

# 45Q Tax Credit

## History, and Current Status

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

**Robert Balch**

**New Mexico Institute of Mining and Technology**

# 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 modified by 2022 Inflation Reduction Act
- 45Q provides tax credits for geologic storage of Carbon Oxides (CO<sub>2</sub>)
  - Originally up to \$35/tonne of CO<sub>2</sub> stored in EOR or other uses, **now \$60/tonne**
  - Originally up to \$50/tonne of CO<sub>2</sub> stored in other formations, **now \$85/tonne**
  - Originally DAC fell under the other categories, **Added DAC credit of \$180/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 last December (2021)
- However, the language was instead rolled into the Build Back Better Bill, which failed to pass
- This 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 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 CO<sub>2</sub> 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 \$50 -85 million per year per plant if the CO<sub>2</sub> were stored**
- Other tangible benefits of reducing carbon emissions
  - Stored CO<sub>2</sub> does not count as emissions for EPA or State reporting purposes
  - Reduces CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub>
  - Need at least one, and preferably several places to deliver CO<sub>2</sub> into geologic storage
  - Could be “disposal wells” similar in concept to water disposal, or could be in EOR projects.
  - Existing CO<sub>2</sub> pipelines can provide an additional outlet and offset natural CO<sub>2</sub>

# 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



		Identifying number
<p><b>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 in a way described in section 45Q(f)(5).</b></p> <p>1a Metric tons captured and disposed of _____</p> <p>b Inflation-adjusted credit rate _____</p> <p>c Multiply line 1a by line 1b _____</p>		1c
<p><b>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, or utilized in a way described in section 45Q(f)(5).</b></p> <p>2a Metric tons captured and used _____</p> <p>b Inflation-adjusted credit rate _____</p> <p>c Multiply line 2a by line 2b _____</p>		2c
<p><b>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).</b></p> <p>3a Metric tons captured and disposed of _____</p> <p>b Section 45Q(a)(3) applicable dollar amount (see instructions) _____</p> <p>c Multiply line 3a by line 3b _____</p>		3c
<p><b>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 used as a tertiary injectant in a qualified enhanced oil or natural gas recovery project, or used as described in section 45Q(f)(5).</b></p> <p>4a Metric tons captured and disposed of _____</p> <p>b Section 45Q(a)(4) applicable dollar amount (see instructions) _____</p> <p>c Multiply line 4a by line 4b _____</p>		4c
<p>5 Section 45Q(b)(3) election. Check the box if you're making the election under section 45Q(b)(3) <input type="checkbox"/></p> <p>6 Section 45Q(f)(6) election. Check the box if you're making the election under section 45Q(f)(6) <input type="checkbox"/></p> <p>7 Reserved for future use <input type="checkbox"/></p> <p>8 Carbon oxide sequestration credit from partnerships and S corporations _____</p>		8
<p>9 Add lines 1c, 2c, 3c, 4c, and 8. Partnerships and S corporations, report this amount on Schedule K. All others, report this amount on Form 3800, Part III, line 1x _____</p>		9

**General Instructions**

Section references are to the Internal Revenue Code unless otherwise noted.

**Future Developments**

For the latest information about developments related to Form 8933 and its instructions, such as legislation enacted after they were published, go to [www.irs.gov/Form8933](http://www.irs.gov/Form8933).

**Purpose of Form**

Use Form 8933 to claim the section 45Q carbon oxide sequestration credit. See *Definitions* below.  
 For the purposes of this form, a partner in a partnership that has made a valid section 761(a) election will be considered the taxpayer. Partnerships with valid section 761(a) elections aren't required to complete or file this form. Instead, the partner is

# 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 Bipartisan Budget Act, also with lower tax credit values
  - Essentially this is consumed by existing EOR projects
- No cap on CO<sub>2</sub> 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

