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THE SLOW DEATH AND DANGEROUS REINVENTION OF CALIFORNIA RESOURCES CORP

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Center for Asset Retirement Accountability
Center for Biological Diversity
FracTracker Alliance
Institute for Energy Economics and Financial Analysis
Central California Environmental Justice Network
Food & Water Watch

Executive Summary

As California's largest oil producer, California Resources Corp. is the poster child for both the industry's slow death as it runs out of oil, and dangerous reinvention as it pushes Carbon Capture and Storage technology that is a bad bet for the public and the environment. The progeny of a 2014 Occidental Petroleum spinoff of declining oil wells holding \$5 billion in inherited debt, CRC filed for bankruptcy in 2020.¹ It survived, swapping debt for equity. In the last two years, as oil production continues to decline, it's gone on a buying spree to puff up its assets with low-producing and idle wells while state regulators allow CRC to directly put Californians' wallets and communities' public health on the line.

Years ago, major oil companies saw California's oil future and hightailed it out. They faced steadily declining production, stiff competition, high expenses and low oil prices, plus billions of dollars in environmental liabilities for well plugging and cleanups they preferred to skirt. Shell and ExxonMobil spun their 1997 joint venture—Aera Energy—off to foreign investors in 2022 for the same reasons as Occidental.²

During the last two years, California Resources Corp. (CRC) has purchased Aera Energy and oil producer Berry Corporation while Governor Gavin Newsom and regulators have ignored state laws requiring purchasers of oil producers to put up bonding to ensure the wells are eventually plugged.³ This allows CRC to socialize billions of dollars in costs of sunsetting oil wells while privatizing any profits. Last year, Governor Gavin Newsom also backtracked on a swifter transition away from oil and gas to alternate, cheaper sources of renewable energy by endorsing the expansion of oil production in Kern, the cradle of California's oil industry, under SB 237.⁴

While CRC expands its well portfolio, its new gambit is building risky, multi-billion-dollar Carbon Capture and Storage (CCS) projects that will siphon carbon dioxide emissions from industrial operations for pipeline transportation and burial in geological formations with the support of Governor Newsom and state regulators. At the same time, the market for carbon dioxide (CO₂) removal technologies is collapsing with Microsoft stepping back from the industry it helped create, according to *The New York Times*.⁵ In 2020, Microsoft pledged to remove all the CO₂ it has emitted, directly or through electricity use, since its founding in 1975. But as it rapidly expands data centers to support AI, its emissions have risen and the company has dialed back on spending.

The knock-on effects could devastate CO₂ removal companies—and by extension CRC's CCS projects. "In the absence of laws requiring companies to offset their emissions, the market for carbon removal remains entirely voluntary," said *The New York*

*CRC's projects
to bury carbon
dioxide are full
of holes,
literally and
figuratively.*

Times. The federal government and California appear to be stoking a giant money-loser in offering subsidies to industries that install the technology.

California currently has about 40 announced projects, including direct air capture of CO₂ from the atmosphere, according to a list tracked by the California Air Resources Board updated last fall.⁶ These projects, also proposed by Aera Energy and Chevron, are in various stages of development but none are fully approved. Many, but not all, projects depend on dangerous pipelines to carry compressed CO₂, a potentially lethal asphyxiant, for storage in geological formations. But no official statewide count currently exists. In addition, an up to 45-mile pipeline has been proposed for the Bay Area.



Carbon capture facility in Mongstad, Norway (iStock)

Governor Newsom appears to be CCS's biggest fan. Under Newsom, SB 905, a 2022 law, created California's Carbon Capture, Removal, Utilization and Storage Program and directed the California Air Resources Board to create, regulate, and permit CCS projects statewide. Last year, he backed SB 614 (Stern), a bill that lifted a partial moratorium on building risky CO₂ pipelines across the state without the strict mandate for an odorant to warn people of leaks should they occur. Compressed carbon dioxide is a potentially lethal asphyxiant. Upon signing that bill, he called carbon capture "a critical pillar of California's world-leading efforts to cut climate pollution" that puts California "on the leading edge of an emerging 21st Century industry that will not only help us address the climate crisis but create good paying, skilled jobs."⁷

In fact, 15 operating CCS facilities in the U.S. have the capacity to capture just four-tenths of one percent of the nation's annual CO₂ emissions, according to the Congressional Budget Office.⁸ After construction on CRC and Aera projects in Kern County, only five or ten jobs on each project will be created long term, according to CRC and Aera draft environmental review documents.

Both the slow death of the oil industry and its dangerous reinvention into capturing CO₂ transporting it via pipeline, and burying it underground come at the expense of all Californians and communities that live with drilling. This report covers how carbon capture and storage infrastructure in the hands of CRC and the rest of the oil industry won't work, the state's poor oil industry regulation, CRC carbon projects and strategic risks, coming threats to communities from CCS, and the fiscal hazards of greenlighting oil industry CCS projects such as CRC's.

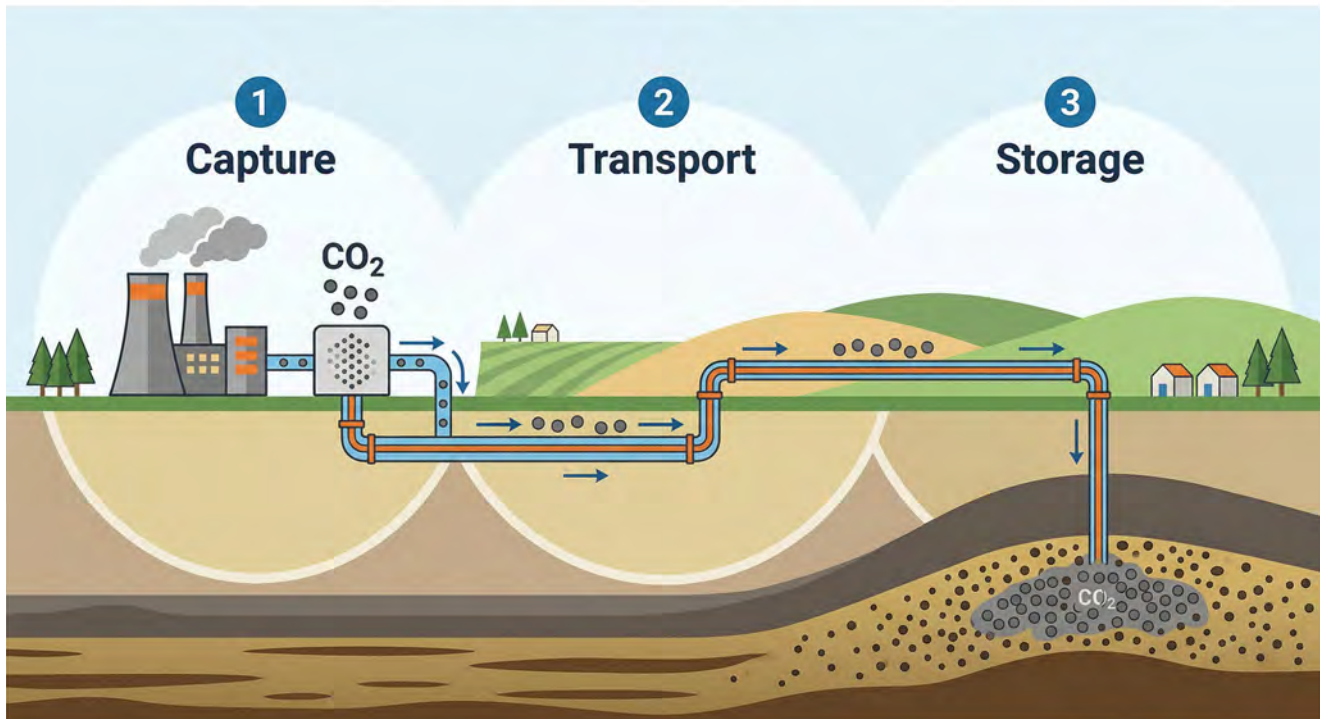
This report finds:

