PitchBook

EMERGING TECH RESEARCH

Carbon & Emissions Tech Report

VC trends and emerging opportunities

Q4
2022

Contents

Institutional Research Group

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For previous updates as well as our complete climate tech research, please see the designated analyst workspace on the PitchBook Platform.

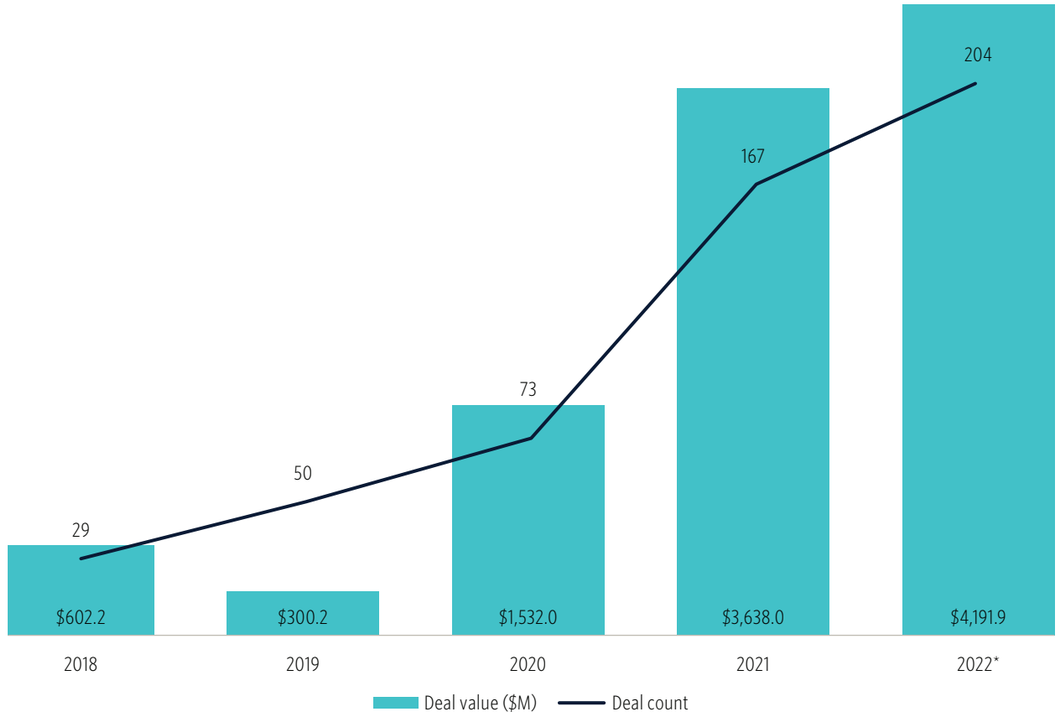
Vertical overview

In many sectors, 2021 represented a record year for VC investment, followed by a fall in deal activity in 2022. However, carbon & emissions technologies defied this trend, with 2021 and 2022 showing almost identical total VC investment in areas including carbon capture, utilization and storage (CCUS), carbon accounting and fintech, industrial decarbonization, land use decarbonization, and built environment decarbonization. This resilience is a product of several factors, including pledges to reduce carbon emissions, and changes to the regulatory environment.

In the US, 2022 saw the passage of the Inflation Reduction Act (IRA)—a climate bill in all but name—and while it's still early to expect substantial change, impacts will be tangible in 2023. From the perspective of carbon & emissions tech, perhaps the largest impacts will be to the various forms of carbon removal, which already saw their highest year of VC investment in 2022. Similarly, the broader carbon tech space saw record investment in 2022, as evidenced by the carbon tech deal activity chart.

