Carbon Negative Shot will spur innovation and position U.S. enterprises as leaders in research, manufacturing and deployment in an area that must have a rapid, global ramp-up by mid-century.

It will also…

• Position America to lead the way to net-zero on a global scale.

• Eventually remove legacy greenhouse gas emissions from the atmosphere.

• Create good-paying job opportunities that build on the skillsets of the fossil fuel workforce.

• Ensure climate justice and environmental protection for local communities remain a priority.

AT A GLANCE

The U.S. Government’s first major effort in carbon dioxide removal (CDR)—Carbon Negative Shot—is the all-hands-on-deck call for innovation in technologies and approaches that will remove and durably store carbon dioxide (CO₂) at meaningful scales for less than $100/net metric ton of CO₂-equivalent (CO₂-e).

1 Decade
1 Ton
<100 Dollars

1. Less than $100/net metric ton CO₂-e for both capture and storage.

2. Robust accounting of full lifecycle emissions. In other words, ensures emissions created when running and building the removal technology are accounted for.

3. High-quality, durable storage with costs demonstrated for monitoring, reporting and verification for at least 100 years.

4. Enables necessary gigaton-scale removal. To put this into perspective, one gigaton of CO₂ is equivalent to the annual emissions from the U.S. light-duty vehicle fleet. This is equal to approximately 250 million vehicles driven in one year.

These performance elements will help ensure CDR is a responsive and responsible tool for addressing the world’s climate crisis to achieve true, durable carbon removal.

Did you know that CDR has a critical role in helping the United States address the climate crisis and achieve net-zero emissions by 2050?

CDR refers to approaches that capture CO₂ directly from the atmosphere and durably store it in geological, biobased and ocean reservoirs or in value-added products to create negative emissions.

Four performance elements will define the approaches DOE will advance through Carbon Negative Shot:

1. Less than $100/net metric ton CO₂-e for both capture and storage.

2. Robust accounting of full lifecycle emissions. In other words, ensures emissions created when running and building the removal technology are accounted for.

3. High-quality, durable storage with costs demonstrated for monitoring, reporting and verification for at least 100 years.

4. Enables necessary gigaton-scale removal. To put this into perspective, one gigaton of CO₂ is equivalent to the annual emissions from the U.S. light-duty vehicle fleet. This is equal to approximately 250 million vehicles driven in one year.

These performance elements will help ensure CDR is a responsive and responsible tool for addressing the world’s climate crisis to achieve true, durable carbon removal.

This research initiative is being deployed to help achieve a net-zero carbon economy and eventually remove legacy carbon pollution to address the climate crisis, with a dedicated focus on doing so in a just and sustainable manner.

Carbon Negative Shot requires that multiple CDR approaches be enabled at scale to support the U.S. Government in meeting its net-zero emissions goal by 2050.

A few of these approaches include, but are not limited to, the following:

- Direct Air Capture with Durable Storage
- Soil Carbon Sequestration
- Enhanced Mineralization
- Ocean-Based CDR
- Afforestation/Reforestation
- Biomass Carbon Removal and Storage

Global Impact

Carbon Negative Shot will spur innovation and position U.S. enterprises as leaders in research, manufacturing and deployment in an area that must have a rapid, global ramp-up by mid-century.

For more information about FECM and Carbon Negative Shot, visit the FECM website and sign up for official news announcements.

How it works

Enabling Scale