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What to look for in Interior's offshore carbon storage rule

By Carlos Anchondo, Heather Richards | 10/04/2024 06:32 AM EDT

The department is assembling a program that would enable companies to store greenhouse gas beneath the ocean floor.



(From left) Interior Secretary Deb Haaland, Bureau of Ocean Energy Management Director Liz Klein, and Bureau of Safety and Environmental Enforcement acting Director Kathryn Kovacs. Francis Chung/POLITICO

The Biden administration has blown a deadline to ink a rule for storing carbon dioxide off the nation's coasts, delaying a climate strategy with both strong advocates and naysayers.

Congress opened the outer continental shelf to carbon sequestration in the bipartisan infrastructure law, ordering the Interior Department to finish regulations by November 2022. Interior now expects to finish the draft rule by the end of the year, launching a program that would enable enormous amounts of the greenhouse gas to be stored beneath the ocean floor.

The rule could become a flash point in the larger debate over carbon capture and removal.

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The Biden administration has poured billions of dollars into projects that aim to suck CO₂ out of the air and capture it from smokestacks. But oil and gas companies are major investors in the emerging industry, raising concerns that a technology (<https://subscriber.politicopro.com/article/eenews/2023/07/13/oil-companies-want-to-remove-carbon-from-the-air-using-taxpayer-dollars-00105467>) meant to curb climate change will instead be used to justify more fossil fuel production.

Critics of the upcoming Interior rule question whether the heavy expense to store emissions is something that should be subsidized by taxpayers.

"It's ocean dumping. There's no question," said Elmer Danenberger, a former chief of offshore energy engineering and operations at Interior.

Carbon storage has benefited from bipartisan support in Congress, which has boosted tax credits to bolster the industry, created two task forces (<https://subscriber.politicopro.com/article/eenews/2024/04/30/does-ccs-task-forces-set-to-meet-after-yearlong-wait-00154935>) to address permitting challenges and funded everything from design studies to pilot projects. And developers are eager to have more options for storing their captured or removed CO₂.

"Establishing the regulations is becoming increasingly urgent, so companies pursuing carbon storage solutions, like Exxon Mobil, can advance their projects," said Erik Oswald, vice president of strategy development and advocacy at Exxon's Low Carbon Solutions.

Interior's Bureau of Ocean Energy Management and Bureau of Safety and Environmental Enforcement are tasked with writing the rule. BOEM spokesperson John Filostrat emphasized developing regulations for an entirely new program takes time.

"Creating a new regulatory program to assure the American public that carbon sequestration operations on the OCS will be safe and protective of the environment is a complex undertaking," Filostrat said in an email.

Here are seven questions answered about Interior's upcoming rule and the broader implications of storing CO₂ beneath the ocean floor.

What's the hold up?

It's not clear why BOEM and BSEE have yet to release the rule. BOEM declined to answer a list of questions about the carbon program.

But observers familiar with the agencies say they are likely busy with higher priority climate policies — like permitting the nation's first offshore wind projects. BOEM is trying to meet a Biden administration target to approve 16 offshore wind arrays by the end of the year.

Unlike wind, carbon capture and storage (CCS) has never been one of Interior's signature areas. The White House also took a year to schedule (<https://subscriber.politicopro.com/article/eenews/2024/04/30/does-ccs-task-forces-set-to-meet-after-yearlong-wait-00154935>) the first meeting of two congressionally mandated task forces to improve permitting of CCS projects on public and private lands.

Lawmakers that ordered the rule are losing patience with the delay, particularly as the Department of Energy distributes billions of dollars from the infrastructure law to new carbon capture projects.

Earlier this year, Congress directed Interior to use \$2 million of its budget to work on carbon sequestration and prioritize finalizing the rule. At a May hearing, Sen. Bill Cassidy (R-La.) chastised Interior Secretary Deb Haaland for not saying when the rule would come out.

"Senator, I don't have an estimate for when it will be completed, but we are working on it. We recognize that it's late," she said.

Why offshore storage, and why now?