In addition to the support that the IRA brings, in Q4 2022 the US also announced the launch of four programs aiming to "help accelerate private-sector investment, spur advancements in monitoring and reporting practices for carbon management technologies, and provide grants to state and local governments to procure and use products developed from captured carbon emissions."[1]

Carbon tech VC deal activity



Source: PitchBook | Geography: Global | *As of December 31, 2022

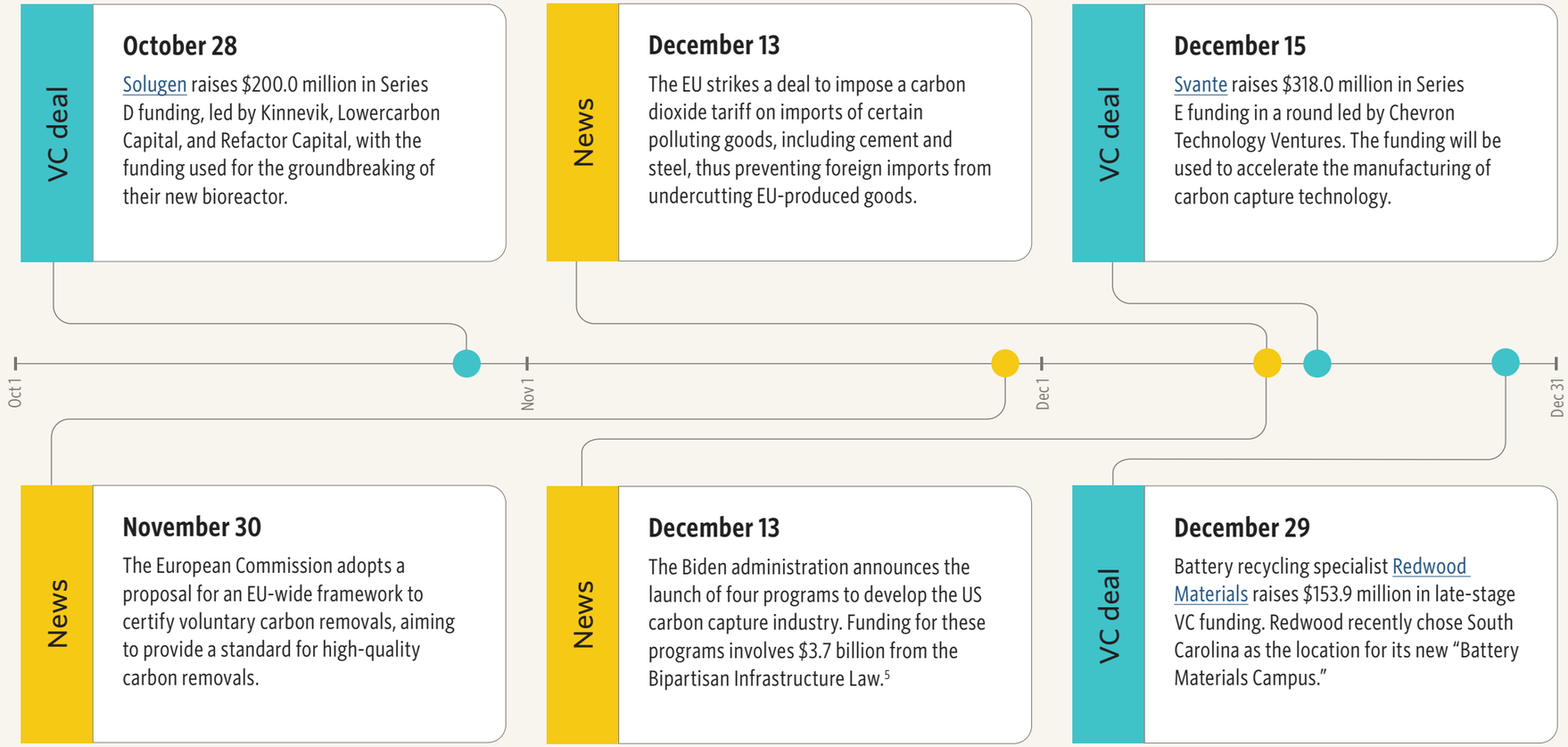
1: "Biden-Harris Administration Announces $3.7 Billion to Kick-Start America's Carbon Dioxide Removal Industry," Department of Energy, December 13, 2022.

