

CARBON CAPTURE AND STORAGE

GLOSSARY OF TERMS

Carbon dioxide (CO₂): a greenhouse gas that is the byproduct of industrial processes. Increasing emissions of CO₂ from human activities are responsible for trapping heat in the Earth's atmosphere, leading to climate change and global warming. In high concentrations, CO₂ that leaks from a pipeline or industrial facility can cause asphyxiation, and even death. CO₂, when mixed with water, forms carbonic acid which is a highly corrosive chemical that can eat through metal and cement, acidifying groundwater.

Enhanced oil recovery: when pressurized produced water, and sometimes pressurized CO₂, are used to recover more oil from the ground, extending the life of a well, and undermining climate benefits of capturing CO₂. Currently 73% of captured CO₂ is used for enhanced oil recovery.¹

Injection wells: wells that are drilled deep underground into rock formations where companies can dispose of or store waste fluids, like radioactive saltwater from oil and gas wells or carbon dioxide (CO₂). EPA has created six distinct classes of underground injection wells based on the types of fluid injected into the ground.

- **Class II injection wells:** wells that can be used for disposal of "produced water" (see definition below) or for enhanced oil recovery. Sinkholes and surface uplift across Texas have been linked to Class II injection wells and earthquakes caused by Class II injection wells are occurring in every major oil and gas region in Texas. The Railroad Commission oversees Class II injection wells already.
- **Class VI injection wells:** a new type of injection well used for long-term geologic sequestration (storage) of CO₂. The EPA issued the first three Class VI well permits in Texas in April 2025, but there are many new proposals that are seeking fast approval if the Railroad Commission is granted primacy.

Produced water: water that is naturally occurring in oil and gas formations that is brought up as a byproduct with oil and gas. This water is typically very salty, and often contains naturally occurring radioactive material, or "NORM." In Texas, produced water is typically disposed of in Class II injection wells.

Railroad Commission of Texas (RRC): the state oil and gas oversight agency in Texas. The RRC is requesting primacy (permission/authority) from the EPA to inject carbon dioxide (CO₂) underground for long-term storage.



KEY ACRONYMS

EPA: Environmental Protection Agency

RRC: Railroad Commission of Texas

CCS: Carbon Capture and Storage, or Carbon Capture and Sequestration

CCUS: Carbon Capture Use and Storage, or Carbon Capture Utilization and Sequestration

CO₂: Carbon Dioxide

UIC: Underground Injection Control

1. Global CCS Institute cited in Bruce Robertson and Milad Mousavian, "Carbon Capture to Serve Enhanced Oil Recovery: Overpromise and Underperformance" (Institute for Energy Economics and Financial Analysis, March 2022).