

On Gulf Coast, carbon storage ideas abound

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WASHINGTON - Two years ago, Louisiana investor Chas Roemer was moving ahead on building an LNG export terminal in southwest Louisiana when he ripped up his plans.

With customers abroad under regulatory pressures to address climate change, he decided his project needed to be cleaner than the glut of other LNG facilities going up along the Gulf Coast. So, Roemer, a partner at a Baton Rouge private equity, began looking into storing underground the vast amounts of carbon dioxide his facility would produce.

And he wasn't alone. Plans are underway for nearly a dozen commercial-scale carbon repositories along the Gulf Coast, which, if completed, would begin putting back into the ground the carbon dioxide that has flowed to the surface as oil and natural gas for more than a century. Among the developers are the Houston oil company Occidental Petroleum and one of Louisiana's largest landholders, the Stream family.

"We felt the demand was going to be there for clean energy and to have an old product wasn't going to be competitive," said Roemer. "The question was, could you (capture and store emissions) profitably?"

For decades, companies like Occidental have pumped carbon dioxide underground to aid in oil and gas production. But storing carbon dioxide underground strictly to combat climate change was considered an unlikely enterprise short a massive injection of government money, or the creation of a national carbon tax or other pricing mechanism to force polluters into the practice.

But after a 2018 expansion of the federal government's carbon capture incentive program, polluters can earn a \$50 tax credit for each ton of carbon dioxide they store. Roemer's LNG plant, which at full capacity would emit about 4 million tons of carbon a year, could increase annual revenues by \$200 million.

Whether the greenhouse gas can be captured, put in pipelines and pumped underground for less than the price of the tax credit remains unproven, but investors are beginning to believe it can be done, most likely at industrial plants making products like methanol or LNG, which emit pure streams of carbon dioxide that can be captured cheaply.

"That \$50 a ton credit could be enough to justify the entire enterprise," said Brad Crabtree, director of the Carbon Capture Coalition, a trade group whose membership includes the oil giant Royal Dutch Shell and the St. Louis coal miner Peabody Energy. "You have this huge concentration of industrial emissions, maybe half of U.S. emissions in Louisiana and Texas. They're in very close proximity, so you can have multiple facilities taking advantage of the same pipeline system. You get an economy of scale."

Investors and state politicians in Louisiana are already envisioning the creation of a carbon storage hub along the Gulf Coast, offering a valuable service for the region's oil, natural gas and petrochemical industries as they struggle to remain viable in a low-carbon world.

Last week, the Stream family, whose vast holdings include timber, cattle and oil wells, caught the attention of many in the energy sector when the family said it would develop a carbon storage site spanning thousands of acres along the southwest coast of Louisiana.

The Streams declined to provide a cost estimate, but the family is financing the project itself, believing there's a captive market in the growing number of companies pledging to reduce greenhouse gas emissions, said Benjamin Heard, a partner in the project and former executive at Direct Energy, a retail electricity company.

"These are multi-generational landowners who have watched the petrochemical expansion along the Gulf Coast," he said. "And when the tax credit was passed, they began to think strategically how the updated tax credit might impact investment decisions."

Roughly 30 carbon capture projects are under development in the United States. At least half are planning to inject the carbon dioxide underground for permanent storage, with no plans for use in oil production, according to the Carbon Capture Coalition.

Among them is an unnamed project in Louisiana by Occidental Petroleum. The project would have the capacity to store 10 million tons of carbon dioxide each year, the equivalent of the annual emissions of more than 2 million cars. Occidental declined to discuss the project, saying it was still in "early stages of planning."

Within Occidental, carbon storage is viewed as a potentially lucrative business, given its long experience pumping carbon dioxide underground to aid oil production, a process known as enhanced recovery.

"Occidental has been implementing carbon capture, utilization and storage in our Permian operations for more than 40 years," Richard Jackson, president of Occidental's onshore and carbon management divisions, said in a statement.

Whether these projects get built remains to be seen. The Stream family, which is the farthest along, just applied to the Environmental Protection Agency for a permit, a process that could take up to five years.

For years now, factories and power plants have made money selling captured carbon dioxide to oil companies - negating much of the environmental benefit of capturing the greenhouse gas. The recent plunge in oil prices, however, has made the enterprise unprofitable, spurring a groundswell toward pure carbon storage, said Tip Meckel, a researcher at the Bureau of Economic Geology, at the University of Texas.

Earlier this year, NRG Energy shut down the \$1 billion carbon capture system at its coal-fired power plant in Fort Bend County, citing the lack of demand for carbon dioxide at nearby oil fields.

"A lot of the earlier thinking was we do (enhanced oil recovery) and storing CO₂ is an add on, and now it's the opposite," Meckel said. "A lot of people are interested in developing storage sites."

And carbon storage is gaining momentum overseas. The Norwegian government is bankrolling a massive storage site under the North Sea, with plans to take emissions from carbon capture sites across Europe. The Australian government has required Chevron to store underground the carbon emissions from a natural gas field the company developed there.

The concept is catching on in the United States, too. In Louisiana, Gov. John Bel Edwards has instructed his climate task force to examine developing a carbon storage industry. The state Legislature passed a bill to lower bureaucratic hurdles and the state has applied to the EPA for authority to permit carbon storage sites.

“Oil and gas is a big part of our (economy) but the question we’re asking is how can we continue to do business as usual,” said Jason Lanclos, director of technology at Louisiana’s State Energy Office. “The oil and gas and manufacturing sectors are coming to us and saying, ‘What can you do for us.’”

With its sprawling refining and petrochemical complex, Texas emits more carbon dioxide than any state. And with similar geology to Louisiana, East Texas has plenty of underground aquifers and depleted oil and gas fields ideal for carbon storage projects, experts say.

But Texas lags behind other oil and gas states, including Louisiana, Oklahoma, Wyoming and North Dakota, which have sought or received authority from the EPA to permit carbon storage sites. In a state where climate skepticism runs deep, Gov. Greg Abbott has not signaled support for developing carbon storage nor has the Legislature moved to obtain permitting authority from EPA. Abbott’s office did not respond to multiple requests for comment.

“It’s fair to say the Texas state government has not been as proactive as other states,” said Meckel. “I have no doubt Texas will be an enormous player in this space, but they do need to dig in. It doesn’t just happen.”

Still, there is some movement in Texas. Last month, the Texas Government Land Office decided to begin seeking developers for an offshore carbon capture field in the Gulf of Mexico, off Port Arthur.

Across the border in Louisiana, both Republicans and Democrats are supporting the concept of turning the state into a carbon capture hub. Roemer, son of former Louisiana governor Buddy Roemer, a Democrat turned Republican, said climate skepticism abounds in his state, but a distinct pragmatism has developed around the issue.

“Whether you agree or don’t agree with climate change, I’m an exporter and the market around the world is going to want a net-zero product,” he said. “We’re going to show others you can be both clean and profitable, and I want to move our entire state in that direction. That’s a solution that should satisfy just about everyone.”