VERTICAL OVERVIEW

Looking at European markets, the replacement of Russian fossil fuels has—in some cases—caused an increase in coal use, and this may increase the need for carbon capture if pledges are to be met. Germany, in particular, has returned to coal to replace Russian natural gas,[2] but has also shown interest in advancing carbon capture efforts. In the first week of 2023, the German and Norwegian governments agreed to cooperate in accelerating the deployment of carbon capture and storage technologies—perhaps a necessary step if Germany is to meet its 2045 climate neutrality target.[3] On the wider European stage, the European Commission issued a proposal for the establishment of an EU framework for the certification of carbon removals, aiming to define high-quality carbon removals,[4] thereby increasing confidence in carbon removal certificates.

2: "Energy Crisis Fuels Coal Comeback in Germany," *Reuters*, Vera Eckert and Tom Sims, December 16, 2022.
3: "Joint Declaration - German-Norwegian Partnership on Climate, Renewable Energy and Green Industry," Robert Habeck and Jan Christian Vestre, January 5, 2023.
4: "Proposal for a Regulation of the European Parliament and of the Council Establishing a Union Certification Framework for Carbon Removals," the European Commission, November 30, 2022.

Q4 2022 timeline



Q4 VC deal count summary

180
total deals

-27.1%
QoQ growth

-3.2%
YoY growth

4.3%
YTD growth

Q4 VC deal value summary

$2.9 billion
total deal value

-42.1%
QoQ growth

23.9%
YoY growth

-1.9%
YTD growth

5: "Biden-Harris Administration Announces $3.7 Billion to Kick-Start America's Carbon Dioxide Removal Industry," Department of Energy, December 13, 2022.

Carbon & emissions tech landscape

1. Carbon tech
2. Industry
3. Built environment
4. Land use

Carbon & emissions tech VC ecosystem market map

Click to view the interactive market map on the PitchBook Platform.

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.

Carbon tech

Direct air capture

climeworks, Carbon Engineering, Carbon Capture, ebb carbon, Eion, GreenCap Solutions, UNDO, CAPTURA, REPAIR, HEIMDAL

Point-source carbon capture

Svante, carbon clean, VERDOX, Carbon America, RECARBON, airovation technologies, ORIGEN, C-Capture, aqualung, MOF Technologies

Biological carbon removal

LanzaTech, CO2 NEW LIFE, PERENNIAL, CHARM, GWT, Forest Carbon Works, KOMAZA, Synata Bio, BAMCORE

Carbon accounting/analytics

Watershed, PERSEFONI, measurabl, ENCAMP, Doconomy, EARTHOPTICS, greenly, Cleartrace, CHOOOSE

Carbon fintech & consumer

Xpansiv, LevelTen Energy, Enfuce, Carbon Direct, CarbonCount, SINAI, SWEEP, Aspiration, Carbon Neutral Royalty

Carbon utilization

PROMETHEUS, twelve, CARBON RECYCLING INTERNATIONAL, ECONIC, CEMVITA FACTORY, Blue Planet, Liquid Wind, Deep Branch, carbon8, PLANETARY

Industry

Green mining

BOSTON METAL, Lilac, minesense, SUMMIT NANOTECH, ALLIANCE MAGNESIUM, USA Rare Earth, allonnia, Cornish Lithium, GEOMEGA

Lithium battery recycling

northvolt, REDWOOD MATERIALS, Li-Cycle, ASCEND ELEMENTS, Cirba Solutions, Lithion

Manufacturing and chemicals

BRITISHVOLT, Enerkem, VITAL, Solugen, monolith, VERIOR, PHONONIC, GREATPOWER, H2 green steel, RWDC INDUSTRIES

Recycling - metals

umicore, NOVEON, MOLYWORKS, emr, mint, Umincorp, NTH CYCLE, AVERTANA, scipher

Recycling - polymers

PURECYCLE, nexus, carbonLITE, RENEWCELL, MURA, GEM, INTEGRICO, JEPLAN, irc, ioniqa

Recycling - analytics

RUBICON, AMP ROBOTICS, ROADRUNNER, rts, 弓叶科技 DATABEYOND, Let's Recycle, WasteZero, EVEREST LABS, recykal, reco

Carbon & emissions tech VC ecosystem market map

Click to view the interactive market map on the PitchBook Platform.

