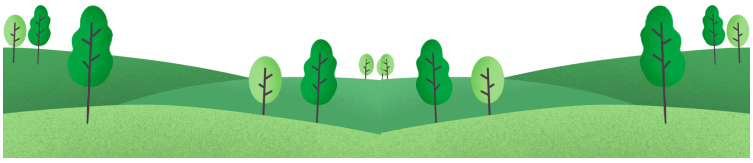
Carbon Action Alliance

CARBON STORAGE

WHAT IS IT AND HOW DOES IT WORK?

WHAT IS IT?

Carbon storage is typically the final stage of the carbon management process. It allows us to take carbon dioxide (CO_2) that has been captured from the air or from emissions sources like power plants or factories, compress it into a fluid state, and inject it underground into large rock formations where it is securely and permanently stored.



Carbon storage efforts use proven technology and follow strict safety standards to ensure that surrounding land & water resources are protected.

THE PROCESS

Capture

Carbon dioxide (CO_2) is pulled from the air or captured from emissions sources like factories.

Transport

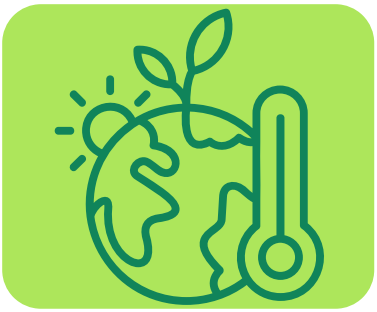
The captured CO_2 is then compressed & transported if necessary through pipelines or other methods to a storage site.

Injection

Once at the storage site, the compressed CO_2 is injected into porous rock formations deep underground.

Storage

After injection, CO_2 is safely and permanently stored underground.

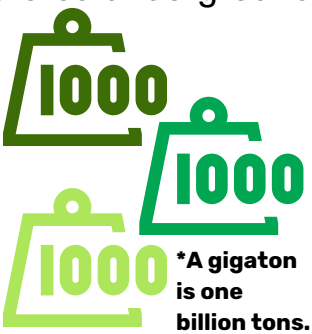


WHY DO WE NEED CARBON STORAGE?

The United Nations Intergovernmental Panel on Climate Change (IPCC) says, in addition to reducing emissions, we must both capture carbon dioxide from emission sources and remove it from the atmosphere directly if we want to limit global temperature rises and slow climate change. That captured CO_2 is then stored underground.

3,000 GIGATONS

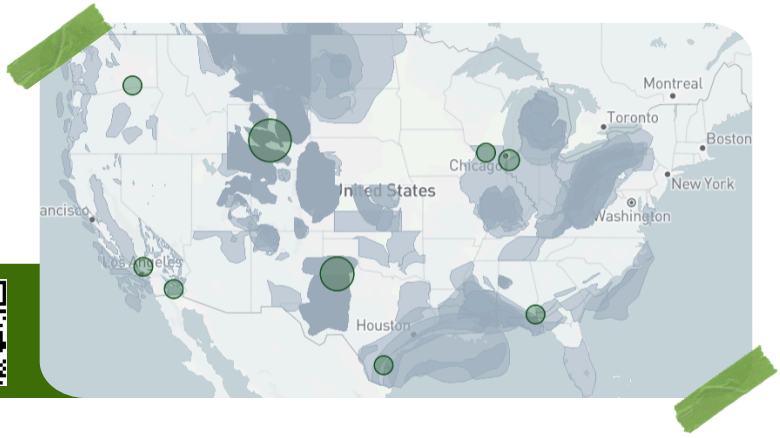
of carbon dioxide can be safely and securely stored underground in the United States, according to the US Geological Survey (USGS). For perspective, that is enough space to store more than 500 years of total US CO_2 emissions underground.



***A gigaton is one billion tons.**

WHERE CAN CO_2 BE STORED?

To the right is a map areas across the contiguous United States where carbon dioxide can be safely and permanently stored underground.



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CARBON STORAGE SAFETY

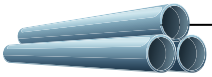
WHAT STEPS ARE TAKEN TO MAKE SURE CARBON STORAGE HAPPENS SAFELY?

EVALUATING THE SITE FOR SUITABILITY

Before a site is selected for CO_2 injection and storage, geologists evaluate it thoroughly to make certain the carbon dioxide will remain underground and not leak or affect nearby drinking water sources.

DETERMINING THE AREA OF REVIEW (AOR)

Experts will map out what areas will need to be monitored during the carbon dioxide storage process. This helps to ensure that any water sources around the well site remain safe through the entire injection and storage process.



USING PROVEN CONSTRUCTION MATERIALS

Wells that inject the carbon dioxide underground to be stored are required to be constructed using high-quality, corrosive-resistant steel and cement to help protect the area and prevent any leaks from occurring.

SETTING OPERATION REQUIREMENTS

Setting and maintaining safe levels and rates of CO_2 injection at well sites help preserve the well's integrity, avoid fractures, and prevent any potential leaks.

TESTING, MONITORING AND EMERGENCY PREPAREDNESS

State-of-the-art monitoring technology is used to monitor well sites, and quickly detect any issues. The injection site and well is consistently monitored at multiple depths all across the area of review (AOR), both during and after injection.

ONGOING, LONG TERM SITE REVIEW AND CARE

Once injection is complete, the well is "plugged" or sealed to ensure the stored CO_2 remains in the formation where it was injected. Testing and monitoring continues for at least 50 years, unless the owner demonstrates to the Environmental Protection Agency or state authority that the plugged well poses no threat to drinking water.

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