

# Fact Sheet - Carbon Capture & Storage

## What is CCS?

Carbon storage, also known as sequestration is the capture of carbon dioxide (CO<sub>2</sub>) from large combustion facilities such as fossil energy fueled power plants, cement plants, steel manufacturers or other heavy industries. The CO<sub>2</sub> is separated from other gases, compressed, transported by pipeline, and then injected deep underground. Studies suggest that CCS technologies present a safe and viable strategy for reducing the amount of CO<sub>2</sub> concentrations in the atmosphere.

## How does the CO<sub>2</sub> stay underground?

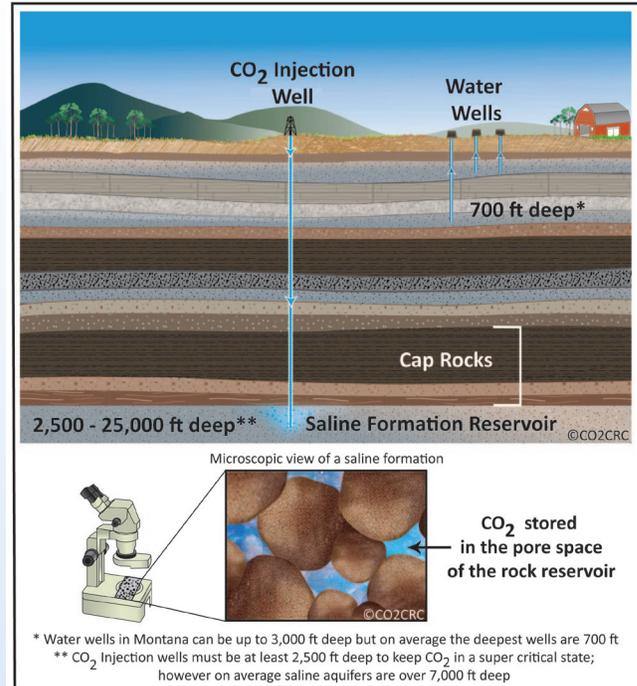
Storage of CO<sub>2</sub> underground requires two types of rocks. The CO<sub>2</sub> is injected into a porous and permeable "reservoir" rock where pores are connected allowing fluids to flow. A "tight" caprock that is not permeable lies above the reservoir rock and seals the CO<sub>2</sub> underground.

## What makes an ideal CCS site?

Carbon storage sites are carefully chosen based on surface and subsurface characteristics. Sites selected for carbon storage must have reservoir rock that has capacity to store large amounts of CO<sub>2</sub> and a caprock that is thick and continuous. This requires an area that is seismically inactive, with no active fault or fracture zones that could penetrate the caprock. For this reason, a seismic survey is typically the first step to evaluate the subsurface geology. The injection zone must be located below any aquifers that could potentially be used for drinking or irrigation purposes. Many other factors are also examined and considered, including land ownership, proximity to pipelines and CO<sub>2</sub> sources, and cultural and environmental resources near the site.

## Why Should Montana Care About CCS?

Montana is home to 25% of the nation's coal reserves, or 6% of the coal in the world. This is a tremendous



resource for US energy security and the MT economy. Climate concerns and climate policy may restrict the use of coal because of the resulting CO<sub>2</sub> emissions. CCS is a technology solution that could enable continued use of coal and other fossil fuels even under climate policy constraints.

## How are CCS sites monitored?

Numerous steps are taken to protect the safety and health of the surrounding environment and the people who live there. Long-term monitoring activities include:

- Observing the injected CO<sub>2</sub> underground using seismic surveys
- Collecting samples from test wells to monitor geochemical reactions taking place
- Monitoring water conditions in the area to guarantee water quality

These monitoring activities along with other modeling studies will also improve our understanding of the movement and behavior of the injected CO<sub>2</sub>.