Market map is a representative overview of venture-backed or growth-stage providers in each segment. Companies listed have received venture capital or other notable private investments.

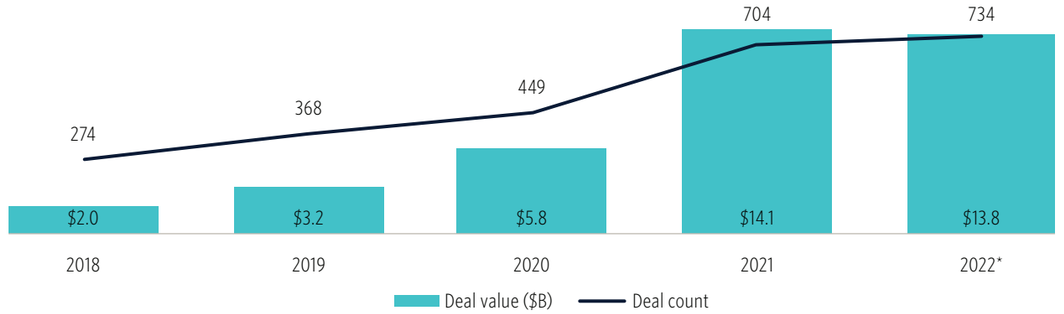
VC activity

At $2.9 billion, Q4 2022 VC deal activity in the carbon & emissions tech space represented a fall from a very strong Q3 of $5.0 billion, though was still higher than any quarter before 2021. While it was a decrease from the previous quarter, it was still enough to bring the full-year 2022 deal value within 2% of 2021's record deal activity, totaling $13.8 billion in 2022, compared to $14.1 billion in 2021. Despite this slight fall in deal value, deal count showed a slight increase in 2022, rising to 734 from 704 in 2021.

The largest carbon & emissions tech deal in Q4 2022 was the $318.0 million Series E raised by Canada-based carbon capture hardware company Svante, in a deal led by Chevron Technology Ventures. The funding from this deal will be used to support a filter manufacturing facility in Vancouver. Also among the largest deals this quarter was green chemical company Solugen's $200.0 million Series D.

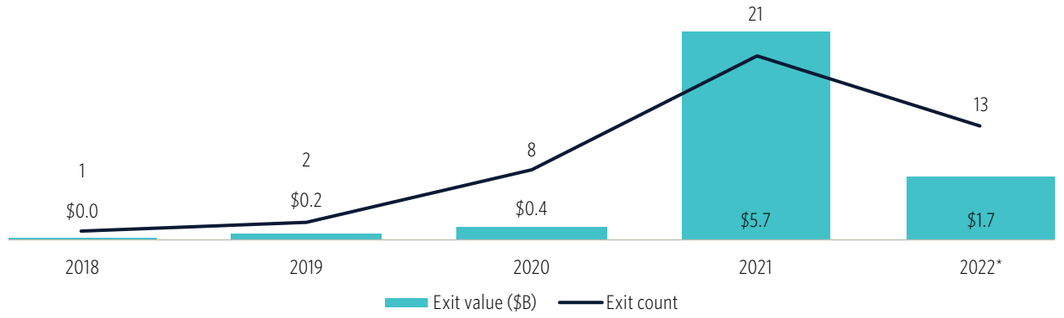
Looking at individual segments, carbon tech had its highest-ever year for VC investment in 2022, with total investment value at $4.2 billion, up from $3.6 billion in 2021. Deal count in carbon tech also reached a new high, with 204 deals in 2022, compared with 167 in 2021. Within carbon tech, increasing VC investment in all forms of carbon capture (point source, direct air, and biological) was enough to offset the decline in carbon fintech investment from 2021. The "industry" segment—including the decarbonization of manufacturing as well as materials generation and processing, plus recycling technologies—was largely flat relative to 2021, with the largest year-to-year shifts being a fall in lithium battery recycling investment, offset by a rise in green chemicals and manufacturing investment. The built environment segment showed a moderate increase to a new high point in 2022, but there was a drop in VC funding for "land use" technologies, in particular for climate and Earth data.

