



# Carbontech

Carbontech refers to the wide variety of commercial products made with the CO<sub>2</sub> emissions captured from power plants, biomass, or direct air capture (DAC). There is an estimated \$1 trillion available market in the US alone (and \$6 trillion globally) for carbontech goods, including everything from fuels and plastics to building materials and other industrial products.

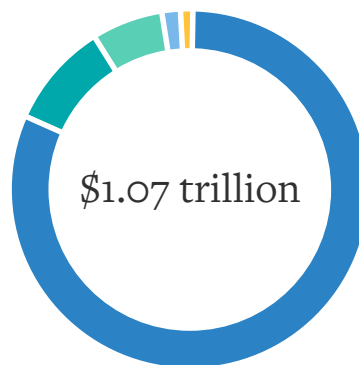
## The economic potential of carbontech

Carbontech encompasses a diverse set of goods and services, including global commodities like fuel, plastics, and building materials as well as valuable niche applications like cosmetics, food, beverages, and emerging technologies like carbon nanotubes.

While some forms of carbontech can permanently sequester CO<sub>2</sub>, others only store it for 20–50 years and cannot be considered true carbon removal. Still, these products can provide a market-based incentive to repurpose removed carbon, which drives down the cost of carbon removal and encourages further research and development (R&D) of carbon removal technologies. And, in the meantime, these products can bring our emissions down by displacing fossil fuels and decarbonizing cement and steel industries.

## Total available market (TAM)

- **TRANSPORTATION FUELS \$882B**  
Gasoline, diesel, jet
- **BUILT ENVIRONMENT \$101B**  
Cement, concrete, asphalt, aggregate
- **PLASTICS \$72B**  
Polyethylene, polypropylene
- **WOOD-BASED PANELS \$13B**  
Plywood, particleboard, oriented strand board
- **CHEMICALS \$2B**  
Fertilizer, feed



## THE INDUSTRY TODAY

The US is home to more carbontech projects than any other country, but there are also ongoing efforts across the globe.

### CarbonCure

A Canadian recycled CO<sub>2</sub> concrete company that has supplied nearly 7 million cubic yards of concrete made from carbon waste to construction projects across the US and Canada.

### Climeworks

A Swiss DAC company that has partnered with Carbfix of Iceland to permanently store their CO<sub>2</sub> underground, where it turns to stone in less than two years.

### LanzaTech

A carbon recycling technology company with headquarters in the US, China, and India that flew a 747 jet from Orlando, Florida to London, England using jet fuel derived from factory CO<sub>2</sub> emissions.

### Solugen

A Texas-based chemical company that uses synthetic biology to develop enzymes that can turn removed carbon into environmentally friendly and carbon neutral resins, surfactants, food additives, and more.



## Carbon wastes



CO<sub>2</sub>



Biomass



Manure



Garbage

## Conversion technologies



Electrochemical



Photochemical



Thermochemical



Bio-catalyzed



Photosynthetic

## Products and services



Fuels



Building Materials



Plastics



Chemicals

## FURTHER READING

### Carbontech: A trillion dollar opportunity

Matt Lucas, Carbon180

### CO<sub>2</sub> Utilization: A Look Ahead

Fatima Maria Ahmad, Center for Climate and Energy Solutions

## REFERENCES

[A Review of Global and U.S. Total Available Markets for Carbontech](#), Carbon180

[Carbon Capture Projects Map, Third Way](#)

[Richard Branson's Virgin Atlantic set to fly a 747 jet with fuel made from factory pollution](#), Catherine Clifford, CNBC

## Current policy support

The majority of federal investment in carbon utilization has been within the Carbon Utilization program at the Department of Energy (DOE), which focuses on early-stage research and development (R&D) and life cycle assessments, techno-economic assessments, and real-world pilot projects.

H.R. 3684, the Infrastructure Investment and Jobs Act, enacted on November 15, 2021, requires the development of standards and certifications for carbontech products and provides grants to state and local governments and public utilities for procuring and using carbontech products.

Other bills signed into law and relevant to carbontech include H.R. 1166/S. 383, the USE IT Act, and H.R. 3227/S. 1679, the SEA FUEL Act. The former requires the Environmental Protection Agency to establish a competitive prize program for DAC technologies and research, develop, and finance methods of carbon utilization. The latter establishes a DAC and ocean carbon removal program at the Department of Defense that focuses on turning captured carbon from the ocean into fuels.

There are also proposals currently in both chambers of Congress that include direct and indirect benefits to carbontech. H.R. 3593/S. 3699, the DOE Science for the Future Act of 2022, is a piece of bicameral legislation that would strengthen investment in scientific research to understand physical, chemical, and biological processes to remove, transform, transport, and sequester CO<sub>2</sub>.

Additionally, H.R. 5179, the NET Zero Act of 2021, would amend the 45Q tax credit to remove the construction deadline for DAC to geologic storage and enforce a 10-year limit for DAC to enhanced oil recovery (EOR), reduce the capture threshold requirements, and increase the credit amount to \$180 for DAC to geologic storage. S. 2836, America's Revegetation and Carbon Sequestration Act of 2021, would incentivize practices to reduce wildfire risk through a voluntary carbon credit system and support expanded research, development, demonstration, and deployment (RDD&D) of innovative wood products like cross-laminated timber and biochar.

Explore today's federal support for carbontech with the [Carbon Removal Policy Tracker](#).

Learn more, donate, and subscribe at [carbon180.org](https://carbon180.org).

