

Defining Carbon Removal for Policy

Issue Brief

Introduction

Carbon dioxide removal (CDR) is an essential pillar of climate action, along with strong prioritization of steep emissions reductions and adaptation to our already rapidly changing climate. The United Nations Intergovernmental Panel on Climate Change (IPCC) defines CDR as “anthropogenic activities removing carbon dioxide (CO₂) from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products.”¹ Definitions of CDR in some policies to date have been incomplete and narrowly focused on specific CDR approaches. The Carbon Business Council strongly favors a clear and consistent definition of CDR for policy that is method-neutral, criteria-based, and IPCC-aligned, to support the portfolio of CDR approaches that the world will need to meet our climate goals.



Challenges

- There is clear scientific consensus that CDR will be required at gigatonne scale² if we are to have any chance of limiting warming to 1.5 or even 2 degrees celsius. However, CDR is often positioned in opposition to our collective imperative to reduce greenhouse gas (GHG) emissions. As we seek to define terms, it is essential to call out clearly and up front that CDR is not, and cannot be seen as, a substitute in any way for the strong prioritization of rapid and steep reduction of global GHG emissions. However, to achieve the multiple gigatonnes of CDR needed annually in the coming decades, the world’s governments must be investing to advance and scale CDR today.
- U.S. CDR policy to date has not addressed all CDR pathways. CDR encompasses land-based soil and forest carbon sinks; biomass-based carbon removal and storage (BiCRS, which includes biochar carbon removal); marine carbon dioxide removal (mCDR); mineralization-based approaches; and direct air capture (DAC) — as well as emergent and potentially as yet undiscovered methods. We need thoughtful method-neutral and criteria-based policy to support them all, and to avoid a patchwork approach in favor of a definition of CDR that remains consistent across relevant legislation, regulatory frameworks, and jurisdictions.
- Some net-zero targets lack clarity as to the required amount of reduction and removal, creating market uncertainty. There are active initiatives to remedy this. For example, Science Based Targets recommends approximately 90% reductions and 10% CDR to achieve net zero.

1 IPCC AR6 WGIII Report p1,796

2 IPCC AR6 Synthesis Report p 50



- CDR is frequently (and erroneously) conflated with “carbon capture” (or carbon capture and storage [CCS]) which refers to capturing carbon dioxide from point-source fossil carbon emissions (e.g. from a cement kiln) and securely storing it in underground geological formations. CCS is a form of GHG emissions reduction, whereas CDR addresses atmospheric (with biogenic) carbon dioxide, making their methods and goals distinct. It is critically important to communicate in precise terms to differentiate the two.
- CDR pathways are often labeled as “nature-based” or “engineered.” This is not a helpful distinction as virtually all CDR methods are some hybrid of nature and engineering. For policy — and otherwise — it’s better to focus on the specific characteristics of a given CDR pathway, approach, or project, and avoid these labels. Below we outline key criteria that the Carbon Business Council recommends for consideration in CDR policy.

Opportunities

At CDR’s current stage of early scaling and market development, the Carbon Business Council sees a clear need for the sector to adopt and consistently advance a method-neutral, criteria-based, and IPCC-aligned definition of CDR that will help to ensure continued innovation, advancement, and scaling of CDR. Not every policy must support every CDR pathway, and a **robust CDR ecosystem will require a range of policy intervention to identify, scale, and advance the portfolio of CDR approaches that will allow us to achieve gigatonne scale.**

The Carbon Business Council recommends that policymakers follow the IPCC’s lead in defining CDR as purposeful human activity to remove carbon dioxide from the atmosphere and durably store it in geological, terrestrial, or ocean reservoirs, or in long-lived products. We further recommend that CDR policy build upon this foundation by incorporating the following key criteria:

- **Additionality** – CDR projects supported by policy must demonstrably result in net new carbon removal that would not have otherwise occurred without the policy, and not take credit for carbon removal that would

have occurred in a no-intervention scenario³. (Note: Assessment of additionality can be challenging for soil carbon sequestration and other climate-smart agriculture approaches that nevertheless can have meaningful climate value and offer important ecosystem and agricultural co-benefits).

- **Durability** – Different policies can support varying levels of durability of carbon storage, however CDR policy should explicitly factor standards of durability in recognition that there is not a one-size-fits-all approach and that different pathways offer varying levels of co-benefits.
- **Net-Negativity** – CDR projects must be highly carbon-efficient — i.e. remove substantially more carbon dioxide from the atmosphere than they emit in their operation — and be evaluated on a net carbon removal basis. High-quality, independent monitoring, reporting, and verification (MRV) standards must be used to confirm net-negativity.
- **Verification** – CDR projects supported by policy must deliver net-negative carbon removal with full cradle-to-grave lifecycle analysis of the project’s greenhouse gas emissions, and with total net CDR measured, monitored, and verified according to high-quality independent standards. Verification is more fully explored in the Carbon Business Council’s issue brief on MRV.
- **Equity and Community Engagement** – Projects should seek to offer and equitably distribute economic benefits to local communities, and not create environmental harms or other negative externalities. Community engagement “from the ground up” is key. CDR projects are strengthened by being welcome in their communities.

3 IPCC AR6 WGIII Report p.1,794

Credits

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