Carbon & emissions tech VC deal activity



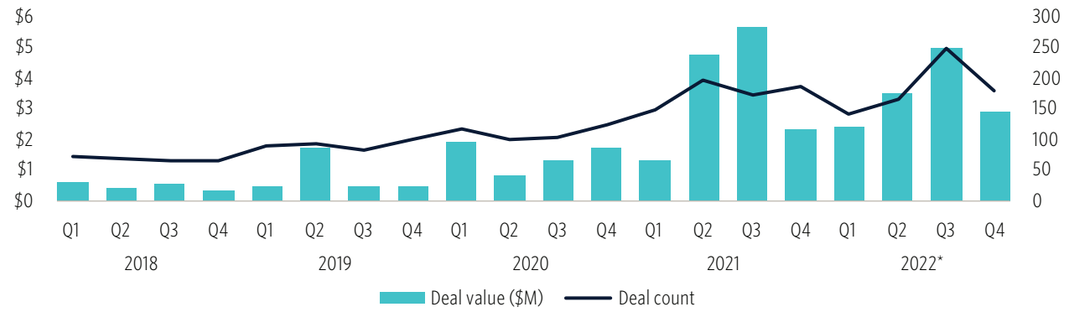
Source: PitchBook | Geography: Global | *As of December 31, 2022

Carbon & emissions tech VC exit activity



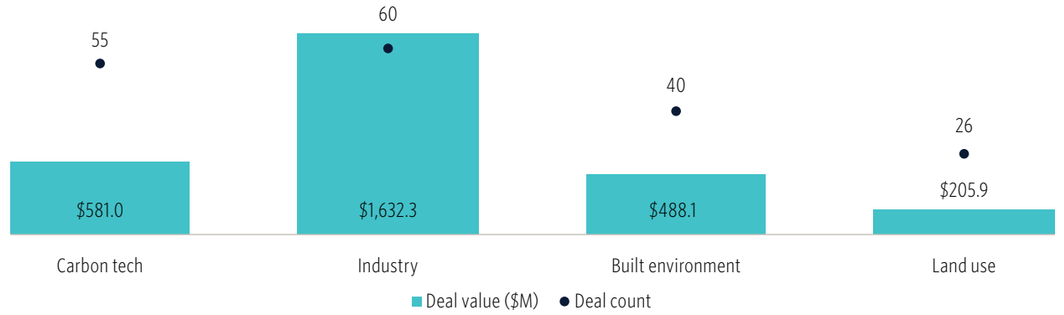
Source: PitchBook | Geography: Global | *As of December 31, 2022

Carbon & emissions tech VC deal activity by quarter



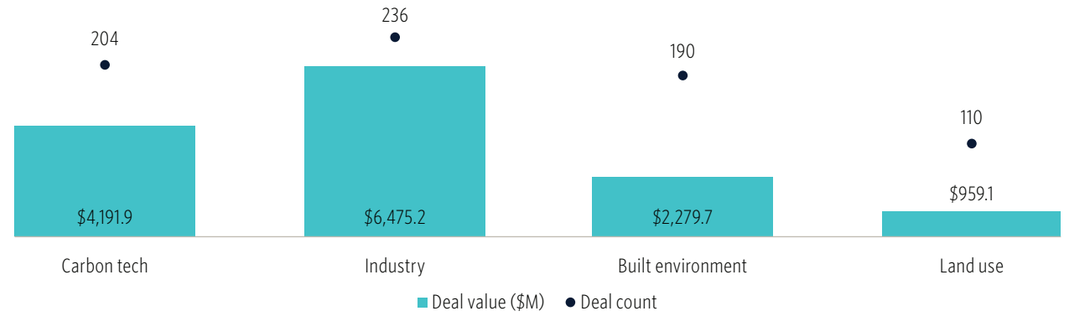
Source: PitchBook | Geography: Global | *As of December 31, 2022

