

Background

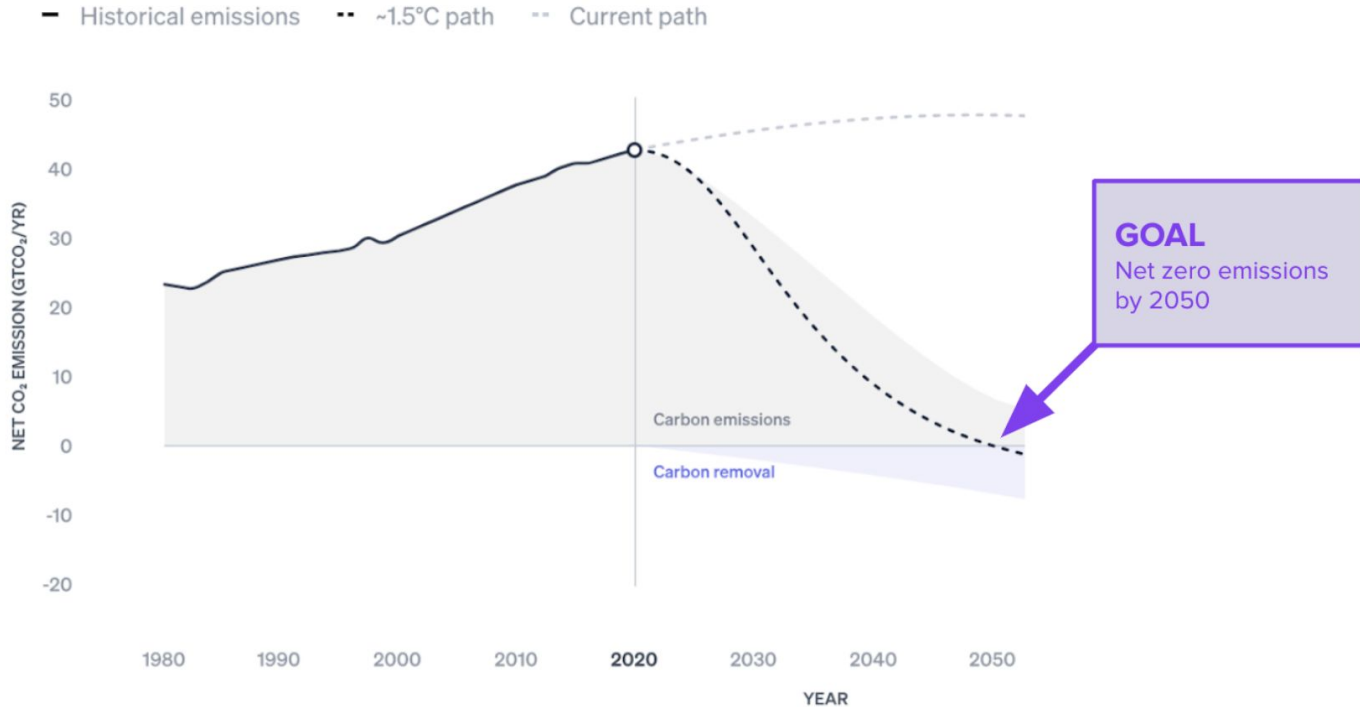
Stripe Climate

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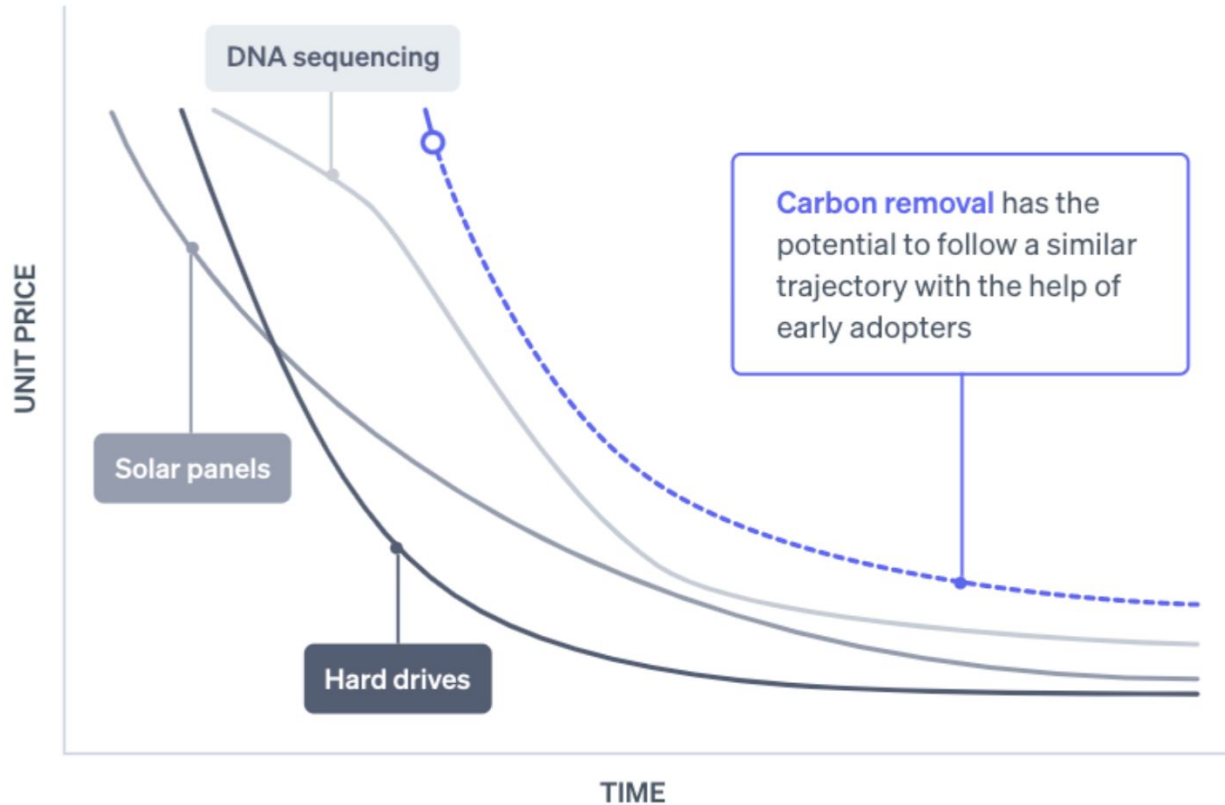
The goal