- Oil industry CCS projects to bury CO₂ deep under depleted reservoirs and to pipe it to burial are dangerous. CO₂ can leak out of depleted reservoirs, potentially suffocating livestock and people. Pipeline ruptures can lead to ground-hugging clouds of CO₂, a potentially fatal asphyxiant, according to health professionals and petroleum engineers.
- Neither Kern County nor Bay Area communities want CCS projects and pipelines to carry CO₂ to storage because they increase existing pollution, extend the life of fossil fuel-based industries, are dangerous, and because they don't trust regulators to protect them.
- CRC and other oil producers' foray into CCS is a multi-billion-dollar boondoggle turbocharged by financially lucrative federal tax credits while promoting continued use of fossil fuels. Without the tax credits, it is doubtful these projects could stay afloat even with private investment, according to analysts.
- According to the Congressional Budget Office, 15 operating CCS facilities in the US have the capacity to capture just four-tenths of one percent of the nation's annual CO₂ emissions.
- CCS overpromises and underdelivers. A global review by the Institute for Energy Economics and Financial Analysis (IEEFA) of 16 carbon capture projects in settings from natural gas processing to hydrogen production and gasification found that the projects captured as little as 10% of CO₂ emissions and no more than 80%, though the industry claims a 95% capture rate.
- The amount of CO₂ captured by oil refineries is virtually non-existent, according to analysts. Capturing a steady stream of CO₂ from in-house hydrogen production needed continuously to make products is the only target area that makes sense, but refiners

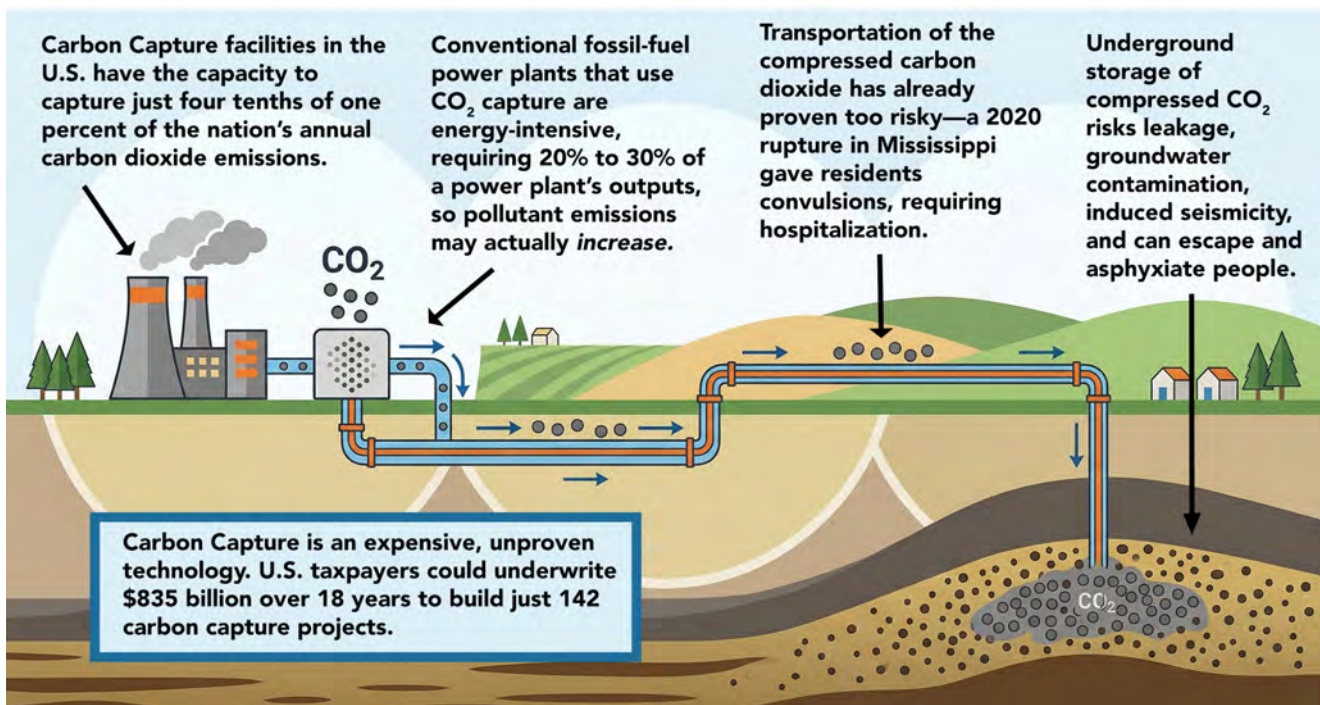
need federal tax credits and contracts to sell higher priced “low carbon” products to justify the expense.

- CRC promises to capture CO₂ from its own gas-fired power plant. Carbon capture from natural-gas fired power plants has never been done at commercial scale, IEEFA reports. Facility emissions associated with running the carbon capture equipment are not included in industry estimates. The extra energy needed is as high as 20% to 30% of a power plant’s output, generating more fossil fuel emissions.
- CRC plans to take CO₂ emissions from other California industries. Nothing compels these companies to pay CRC to take their CO₂ emissions, but the project could drive new, polluting industrial development instead of cutting existing emissions to mitigate climate change.

How Carbon Capture is Supposed to Work



How Carbon Capture Actually *Doesn't* Work



How CCS Doesn't Work

The oil industry commercialized CCS 50 years ago to increase oil production. It had nothing to do with protecting the climate. Though California banned this practice in 2022, today, more than 80% of captured CO₂ is used to push more polluting oil out of depleted fields, prolonging the use of fossil fuels.⁹ Various forms of the technology exist, from CCS to Direct Air Capture (DAC), a nascent technology purporting to capture carbon directly from the atmosphere rather than from industrial smokestacks where CCS technology is installed. CCS technology is meant to capture CO₂ emissions that are then compressed for transportation via dangerous standalone pipelines for storage underground.

