

Delay in Federal Permits Hinders Texas Oil Companies' Carbon Capture Projects

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Texas oil companies and regulators have waited years for federal permits that would allow those companies to suck carbon dioxide — the largest contributor to climate change — from the atmosphere and inject it underground.

After sweeping environmental reviews and public hearings, the Environmental Protection Agency has yet to approve any of those 17 proposals.

Occidental Petroleum Corporation, a Houston-based energy company that introduced one of the most ambitious projects, reached the stage where the public can testify for or against the proposal — one of the last steps before final review.

The delay has prompted more calls from the oil and gas industry to transfer the authority — known as primacy — to grant permits to inject carbon from the air into the ground.

If granted, primacy would give the Texas Railroad Commission, the state agency regulating oil and gas, the ability to review, approve, or deny permits companies need to inject carbon dioxide underground without federal input.

"We want to regulate our own state business," said Katie Zimmerman, decarbonization director at Wood, an energy consulting firm in Houston. "The EPA has a lot of permits, and they don't have enough people with the right experience to be able to process the request as quickly as we would like to see these projects get off the ground."

Environmental group leaders have also expressed concerns about the adequacy of regulatory oversight for carbon dioxide injection projects in Texas. The commission already manages wastewater injections. In the worst cases, unplugged wells have contributed to seismic activity, sinkholes and leaks or blowouts from unplugged wells.

Erandi Treviño, a longtime environmentalist who co-founded the nonprofit Raices Collab Project, said the commission must prove it can regulate such permits effectively.

"All these projects would come with large investments in infrastructure, large investments in projects. It's adding to a responsibility list of the Texas Railroad Commission that they haven't exactly proven to be capable of (handling)," Treviño said. "We don't have trust in the agency to do that role."

The commission applied in December 2022. The EPA is still in the first of four phases of the review. Other states have received the authorization: North Dakota in 2018, Wyoming in 2020, Louisiana in 2024 and West Virginia in 2025.

"The RRC is more than capable of effectively regulating Class VI wells. We have a decades-long history of regulating various classes of injection wells, of which carbon capture wells would be part of," a spokesperson said, referring to the permit type, a spokesperson from the commission said. "The RRC has a team of geologists and engineers to handle the duties and responsibilities for Class VI program applications and monitoring; it's a team with roles in technical management, conducting detailed aspects of the reservoir modeling and reservoir simulation, technical reviews and other expertise. Texans can be assured the RRC will fully utilize its regulatory expertise, experience and oversight to ensure carbon capture projects are safe."

Here's what you need to know.

What is the science behind carbon capture and storage?

Carbon dioxide acts like a blanket, trapping heat in the atmosphere. While that's a natural process that helps maintain the earth's temperature, excessive carbon dioxide contributes to a warming planet. Rising temperatures can lead to extreme weather events such as heatwaves, droughts, floods, and wildfires — all posing serious threats to human health and safety, particularly in vulnerable regions.

Carbon capture is a technology designed to reduce carbon dioxide emissions from large industrial sources such as power plants, steel manufacturing, cement production, and other industrial facilities that emit greenhouse gases in their processes.

The primary intent of carbon capture is to prevent carbon dioxide from entering the atmosphere and contributing to climate change.

One of many ways this can be done is through what's called direct air capture. Carbon dioxide is separated from other gases produced at industrial facilities through a chemical process. Once captured, the gas is compressed and transported, usually through pipelines, to a storage location, which is later injected into deep underground rock formations where it can be permanently stored.

What is primacy?

Primacy is a term under the Safe Drinking Water Act, a federal law. If granted to a state, they can review, approve, or deny permits that allow companies to inject fluids underground. The Environmental Protection Agency administers six underground injection control programs, including oil and gas industry wastewater, industrial, municipal and agricultural waste, and fluids to extract more crude oil and natural gas.

The state must submit the set of rules it intends to implement. The EPA meets with the state, in this case, the Texas Railroad Commission, to ensure the rules they set match the federal government's. The EPA then reviews the rules before asking the public to comment.

Texas has been in the first phase of its application for more than two years.

Why does the oil and gas industry want the state to have primacy?

Industry-backed groups said Texas should lead decarbonizing efforts as much as it does production — and that there's land and eagerness from companies to do it, but federal oversight has hampered that.

