Carbon Capture and Storage in Louisiana

CLEAN AIR TASK FORCE

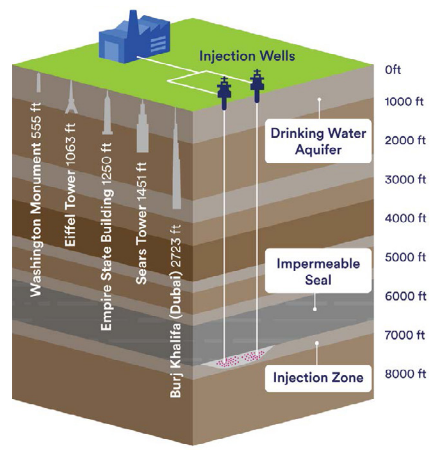
Overview of Carbon Capture & Storage

Carbon capture and storage (CCS) refers to a suite of technologies that reduce carbon dioxide (CO_2) pollution from power plants and industrial facilities. CCS captures CO_2 directly from a facility before it is emitted, compresses CO_2 for transport, and permanently stores that CO_2 in deep geologic formations for thousands of years. Understanding the process, economics, benefits, and risks is paramount to informed decision making about CCS technology deployment in Louisiana.

Process of Carbon Capture

CCS is comprised of 3 main components:

1. **Capture:** The process of capturing CO_2 from facility exhaust gases before it is emitted to the atmosphere, typically using chemicals called amines to separate CO_2 from other gases.
2. **Transport:** Transportation of compressed, dense CO_2 from a capture facility to a geologic storage site, typically by pipeline, rail, barge, or truck.
3. **Storage:** Injection of CO_2 into deep geologic formations for permanent storage, typically a mile or deeper underground beneath a caprock where it remains trapped over geologic time.



Why Louisiana?

Louisiana's energy leadership, strong industrial base and workforce, unique subsurface geology, and access to global markets have attracted surging commercial interest and investment in CCS technologies. **There are currently 3 industrial sites capturing CO_2 in Louisiana and an additional 41 capture projects currently in development.**

Why Carbon Capture?

CCS is a practical tool that allows Louisiana's core industries to enhance their global competitiveness and meet market-driven emissions goals. By reducing the carbon intensity of industrial processes and products, CCS provides a way for Louisiana's industries to compete in a changing trade environment while safeguarding jobs, industrial output, and economic growth.

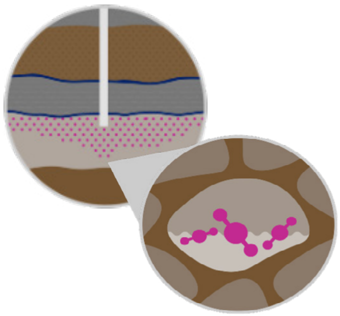
- **Real Investment & Jobs:** CCS can help create and preserve high-wage energy jobs in Louisiana. According to Governor Landry's October 2025 executive order, projects with a CCS component could create 17,000 new jobs and represent $76 billion in potential investment.
- **Competitiveness:** Louisiana's industrial economy depends heavily on exports of fuels, chemicals, and refined products. As trading partners adopt carbon-intensity standards and border measures, CCS can help ensure Louisiana producers remain dominant in global markets by lowering the carbon footprint of goods produced locally.
- **Air Pollution Reduction:** Louisiana is home to many refineries and other facilities that emit harmful air pollution, including particulate matter (PM) and sulfur oxides (SO_x). Industrial facilities or power plants equipped with carbon capture can reduce these pollutants, which improves community air quality while capturing CO_2.
- **Unique Geology:** Louisiana's deep subsurface geology is comprised of thick sandstone with excellent porosity and permeability, overlain by thousands of feet of rock. This is the ideal subsurface for sequestering CO_2. Louisiana has an estimated capacity to store over 700 billion metric tons of CO_2.

How CO_2 Storage Works

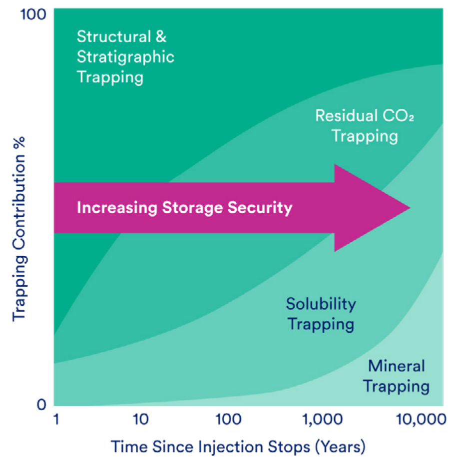
Geologic storage is well-understood practice based on decades of commercial field experience of injecting fluids, including CO_2, into subsurface formations. Over 1.5 billion tons of CO_2 has been safely injected into the subsurface in the U.S. since the 1970s. In this process, CO_2 is injected into deep porous rock formations where overlying impermeable "caprocks," like shale, act as a barrier that traps CO_2 and prevents it from migrating upwards. Geologic storage of injected CO_2 becomes even more secure over time through natural trapping mechanisms. Some CO_2 gets stuck in pore spaces of the rock (residual trapping), while some CO_2 eventually dissolves into water that exists naturally in the pore space (solubility trapping). CO_2 can even react with the rock formations to form solid carbonate minerals (mineral trapping).

CO_2 is injected deep into porous reservoir rock

Impermeable rock layers above the reservoir prevent CO_2 from migrating



Injected CO_2 dissolves in brine and may eventually mineralize



Class VI Regulatory Program

CO_2 storage is regulated via Class VI wells in EPA's Underground Injection Control (UIC) program. As with other classes of wells, Louisiana holds primary enforcement authority, which means that Louisiana has authority to administer the Class VI regulatory program. EPA developed Class VI regulations to be more protective and stringent than any other well class, and these regulations were designed to remove risk from the public and place it on well operators. The Class VI well program requirements include:

Extensive site characterization	Reservoir modeling that evaluates CO_2 behavior and confirms an overlying confining caprock to ensure permanent containment.
Injection well construction	Use of materials compatible with CO_2 contact and subsurface conditions over the life of the project.
Injection well operation	Injection pressure limitations and use of shut-off systems to ensure CO_2 does not endanger underground sources of drinking water.
Comprehensive monitoring	Monitoring all aspects of well integrity, CO_2 injection and storage, and groundwater quality during and 50 years after injection operations.
Emergency response plans	Address potential unexpected CO_2 leaks during construction, operation, and post-injection site care periods.
Financial responsibility	Ensures sufficient funds for the geologic storage project to cover all corrective action, injection well plugging, post-injection site care and site closure, and emergency and remedial response.
Reporting and recordkeeping	Project specific information to continually evaluate Class VI operations and confirm safety and protection of underground drinking water sources.
Site closure and post-injection site care	Post-injection monitoring of the CO_2 plume to ensure long-term containment, demonstration of CO_2 plume stabilization and well plugging requirements.

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