Carbon Capture, Utilization and Storage

Ensuring Public and Environmental Safety

What is Carbon Capture, Utilization and Storage (CCUS)?

Carbon Capture, Utilization and Storage (CCUS) is a technology that safely helps protect the environment by capturing carbon dioxide (CO2) and storing it deep in the ground. This keeps it from getting into the air and contributing to climate change.

How does it work?

The technology captures CO2 emissions that come from a plant or industrial site and stops them from being released into the atmosphere. The captured emissions are then transported and stored underground in deep geological formations. They are typically stored one kilometer or more below the surface. They can also be recycled and used in a variety of innovative ways.

Is this a proven technology?

Yes. Technologies for the capture, injection and permanent storage of CO2 have existed for decades.

Carbon capture, utilization and storage is a proven technology that is operated in several jurisdictions in world, including Saskatchewan, the United States and Norway,

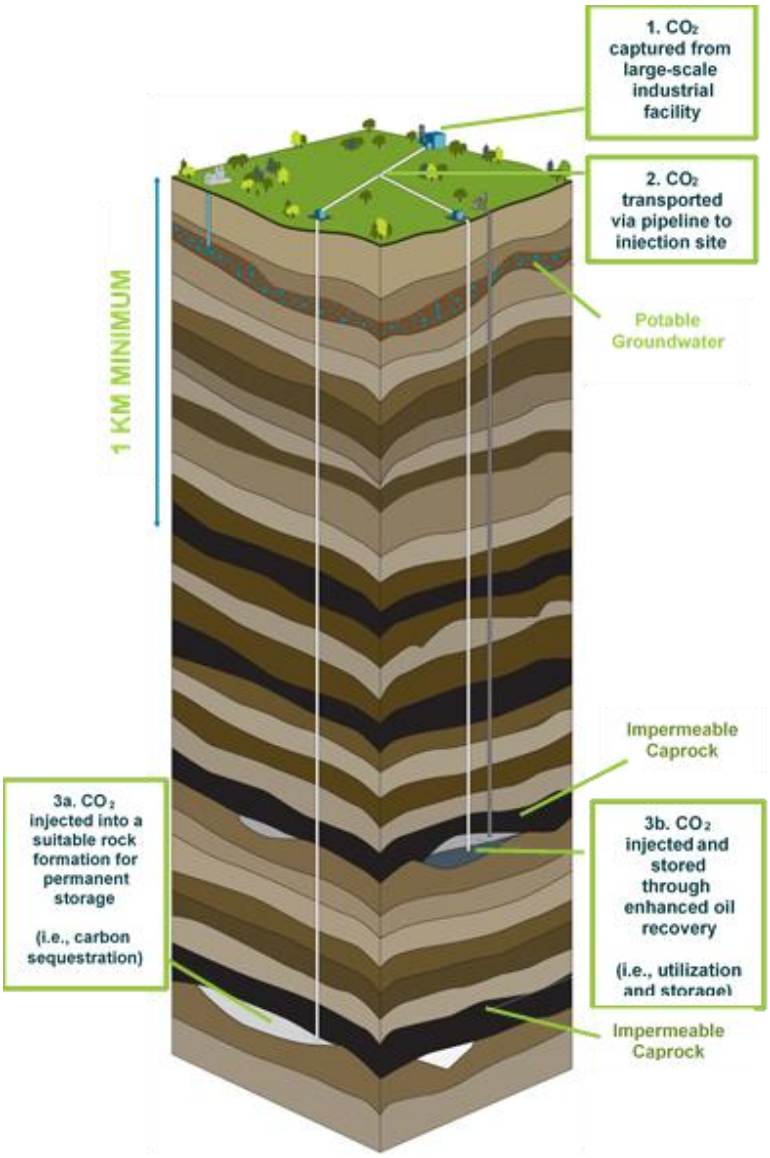
Why is CCUS important?

CCUS is critical to meeting Canada's long-term energy needs and climate goals. Alberta is among the global leaders in developing CCUS technology.

The International Energy Agency (IEA) and other sources say that, without substantial support to further develop and employ this technology, it will be difficult for Canada to meet its emission reduction targets.

By continuing to advance this technology, we will help Alberta diversify the energy sector and reduce emissions in many different industries, including concrete and fertilizer, and hydrogen development.

Alberta's skilled workforce and years of expertise in CCUS are critical to helping industries in Alberta - and across Canada - meet our country's emissions goals.



Safely developing carbon storage hubs

There is a growing demand for carbon storage hub in Alberta. To help meet this growing demand, the Alberta government is issuing carbon sequestration rights through a series of competitions to enable the safe development of carbon storage hubs across the province.

A carbon sequestration hub will be an area of pore space deep underground overseen by a successful private industry proponent who can effectively plan and operate these hubs to store carbon dioxide captured from various emissions sources as a service to industrial clients. Any approved project will need to pass rigorous standards for safety.

Why is Alberta exploring this?

Located in the Western Canadian Sedimentary Basin, Alberta has ideal geology for CCUS. Rock formations that have securely stored oil and gas for millions of years can also safely store CO2 permanently.

Research shows that carbon capture and storage is a safe way to store carbon dioxide deep underground to reduce greenhouse gas emissions. Captured carbon dioxide from industrial facilities are stored deep underground in specific types of underground geological formations. These rock or other formations are secure.

Has Alberta used CCUS before?

Yes! Alberta is among the global leaders and has a strong track record in employing this technology.

For example, the Quest and Alberta Carbon Trunk Line projects have safely captured and stored a total of more than seven million tonnes of carbon dioxide since starting operations. That's the equivalent of emissions from 1.5 million cars per year.

Will these storage hubs impact the water and lands above?

No. Captured carbon dioxide from large-scale projects is stored deep below the earth's surface, typically more than one kilometre underground.

Research demonstrates that various geological trapping mechanisms will contain the carbon dioxide deep underground. Careful site selection and rigorous monitoring serve to ensure the injected carbon dioxide remains sequestered and does not have any impact on fresh water, plants or the soil.

Are storage hubs good for the environment?

Yes, research shows that this technology is a safe way to store carbon underground to reduce greenhouse gas emissions.

Where can I find out more?

More information about carbon sequestration tenure management and the competitions to develop storage hubs can be found at: https://www.alberta.ca/carbon-sequestration-tenure-management.aspx.

For more information on carbon capture and storage, visit the Global CCS Institute webpage at https://www.globalccsinstitute.com/.