

SOLID CARBON

A rock-solid climate solution

Solid Carbon removes emissions and safely
secures carbon forever.

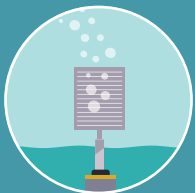
An urgent need

Unrelenting global greenhouse gas emissions have put the entire planet at risk, amplifying human-made and natural disasters—wildfires, heatwaves, droughts, hurricanes, and flooding—that adversely affect economies, communities, environment, and public health. The Intergovernmental Panel on Climate Change reported that the world needs to take “unprecedented” steps to avert the most catastrophic effects of climate change through cutting emissions to zero, and removing massive amounts of carbon dioxide (CO₂) from the atmosphere, a process referred to as negative emissions technology (NET).

How Solid Carbon works

The goal of the Solid Carbon project is to remove atmospheric carbon dioxide via direct air capture and inject it below the impermeable seafloor, where it will react with ocean basalt and mineralize into rock, providing a safe vast, and permanent reservoir for this greenhouse gas. The technology has the potential to scale globally and help reverse the course of carbon dioxide (CO₂) emissions.

Technologies used



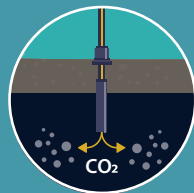
Direct air capture



Ocean floating platform



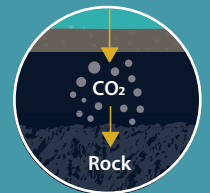
Repurposing offshore
oil & gas technology



CO₂ injection
system



Renewable energy



Mineralization

Big potential

Solid Carbon presents an undeniable opportunity to durably store decades of anthropogenic emissions needed to meet planetary climate targets. Renowned economists and industry experts predict that carbon capture and storage (CCS) could become a \$2-trillion industry by 2050. Since 90% of the world's basalt is beneath the ocean floor, Solid Carbon is globally scalable at different locations where ocean basalt occurs, with a virtually unlimited storage capacity. Cascadia Basin, off Vancouver Island, Solid Carbon's proposed demonstration location, has the potential to store up to 15 years of total global CO₂ emissions.

Ahead of the curve

Six years of modelling and laboratory experiments have demonstrated the feasibility of Solid Carbon, showing that it has the potential to sequester 10+ gigatons/year of CO₂ (up to half what needs to be removed from the atmosphere to limit global warming to 1.5°C). Solid Carbon is supported by the Pacific Institute for Climate Solutions.

The team

Operating for over 17 years, Ocean Networks Canada (ONC) is the world leader in cabled ocean observing, including long-term monitoring at Cascadia Basin—the proposed demonstration injection site for Solid Carbon. Uniquely suited to lead the Solid Carbon project, ONC is providing the monitoring infrastructure needed to measure the success of the demonstration at Cascadia Basin, the best studied ocean basalt site on the planet. ONC leads an international team of some of the world's top scientists, engineers and experts within this space and associated with six renowned universities in Canada, the US and the EU.

Join the solution

The ONC-led Solid Carbon project is ready to advance to a field demonstration at Cascadia Basin, off the west coast of British Columbia, where it can be monitored by ONC's NEPTUNE observatory.

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Scan for more information

Project timeline

- 2017-2018**
'CarbonSafe' feasibility studies
Funded by the US Department of Energy
- 2019-2023**
Research, planning and approvals underway
Research on offshore direct air capture and wind power production
Field demonstration plan creation
Design monitoring. Pursuing regulatory acceptance
Funded by the Pacific Institute for Climate Solutions
- 2025**
Field demonstration on site
- 2030**
Design prototype and manufacturing process
- 2040**
Wide-scale deployment

