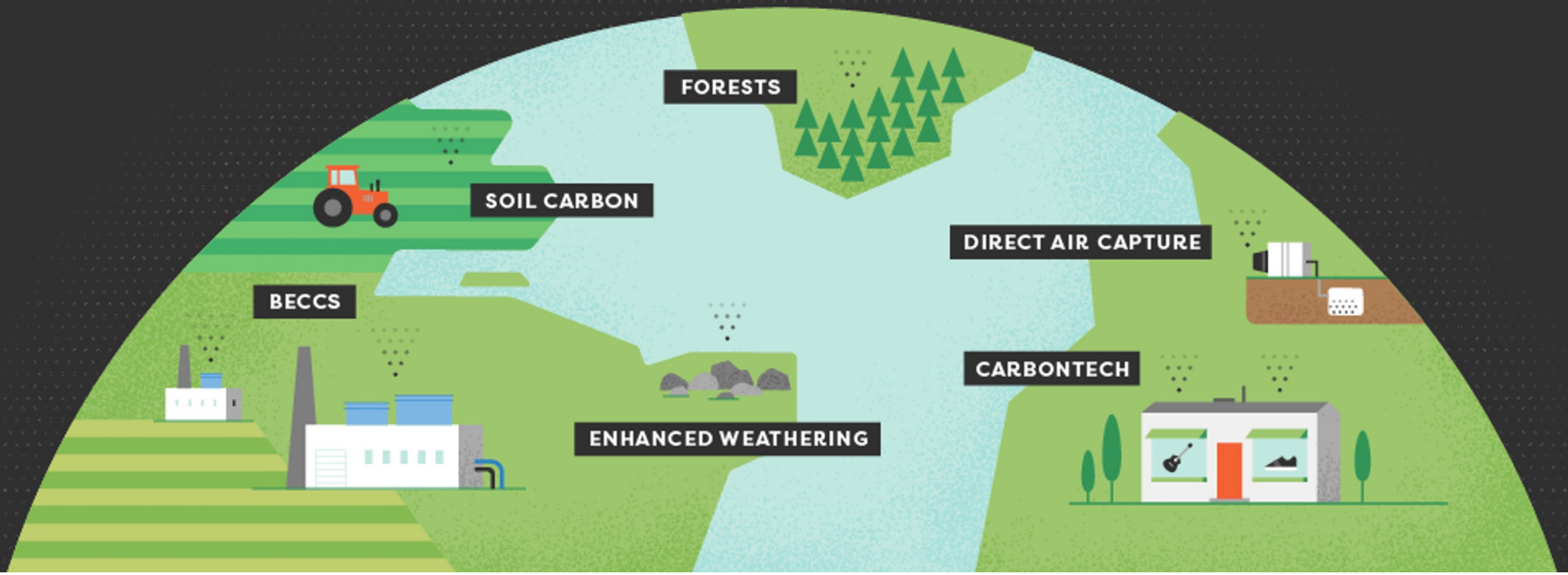
Reversing two centuries of emissions

Carbon180

What is carbon dioxide removal (CDR)?

Carbon dioxide from the atmosphere is removed and stored for hundreds of years.



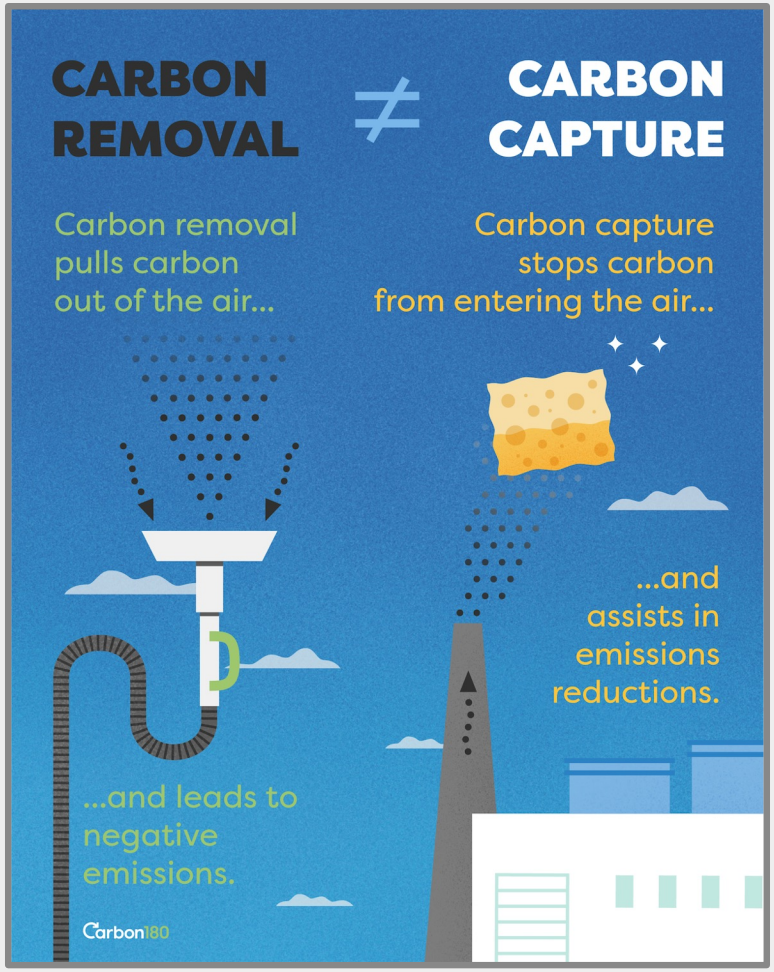
Carbon removal is **not** carbon capture