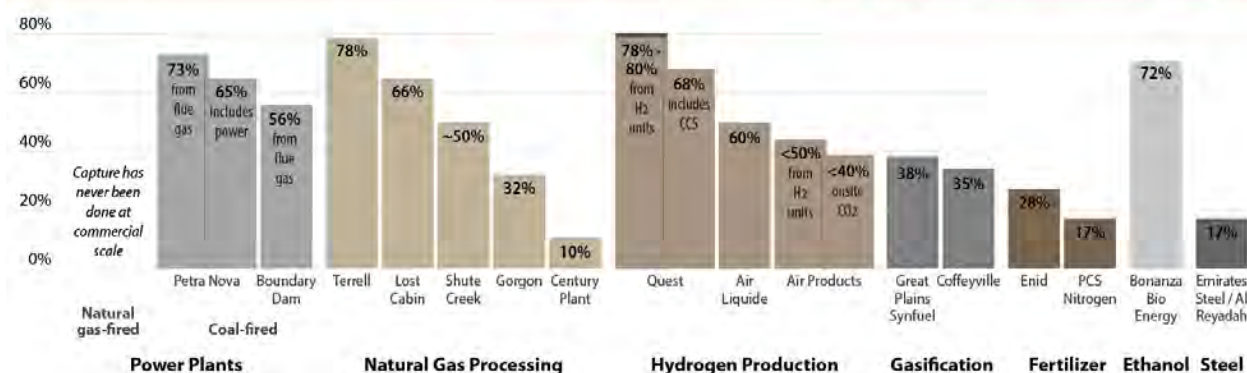
Geological storage sites meant to contain CO₂ for millennia or centuries can seep. The projects are extremely expensive, highly fossil-fuel intensive, do nothing to slash toxic co-pollutants, provide local communities with few long-term jobs, and threaten them with dedicated pipelines that can leak or explode. Compressed CO₂ is a potentially lethal asphyxiant that can cause convulsions and foaming at the mouth. It displaces air near the ground and can prevent cars and emergency vehicles from starting or stop them in their tracks.

California's emissions reductions strategies have taken for granted the oil industry's assertions that CCS can capture 90-95% of emissions from polluting facilities. But a global review by the Institute for Energy Economics and Financial Analysis (IEEFA) of 16 carbon capture projects in settings from natural gas processing to hydrogen production to gasification found that the projects captured as little as 10% of CO₂ emissions and no more than 80%.¹⁰ The oil industry overpromises and underdelivers.

Real-World CO₂ Capture

100% carbon capture

95% or higher: Industry claims for CO₂ capture



From the IEEFA report [Blue Hydrogen: Not clean, not low carbon, not a solution](#). (Institute for Energy Economics and Financial Analysis)

CCS projects can also often release more CO₂ than they capture.¹¹ Conventional fossil fuel power plants that use CCS are energy-intensive, requiring 20% to 30% of a power plant's output just to operate the capture process.¹² This reduces net energy efficiency and increases emissions by requiring more fossil fuel combustion.

The amount of CO₂ emissions siphoned away by the technology is infinitesimal.

Today, CCS facilities in the U.S. have the capacity to capture just four tenths of one percent of the nation's annual CO₂ emissions, according to the Congressional Budget Office.¹³ Even if it were to fully deliver on promised capture rates, CCS will only account for about 2.4% of the world's CO₂ mitigation by 2030, according to the Intergovernmental Panel on Climate Change (IPCC).¹⁴

CCS is an expensive, unproven technology that is a giant publicly-funded failure. U.S. taxpayers could underwrite \$835 billion in the form of 45Q federal tax credits over 18 years to build just 142 carbon capture projects, according to IEEFA.¹⁵ That averages out to nearly \$6 billion per project. IRS data shows roughly 160 million individual returns were filed nationally in calendar year 2024.¹⁶ This means that every federal taxpayer in the U.S., including California taxpayers, would pay a total of \$5,200 each to fund these projects over 18 years. That would come to about \$290 per tax return each year during that 18-year period.

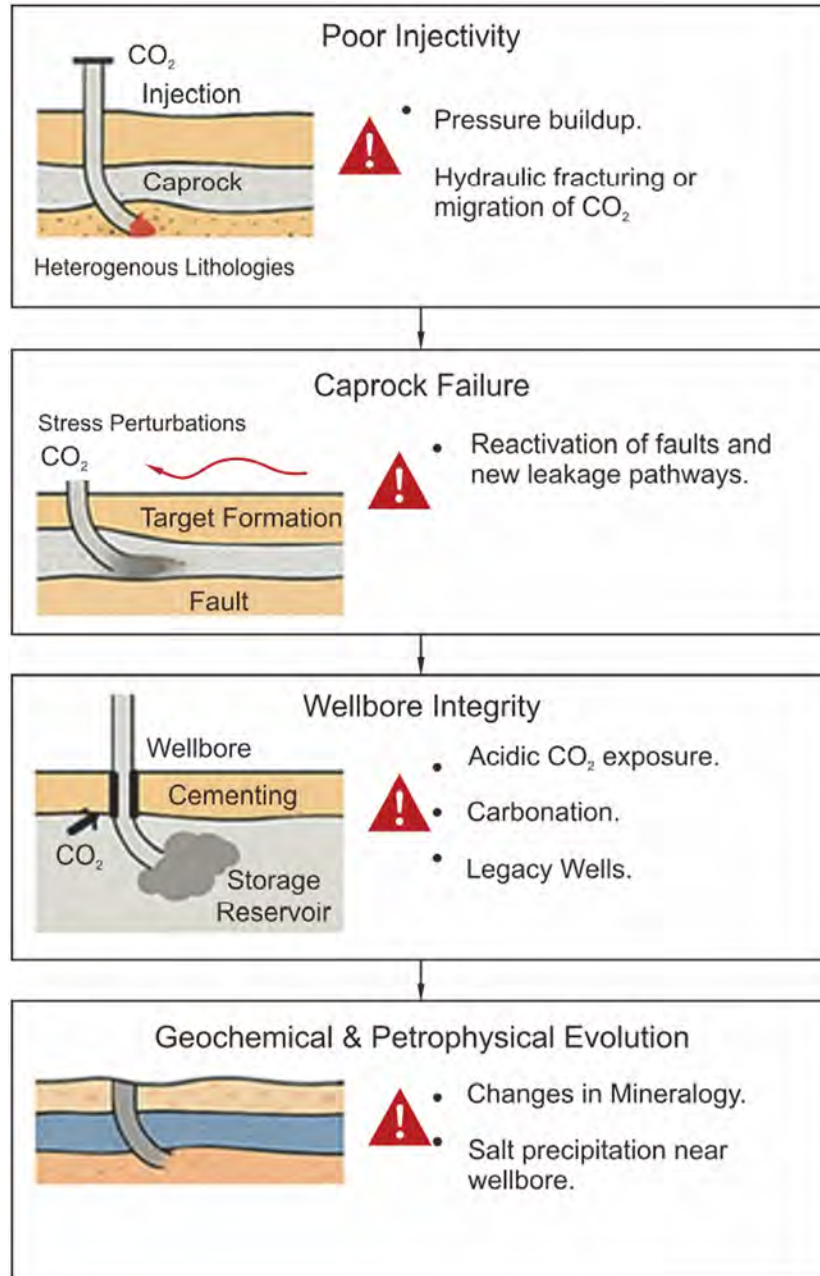
The California Air Resources Board (CARB) advocates for the technology in its 2022 climate roadmap under AB 32 to achieve carbon neutrality by 2045 and supports development of infrastructure for carbon capture and sequestration.¹⁷ The plan states that CCS can be useful for high-heat industrial processes and facilities with process emissions. That could include refineries and power plants, many of which are old, space-constrained, and need phasing out in California.

Many experts don't agree that CCS is the way to go for the oil and gas industry. "It doesn't make sense to use CCS to prolong our use of fossil fuels, especially to produce electricity," David Ho, a senior research scientist at Columbia University, told the Global Investigative Journalism Network in referencing the burning of natural gas to produce power.¹⁸ He also said you can't call oil industry CCS applications "where you're getting more oil out of the ground...a climate solution." Simon Batterbury, Professor of Environmental Studies at the University of Melbourne, calls CCS "a delaying tactic for deeper cuts in emissions, also offering the fossil fuel sector decades-long security..."¹⁹

Carbon capture technology companies, industry trade associations, and CCS lobbyists often promote the technology for sectors such as cement or steelmaking where alternatives don't exist to their carbon-intensive products. But that isn't where private investment is going. "The money and the interest in CCS are all about fossil-based production of chemicals, ethanol, and these alternative exotic fuels," said Anika Juhn, energy data analyst at IEEFA. "They say they are developing this to satisfy demand for low carbon products. But in the US, dominating the CCS landscape is the federal credit

and if it did not exist at the size it exists, none of these projects would be moving forward.”

