

FUNDING FAILURE

U.S. CARBON CAPTURE AND FOSSIL HYDROGEN SUBSIDIES EXPOSED

This briefing draws from a unique global database compiled by Oil Change International (OCI) that tracks government awards from 1984 to 2024 for carbon capture and fossil-based hydrogen research, development, and pilot and commercial projects. The full report on global carbon capture and storage (CCS) and fossil hydrogen subsidies is available on the OCI website.¹

CCS and fossil hydrogen are the new faces of the fossil fuel industry. They offer Big Oil and Gas cover to continue to extract fossil fuels and poison our air and water while pretending to address the climate crisis. This delays the transition to clean energy necessary to avert climate catastrophe. We must not waste any more public money on the fossil fuel industry's smoke and mirrors. Instead of subsidizing these failed technologies, the United States must invest in the only real solution to the climate crisis: a full, fast, fair, and funded phase-out of fossil fuels.

THE PROBLEM WITH CARBON CAPTURE

- According to the International Energy Agency, "The history of CCUS has largely been one of underperformance ... [and] unmet expectations."² Despite being a 50-year-old technology, carbon capture has failed to make a dent in global emissions.³
- Capture rates at existing CCS projects are far below the touted 95% target. No project to date has achieved a consistent capture rate above 80%.⁴
- The majority of the carbon captured is used to extract more oil via enhanced oil recovery (EOR) – generating more CO₂ and other forms of pollution.
- **Direct Air Capture (DAC)** is similarly risky, expensive, and may accelerate climate change by extending the lifespan of fossil fuel infrastructure and diverting resources away from more efficient and effective climate solutions.⁵

THE PROBLEM WITH FOSSIL HYDROGEN

- "Blue" hydrogen is made by converting fossil gas to hydrogen and, supposedly, capturing the emitted CO₂. Far from

being a clean fuel, one study suggests that blue hydrogen could emit 20% more greenhouse gasses than burning gas or coal for heat.⁶

- **Upstream Emissions:** "Blue" hydrogen requires more gas to deliver the same amount of energy as burning gas alone. This is problematic because it continues dependence on gas, and the super-pollutant methane is emitted at every step of the gas supply chain. Despite claims that the U.S. gas industry is cleaning up, data shows that its methane emissions are growing and that companies may be underreporting them by up to 95%.⁷
- **Hydrogen acts as a greenhouse gas:** Just like methane, hydrogen leaks. Hydrogen strengthens the climate warming effects of other greenhouse gasses when it leaks, making it about 12 times more impactful than CO₂.⁸

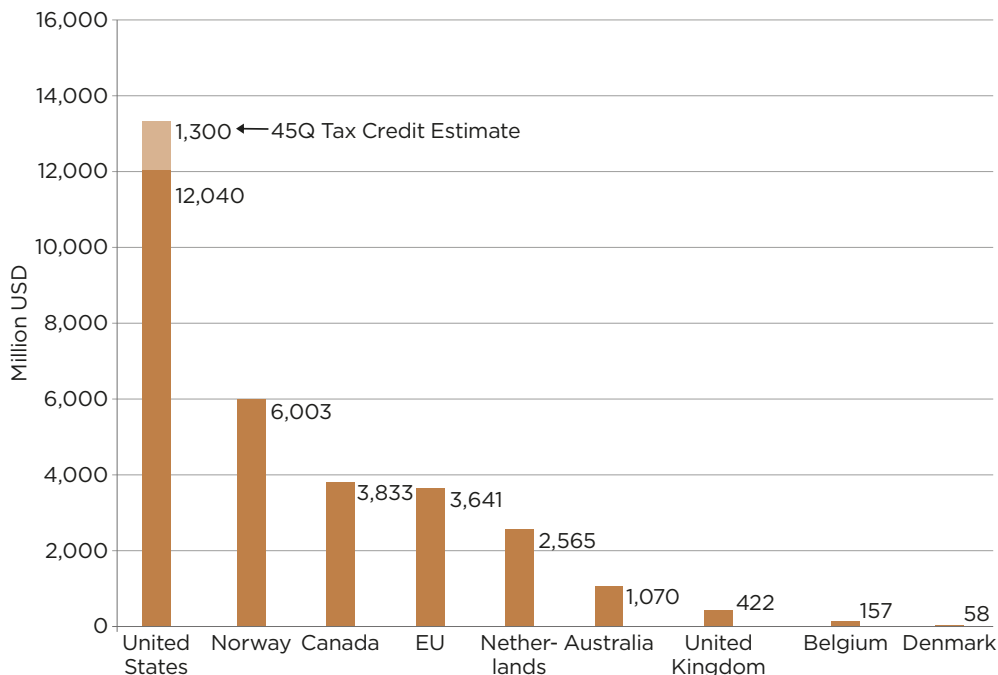
THE UNITED STATES SUBSIDIZES CCS AND FOSSIL HYDROGEN MORE THAN ANY COUNTRY

CCS and fossil hydrogen are dangerous distractions from the real work of addressing

the climate crisis – yet the United States subsidizes these technologies more than any other country. It has committed over **\$12 billion** in grants to CCS and fossil hydrogen projects over the past 40 years, nearly half of all global subsidies for CCS.⁹ About half of the \$4.2 billion committed to fossil hydrogen globally has come from the U.S.