CDR removes emissions directly from the air

- Uses technological and biological processes
- Stores carbon for long periods of time in rocks, vegetation, the ocean, or in products
- Does not require a point source of emissions to operate

Point-source carbon capture (CCS) stops emissions from entering the air

- Technology attached to a polluting facility or process
- Stores carbon in rocks or products



Why do we need carbon removal?

1. The impacts of climate change are being felt disproportionately around the world, even with rapid emissions reductions, carbon removal will be necessary.

1. We need to get to net-zero emissions to stop warming.
    - It is extremely hard to do this without carbon removal.

1. We are likely to overshoot the Paris goal of 1.5°C.
    - We can’t get back to 1.5°C without carbon removal.

What is it?

Measurement, monitoring, reporting, and verification (MMRV)

Measurement	Monitoring	Reporting	Verification
Collecting physical data on the carbon removal and storage process	Long-term evaluation of the state of stored carbon to determine whether the carbon is safely and permanently locked away	The full picture of a carbon removal project – tons removed, energy consumption, public safety metrics – shared transparently with the public	An open-source, peer-reviewed, third-party protocol to ensure quality removals and reduce risk of fraud

Why is it important?

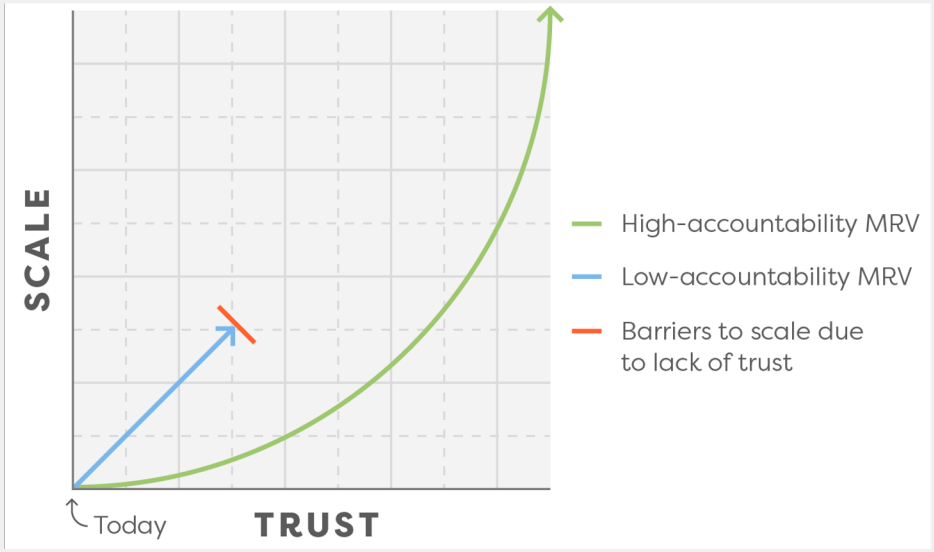
Measurement, monitoring, reporting, and verification

High quality MMRV

- demonstrates to the public that carbon was removed safely and effectively
- Builds trust, unlocking further investments to achieve scale
- minimizes fraud and maximizes public benefit