Technical Vulnerabilities in CO₂ Injection



Technical failures in CO₂ storage projects often arise from the mismatch between theoretical modeling and subsurface realities. (Science Direct)

CRC Projects are Full of Holes

CRC's projects to bury CO₂ are full of holes, literally and figuratively.

CRC describes its Carbon TerraVault project as a multi-phase carbon capture and storage system designed to inject CO₂ and permanently store it in depleted oil and gas reservoirs at its Elk Hills field in Kern County. The initial project, Carbon TerraVault I, is located within the century-old Elk Hills Oil Field and uses two depleted reservoirs to store captured carbon dioxide. CRC states the project has begun to capture CO₂ from its Elk Hills gas processing facility and store it underground. The facility cools gas produced from the fields to very low temperatures and separates valuable natural gas products from gas stream. CO₂ and other contaminants must be removed to make the products transportable and salable. Oil and gas producers have vented the CO₂ to the atmosphere for years, but tax credits make the installation of CCS worth considering.²⁰

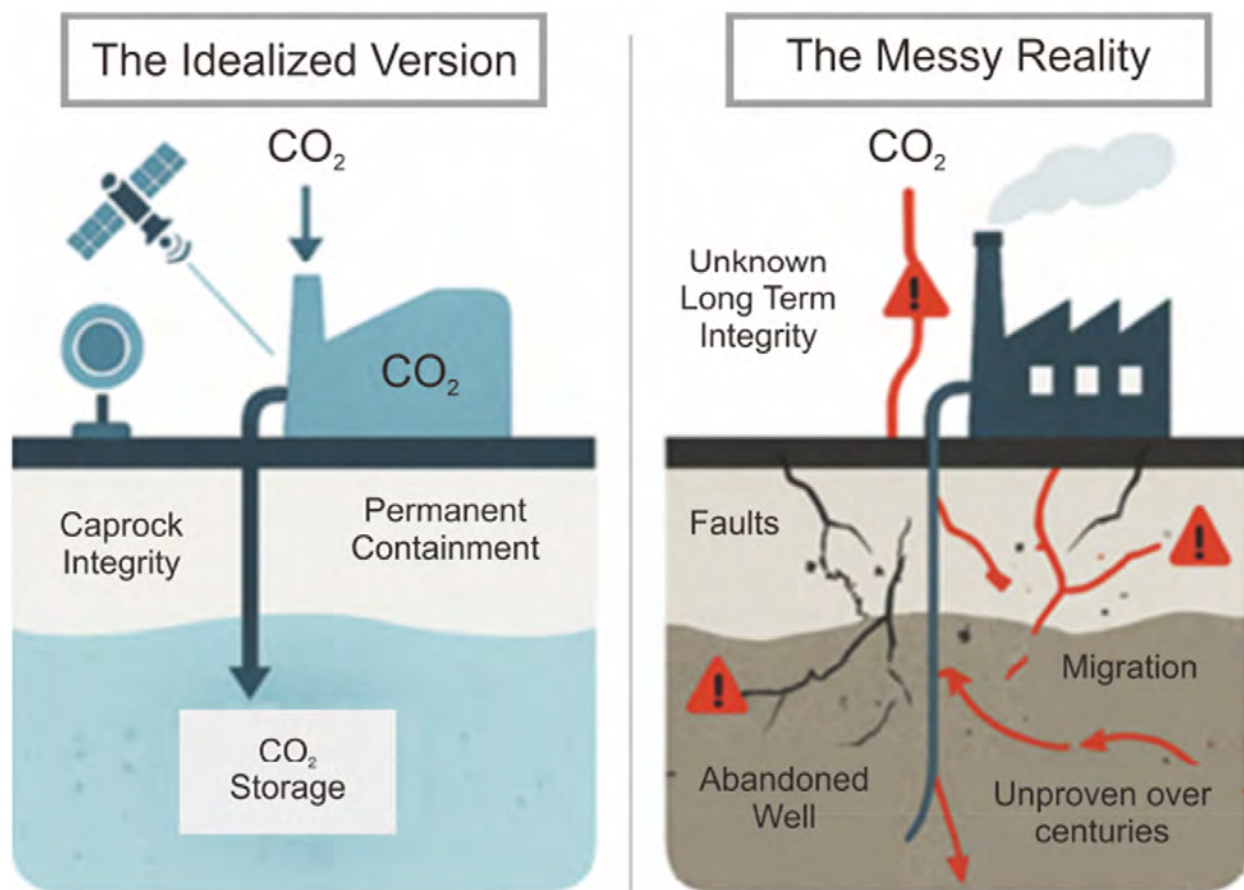
For the first phase, it formed a joint venture with Brookfield Corp., a global asset manager and investor that has initially put up half a billion dollars undoubtedly in what will be a multi-billion-dollar phased project dependent on billions of dollars in federal tax credits.²¹ So far, the company is starting with the capture of carbon dioxide from its existing cryogenic gas plant.²²

CRC plans to eventually capture CO₂ from its own gas-fired power plant. Carbon capture from natural-gas fired power plants has never been done at commercial scale, IEEFA reports. Facility emissions associated with running the carbon capture equipment are not included in industry estimates. The extra energy needed is as high as 20% to 30% of a power plant's output, generating more fossil fuel emissions.

CRC broke ground on the first phase of its CCS project last year and began injections into depleted reservoirs in May. Prior to authorizing injections, the EPA had a requirement that CRC properly plug 200 wells where it expected carbon "to migrate during the project."²³ Governor Newsom hailed the first injections as "proof that innovation and ambition are the California way," adding: "These are the kind of climate solutions that spur the industries and infrastructure needed to power a cleaner future and create good-paying jobs right here in our communities." CRC declined to say how many permanent jobs the first phase of TerraVault would create.²⁴

Geospatial analysis by FracTracker Alliance shows that there are over 900 oil and gas wells within just one mile of the first four proposed CTV Class VI injection wells. About 260 are listed as plugged, which likely include the 200 wells requiring re-abandonment (re-plugging). The remaining 550 or so active and 135 idle wells should also be considered high risk pathways for CO₂ migration and plugged as well, according to the organization.

According to petroleum engineer Forrest Smith, wellbore cement can be maintained for 30 years or more under good conditions. "The operative phrase is *under good conditions*," he writes.²⁵ "Cementing quality is highly variable, monitoring after plugging is rare, and the standards we're plugging to today are substantially more rigorous than what was practiced



Carbon capture and storage idealized vs. reality (ScienceDirect)

for most of the 20th century. We are already seeing plug failures.” CRC’s recent acquisitions of unplugged, thinly producing or non-producing wells are liabilities.