Limit global temperature increase to:

~1.5°C



Learning curves



Stripe Climate target criteria

	Today	By 2040
Permanence Stores carbon permanently	>1,000 years	>1,000 years
Physical footprint Takes advantage of carbon sinks less constrained by arable land	Yes	Yes
Cost Has a path to being affordable at scale	-	<\$100 per ton
Capacity Has a path to being a meaningful part of the carbon removal solution portfolio	-	>0.5 gigatons per year
Additionality Results in net new carbon being removed rather than taking credit for removal that would have occurred regardless	Yes	Yes
Verifiability Uses scientifically rigorous and transparent methods for monitoring and verification	Modeled or measured directly	Modeled or measured directly
Net negative lifecycle Results in a net reduction in atmospheric CO ₂	Negativity ratio ≤ 1	Negativity ratio < 1
Safety & Compliance Legally compliant, responsibly and actively engaging with the public to determine and mitigate possible risks and negative externalities	Path to high	High

Our 2021 reviewers

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University at Buffalo

Governance

● **Wil Burns, PhD**

American University

Governance

● **Anna Dubowik**

Negative Emissions Platform

Governance

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Energy Systems

● **Erika Foster, PhD**

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Ecosystem Ecology

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Mineralization

● **Steve Hamburg, PhD**

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Direct Air Capture

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Oceans

● **Mijndert van der Spek, PhD**

Heriot-Watt University

Direct Air Capture

Expanded funding structures

R&D grants

for specific, accelerative activities

NEW

Pre-purchase

tons of carbon removal

Purchase renewals

conditional upon achieving milestones

NEW

Summary of 2021 purchases

\$8m

Committed in total, with \$2.75m funded today and \$5.25m in conditional purchase renewals

6

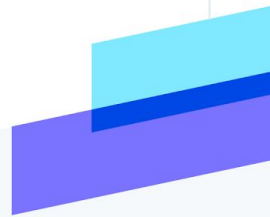
New projects, of which Stripe is the first customer for 4

2K+

Stripe Climate businesses from 37 countries

Carbon Removal

Portfolio





SEACHANGE

Seachange leverages the power and scale of the world's oceans to remove carbon. Their experimental electrochemical process sequesters CO₂ in seawater as carbonates, an inert material comparable to seashells, thereby enabling energy-efficient and permanent CO₂ removal.

Capture Storage



RunningTide

Running Tide removes carbon by growing kelp in the open ocean. After maximum growth, the free-floating lines of kelp sink to the deep ocean where the embodied carbon is stored for the long term. Running Tide's approach is simple and scalable, powered by photosynthesis, ocean currents and gravity.

Capture Storage



CarbonBuilt

CarbonBuilt's process readily converts dilute CO₂ into calcium carbonate, creating a "no compromise" low-carbon alternative to traditional concrete. As a profitable and scalable solution for permanent CO₂ storage, CarbonBuilt's technology platform can serve as a critical component of future carbon removal systems using direct air capture.

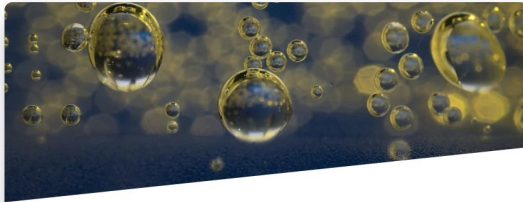
Storage



Heirloom

Over geological timescales, CO₂ chemically binds to minerals and permanently turns to stone. **Heirloom** is building a direct air capture solution that enhances this process to absorb CO₂ from the ambient air in days rather than years, and then extracts the CO₂ to be stored permanently underground.

Capture Storage



MISSION ZERO TECHNOLOGY

Mission Zero electrochemically removes CO₂ from the air and concentrates it for a variety of sequestration pathways. Their experimental room-temperature process can be powered with clean electricity and has the potential to achieve low costs and high volumes using modular, off-the-shelf equipment.

