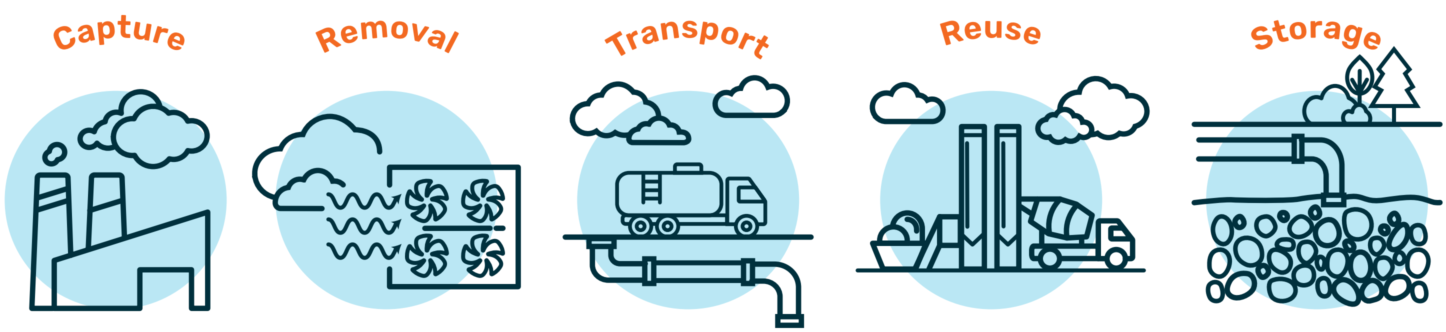
BITE-SIZED BLUEPRINT:

What is Carbon Management?

Carbon capture, removal, transport, reuse, and storage technologies—commonly referred to as carbon management—are a portfolio of safe, available, and increasingly cost-effective emissions reduction technologies used to manage, abate, and remove carbon oxides—carbon dioxide (CO_2) and carbon oxide (CO)—emissions from industrial facilities, power plants, and directly from the air (a practice known as direct air capture or DAC). Carbon oxides captured from industrial and power facilities or directly from the air is then reused to make valuable products or transported to appropriate sites for permanent geologic storage.

Carbon management is a platform of enabling technologies to support the production of cleaner products, including hydrogen, ammonia, aviation fuel, chemicals, power, and building materials.

The full value chain of carbon management:



CAPTURE

Carbon capture refers to various technologies that capture and separate carbon oxides from emissions streams. Using pre-treatment processes when capturing the carbon can also reduce the amount of air pollutants in the atmosphere that directly harm human health, including sulfur oxides, particulate matter, or nitrogen dioxide.

Carbon emissions can be captured from a variety of industries that produce materials that power the US economy, including:

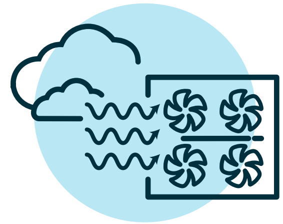
- Steel
- Cement
- Chemicals
- Fertilizers
- Fuels
- Hydrogen
- Natural gas-fired power
- Coal-fired power
- Freight transportation

Within CO_2 removal strategies, which include both technological and nature-based approaches, the Coalition focuses on technological, sometimes referred to as engineered, carbon dioxide removal (CDR) technologies.

June 2025

REMOVAL

CO_2 can be removed directly from the atmosphere through DAC technology and other methods. Today, there are approximately 40 operational DAC facilities worldwide, ranging in capture capacity from 1 metric ton per year to nearly 40,000 metric tons per year. While the DAC sector is still nascent, several large-scale projects are in the final planning and construction phases, including 1PointFive's STRATOS facility in Texas, which will come online in 2025 and will capture up to 500,000 metric tons of CO_2 per year, with the ability to scale up to capture 1 million metric tons per year.

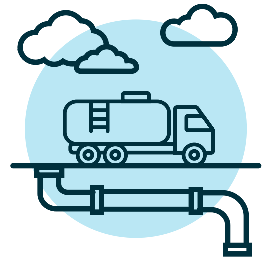


TRANSPORT

If not located near suitable geology for the safe, permanent storage of captured CO_2, capture projects need safe and cost-effective CO_2 transport to either geologic storage sites or points of reuse. While CO_2 pipelines are the safest, most cost-effective mode of transport, CO_2 can also be transported using a variety of means, including cargo ships, rail, and trucks.

there are more than
5,000
miles of CO_2 pipelines in the US

safely transporting nearly
66 million
metric tons of CO_2 a year



Economywide deployment of regional carbon management hubs will require significant and responsibly managed buildout of this network.

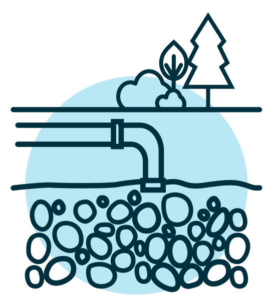
REUSE

Carbon reuse is the reuse of captured carbon oxides to produce valuable products, such as low- and zero-emission fuels, building materials, chemicals, and other goods. While still nascent relative to other technologies in the carbon management value chain, carbon reuse can help build and expand markets for captured carbon.

Increasingly, carbon reuse is seen as an important complement to large-scale carbon storage, as it creates value-added markets as well as innovation opportunities for carbon capture operations.

STORAGE

Geologic storage of CO_2 is a well-understood, commercial activity that has occurred both in the US and internationally for decades. Once compressed and transported to appropriate storage sites, captured CO_2 is injected deep into suitable geologic formations, typically located over a mile underground. Suitable storage locations are located away from underground sources of drinking water and occur below solid rock that prevents the CO_2 from being re-emitted into the atmosphere.



The US has some of the most abundant and well-characterized geologic storage formations, and the Department of Energy (DOE) has been working to identify and characterize potential domestic CO_2 storage sites since the early 2000s. The ability to inject and safely store CO_2 deep underground is regulated by the US Environmental Protection Agency's (EPA) Underground Injection Control (UIC) Class VI program or by states that have delegated authority (or primacy) over Class VI wells. State permitting programs must meet or exceed EPA's standards.

To learn more about carbon management and supportive policies, check out the Carbon Capture Coalition's Federal Policy Blueprint.