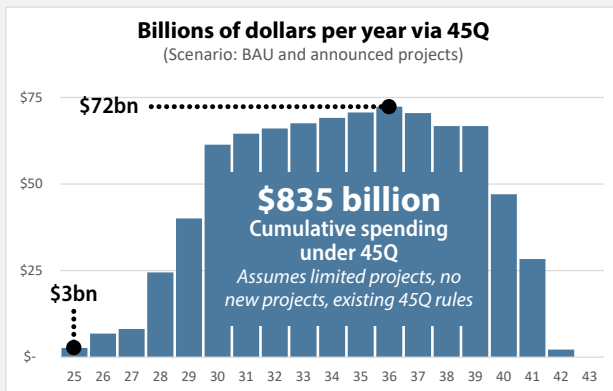
Though the acquisitions improve overall production figures on paper, plans to offer industrial CO₂ removal services to refiners, power plants, and other customers are its current Plan B. CRC’s Carbon TerraVault project, to be built in six phases—one of them including Aera’s CarbonFrontier—aims for a goal of 325 MMT of CO₂ storage.²⁶ Just 1 MMT represents 1 million metric tons of CO₂. One million metric tons of CO₂ is roughly equivalent to the annual emissions from 238,000 gasoline cars, or the electricity use of about 197,000 U.S. homes for a year, a huge amount.

The 45Q federal tax credit pays \$85 per metric ton of CO₂ storage, provided certain conditions are met such as paying locally prevailing wages and the use of some qualified apprentices.²⁷ If CRC could fill all its vaults, it would qualify for more than \$27 billion in federal tax credits. Filling even 10% of that would yield \$2.7 billion in federal credits.

But it remains to be seen if a customer base will form. Currently, the amount of CO₂ captured by oil refineries, for example, is virtually non-existent, according to IEEFA.

Capturing a steady stream of CO₂ from inhouse hydrogen production needed continuously to make products is the only narrow target area that makes sense, but refiners would need federal tax credits, any other available subsidies, and signed contracts to make and sell higher priced “low carbon” products to justify the expense. Currently, refineries making their own hydrogen vent CO₂ to the atmosphere for free.

Current 45Q Could Cost Taxpayers Over \$800 Billion



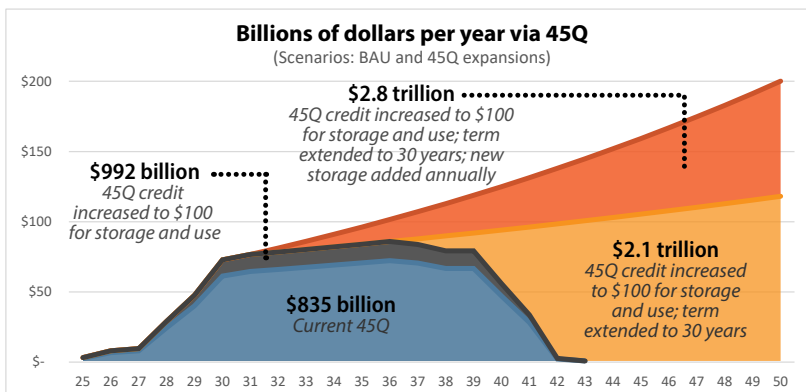
The Clean Air Task Force CCS project database* includes CO₂ capture estimates for 142 of the 225 projects that have been announced. Assuming the 142 are all built within seven years of announcement, access 45Q credits for 12 years, and no other carbon capture projects are added:

Taxpayers could pay a total of \$835 billion over 18 years, an average of about \$6 billion per project

In this scenario, annual expenditures would **top \$60 billion by 2030 and remain above that for 10 years** -- an enormous jump from less than \$3 billion in 2025

*Data as of January 14, 2025; Calculations assume an annual average inflation rate of 2.3%; current 45Q credits \$85 storage, \$60 use, \$180 DAC

45Q Could Cost Almost \$3 Trillion by 2050 if Rules Are Changed



Full funding just for announced projects with storage estimates could balloon to **\$2.1 trillion by 2050** if 45Q credit values are raised and the term is extended

45Q could cost **\$2.8 trillion by 2050** if expanded through increased 45Q credits, extended eligibility, and the addition of 25 million tonnes of storage per year starting in 2032

*Calculations assume an annual average inflation rate of 2.3%

U.S. taxpayers could underwrite \$835 billion in federal tax credits over 18 years to build just 142 carbon capture projects. (Institute for Energy Economics and Financial Analysis)

Making the Oil Business Make Sense

“CRC desperately needs to find a way to make its business make sense in a changing energy landscape,” said Daniel Sherwood, Director of Strategic Analysis for the Center for Asset Retirement Accountability (CARA), a nonprofit focused on fossil fuel infrastructure. “If its carbon sequestration model can’t meaningfully contribute to its bottom line, it will likely have to rely on continuing its expansion into more fossil fuels – whether into other states or by further consolidating their position in California. This could lead to companies that are too big to fail, with ballooning retirement obligations that outstrip the capital they have for plugging and cleanup. That leaves open the possibility that the public will be stuck with the tab.”

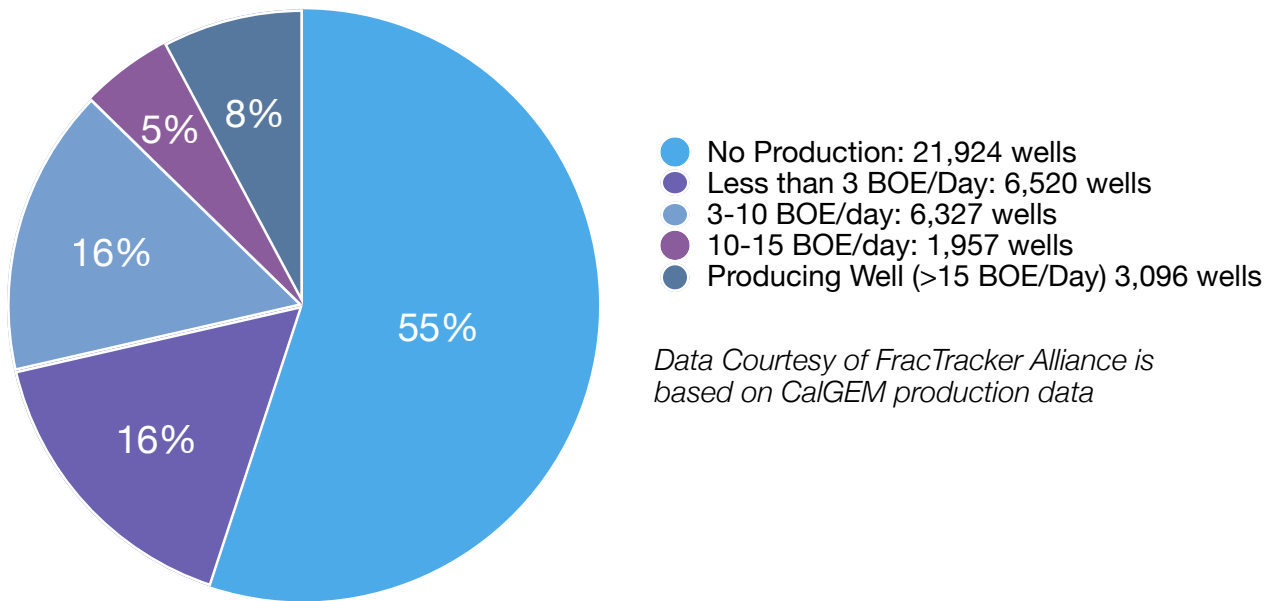
CRC, including all subsidiaries, currently holds about 40,000 unplugged wells (39,824) after recent acquisitions, according to FracTracker Alliance analysis. About 14,000 (13,936) of them are idle. California has no hard rule that they be plugged and they can leak methane, a major driver of climate warming, and other co-pollutants for many years under California’s weak idle well regulations.²⁸ Plugging all those wells would cost \$4.5 billion, according to the Center for Biological Diversity.²⁹ California did not require CRC to put up the proper bonding under its latest bonding law on oil producer acquisitions.³⁰ In California, oil producers can cover thousands of wells with just a few million dollars in bonding via “blanket bonds” covering multiple wells. The tab for plugging all the state’s 100,000 active and idle wells could be as high as \$21 billion, according to Carbon Tracker.³¹ According to the Center for Biological Diversity, the average bond funding available per well is \$1,800.³²