Storing CO₂ under the ocean floor has garnered growing interest from a handful of big oil and industrial companies hoping to green their balance sheets. But it wasn't until the passage of the 2021 infrastructure law — which amended the Outer Continental Shelf Lands Act to allow for carbon storage — that the idea had a legal foothold.

That significant boost was followed by the 2022 climate law's expansion of the federal 45Q tax credit. The tax credit, which offers a monetary value per metric ton of CO₂ stored, is expected to help decrease the high cost of offshore carbon storage.

Under 45Q, the deadline for developers to begin project construction is the end of 2032.

"The 45Q tax credit is going to enable this industry to launch," said Erik Milito, president of the National Ocean Industries Association.

Milito said the offshore carbon storage program goes hand in hand with EPA's recent power plant rule. The rule requires a 90 percent emissions control rate for existing coal plants and for new natural gas plants — and offshore rock could be a place to store captured carbon, he said.

The offshore potential to hold captured carbon is enormous. Roughly 3,600 billion metric tons of CO₂ could be stored off the U.S. coastline, not counting federal waters around Alaska, Hawaii and Pacific islands, according to a 2012 report (<https://subscriber.politicopro.com/eenews/f/eenews/?id=00000192-2ebb-d420-a59a-efb70780000>)t commissioned by Interior.

Developers would also only have to deal with one landowner: the federal government.

"In some ways, offshore authority is simpler than onshore, since the entire Outer Continental Shelf (OCS) is owned by the Federal government, eliminating concerns about mixed ownership of mineral rights, or 'split estate' situations where mineral rights and surface rights are owned by two different entities," the White House Council on Environmental Quality wrote in a June 2021 report (<https://subscriber.politicopro.com/article/eenews/2021/07/01/white-house-releases-ccs-plan-000107>).

The American Petroleum Institute said its members are particularly interested in CCS leasing and operations in the Gulf of Mexico.

What are the risks?

Carbon storage in the ocean has made some environmental groups wary because of concerns about CO₂ leak risks.

Anna-Marie Laura, senior director of climate policy at the Ocean Conservancy, emphasized the need for research that examines the effects around CO₂ injection.

"It's very important when you're talking about an activity that's supposed to contribute to climate mitigation, that it's proven to work," Laura said in an interview. "So before any activity like that were to be done in the ocean ... the impacts would need to be incredibly well understood and the potential benefits would need to be proven."

Shelley Martin, a spokesperson for DOE's National Energy Technology Laboratory, said offshore CO₂ storage has an advantage in that it would be far from population centers and underground drinking water sources.

"CO₂ storage leakage on the OCS presents less risk than oil and gas production as leakage is buffered by the water column," Martin said in an email.

Several experts said BOEM is advancing the storage program with caution. It appears more interested in storing carbon in saline reservoirs than in depleted oil and gas fields, perhaps in part because the latter have been punctured with oil wells.

Nearly 30,000 wells have been permanently abandoned in the Gulf of Mexico. That could raise the risk of CO₂ migrating out via old wells, though the holes have been plugged with cement.

BOEM said in an information sheet on carbon storage that it sees "significant potential" for storing carbon in saline reservoirs in the Gulf of Mexico and "to a lesser extent" old oil and gas fields.

What are the consequences of a delayed rule?

Proponents of the offshore storage program say the delayed rule inhibits the industry's growth.

"Clear and comprehensive regulations for safe and durable storage must be in place for CCS project operators to proceed," said Joey Minervini, a spokesperson for the Global CCS Institute, an international think tank that works to speed up CCS deployment.

But Minervini said he didn't know of any specific projects delayed by the rule.

In the near term, developers will continue to site their CO₂ storage projects in state waters or close to "point sources" like ethanol plants or natural gas processing facilities, said Tip Meckel, a research professor for the Bureau of Economic Geology at the University of Texas at Austin.

Chevron's Bayou Bend project, for example, has leased roughly 140,000 acres of pore space onshore and in Texas' state waters (<https://insideclimatenews.org/news/29062024/texas-gulf-coast-carbon-dioxide-injection-wells/>) for the permanent storage of CO₂. Chevron owns 50 percent of the project, and energy companies TotalEnergies and Equinor each own a quarter.

