

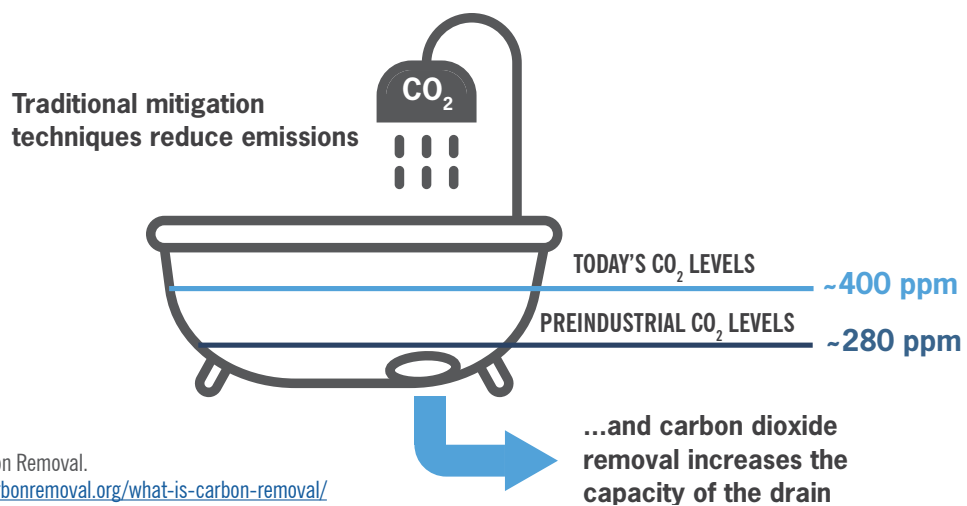
Direct Air Capture: Bridging Policy Goals

While environmental viewpoints differ, carbon dioxide removal approaches, including direct air capture and storage, can bridge diverse policy goals to protect our environment while bolstering U.S. economic growth and leadership in science and technology.



Direct air capture and storage is crucial to meeting global emission targets.

- Carbon dioxide (CO₂) removal is a complementary, and necessary, strategy that can be deployed alongside renewable energy and other greenhouse gas abatement techniques to achieve emission targets.
- Direct air capture and storage will help the United States diversify our approach to limiting greenhouse gas concentrations in the atmosphere.
 - Most [modeling](#) scenarios suggest it will be critical for CO₂ removal technologies like direct air capture and storage to become more widely available alongside existing emission reduction efforts to achieve the international goal of limiting warming to 2 degrees Celsius.
 - If deployed at a large scale, direct air capture and storage can offset emissions from the sectors most difficult to completely decarbonize such as aviation and heavy industry.
 - Existing mitigation options like renewable energy and energy efficiency can reduce current emissions but **cannot** remove CO₂ that has already been released. CO₂ removal approaches like direct air capture and storage create negative emissions, taking some of the existing emissions already emitted out of the atmosphere. In combination with deployment of clean energy technologies, this function will be critical in limiting temperature rise.



Source: Center for Carbon Removal.
<http://www.centerforcarbonremoval.org/what-is-carbon-removal/>

- Direct air capture and storage projects are removing CO₂ from the air and reducing emissions **today** on a small scale.
 - [Carbon Engineering's](#) direct air capture pilot project can remove up to 1 million tons of CO₂ per year per facility—[equivalent](#) to the annual emissions from nearly 216,000 vehicles.
 - But small-scale projects are not enough. More federal research is needed to advance the technology in time to meet global emission targets.



Direct air capture and storage can open new windows for American manufacturing, technology, and markets.

- CO2 removal approaches including direct air capture and storage are the next frontier for American innovation. Investments in innovation are a key pillar in ensuring America's long-term economic growth, technology leadership, and international competitiveness.
 - There is a growing global appetite for technologies and products with reduced emissions, which present opportunities where American businesses can get ahead as global energy needs [rise](#).
 - The United States has an opportunity to lead through innovation—as it has for decades—by investing in advanced technologies like direct air capture and storage.
 - U.S. federal innovation research has generated [billions](#) in economic returns and energy savings for consumers, and investment in direct air capture and storage will continue to generate breakthroughs that push our economy forward.
 - Direct air capture and storage projects are operating successfully today at small scale, but more federal research is needed to improve efficiency and cost to facilitate market growth.
- Direct air capture and storage can help make the U.S. energy mix more efficient and clean, open market opportunities for American businesses, and spur spillover benefits in other industries.
 - Our diverse energy supply is crucial to guarding against supply shocks and price spikes, and direct air capture and storage can make this supply cleaner and more efficient.
 - Investing in CO2 removal will make America more energy independent by putting our byproducts to use. There is a market for CO2 today, which is not just a waste product, but a valuable commodity that is being sold and used to produce cement, fuels, and chemicals.
 - The global market for CO2 was valued at [\\$6 billion](#) in 2015 and is expected to [double in size](#) by 2023 and continue growing, providing a commercialization pathway for direct air capture and storage technology and expanding opportunities for our businesses to enter a growing lucrative industry and compete globally.
 - Technology development often yields spillover benefits, and advances in direct air capture and storage are expected to stimulate advances in materials science and manufacturing that can improve efficiency in existing industries and spur the growth of new ones.



Direct air capture and storage technology has many benefits that warrant support, investment, and resources to facilitate more widespread deployment:

- Technology is modular and can be sited to capture CO2 anywhere, including close to storage sites or centers of demand, minimizing transportation and infrastructure costs.
- Less vulnerable to emission reversal, which is a risk for some land-based CO2 removal approaches in which areas that store carbon, such as a forest, are later converted to other uses and release stored CO2 back into the atmosphere.
- Direct air capture facilities have a relatively small physical footprint.
- Does not require water or arable land, reducing concerns over water and food security.

BOTTOM LINE:

Carbon dioxide removal, including direct air capture and storage, should be included in policy discussions to reduce emissions and increase American competitiveness and economic growth.