Continued CRC acquisitions are ill-advised for California taxpayers. No matter how many wells CRC acquires, California production has fallen by three quarters since 1986, and today California is considered in a state of irreversible decline, according to Stanford Law School. “This continual decline has persisted regardless of the number of state drilling permits issued or the market price of crude oil.”³³

Over 92% of CRC’s wells produce less than 15 Bbl/Day of oil or 90 MCF/Day of natural gas, according to FracTracker analysis of CalGEM production data for 2025. That measure designates the wells as “stripper wells” near the end of their economic life.³⁴

Whether CRC’s bet on CCS will attract further investors as it takes advantage of federal subsidies, is also an open question. The strategy has its own holes. According to a lawsuit filed by Earthjustice for injunctive relief against Kern County’s Board of Supervisors for approving CRC’s TerraVault project, CRC’s premise for the project rests on shaky assumptions. The lawsuit, filed on behalf of several environmental and EJ advocacy groups, the Center for Biological Diversity, and the Center on Race, Poverty and the Environment, points out that CRC’s own carbon emissions from the field’s natural gas processing and power plants makes up only 10% of the project’s total storage capacity.³⁵

CRC Well Production Categories 2025 Based on BOE/Day and MCF/Day



Thus, “The County and CRC have also opened the door to a range of future potential carbon sources that could be built from scratch to send CO₂ to TerraVault I. These sources include hydrogen, cement, and steel production facilities and gasoline plants that may not otherwise be built but for TerraVault I,” the attorneys wrote. “By extending the life of the Elk Hills oil field years longer than necessary and incentivizing a massive build-out of new industrial facilities in the County, TerraVault I flies in the face of the core purpose and objective of CCS projects—to meaningfully reduce greenhouse gas emissions from industrial activity like fossil fuel development in order to reverse the climate crisis.”

Incentivizing new fossil-fuel based industries in Kern County, which already has a few refineries and a concentration of biomass facilities, is not climate mitigation meant to cut *existing* carbon emissions. And just because CRC is building carbon vaults does not mean that new industries will sprout. Investors may be harder to attract to a technology that has never been proven, and project financing also depends on billions in federal tax credits that the federal government can withdraw anytime. Two task forces created under the Department of Energy during Trump’s first administration to speed up CCS projects have currently gone dark, according to PoliticoPro.³⁶

“The strategy for economic renewal is the weak link,” said IEFFA’s energy data analyst Juhn. “Do I see a purpose for this level of investment here in the US or anywhere in the world? No, I don’t.”

Public Health Risks

CCS also carries serious public health risks. The projects don't reduce the emission of other pollutants such as smog-forming nitrogen oxides, fine particulate matter and volatile organic compounds, all of which are linked to asthma, cancer, heart disease, premature births, birth defects, and premature death. In fact, because CCS projects are so energy intensive, pollutant emissions may increase. Many environmental justice communities located near refineries and oil fields already face high cumulative pollution burdens and the projects will only deepen them.

Storage of CO₂ in or under depleted oil fields or in other locations is another serious risk. All wells must be properly plugged, including very old wells, before injecting CO₂ via wells drilled specially for that purpose, otherwise producers risk leaks or explosions. "The reality is that no CO₂ storage facility has yet demonstrated the ability to guarantee containment over centuries, let alone millennia," according to an academic review in *Petroleum Research*. Academics point out this is especially true in California where operations can also be subject to seismicity or cause seismicity.³⁷

"Leakage of CO₂ from wellbores is widely considered to be one of the most significant leakage pathways for geological storage of CO₂," writes Dominic DiGuilio, an independent consultant and retired geoscientist from the US EPA's Office of Research and Development who evaluated the draft Environmental Impact Report on CRC's Carbon TerraVault project for where it falls short.³⁸

"There is interest in using depleted oil and gas reservoirs for geological storage of CO₂ due to extensive preexisting geological characterization and infrastructure but the presence of a large number of well penetrations increases the possibility of leakage," he notes in his review.

"From a health and safety perspective, if large-scale leakage were to occur at the surface, asphyxiation and suffocation are of concern. Continued exposure to CO₂ concentrations above 20–30% is associated with suffocation to humans and most air-breathing animals. Since CO₂ is denser than air, topography and prevailing meteorologic conditions would largely govern risk from a large-scale release with gas buildup being greater in valleys and low-lying areas," he continues. In addition, a well blowout due to a faulty wellbore can't be ruled out. Such a release "could cause an immediate danger to public health in the vicinity of an abandoned well."

Transportation of CO₂ will rely on standalone pipelines that have already proven too risky to communities to build extensively across the United States. In 2020, a rupture of a CO₂ pipeline next to the town of Satartia, Mississippi led to a toxic cloud that displaced oxygen near the ground, causing some people to foam at the mouth and experience convulsions, sending scores to the hospital.³⁹ The cloud interfered with the functioning of cars and emergency vehicles. An oil producer's pipeline transporting CO₂ from his

operations to sell to other producers to increase oil recovery in their fields was the source of the rupture.



A 2020 carbon pipeline rupture in Yazoo County, Mississippi, sent dozens of residents to the hospital. (Mississippi Emergency Management Agency)

Based on Satartia, Mississippi's carbon pipeline leak—the best known and most consequential leak so far in the U.S.—Americans are far from ready for the tens of thousands of miles of new CO₂ pipelines that the DOE estimates will be needed to accommodate growth of projects. DOE's Loan Programs Office says that meeting net-zero goals will require between 30,000 and 96,000 miles of these pipelines, compared with about 5,000 miles currently in place.⁴⁰ It's an open question how many miles of new pipeline will be required for California where the federal government was reviewing 13 proposals in 2024, according to CalMatters.⁴¹ But a 45-mile pipeline is slated for the Solano/Bay Area that so far has raised no money, and CRC slates an 13-mile pipeline for its Carbon TerraVault project in Kern County.

Community Fears And Regulatory Failures

Kern County

In Kern County, oil fields are everywhere and residents of nearby towns have grown up with them. CRC has penetrated the state from North to South.⁴² Other projects proposed in the county include Aera CarbonFrontier, and Chevron's Eastridge project relying on the same strategy—siphoning off CO₂ from their own operations and later offering services to industry—but they have not been fully approved or broken ground.⁴³ Such projects present a lifeline for the oil industry that is free to capitalize on billions of dollars in state and federal subsidies while greenwashing what amounts to a boondoggle.⁴⁴



*In Kern County, oil fields are everywhere and residents of nearby towns have grown up with them.
(Adobe Stock)*

CRC's largest holding is the century-old Elk Hills Oil Field near Bakersfield. CRC also operates the Wilmington Oil Field in LA County, along with various other assets in the San Joaquin and Sacramento basins.⁴⁵ Towns near its operations include Bakersfield, Taft, Buttonwillow, McFarland, Maricopa, Lost Hills and towns in other Kern County locations. After acquiring Aera, CRC gained control of other vast Kern oil fields--the Midway-Sunset Oil Field, and the Belridge Oil Field near Lost Hills. It also operates in the Los Angeles Basin, Orange County, Ventura and Sacramento basins where it has smaller holdings.