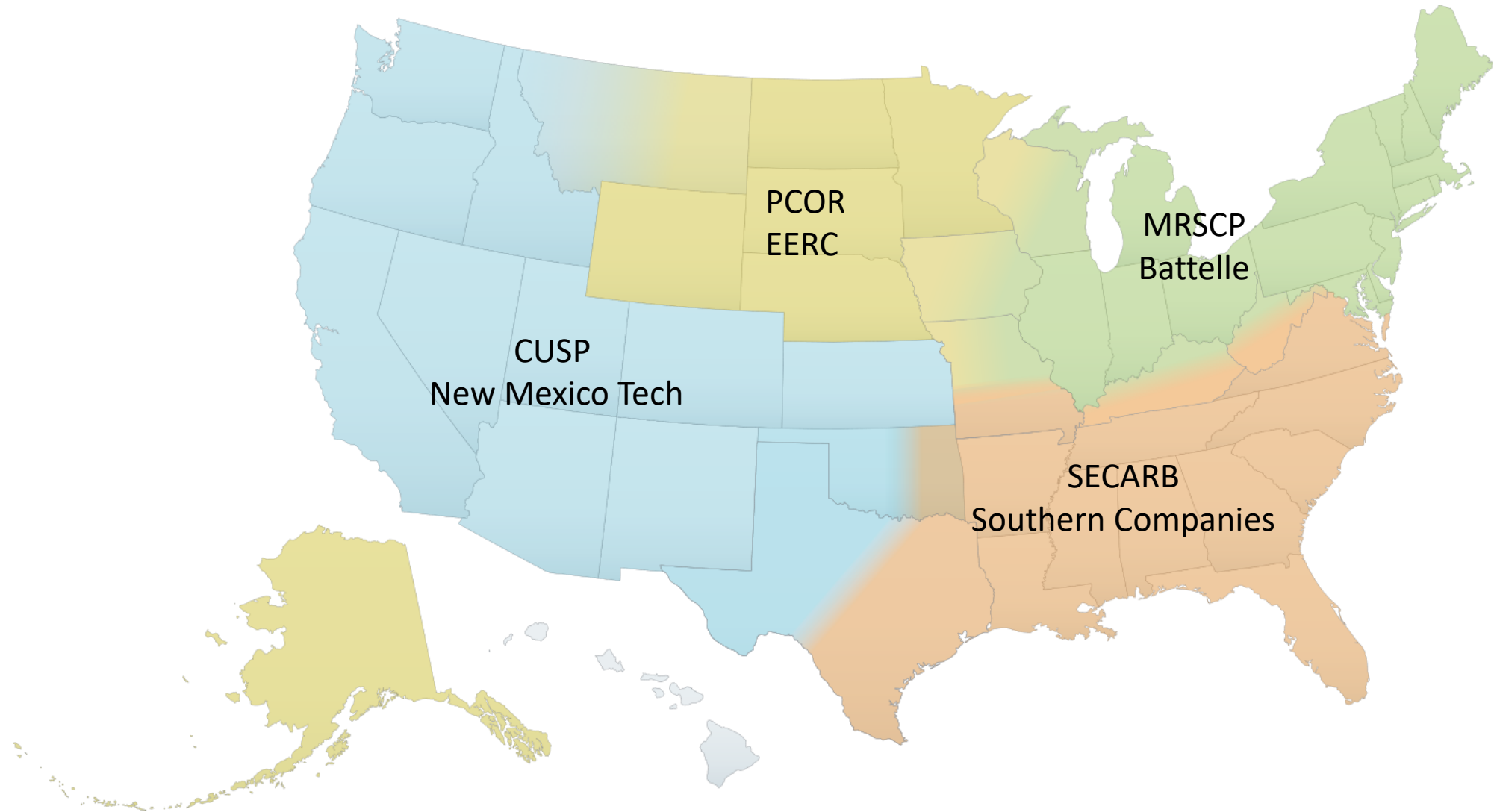
*“This includes storage in deep saline formations, oil and gas reservoirs and unminable coal seams...”*

- A storage site requires approval by the EPA of a **monitoring, reporting, and verification 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 CO<sub>2</sub> 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**

**15 New Commercialization projects just in the CUSP region**