A spokesperson for the Houston CCS Alliance, a group comprised of some of the biggest energy companies, including Chevron and ExxonMobil, said transferring oversight to the commission could shorten the review process from years to months.

"When we're talking about keeping large amounts of carbon dioxide out of our environment, we feel like it's important to move this forward as quickly as we can," the spokesperson said.

Zimmerman, the decarbonization director for Wood, said the state is in the best position to evaluate permits for the proposed projects.

"One thing that engineers can get a bit frustrated by at times is we will study these projects, and we put a lot of technical work into making sure that they are as safe as humanly possible," she said. "We've done all the analysis, but if you don't actually build, we're not actually reducing emissions."

There is disagreement among scientists, environmentalists and industry as to which regulatory agency should be tasked with carbon dioxide injection oversight.

Susan Hovorka, a research scientist at the **Bureau of Economic Geology** who has studied carbon capture for decades, said the underground injection control program was designed so that states would eventually adopt it.

Hovorka said it should be up to Texas, not Washington, D.C., to determine what proposals would benefit the state's efforts to reduce carbon emissions, adding that distrust of certain agencies should be separated from the state's efforts to gain primacy.

"That would be a political decision for the people of Texas," Hovorka said.

Why are environmentalists concerned about turning over this authority to the state?

One of the primary concerns among environmentalists is the potential for increased seismic activity. Injecting wastewater underground has already been linked to earthquakes in some areas across the state.

Others worry about the potential contamination of groundwater aquifers. In West Texas, residents rely on well water from aquifers like the Ogallala, Pecos Valley and Edwards-Trinity. Environmentalists and lawyers are concerned about the impact of carbon dioxide injections on the state's water supply — a fear playing out in Indiana.

Last March, a leak was detected at a carbon dioxide injection site in Decatur, Illinois. The operator Archer Daniels Midland found corrosion in one of its deep monitoring wells and discovered a leak that allowed carbon dioxide and formation fluid to migrate deep underground. Months later, it happened again. This resulted in the company temporarily pausing injections into the well.

"The concern is that there will be a flood of permit applications that are coming in and are granted quickly without careful consideration of environmental concerns in these areas with these new and potentially dangerous injections, especially with all these drinking water sources," said Allison Brouk, a senior attorney with the environmental nonprofit Earthjustice.

The EPA stated that drinking water supplies in Illinois were not contaminated, but the incident raised concerns from residents about potential risks to the Mahomet Aquifer, which supplies water to around 850,000 people in Illinois.

Brouk said that injecting carbon dioxide could also threaten abandoned wells. Carbon dioxide could escape through these wells, potentially harming soil, vegetation and even humans in the affected areas.

Some experts worry that transferring permitting authority from the EPA to state agencies like the Railroad Commission of Texas could lead to less stringent environmental protections.

"Texas through the RRC hasn't proven itself a reliable manager as far as injection wells go in the past and adding the administration of the Class VI program to its plate raises alarm bells for the people and drinking water in Texas," said Brouk.

Will a Republican administration fast-track Texas' efforts?

Both environmental and oil and gas industry leaders say it is too early to know whether the Trump administration will favor standards set under its predecessor, even if the energy industry wants it.

The Biden administration set ambitious goals to reduce greenhouse gas emissions under its climate change agenda. Biden offered tax credits under the Inflation Reduction Act to companies for every ton of carbon dioxide captured and permanently stored underground. The administration also set aside \$12 billion for new carbon storage projects.

Companies need permits to become eligible for those incentives and pollute the air less during oil and gas production.

The Trump administration, on the other hand, has promoted fossil fuels and dismissed climate change concerns.

"It is not a priority of the current administration... so it will be interesting to see what is coming," Brock, with Earthjustice, said.

What role do everyday Texans have in the discussion?

Before the EPA grants the Railroad Commission primacy, Texans will have a chance to share their opinions on the proposed change.

Keith Hall, a Louisiana energy law professor, said people can learn more about carbon capture storage and ask if the agency has sufficient staffing to monitor the projects and enforce rules and regulations.

Hall said that after the initial reviews of the commission's application are completed, the rest of the process tends to move faster.

The EPA has not said when it plans to hear from the public.

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Clarification, Feb. 7, 2025 at 3:43 p.m.:

This article has been updated to include a statement from the Texas Railroad Commission. It has also been updated to clarify when other states received primacy, which is the authority to grant permits.

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