

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 (CO₂e)**.

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.



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.

How it works

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

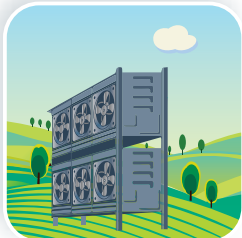
1. Less than **\$100/net metric ton CO₂e** for both capture and storage.
2. Robust **accounting of full lifecycle emissions**. In other words, ensures emissions created when running and building the removal technology are accounted for.
3. **High-quality, durable storage** with costs demonstrated for 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.

Enabling Scale

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



Biomass Carbon Removal and Storage



Enhanced Mineralization



Ocean-Based CDR



Afforestation/Reforestation

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.

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.