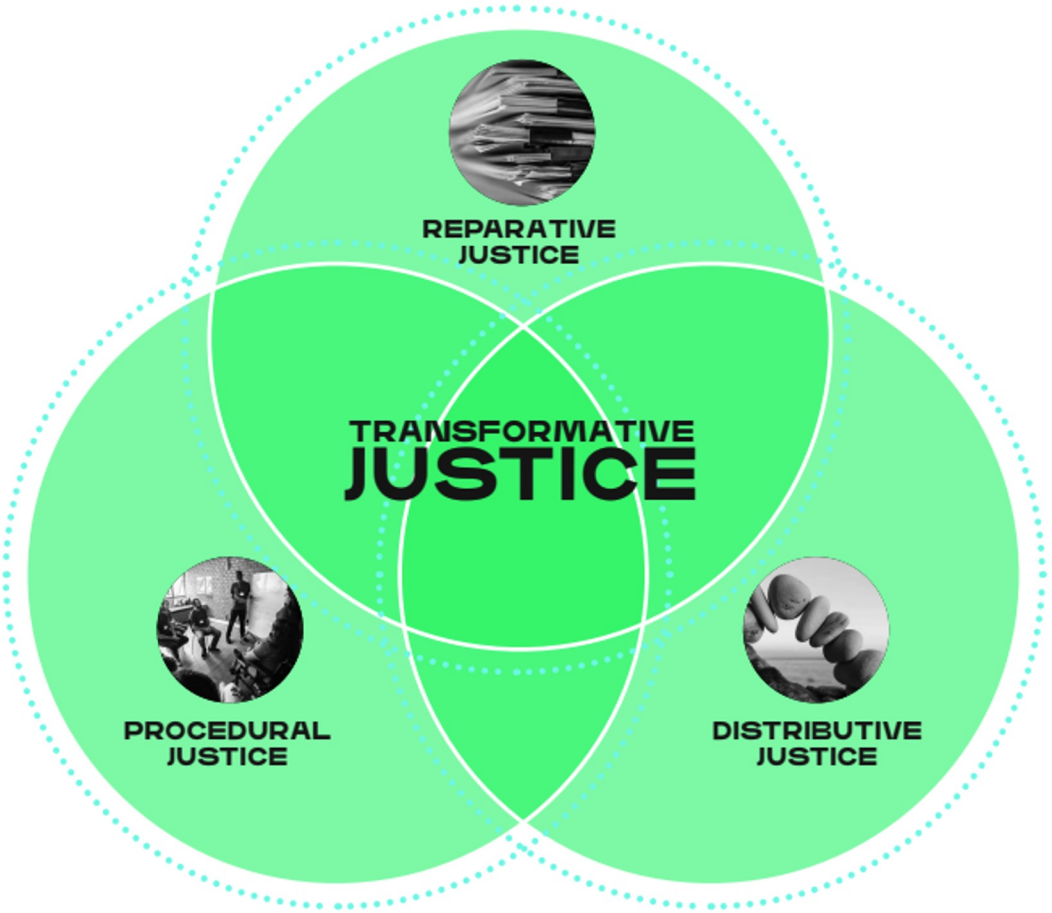
MMRV is fundamental to trust building

Robust MMRV practices and methodologies enable accountability and therefore is critical tool in achieving more just outcomes in the CDR sector



The intersection of justice and CDR

Embedding justice and social considerations is necessary to meet our climate goals.



Guiding Principles as areas for opportunity

1. The benefits of carbon removal solutions must be equitably distributed.

2. Public engagement must be robust and involve seeking input from groups throughout the development and deployment of carbon removal solutions.

3. Safeguards are needed to ensure adverse impacts are not borne by disadvantaged communities.

4. The socioeconomic consequences and distributional impacts of carbon removal solutions need to be evaluated alongside their technological and economic attributes.

5. Carbon removal is seeking to address a challenge that is both local and global, and therefore should incorporate justice across temporal and spatial scales.

ENVIRONMENTAL JUSTICE AND TECHNOLOGICAL CARBON DIOXIDE REMOVAL

LOCAL ENVIRONMENTAL JUSTICE

What are the environmental and public health impacts?

What are community values and priorities?

What is the process to empower the community in project development and implementation?

Who stands to benefit from the project?

GLOBAL ENVIRONMENTAL JUSTICE

Who is most responsible for 'cleaning up' atmospheric carbon?

Who has the most capacity to take on climate mitigation and CDR?

What are the global technology and resource transfer implications?

INTERGENERATIONAL ENVIRONMENTAL JUSTICE

How will decisions around mitigation now impact future generations?

How will decisions around technological CDR now impact future generations?

Batres, et al. 2021. Environmental and climate justice and technological carbon removal. The Electricity Journal.

State and local opportunities

- State legislation on CDR can establish model policies that inform other state and federal policies
  - California SB308 – Establishes a “polluter pays” framework for purchasing CDR
  - Massachusetts S 2096 – Proposes a reverse auction for procuring CDR
  - NY LECCLA S542A – Establishes a climate impact procurement standard for concrete

- At state and local levels, CDR will have specific social, resource, economic, and historical contexts, and by adopting a local approach local governments can leverage unique regional resources and select fit for purpose projects.

Thank you!

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