

CARBON REMOVAL

WHAT IS CARBON REMOVAL?

WHY IS CARBON REMOVAL IMPORTANT?

Under the 2015 Paris Agreement, the international community committed itself to “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C.” In the studies reviewed by the Intergovernmental Panel on Climate Change for their Assessment Report and their Special Report on Global Warming of 1.5°C, most of the pathways to meeting the Paris Agreement’s targets require the world to supplement rapid emissions reductions with at least some form of large-scale carbon removal.

CARBON REMOVAL’S ROLE IN CLIMATE POLICY

While carbon removal could play an important role in limiting climate change, it is not a suitable replacement for cutting greenhouse gas emissions or taking steps to adapt to climate change. Known and proposed methods of carbon removal are too slow-acting, limited in scope, and/or expensive to offset anything like society’s current emissions. When paired with ambitious emissions reductions, carbon removal could make it possible to reach net-zero emissions so that humans are removing one ton of CO₂ from the atmosphere for every ton they emit. Eventually, carbon removal could reach negative emissions, meaning that humanity would remove more CO₂ from the atmosphere each year than it emits, gradually lowering atmospheric CO₂ concentrations.

PROPOSED METHODS OF CARBON REMOVAL

Some proposed methods of carbon removal include: restoring forests; growing or collecting biomass to produce bioenergy and then capturing the resulting carbon emissions; restoring degraded coastal wetlands; building machines to capture CO₂ directly from ambient air and store it underground or in long-lived products; spreading powdered rock that would absorb CO₂ from the air; various methods of storing carbon in the oceans; and managing agricultural lands to increase their soil carbon content.

CO-BENEFITS AND CONCERNS

Method-specific co-benefits and concerns:

GOVERNANCE CONSIDERATIONS

FURTHER READING
