 2018, during the 12-year period beginning on the date the equipment was originally placed in service, disposed of in secure geological storage, and not used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project, nor utilized as described in section 45Q(f)(5).			
a	Metric tons captured and disposed of and for which you didn't elect for another taxpayer to claim the carbon oxide sequestration credit. See instructions for attaching Model Certificates CF, DISP-Operator, and DISP-Owner	4a		
b	Section 45Q(a)(3) applicable dollar amount (see instructions)	4b		
c	Multiply line 4a by line 4b		4c	

How to Access 45Q Tax Credit: IRS Form 8933

Key elements are:

- “Qualified Carbon Oxides”
- “Qualified Facility”
- “Secure Geologic Storage”

Also:

- Enough tax burden to utilize non-refundable parts of the credit
- Can form partnerships to manage this, even outside of your operations

Qualified Carbon Oxides

“Carbon dioxide captured from an industrial source... which would otherwise be released into the atmosphere...”

- Must be “**measured** at the source of capture and **verified** at the point of disposal, injection, or use”
- A cap of 75 million tonnes **total** is allowed for capture equipment installed prior to the 2017 Bipartisan Budget Act, also with lower tax credit values
 - Essentially this is consumed by existing EOR projects
- No cap on CO₂ captured with equipment installed after BBA was established
 - Credit can be applied for 12 years after the equipment is installed and had to be in place by the end of **2023** originally, later modified to **2026**, and now **2033**

Qualified Facility

*“Any industrial facility... the construction of which begins before January 1, ~~2026~~ **2033**, and the construction of carbon capture equipment begins before that date, or the original planning and design of the facility includes carbon capture equipment...”*

- Utilization projects that emit less than 500,000 tonnes per year must capture at least 25,000 tonnes per year, **now subject to individual project thresholds**
- Electrical generating facilities must capture at least 500,000 tonnes/year, **now 18,750 tonnes per year**
- Other facilities must capture at least 100,000 tonnes/year, **now 12,500**
- Direct Air Capture Facilities must capture 100,000 tonnes/year, **now 1,000 tonnes/year**

Secure Geologic Storage

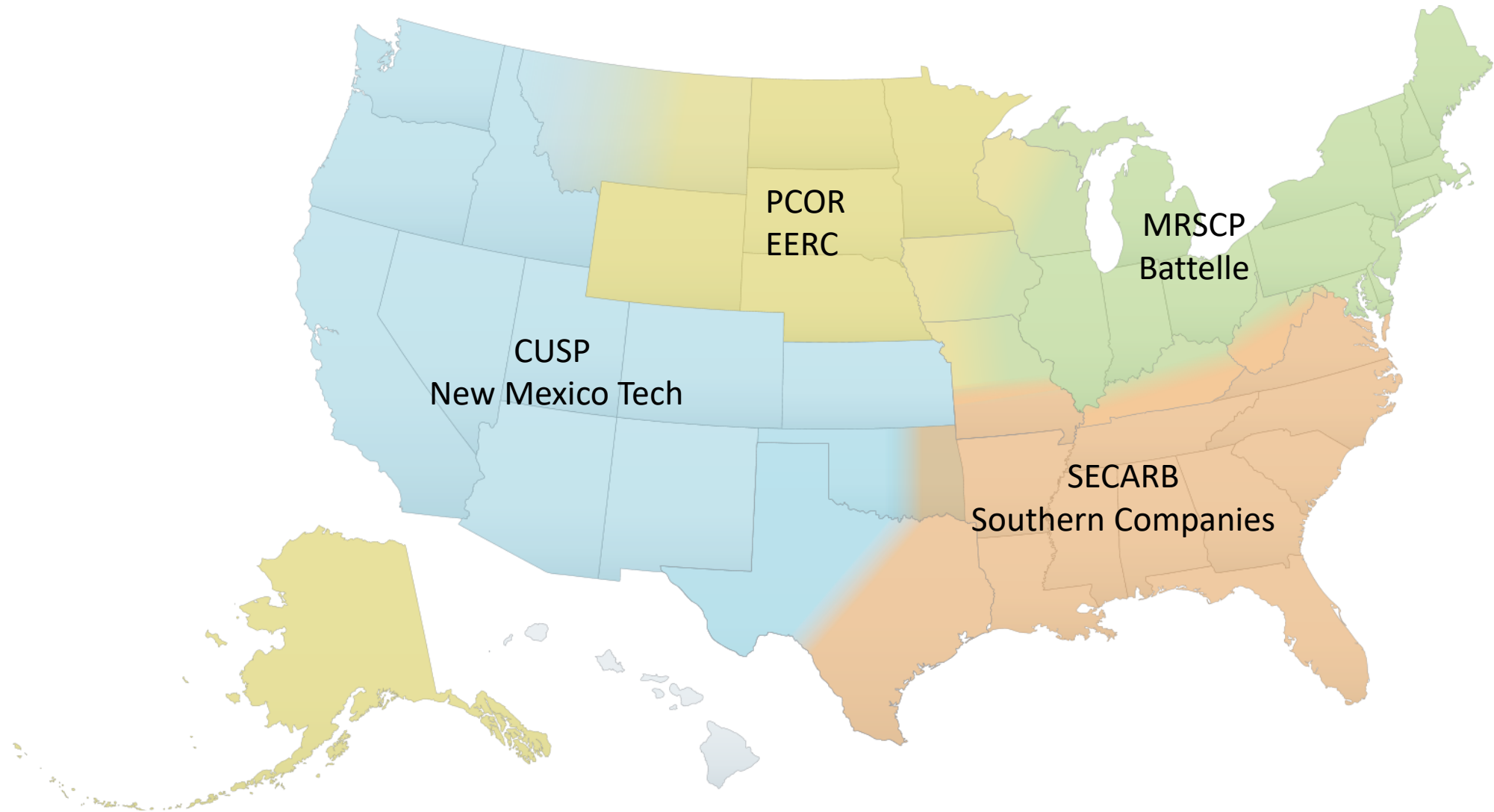
“This includes storage in deep saline formations, oil and gas reservoirs and unminable coal seams...”

- A storage site requires approval by the EPA of a **Monitoring, Reporting, and Verification (MRV) plan** submitted by the operator of the storage site
- Amounts applied for the credit must align with GHG reporting quantities
- In the case of EOR, only new CO₂ brought to the site, not recycled gas qualifies for the credit

How to Start?

- EOR has been doing this for years
 - The basis for all carbon storage research and work, 5+ decades of literature and cumulative storage at gigaton scales
- Regional Carbon Storage Partnerships (2003)
 - US DOE established regional partnership program to understand regional and national storage potential, technologies, and to perform demonstration projects
- Carbonsafe
 - DOE program to promote large scale capture and storage for coal plants/large point sources
- New Regional Partnership program
 - DOE doubled down and is continuing the work of the RCSP's

Regional Initiatives to Accelerate CCUS Deployment (2019)



Programmatic Goals of The Regional Initiatives

- Accelerate onshore CCUS technology deployment in the United States.
- Coordinate capabilities and experience within (and outside of) each region to accelerate CCUS deployment in four key activities:
 - Addressing key technical challenges;
 - Facilitating data collection, sharing and analysis;
 - Evaluating regional infrastructure;
 - Promoting regional technology transfer.

The Regional Initiatives are formed from the original RCSP's, and each is involved in CarbonSafe projects. The initiatives are a great resource, and have many years experience in navigating both project design and in obtaining MRV's and permits

21 New Commercialization projects just in the CUSP region since 2019