Carbon Capture & Storage

HELPING MEET THE UNITED STATES' NET-ZERO GOALS

In response to the world's climate crisis, the U.S. Department of Energy's Office of Fossil Energy and Carbon Management (FECM) is investing in carbon management technologies to help the nation achieve net-zero emissions by 2050 while also minimizing the environmental impacts of fossil fuel generation and use.

One of FECM's key priority areas is carbon capture and storage (CCS). CCS is a method used to reduce carbon dioxide (CO_2) emissions and can help achieve deep decarbonization in existing power and industrial sectors.

How Does CCS Work?

CAPTURE

the CO_2 is captured from other gases produced from carbon-emitting sources, including power plants and industrial facilities, to prevent it from being released into the atmosphere.

→

TRANSPORT

CO_2 is compressed and transported by pipelines, road, rail, or ships to a storage site.

→

STORAGE

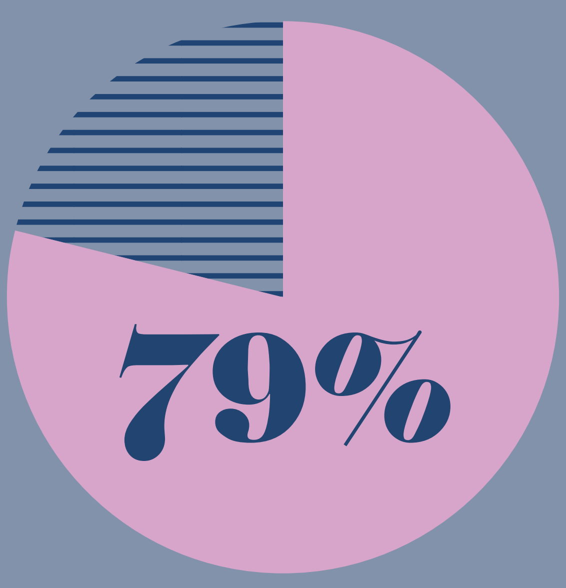
CO_2 is safely and permanently stored in a deep geological formation underground.

Why Do We Need CCS?

According to the U.S. Energy Information Administration, fossil fuels accounted for 79 percent of total U.S. energy consumption in 2020. While the United States continues to rely on these resources, it is critical that we minimize their environmental impact and decarbonize existing infrastructure (e.g., natural gas-fired power plants and industrial sectors, including hydrogen, cement, and steel production) that will persist through mid-century. By capturing and storing CO_2, the nation can make real progress in addressing the climate crisis and achieving net-zero emissions.

TOTAL U.S. ENERGY CONSUMPTION IN 2020

COAL + PETROLEUM + NATURAL GAS =



CCS...

- ✓ Is the only process that can deliver **deep emissions reductions in hard-to-reduce industrial sectors**, such as steel, fertilizer, and cement.
- ✓ Can **decarbonize existing infrastructure** and **assets** in power and industrial sectors.
- ✓ Helps the most carbon- and heat-intensive industries **operate with little to no greenhouse gas emissions**, which in turn will support well-paying jobs.
- ✓ Will help **drive the critical energy transition** needed to achieve net-zero carbon emissions by 2050.

Research and Development

In partnership with industry, leading organizations, and research institutes, FECM is **funding research and development projects** to advance CCS technologies for application in commercial and industrial sectors. On October 6, 2021, FECM announced the selection of 12 research and development, front-end engineering design, and engineering-scale projects to receive $45 million in federal funding. These projects will advance point-source CCS technologies that can capture at least 95 percent of CO_2 emissions generated from natural gas power and industrial facilities that produce commodities, such as cement and steel. (Learn more here!)

FECM is also investing in approaches that permanently store CO_2 deep underground through its **Regional Initiatives** and **CarbonSAFE programs**.

LEARN MORE about FECM's carbon management efforts by visiting the FECM website and signing up for official news announcements.

U.S. DEPARTMENT OF ENERGY | Fossil Energy and Carbon Management

Last Updated: November 2021