

## 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 store carbon dioxide (CO<sub>2</sub>) at meaningful scales for **less than \$100/net metric ton of CO<sub>2</sub>-equivalent (CO<sub>2</sub>e)**.

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 CO<sub>2</sub> directly from the atmosphere and store it in geological, biobased and ocean reservoirs or in value-added products to create negative emissions.

## How it works

Four goals will guide DOE's efforts to advance technologies through Carbon Negative Shot:

1. Less than **\$100/net metric ton CO<sub>2</sub>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. **Secure geologic storage or equivalent storage** with costs demonstrated for monitoring, reporting and verification.
4. Enables necessary **gigaton-scale removal**. To put this into perspective, one gigaton of CO<sub>2</sub> 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 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.