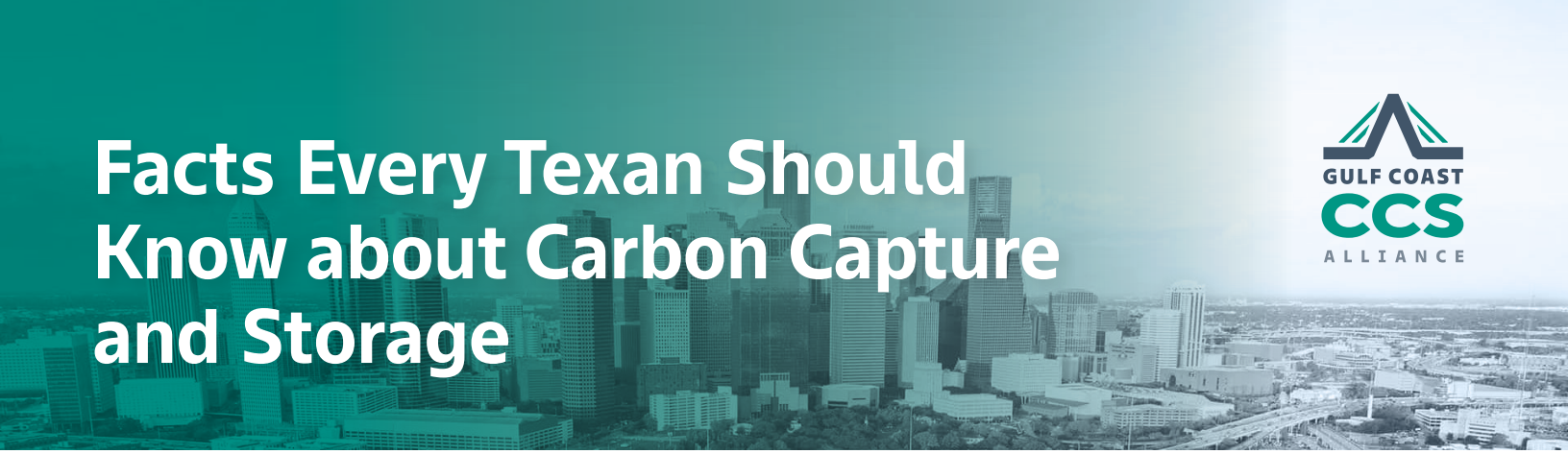
Facts Every Texan Should Know about Carbon Capture and Storage



GULF COAST CCS ALLIANCE

Carbon capture and storage (CCS) is growing in Texas.

But what is it, and why does it matter?

CCS works by capturing carbon dioxide (CO_2) emissions that would otherwise be released into the air. Then, the captured CO_2 is transported, typically via pipeline, to a storage site, where it is injected thousands of feet underground or under the seafloor for storage.

CCS is a safe, proven technology that can reduce emissions from many industries that are important to southeast Texas.

By significantly reducing industrial emissions, CCS allows continued growth and job security in the world's most essential industries.

MYTH #1 WE DON'T NEED CARBON CAPTURE AND STORAGE.

FACT: CCS helps companies make lower-carbon products like steel, cement, fuel, and fertilizer by reducing emissions[1] that are otherwise released into the air. There is a growing global market for these products, **so CCS helps keep existing industrial jobs and businesses anchored in Texas.**

MYTH #2 CCS IS A NEW, UNPROVEN TECHNOLOGY.

FACT: CCS has been studied and used for over 50 years in the United States and around the world. Scientists have conducted extensive research to understand how CO_2 behaves underground and today's projects are built on this strong foundation of knowledge. CCS is also closely regulated by state and federal agencies.[2]

MYTH #3 STORING CO_2 UNDERGROUND IS DANGEROUS.

FACT: CO_2 is stored deep underground in strong rock layers that have safely contained oil and gas for millions of years. These storage sites are **carefully evaluated** before use. The storage areas are typically at least half a mile beneath the surface—about eight football fields deep—and thousands of feet beneath drinking water sources.[2] Wells are built with strong steel and cement and are closely monitored. With the right location and regulation, about 98% of stored carbon dioxide (CO_2) can stay safely underground for over 1,000 years.

Researchers at Texas A&M University[3] recently conducted a thorough review of carbon capture and storage (CCS) using many years of science-backed studies and real-world use. **They found that CCS is very *safe*.**

MYTH #4 CCS ACTIVITY WILL IMPACT DRINKING WATER.