It's no illusion that living next to oil fields can make people sick. A 2025 study done by the California Air Resources Board (CARB) and the Office of Environmental Health Hazard Assessment of air quality near petroleum production facilities in Lost Hills, an unincorporated area of Kern, found that "the majority of volatile organic compounds (VOCs) and roughly half of BTEX (benzene, toluene, ethylbenzene, and xylenes) concentrations were oil- and gas-related...".⁴⁶ VOCs and BTEX are strongly associated with cancer and are classified as either carcinogenic or likely carcinogens.

The legacy represents nothing but pain for people living near the fields, especially because many of the state's oil fields are in unincorporated areas. This leaves people without strong representation in the state legislature, so they suffer some of the worst effects of oil drilling without any political protectors.

Cesar Aguirre, air and climate justice director at CCEJN, does inspections of oil well and equipment leaks in the area. People in Lost Hills live with seven times the cancer risk above the acceptable level, he said, and it's because of the oil fields and chemicals associated with oil production. "When I do these inspections and I find leaks next to homes and hospitals, it is really concerning because these oil companies are repeat offenders, and they are still allowed to keep leaking."

A 2025 CCEJN study on the state's Oil and Gas Methane Emissions Rule found critical regulatory failures that allow dangerous methane leaks compounded with toxic and carcinogenic air pollutants from oil and gas operations to continue with impunity.⁴⁷

"CA oil and gas regulation is like a thief telling me that the security system he put in my house is gold standard."

CESAR AGUIRRE,
CENTRAL CALIFORNIA
ENVIRONMENTAL JUSTICE
NETWORK

The report also found that California's oil regulations are full of holes. They contain "passes to pollute" that allow 68% of state oil and gas infrastructure to evade critical leak monitoring and repair requirements. The primary loophole is a "heavy oil" exemption that shields most active infrastructure from strict leak detection and repair rules, exposing frontline communities to constant emissions. CCEJN found 31% of inspected oil and gas sites near homes, schools, and parks in Kern County were actively leaking. Out of leaks detected, 37% were allowed by the current regulatory loopholes. "CA oil and gas regulation is like a thief telling me that the security system he put in my house is gold standard," he said.

According to Aguirre, CRC's track record on preventing leaks of oil, vapor, and chemicals is also a concern. CCEJN's tally of records reported to the California Office of Emergency Services identified 214 spills and releases of such substances attributed to CRC between 2015 and 2025.

Aguirre contends that the true figure may be higher, arguing that operators sometimes classify spilled volumes as falling below reporting thresholds under current regulations. He also suggests that underreporting tends to surface only when residents prompt state regulators to investigate.

The last thing that Aguirre and Ileana Navarro, CCEJN's Policy Associate, want is to see CRC's TerraVault project built. They fear toxic leaks and possible pipeline explosions from a pipeline that would pass within miles of schools in the area. Health professionals are also dead set against the project. "Kern County has already experienced and

continues to experience methane leaks from the Elk Hills Oil Field,” a group of more than 50 health professionals, academics and environmental and public health advocates wrote to the Kern County Board of Supervisors.⁴⁸

“These fumes also contain volatile organic compounds (VOCs) that react with nitrogen oxides to form ground-level ozone, leading to increased risk of asthma and other respiratory ailments,” they wrote. “The additional energy required to power the carbon capture process generates even more emissions if supplied by fossil fuels. Increasing levels of pollutants associated with **poor birth outcomes, respiratory and cardiac diseases, neurological ailments, cancer and premature death** [Note: bolds are theirs], would guarantee that Kern County, an already overburdened community, will continue to be a health and safety sacrifice zone.” They added that concentrated CO₂ leakage from CCS operations is even more dangerous and life-threatening than methane leaks. “The CO₂ leakage could occur at any stage of transport or storage.”

“We are asking a company that went bankrupt a decade ago to steward carbon underground,” said Aguirre. “That seems shortsighted, a bad idea.” CRC’s talk of jobs as an enticement to accept the project is simply not true, he said. “There is going to be half a job a year for the next 20 years.” Neither can the state be trusted to protect Kern communities. “CRC is beginning construction and we have yet to see a single rule in place to protect communities under SB 905,” said Navarro, referring to 2022 legislation, SB 905, that charged the California Air Resources Board with developing rules for a CCS program.

Bay Area

Fears about CCS projects and pipelines are not confined to lightly populated areas. The Montezuma Carbon Capture Pipeline in the Bay Area is a project slated for Solano County, dotted with substantially populated towns, that needs \$2 billion in funding and is nowhere near being off the ground. Project leaders admit the project needs government subsidies along with private investors, according to reporting in *Grist*.⁴⁹

The 45-mile pipeline would transport compressed CO₂ from power plants and refineries such as Chevron’s Richmond refinery for burial in underground rock formations two miles beneath the Montezuma Wetlands Project, essentially a restored marsh. The project is currently waiting on a permit from Solano County to build a test CO₂ injection well.⁵⁰ According to *Grist*, the county is home to half a million people and is among the most racially diverse in the country. It has the Bay Area’s largest per capita populations of veterans and residents with disabilities.

The pipeline would pass through a refinery corridor starting in Richmond and snake past hydrogen plants and other refineries, such as PBF’s Martinez, on to Pittsburg and Antioch where PG&E operates a power plant. Richmond is already fighting the project. In May, the Richmond City Council became the first city in the state to pass a resolution opposing

any carbon dioxide waste dumping projects and CO₂ pipelines within or near Richmond.⁵¹ “As a council member and Richmond resident, our safety and ability to prevent d i s a s t r o u s emergencies is of utmost priority,” said resolution sponsor Council Member Claudia Jimenez.

“If the federal government did not have these tax incentives, it would not be worth the cost for these companies to be doing this.”

LOUIS FLORES,

COMMUNITIES AGAINST CARBON TRANSPORT AND INJECTION

Isabel Penman is a Northern California organizer at Food & Water Watch and a member of Communities Against Carbon Transport and Injection (CACTI) who lives in San Francisco. “These communities have been fighting to shut the facilities down and transition away from fossil fuels,” she said. “All the project does is just give a license to continue polluting and extend their lifespans.” In addition, the dangers of ruptures and leaks from carbon pipelines are well-known. “This super dangerous 45-mile pipeline would go under water right near these communities, then go into wetlands and into an area where local counties and first responders have no experience in dealing with CO₂ leaks and what it would mean for emergency response.”

Penman says it isn’t clear whether the pipeline developers have talked with refiners about buying carbon dioxide removal services, but it lists about 10 prospective clients from Richmond to Antioch in its application to the US EPA.

Louis Flores, a retired special ed teacher who belongs to CACTI, lives in the town of Pittsburg that has about 70,000 residents. If built, the pipeline would be about a mile from his house. “We already have a bunch of pipelines passing through, natural gas pipelines, petroleum pipelines, they go through Antioch, Pittsburg, and Bay Point. We are going to be adding another potential hazard.” His other worry is pollution of the drinking water. Antioch gets 40% of their drinking water from a desalination plant, he said. “If the pipeline damages the water, it will destroy the drinking water for the city of Antioch.”