The U.S. has also foregone an estimated \$1.3 billion in tax revenue up to 2022 through the 45Q tax credit, which allows companies to write off tax per ton of CO₂ sent underground even if it is used to produce more oil via EOR.¹⁰ This is a fraction of what is coming. Legislation passed since 2020 could result in U.S. taxpayers spending more than \$120 billion on CCS and fossil hydrogen over the next decade. The Infrastructure Investment and Jobs Act (IIJA) committed \$12 billion to CCS and \$8 billion to hydrogen. The Inflation Reduction Act expanded and extended the 45Q tax credit for CCS with no ceiling on expenditures and created a new tax credit for hydrogen production called 45V. The 45Q tax credit cost estimates range from \$30 billion to \$100 billion.¹¹

Figure 1: Total Tracked Public Finance for Carbon Capture and Fossil Hydrogen



Source: Oil Change International CCS Subsidies Database. Access is available on request.

THE UNITED STATES GIVES OIL COMPANIES TAXPAYER MONEY TO PRODUCE MORE OIL

The United States awards more taxpayer money to enhanced oil recovery than any other country: at least \$2.3 billion to date. This figure does not include the additional subsidy the industry receives through the 45Q tax credit.

DOE'S MEGA-GRANTS FOR CARBON CAPTURE AND FOSSIL HYDROGEN

Using funds from the IJJA, the U.S. Department of Energy (DOE) has allocated billions of dollars to CCS and hydrogen projects in development. Four of the biggest allocations are for fossil hydrogen and direct air capture "hubs." Hydrogen hubs will prolong the fossil fuel industry's grip on our

economy and energy supply, increasing toxic infrastructure in communities already heavily burdened by the industry's pollution. The DAC projects also have links to the oil industry, which plans to use captured CO₂ for EOR and use credits for CO₂ removal to market "net-zero oil."¹² The fates of these projects remain uncertain as nearby communities raise concerns about public safety, efficacy, and economic impacts.

Table: Top Four Recipients of DOE Funding for Carbon Capture and Fossil Hydrogen

| Project Name | Project Type | DOE Funding Committed | Companies | States |
|--------------------------|--------------------|-----------------------|---|-----------------------------------|
| Gulf Coast Hydrogen Hub | Fossil Hydrogen | \$1.2 billion | Large consortium of Houston area oil & petrochemical companies, incl. Exxon, Chevron, AES, and Air Liquide. | Texas |
| Appalachian Hydrogen Hub | Fossil Hydrogen | \$925 million | Battelle, EQT, CNX and others. Four developers have already pulled out of this project. ¹³ | West Virginia, Ohio, Pennsylvania |
| Project Cypress | Direct Air Capture | \$600 million | Battelle, Climeworks, Heirloom | Louisiana |
| South Texas DAC Hub | Direct Air Capture | \$500 million | 1PointFive (owned by Occidental) | Texas |

Source: Oil Change International CCS Subsidies Database. Access is available on request.

RECOMMENDATIONS:

- Remove enhanced oil recovery from the list of permitted uses for the 45Q tax credit, as enacted in Reps. Mike Quigley, Raúl Grijalva, and Ro Khanna's *End Polluter Welfare for Enhanced Oil Recovery Act*.¹⁴
- End all fossil fuel subsidies as enacted in Sen. Bernie Sanders and Rep. Ilhan Omar's *End Polluter Welfare Act*, including by
 - eliminating the 45Q tax credit for CCS and removing fossil hydrogen from the list of permitted uses for the 45V tax credit.¹⁵
 - End legacy subsidies to oil, gas, and coal production, as enacted in President Joe Biden's *Build Back Better Act*¹⁶ and Sen. Ron Wyden's *Clean Energy for America Act*.¹⁷
 - Fulfill the United States's commitment to end international public finance for fossil fuels under the Clean Energy Transition Partnership.¹⁸
- Prioritize public finance for frontline communities and the countries that are enduring the greatest impacts of the climate crisis while contributing the least to it, as well as key infrastructure for enabling a just energy transition.

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Oil Change International is a research, communications, and advocacy organization focused on exposing the true costs of fossil fuels and facilitating the coming transition towards clean energy.

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5 Center for International Environmental Law, *Direct Air Capture: Big Oil's Latest Smokescreen*, Nov. 2023, [Link](#).

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