FACT: Drinking water sources, including aquifers, are found much closer to the surface. **CCS sites are thousands of feet below** that, sealed off by thick layers of rock. Additionally, companies must follow strict rules from the U.S. Environmental Protection Agency (EPA) to protect drinking water.[4]

> "As someone who has extensively studied carbon capture and storage, I can say with confidence that this technology is both proven and essential for Texas. The safeguards in place are rigorous, ensuring protection for our water supply, families, and local businesses. Our region has the chance to be a global model for energy innovation, and we should seize that opportunity."
>
> *— Dr. Tracy Benson, Interim Dean of Engineering at Lamar University*

"I was initially skeptical of CCS, but after studying it for 25 years, I am confident in the technology and its safety, as well as Texas' ability to lead in its successful deployment. Our combination of expertise in handling carbon-intensive products along with the local subsurface that can accept the CO_2 back for permanent underground storage gives the Houston region a huge advantage during the energy transition."

— Dr. Susan Hovorka, University of Texas-Austin Jackson School of Geosciences

MYTH #5 CCS ACTIVITY WILL IMPACT OUR RIVERS, STREAMS, AND LAKES.

FACT: There is a very low possibility of any impact to local water sources like rivers, streams and lakes. Proposed projects undergo rigorous permitting before construction and are under 24-hour monitoring when completed. Stored CO_2 would have to travel thousands of feet through layers of solid rock to reach the surface.[5]

MYTH #6 CCS SITES ARE PERMANENT EYESORES FOR COMMUNITIES.

FACT: CCS sites are safe and take up very little space above ground. Most of the work happens underground. Most people will not even notice a CCS site nearby.

MYTH #7 CCS CAUSES EARTHQUAKES.

FACT: This is very unlikely. Companies carefully control pressure underground and avoid fault lines. **Experts also continuously monitor the area to keep everything safe.** Studies show little to no impact on daily life.[6]

MYTH #8 COMMUNITIES WON'T BENEFIT FROM CCS.

FACT: CCS projects can be a significant driver of economic development and improve public health by improving air quality. Not only can CCS help retain skilled jobs in the region by keeping employers economically competitive[7], but landowners can earn income from leasing pore space. Tax revenue from projects can help support schools, parks, public safety and other services. It can also improve health outcomes by improving air quality, reducing nitrogen oxides by 75%, sulfur dioxides by 98% and particulate matter by 99%.[8]

MYTH #9 CARBON DIOXIDE PIPELINES CAN CAUSE EXPLOSIONS.

FACT: CO_2 is not flammable or explosive. It's used in things like food and carbonated soda and is also a common ingredient in fire extinguishers. **CO_2 pipelines are very safe and have fewer incidents than many other types of pipelines.** A Texas A&M study found that CO_2 pipelines have about 96% fewer incidents than pipelines carrying refined products or crude oil. These pipelines are strictly regulated and inspected.[9]

MYTH #10 ABANDONED WELLS AND PIPELINE FAILURES CAUSE CO_2 LEAKS.

FACT: The risk is very low. **CCS storage sites are required by the EPA to conduct a thorough assessment of any previous drilling and provide extensive modeling of the area before applying for a permit.**[10] Pre-existing wells can be re-cemented or sealed and incorporated into ongoing monitoring to detect any early signs of leakage.[11]

[1] https://www.csis.org/analysis/united-states-risks-losing-its-carbon-capture-advantage
[2] https://www.sciencedirect.com/science/article/abs/pii/S1040619021000890#preview-section-abstract
[3] https://energy.tamu.edu/news_item/texas-am-authors-carbon-dioxide-capture-and-sequestration-safety-study/
[4] https://energy.tamu.edu/wp-content/uploads/CCS-Safety-and-Efficacy-Study-2025.pdf (Page iii and 2)
[5] https://energy.tamu.edu/wp-content/uploads/CCS-Safety-and-Efficacy-Study-2025.pdf (Page 10, 26)
[6] https://energy.tamu.edu/wp-content/uploads/CCS-Safety-and-Efficacy-Study-2025.pdf (Page 15)
[7] https://cb9cdd3c-61f1-494f-94da-c77c057de62c.usrfiles.com/ugd/cb9cdd_ea4d6e775ec3425bb6c09824274d5c11.pdf (Page 4)
[8] https://carboncaptureready.betterenergy.org/wp-content/uploads/2023/08/Carbon-Capture-Co-Benefits.pdf
[9] https://energy.tamu.edu/wp-content/uploads/CCS-Safety-and-Efficacy-Study-2025.pdf (Page 17)
[10] See § 146.82 at U.S. EPA (2024b)
[11] https://onepetro.org/spessa/proceedings-abstract/24SSA1/24SSA1/D011S003R001/545615