



CDR

SJN CLIMATE PRIMER:

Carbon Dioxide Removal

For decades, we've known that reducing carbon emissions is critical to mitigating climate change and avoiding the worst of the already unfolding and future calamities. Yet knowing that has not been enough to change our collective behavior.

Total global CO₂ emissions in 2022 were 40.6 billion tons (GtCO₂)—the largest annual amount in history. This reality has created an unprecedented challenge for governments, private sector companies, international organizations, and the scientific community: How can we achieve net-zero emissions within the first half of the century? Enter the potential solution of **Carbon Dioxide Removal (CDR)**, a portfolio of technology driven and nature-based methods to, essentially, scrub or extract carbon out of the air.

Many carbon-removal methods have already found their way into corporate and municipal net-zero plans. But do these technologies work? And are they scalable? Or is CDR a bit of greenwashing that gives industrial polluters license to continue spewing greenhouse gasses into the atmosphere?

Solutions Journalism Network invites journalists to a series of three- webinars that will dig into the questions about carbon-removal effectiveness and viability. Each session will provide information about the science behind CDR, as well as insights for covering it well and through the lens of solutions. **Here are some helpful CDR basics to know before you attend:**

Types of CDR

- 1 Afforestation**

Afforestation or reforestation focuses on planting trees on previously unused land or reforesting a degraded forest area. Tree planting is the cheapest and simplest of CDR methods that rely on natural processes. Other natural process approaches include restoring coastal wetlands, protecting peatland, and regenerative agricultural practices.
- 2 Direct Air Carbon Capture with Storage (DACCS)**

DACCS is a purely technology-driven approach. It captures CO₂ from the atmosphere using chemical processes and then stores it in deep geological formations. There is a growing industry interest in CO₂ storage development initiatives, which are lagging behind CO₂ capture plans. Estimates suggest around 9,000 km of CO₂ pipeline currently in operation predominantly in North America, and about a half a dozen geological CO₂ storage operations with a combined capacity of 10 Mt/year. This CDR method requires much less land than afforestation, but the technologies are in nascent stages and so far are prohibitively expensive for broad implementation. Currently, DACCS technologies can remove one ton of CO₂ from the air for \$600-\$1,000. Industry hopes to be able to drop that price to \$100-\$300 per ton.

Only 21 commercially-operating DACCS plants now exist worldwide with a combined capacity to capture 40 million tons per year—which is about 0.1 percent of global CO₂ emissions.
- 3 Bioenergy with Carbon Capture and Storage (BECCS)**

BECCS combines bioenergy harnessed by burning plants with carbon capture and storage (CCS). Burning biomass is considered carbon neutral as the carbon emitted in the process is captured and stored underground in geological formations, such as mountains and valleys, for later use. The carbon dioxide can also be stored in harvested wood or landfills. While BECCS is considered a proven technology, its proponents have failed to convincingly quantify the carbon captured using this method and their claims are often disputed.

What is the primary critique of CDR?

There is a growing consensus among the global scientific community, environmentalists and conservationists that CDR cannot be a substitute for direct emissions reduction and can only play a minor role in slowing climate change. This point was echoed by the International Panel on Climate Change, which notes that no existing models show a path to achieve Paris emissions goals without reducing outputs.

The IPCC conclusion has led to increasing skepticism about the viability of CDR and a concern that fossil fuel companies are overselling its promise, aiming to ease the pressure to end industry subsidies and decarbonize economies.

Is CDR poised for widespread use?

CDR is getting increasing attention from politicians and more space on the public agenda in the U.S. The Biden administration included [more than \\$18.9 billion](#) for five years of carbon management through its bipartisan Infrastructure Investment and Jobs Act (IIJA).

The federal funding includes \$3.5 billion for [four regional DACCS hubs](#) to scale up DACCS technologies in the coming decade in hopes of driving down CO2 removal costs per ton.

Two bills have already landed before Congress to create a market for CDR based on exchange or validate carbon credits through the Federal Carbon Dioxide Removal Leadership Act in the House and Senate and the Carbon Removal and Emissions Storage Technologies (CREST) Act in the Senate.

Against this backdrop, it is vital for journalists covering environment, climate change, energy transition and climate justice to build their capacity to critically examine and report on CDR approachest.

Join Us!

Join us for one, two or all three of SJN's webinars to untangle these complex debates and outline a clearer agenda for reporting on carbon dioxide removal and sequestration strategies.

Holding Companies Accountable

How to spot greenwashing and climate injustice in CDR

February 23rd at 3 p.m. ET

[Registration Link](#)

The Power and Pitfalls of Carbon Dioxide Removal

Separating possibility from the hype

March 9th at 3 p.m. ET

[Registration Link](#)

Nature-based Carbon Removal Methods

Scoping the potential and limits of organic approaches

March 16th at 3 p.m. ET

[Registration Link](#)

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