

# CARBON CAPTURE | WHAT YOU NEED TO KNOW

Carbon capture and storage (CCS) technologies are being promoted by the very industry that benefits from such technologies: the fossil fuel industry. Not only is CCS unnecessary for rapid decarbonization, but these processes are also dangerous because they delay an equitable clean energy transition, risk public health and safety, and provide the fossil fuel industry with a license to continue polluting.

## KEY FACTS:

### **WORSENS POLLUTION AND ENVIRONMENTAL INJUSTICES:**

Polluting facilities that use CCS still release health-damaging air pollution, which can actually become worse because 10-40 percent more fuel is required to power CCS equipment.<sup>1</sup> CCS can also double water requirements and increase toxic wastewater discharge, and underground storage of carbon dioxide (CO<sub>2</sub>) can contaminate aquifers.<sup>2</sup> Such air, water, and land pollution would disproportionately harm frontline communities, predominantly low-income people of color.

### **DANGEROUS AND RISKY:**

The dangers of transporting and storing carbon cannot be overstated, yet they are often overlooked in discussions of CCS as a climate solution. CO<sub>2</sub> pipelines have significant risks of ruptures or leaks that freeze over the surrounding area almost immediately and can injure and even suffocate nearby residents.<sup>3</sup> Past incidents and ongoing discussions by state and federal agencies underscore how ill-prepared we are to regulate CO<sub>2</sub> pipeline safety and handle CO<sub>2</sub> accidents.<sup>4</sup>

### **NOT PROVEN TO MEANINGFULLY ADDRESS CLIMATE CHANGE:**

CCS projects have repeatedly failed to deliver on promised climate targets.<sup>5</sup> A recent study shows that CCS at a coal plant only captured around 10 percent of its carbon emissions over a 20-year period.<sup>6</sup>

### **PROLONGS THE FOSSIL FUEL ECONOMY:**

CCS enables polluting sources to continue operating, while creating additional risks and impacts. In 2021, only one out of 13 CCS facilities in the United States actually stored carbon underground; most captured carbon is used for “enhanced oil recovery,” which increases oil extraction and production.<sup>7</sup> In other words, CCS enables existing fossil fuel operations and more oil production.

1 [http://precaution.org/lib/ccs\\_energy\\_penalty\\_for\\_coal\\_vs\\_natural\\_gas.2016.pdf](http://precaution.org/lib/ccs_energy_penalty_for_coal_vs_natural_gas.2016.pdf); [https://www.pnnl.gov/main/publications/external/technical\\_reports/PNNL-20933.pdf](https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20933.pdf)

2 See e.g., <https://energysustainsoc.biomedcentral.com/articles/10.1186/s13705-018-0146-3>

3 <https://pstrust.org/wp-content/uploads/2022/03/CO2-Pipeline-Backgrounder-Final.pdf>

4 [https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline\\_n\\_60ddea9fe4b0ddef8b0ddc8f](https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f)

5 <https://ieefa.org/resources/carbon-capture-crux-lessons-learned>

6 <https://web.stanford.edu/group/efmh/jacobson/Articles/Other/19-CCS-DAC.pdf>

7 <https://www.ciel.org/wp-content/uploads/2021/07/Confronting-the-Myth-of-Carbon-Free-Fossil-Fuels.pdf>

## GLOSSARY:

**Carbon Capture & Sequestration (CCS)** - CO<sub>2</sub> is captured at an industrial facility—like a coal or ethanol plant—from smokestacks. Then compressed, pushed under high pressure through pipelines & transported to a storage site, where it is then stored for a very long time.

**Carbon Capture, Utilization, & Storage (CCUS)** - The same process as above, but the captured CO<sub>2</sub> is used—for manufacturing or most commonly for Enhanced Oil Recovery (EOR).

**Enhanced Oil Recovery (EOR)** - CO<sub>2</sub> is injected into oil or gas reserves, allowing additional oil to be pulled out of the otherwise depleted reservoir. Approx. 73% of all CO<sub>2</sub> captured globally is used for EOR.

**Carbon Dioxide Removal (CDR)** - Human activities that directly remove CO<sub>2</sub> from the atmosphere and store it for a long time. CDR is often misidentified as encompassing CCUS. CCUS & CCS do not remove existing CO<sub>2</sub> from the atmosphere



## HIGH COSTS:

Adding carbon capture technologies to a power plant can more than double the construction costs and increase the cost of energy produced by up to 61 percent.<sup>8</sup> Unless they are significantly subsidized, CCS projects are not economically viable.

## PROPPED UP BY FEDERAL FUNDS:

Despite failed projects, missed targets, and documented risks, the CCS industry remains afloat due to billions of dollars in federal incentives each year.<sup>9</sup>

## DISTRACTS FROM PROVEN SOLUTIONS:

To promote climate policies and technologies that result in real change, governments must axe CCS subsidies and plans that prop up the fossil fuel industry. Instead, policymakers should invest in natural carbon capture, like reforestation and soil sequestration; zero-emission electricity, such as renewables and storage; and safer, cleaner ways to decarbonize the industrial sector.

## BOX 1. ENHANCED OIL RECOVERY

The fossil fuel industry has been open about the importance of CCS for use in Enhanced Oil Recovery (EOR), a process that involves pumping CO<sub>2</sub> into depleted oil wells to extract an estimated 67 billion to 137 billion barrels of oil that would be left in the ground. North Dakota's State Mineral Resources Director testified that, "We cannot do enhanced oil recovery without CO<sub>2</sub> pipelines." And the National Enhanced Oil Recovery Initiative (rebranded in 2017 as the Carbon Capture Coalition), have similarly highlighted the importance of CCS to the continued use of fossil fuels:

*Today's supply of CO<sub>2</sub> available for purchase by the oil industry is simply inadequate to achieve the tens of billions of barrels of additional domestic oil production possible through EOR...Expanding the supply of CO<sub>2</sub> available for EOR depends upon wide-scale deployment of carbon capture and compression equipment... In addition, a substantial build-out of the existing CO<sub>2</sub> pipeline network will be required to deliver CO<sub>2</sub> from industrial facilities where it is produced to existing oil fields where it is needed.*

- National Enhanced Oil Recovery Institute, Center for Climate and Energy Solutions, Great Plains Institute, *Carbon Dioxide Enhanced Oil Recovery: A Critical Domestic Energy, Economic, and Environmental Opportunity*, <https://www.c2es.org/wp-content/uploads/2012/02/EOR-Report.pdf> (Feb. 2012).

<sup>8</sup> <https://www.ciel.org/wp-content/uploads/2021/07/Confronting-the-Myth-of-Carbon-Free-Fossil-Fuels.pdf> (citing <https://pubs.acs.org/doi/10.1021/acs.est.9b06147>)

<sup>9</sup> <https://cen.acs.org/environment/greenhouse-gases/45Q-tax-credit-s-luring/98/i8>

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