



## Clean Coal Projects

There are a number of tax credits, which were made available for clean coal projects in the Energy Policy Act of 2005 (EPAct05). The following tax credits were allocated to projects within the U.S. Department of Energy's (DOE) Office of Fossil Energy (FE). This fact sheet summarizes the tax credits in the Internal Revenue Code (IRC) Sections 48A, 48B, and 45Q.

## Internal Revenue Code Section 48A

The IRC Section 48A was established to provide tax credits for advanced coal projects. \$800 million was authorized for Section 48A tax credits for integrated gasification combined cycle (IGCC) projects. The tax credit rate for investments in IGCC was set at 20% of eligible project costs.

Another \$500 million was available for investments in other advanced coal-based electricity generation technologies at a tax credit rate of 15% of eligible project costs. In 2008, the Energy Improvement and Extension Act authorized an additional \$1.25 billion in tax credits under Section 48A, with a credit rate for all qualified investments increased to 30%.

Beginning in 2009, qualifying advanced coal and IGCC projects were defined to include projects consisting of equipment to capture and sequester at least 65% of CO<sub>2</sub> emissions; gasification projects were defined as those that capture and sequester at least 75%. (This provision also applies to 48B).

## Internal Revenue Code Section 48B

IRC Section 48B provided tax credits for investment in qualifying gasification projects. \$350 million was authorized for Section 48B tax credits for qualified gasification projects, and the credit rate for qualifying investments in gasification projects was 20% of eligible project costs.

Beginning in 2009, Section 48B tax credits also required a 7-year placed-in-service requirement.

## Internal Revenue Code Awards for Section 48A and 48B Tax Credits

Awards in both categories were competitively granted by the U.S. Department of the Treasury (USDT). Credits were awarded to qualifying projects that met technical and economic feasibility standards. Likewise, some allocations were returned to USDT when projects failed to meet key milestones. Below is a list of awards that were granted. Not all of these projects reached completion.

- **2006:** \$1 billion awarded to nine projects in nine states.
- **2009–10:** More than \$1 billion awarded in Section 48A credits to Christian County Generation LLC, Summit Texas Clean Energy LLC, and Mississippi Power Company, with \$240 million remaining. A full \$250 million was awarded in Section 48B credits to Faustina Hydrogen Projects and Lake Charles Gasification LLC.
- **2011–12:** \$103.6 million allocated under Section 48A to Hydrogen Energy California LLC.

- **2012–13:** \$658.5 million allocated in Section 48A credits to STCE Holdings LLC and SCS Energy California.
- **2014–15:** \$260 million allocated under Section 48B to Clean Energy Resources LLC and Lake Charles Holdings LLC.

## New Applications for Internal Revenue Code Section 48A Tax Credits

Applications for the Section 48A credit cannot be accepted until the Internal Revenue Services (IRS) issues a notice for a new round of applications.

## Proposed Modifications to the Section 48A Tax Credit

In February 2019, Senator Hoeven (R-ND) introduced the [Carbon Capture Modernization Act \(CCMA\)](#). The co-sponsor was Senator Smith (D-MN). The CCMA modifies the Section 48A coal tax credit. It:

- Lowers the threshold from 400 MW to 200 MW.
- Relaxes the efficiency requirements for new and retrofit projects that include carbon capture and sequestration technology.
- Reduces the threshold for capture for existing units to 60%.
- Allows recent best available control technology for sulfur oxides and nitrogen oxides to substitute for requirements articulated in the 2005 legislation.
- Directs the U.S. Secretary of Treasury to conduct additional application rounds and reallocate available credits.

## Internal Revenue Code Section 45Q Credits

Section 45Q provides a tax credit on a per-ton basis for CO<sub>2</sub> that is sequestered. From 2008–2018, an incentive of \$20 per metric ton for CO<sub>2</sub> geologic storage and \$10 per metric ton for CO<sub>2</sub> used for enhanced oil recovery (EOR) or enhanced natural gas recovery (EGR) was available. This Section 45Q tax credit was capped at 75 million tons and in 2014, the IRS reported that 35 million tons had already been claimed.

In February 2018, with the passage of the Bipartisan Budget Act of 2018, the tax credit was updated. The Section 45Q tax credit will increase to \$35 per metric ton for EOR and \$50 per metric ton for geologic storage by 2026. The \$35 tax credit is also available for non-EOR CO<sub>2</sub> utilization and direct air capture projects.

Tax policies adopted by numerous state governments complement these federal tax incentives.

