

Gulf Coast CO₂ Storage—A Techno Commercial Perspective

Nikhil Joshi¹

¹Talos Energy

Abstract

Permanent sequestration of CO₂ is the most mature method to decarbonize industries at a gigaton scale. To enable large scale decarbonization that is economic, the proximity of emissions to appropriate storage pore space is critical. CO₂ could be stored in saline aquifers, depleted reservoirs or used for enhanced oil recovery. However, only saline aquifers offer the scale of storage required for large scale decarbonization implementation. The US Gulf Coast is unique with current CO₂ emissions in the order of 300+ million tonnes per year and storage capacity estimated to be in the order of billions of tonnes.

A critical component of CCS deployment of CO₂ storage and understanding of the subsurface is essential. Aspects of storage that evolve as the project progresses are the presence of caprock that's anticipated to contain the injected CO₂, the presence of porous media for CO₂ storage and the absence of faults, legacy well penetrations among other mechanisms that could lead to the potential leakage of stored CO₂. In addition, monitoring of injected CO₂ over time with technologies such as VSP, 4D seismic, pressures among others are equally important. The evolving CCS industry is essentially enabled by the geoscience community that applies its oil and gas industry knowledge, technologies and experience to CCS.

This discussion will also share high level perceived economics for CCS projects, status of regulatory framework as well as the desired state to deploy CCS projects at a large scale. And lastly, we will briefly mention the relevant details associated with the Inflation Reduction Act and CCS and how it could boost the blue (low carbon) economy.