The project is a “total boondoggle,” he said. “Literally, if the federal government did not have these tax incentives, it would not be worth the cost for these companies to be doing this.” He also fears that using the CO₂ to push more oil out of the ground could be on the Trump Administration’s agenda for California where it plans to start drilling on Bureau of Land Management land. “They just create more CO₂ by drilling more oil out of the ground, it’s insanity.”

California Consumer Costs

While \$835 billion in federal tax credits over 18 years is a gargantuan sum, California is also set up to fiscally nurture CCS projects through its Low Carbon Fuel Standard (LCFS).

The California Air Resources Board (CARB) administers the LCFS regulation. CARB sets declining carbon-intensity targets for alternative fuels. A private carbon market is then used to trade credits to achieve those reductions.⁵² When refiners and fuel importers sell gasoline or diesel that exceeds those targets, they generate compliance “deficits” and must purchase LCFS credits to make up the difference. The bulk of the “credits” come from refiners making renewable diesel, dairies making renewable gas, and ethanol producers. These sources of credits, rather than an emphasis on credits for producing and marketing electricity for electric vehicles, have come under fire for not helping the state decarbonize fast enough and for damaging the environment.⁵³

Consumers bear the costs of company compliance when they buy gas at the pump with each gallon incorporating a 20-cent charge to support the LCFS, according to the California Energy Commission (CEC).⁵⁴ In 2024, Californians bought 13.4 billion gallons of gas, the CEC estimated.⁵⁵ So, the tab came to \$2.68 billion. As of 2023, there were 27.7 million licensed drivers in California, according to Statista.⁵⁶ So, each licensed driver paid an average of about \$96 annually to support the LCFS.

The LCFS has also been structured to allow CCS projects to participate by generating credits when they reduce the lifecycle carbon intensity of transportation fuels. Under CARB rules, CO₂ captured from lower carbon fuel-making processes and permanently stored underground can qualify for crediting. Those credits can then be sold into the LCFS market to refiners and importers that need them for compliance, creating a potential revenue stream for CCS developers.

The LCFS is based on lifecycle carbon intensity rather than geography, meaning fuels can generate credits regardless of where they are produced. As a result, out-of-state fuel makers can generate LCFS credits if their fuels are sold into California and have a lower carbon intensity. This includes oil and gas companies when they produce qualifying transportation fuels and reduce emissions through technologies such as CCS. But CCS-based pathways are only beginning to emerge and are not yet generating LCFS credits at meaningful scale in the market.

A regulatory loophole exists for Direct Air Capture (DAC)—something that CRC also plans to offer. DAC technology captures carbon dioxide out of the atmosphere rather than from the smokestack. CRC envisions building a “regional DAC hub” with multiple partners and is in the planning stages for a network of DAC and carbon storage sites.⁵⁷

“Companies are free to sell credits for carbon removal from the atmosphere, even if the carbon is used to extract more oil, and they are not required to account for the emissions that come from burning that oil when determining how many carbon credits they can

sell,” according to *Inside Climate News*.⁵⁸ In California, the use of CO₂ to push more oil out of the ground is banned but that doesn’t mean that companies in other states can’t sell credits into California even if they use it to extract more oil.

Occidental Petroleum is planning to sell LCFS credits to finance building the largest DAC plant in the world in Texas. The Stratos plant estimated to cost \$1.2 billion, is currently under construction, according to the company.⁵⁹ It has already hit a technical snag that is delaying its startup date.⁶⁰ And it is rumored to be on the list of possible Trump award cancellations after getting \$500 million in matching funds from the Biden Administration in 2023.

Occidental plans to sell those carbon removal credits to “hard-to-decarbonize” businesses to address their CO₂ emissions. On an earnings call with analysts last year, its CEO said that its DAC business was a way to increase oil production, not reduce it, according to *The Verge*.⁶¹ “Time and money that could have been spent reducing greenhouse gas emissions by other means—say, by switching to cleaner energy sources—could be squandered on carbon-removal technologies that might never become commercially viable,” *The Verge* wrote.

Allowing out-of-state companies to sell credits in California that collect CO₂ to extract more oil makes no sense. But a wrinkle has already formed in the plans of CRC and other companies for CCS and DAC projects. The Trump Administration that does not believe in climate change has been cancelling awards for both technologies, including in California.⁶² In June 2025, the Trump Administration announced the cancellation of a \$500 million grant to convert a Kern County cement plant to CCS technology that would have CRC transport and sequester CO₂ from that plant.⁶³

The Occidental DAC project is rumored to be on the cancellation list after getting a \$500 million matching grant in 2023, according to *The Verge*. Federal tax credits for these technologies could be next.

While the fate of federal tax credits is unknown, the California Air Resources Board recently amended rules for the state’s Cap-and-Trade program to expand a manufacturing decarbonization incentive program from about \$2 billion to \$4 billion. About half would be slated to go to the fossil fuel industry, including refiners, for investing in decarbonization, including for CCS.⁶⁴ On the basis of CARB estimates, this means revenues for the state’s Greenhouse Reduction Fund raised at allowance auctions would likely be halved, according to the Legislative Analyst’s Office.⁶⁵ The fund is used to finance affordable housing, public transit, clean vehicle and other environmental programs. “Cutting our climate funding does not help address consumer cost concerns, and it doesn’t accelerate emission reductions,” climate economist Danny Cullenward told *U.S. News*.⁶⁶

California needs a solid transition plan phasing out fossil fuels that currently does not exist, rather than policies propping up old, space-constrained refineries not suited to the

broad application of prohibitively expensive, energy-intensive carbon technology that falls well short of industry CO₂ recovery claims.

Conclusion

The state is supporting new carbon capture strategies with regulatory backing and nascent public funding while failing to address pollution, idle wells, and long-term cleanup liabilities as oil production wanes. This allows oil companies to privatize profits while socializing the costs. The same threatens to be the case with the oil industry's building of a new lifeline for itself via CCS projects. The costs of CCS—an unproven and potentially dangerous technology prone to fail—will be in the multi-billions of dollars, not to mention the costs of DAC projects.

The alternative is simple and cheaper, but goes against the interests of CRC, Aera Energy and other oil producers. According to the International Energy Agency, “Ramping up renewables, improving energy efficiency, cutting methane emissions and increasing electrification with technologies available today deliver more than 80% of the emissions reductions needed by 2030.”⁶⁷ CCS provides a fraction of what's necessary and is no solution, merely putting off what should be done now—a full-scale transition away from oil and gas. DAC also remains pie-in-the-sky.⁶⁸

A study by Stanford University's Doerr School of Sustainability shows that carbon capture is vastly more expensive than switching to renewables.⁶⁹ “If you spend \$1 on carbon capture instead of on wind, water, and solar, you are increasing CO₂, air pollution, energy requirements, energy costs, pipelines, and total social costs,” said lead study author Mark Jacobson, a professor of civil and environmental engineering in the Stanford Doerr School of Sustainability and Stanford School of Engineering. “It's much cheaper and more efficient just to replace the fossil source with electricity or heat provided by a renewable source...The only way to eliminate all air-pollutant and climate-warming gases and particles from energy is to eliminate combustion.”

Heeding such experts would be a much smarter, cleaner, and cheaper approach that is protective of public health, frontline communities, and the environment.

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