## Summary of Revised 45Q Credits

In February of 2018, the IRC of 1986 was amended to improve and extend the credit for carbon dioxide sequestration.

- For facilities placed in service before enactment, the current tax credit is continued:

- \$20 per metric ton placed in service prior to enactment of the Act and disposed of in secure geologic storage; and
- \$10 per metric ton placed in service prior to the enactment of the Act and used for EOR, EGR, or utilized in a qualified manner.
- For facilities placed in service on or after the date of enactment:
  - Credit is available for a 12 year period, beginning when equipment is placed in service.
  - Applicable dollar amount is as follows:
    - \$50 for secure geologic storage, with the credit increasing annually until the full value is reached in 2026.
    - \$35 for EOR, EGR, or CO<sub>2</sub> utilized in another qualified manner, with the credit increasing annually until the full value is reached in 2026.
- Qualified facilities are defined as those where:
  - Construction begins by January 1, 2024.
  - Original planning and design includes installation of carbon capture equipment.
  - Facilities that emit less than 500,000 metric tons of CO<sub>2</sub> into the atmosphere per year, and not less than 25,000 tons of qualified CO<sub>2</sub> per year.
  - For power plants, capture should be not less than 500,000 tons per year.
  - Direct air capture facilities should be not less than 100,000 tons per year.
- Defines utilization to include:
  - Photosynthesis or chemosynthesis (e.g., algae or bacteria).
  - Chemical conversion.

- Other purposes for which a commercial market exists.
- The credit typically goes to the owner of the carbon capture equipment; however, the Act enables the credit to be directed to the person that disposes or uses the carbon dioxide instead.

### Economic and Job Impacts of 45Q Tax Credit

DOE has conducted analyses to evaluate the economic and job impacts of implementation of a successful FE and National Energy Technology Laboratory (NETL) research and development (R&D) program.

The analyses indicate that implementation of a successful FE R&D program, in conjunction with high economic growth and a 45Q tax credit<sup>1</sup> will offer these results:

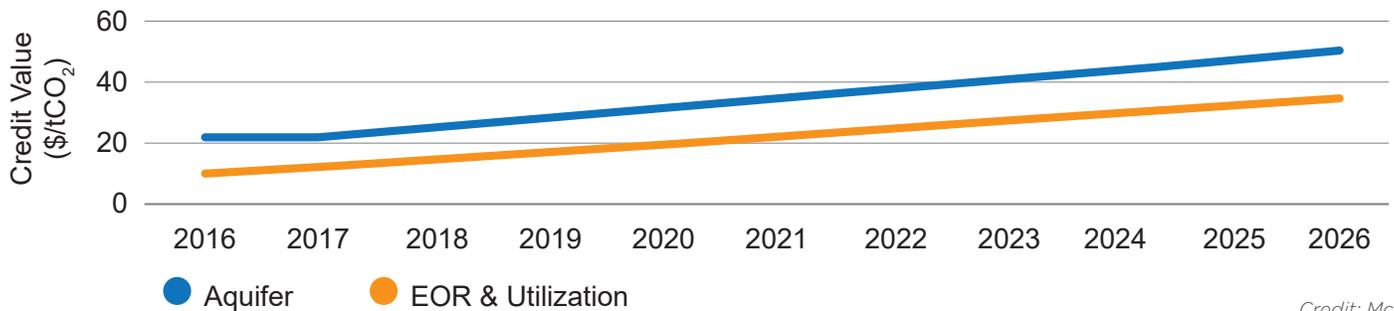
- Achieving DOE R&D goals will create 500,000–3.3 million additional jobs.
- Using CCUS tax credits will create 4.3–6.1 million additional jobs.
- Achieving DOE R&D program goals in conjunction with CCUS tax credits will create approximately 5–10 million additional jobs.

This research is summarized in [Analyzing and Estimating the Economic and Job Benefits of U.S. Coal, Sept 2017, Management Information Services Inc. \(MISI Inc.\)](#). It was published in [Public Utilities Fortnightly, October 2017](#).

- Part 1, click [HERE](#).
- Part 2, click [HERE](#).

### 45Q, Types of Sources and Credit Between 2018-2026

	Threshold by Facility Type (ktCO <sub>2</sub> /y0)			Credit in 2026 (\$/t)
	Power Plant	Industrial Facility	Direct Air Capture	
Dedicated Storage	500	100	100	50
EOR	500	100	100	35
Utilization	25	25	25	35



Credit: McCoy

<sup>1</sup> \$35/ton for EOR and \$50/ton for saline storage, available indefinitely