

Offshore CO₂ Storage Resource Assessment of the Northern Gulf of Mexico

Award Number: DE-FE0026083

Project Summary:

The objective of this project was to conduct a carbon storage resource assessment of depleted oil and gas reservoirs in the northern Gulf of Mexico (GoM), specifically an area offshore Texas and Louisiana. Within that area, the project focused on a smaller, geologically representative area close to major sources and existing pipeline infrastructure. The project identified at least one specific site that could be considered for a future commercial or integrated demonstration project with the ability to store at least 30 million metric tons (MMT) of CO₂.

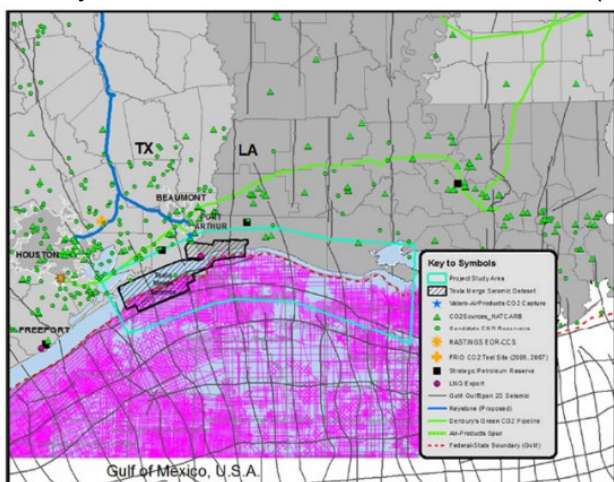


Figure 1: Map depicting the study area (blue outline) and associated infrastructure located along the Texas and Louisiana Gulf of Mexico coastal area.

Project Outcomes:

The project assessed the CO₂ storage capacity of depleted oil and natural gas reservoirs utilizing existing data from historical hydrocarbon industry activities in the heavily explored portions of the inner continental shelf off the coasts of Texas and Louisiana. Well logs and sample descriptions from existing or plugged/abandoned wells, seismic surveys, core samples, and other available geologic and laboratory data were used to assess the ability and capacity of saline formations in the region to safely and permanently store CO₂. A potential storage zone was identified in Miocene-aged sandstone strata and mapped across the area using a high-quality 3D seismic survey and logs from 760 wells. The storage zone is overlain by a regionally extensive shale caprock. Storage zone porosities were derived from well logs and used in estimating storage resource. The 3D seismic data also provided information on storage zone porosities, structural closures, fault geometry, and fault displacements in the assessed area. Because of the high-quality seismic data and well data, it was possible to identify two specific sites within the Miocene-aged storage zone—High Island 24L and High Island 10L—with the potential for storage of more than 30 MMT CO₂. Both sites have structural closures to trap the CO₂. The P50 estimate of storage resource in High Island 24L is 179 MMT, while in High Island 10L it is 39 MMT.

Presentations, Papers, and Publications

Final Report: [Offshore CO₂ Storage Resource Assessment of the Northern Gulf of Mexico \(Texas-Louisiana\)](#) (November 2019) – Ramon Trevino, Tip Meckel

Prime Performer:
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Principal Investigator:
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Project Duration:
9/1/2015 – 8/31/2019

Performer Location:
Austin, Texas

Program:
Carbon Storage