Has this been done before?

Yes. There are a handful of large carbon storage projects in the ocean.

The Sleipner project, for example, is the world's first offshore CCS plant and has been operating for nearly 30 years. The project has stored more than 19 million metric tons of CO₂ between its startup and the end of 2022, [according to a July report \(https://subscriber.politicopro.com/eenews/f/eenews/?id=00000192-2fbe-d420-a59a-effe0faa0000\)](https://subscriber.politicopro.com/eenews/f/eenews/?id=00000192-2fbe-d420-a59a-effe0faa0000) from the Clean Air Task Force.

Other projects include the Snøhvit CCS project, also in Norway, and the Northern Lights project, which announced last month the completion of CO₂-receiving facilities in southwest Norway.

"There are other places around the world that have regulations in place," said Milito with NOIA. "They've seen that it can be done in a safe and protective way."

But storing CO₂ offshore has not made much progress in the U.S. Previous attempts to launch offshore carbon storage faced fierce pushback from environmental groups and skepticism from regulators.

In 2022, for example, former offshore driller Cox applied to build a pilot storage project for the Department of Energy's CarbonSafe program. They wanted to build a 110-mile pipeline, with partners Repsol and Crescent Midstream, to store CO₂ in their depleted offshore oil and gas reservoirs in the Gulf of Mexico.

Cox owned more than 600 wells offshore at the time in dozens of basins. But the plan fell apart, and Cox filed for bankruptcy the following year.

Danenberger, the former Interior official who now writes a blog covering offshore energy issues, said Cox's interest was concerning at the time, because the company had one of the highest records of environmental violations for offshore oil and gas development.

How will CO₂ storage leases differ from oil leases?

While the Interior Department has experience permitting projects on the outer continental shelf, it's been for energy development— not CO₂ sequestration, said Ben Grove, senior manager for carbon storage at the Clean Air Task Force.

"We're looking at extractive technologies versus something completely different — storing CO₂ and making sure it's permanent and safe — so they need to get this rule right, but it's not like they have no experience permitting subsurface-related matters," Grove said.

BSEE has decades of know-how in safely building wells in the ocean, meaning regulations for the carbon storage projects likely won't be a challenge, said Danenberger, the former offshore energy regulator for Interior.

Danenberger said Interior can be "light handed" when it comes to operational rules, updating them as it gains experience in permitting the projects. That's the approach its bureaus took to offshore wind: BOEM released the first guidelines in 2009 and finalized updated ones this year.

But BOEM faces a more difficult task in creating a leasing program for storage, he said.

It's unclear whether the leases will be relatively small, like oil and gas leases, or massive tracts of water, like for offshore wind projects.

It's also unclear how BOEM will address bonding — the insurance energy projects are required to set up to cover cleanup if the company goes bankrupt. That's a challenging concept for a permanent storage project, which — unlike oil and gas platforms — doesn't have a sunset date, Danenberger noted.

Haaland has said the Interior rule will address a variety of considerations around CO₂ storage on the outer continental shelf, including transportation, geologic sequestration, the study of storage sites and incident response.

Can existing oil leases be converted for CO₂ storage?

Oil and gas operators have shown interest in recent years in converting their offshore oil and gas leases to carbon storage leases. But Milito said it appears that BOEM is not going to allow that kind of conversion.

"We won't know until the rule comes out, but the signals coming from the administration were that you could not," he said.

Some companies will likely still push for that in the future, he said. NOIA does not have a position on whether leases could be converted.

Grove with the Clean Air Task Force said allowing oil and gas companies to convert their drilling leases to CO₂ storage could give them an "unfair advantage." Interior's rule will also need to address how developers should handle existing infrastructure like oil and gas wells when storing CO₂, he said.

"This rule really needs to have a comprehensive approach and requirements to identifying where there are wells that penetrate potential storage reservoirs and then have really robust requirements for how those wells, and existing infrastructure, need to be addressed and mitigated before storage can happen," he said.

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BY CARLOS ANCHONDO | 07/29/2024 06:38 AM EDT

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