Capture Storage



the future forest company

Future Forest is conducting a field trial to accelerate mineral weathering by crushing basalt rocks into dust, spreading them onto the forest floor, and then measuring CO₂ uptake. This first-of-a-kind trial will help assess the potential for scale as well as the potential ecosystem impacts associated with enhanced weathering.

Capture Storage



climeworks

Climeworks uses renewable geothermal energy and waste heat to capture CO₂ directly from the air, concentrate it, and permanently sequester it underground in basaltic rock formations with Carbfix. While it's early in scaling, it's permanent, easy to measure, and the capacity of this approach is theoretically nearly limitless.

Capture Storage



Project Vesta captures CO₂ by using an abundant, naturally occurring mineral called olivine. Ocean waves grind down the olivine, increasing its surface area. As the olivine breaks down, it captures atmospheric CO₂ from within the ocean and stabilizes it as limestone on the seafloor.

Capture Storage



CARBON CURE

CarbonCure injects CO₂ into fresh concrete, where it mineralizes and is permanently stored while improving the concrete's compressive strength. Today they source waste CO₂, but represent a promising platform technology for permanent CO₂ storage, a key component of future carbon removal systems.

Storage



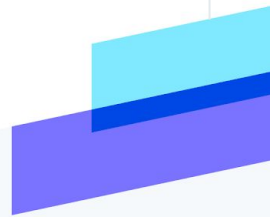
CHARM

Charm Industrial has created a novel process for preparing and injecting bio-oil into geologic storage. Bio-oil is produced from biomass and maintains much of the carbon that was captured naturally by the plants. By injecting it into secure geologic storage, they're making the carbon storage permanent.

Capture Storage

Carbon Removal

Takeaways



Some approaches are making great progress

CHARM
INDUSTRIAL

April 20, 2021

Charm Delivers Stripe's Carbon Removal Purchase Ahead-of-Schedule

Stripe purchased 416 tons CO₂e in carbon removal [from Charm in May 2020](#), as our very first customer. That carbon is now permanently sequestered in geological storage.

 **climeworks**

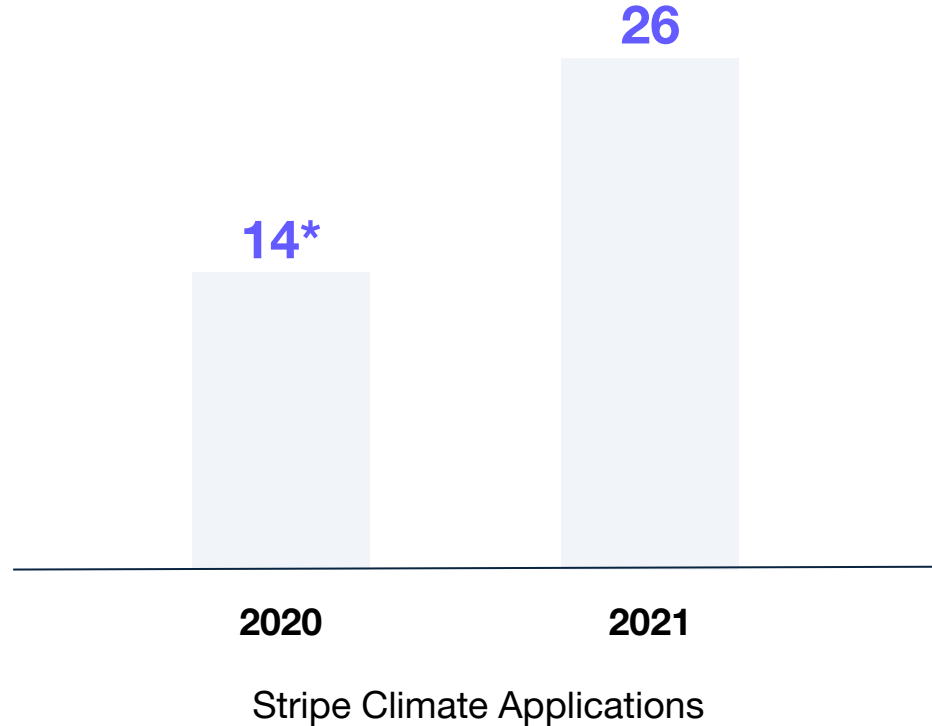
 **climeworks**

Act now

The rapid construction of Climeworks' new direct air capture and storage plant Orca has started

News | 02.12.2020

But the field is growing too slowly



**Excludes projects that did not meet our permanence criteria (ie forestry, etc.)*

We need more creative attempts

- **CDR isn't just DAC**
 - There are promising approaches in:
 - Macroalgae
 - Ocean electrochemistry
 - Surface mineral weathering
 - and more!
- **These companies need derisked demand for permanent sequestration:**
 - Compliance markets can play a critical role helping companies down the cost curve and up the volume curve
- **There aren't nearly enough companies today**
 - Regulatory incentives and government procurement of non-EOR sequestration are critical to quickly establish the carbon removal industry