Q4 2022 carbon & emissions tech VC deal activity by segment*



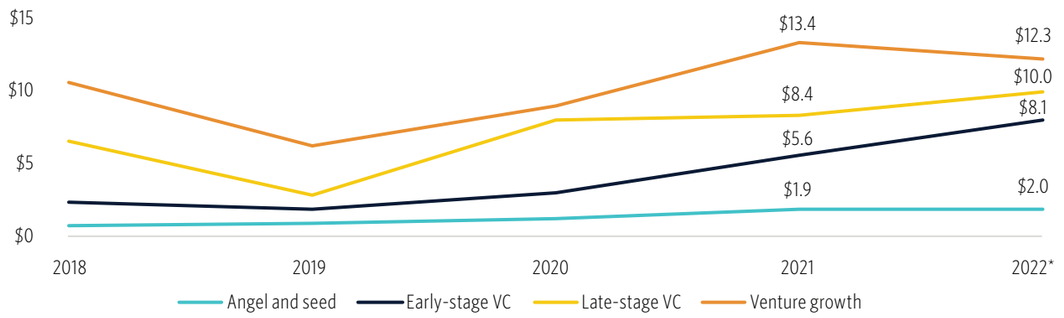
Source: PitchBook | Geography: Global | *As of December 31, 2022

TTM carbon & emissions tech VC deal activity by segment*



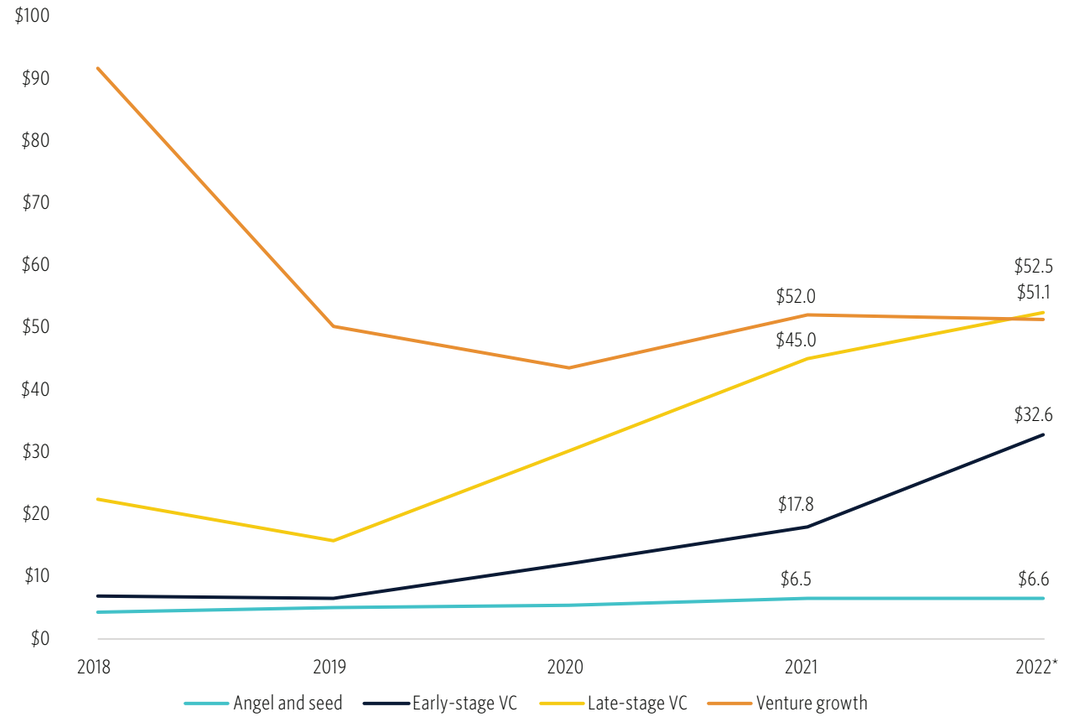
Source: PitchBook | Geography: Global | *As of December 31, 2022

Median carbon & emissions tech VC deal value ($M) by stage



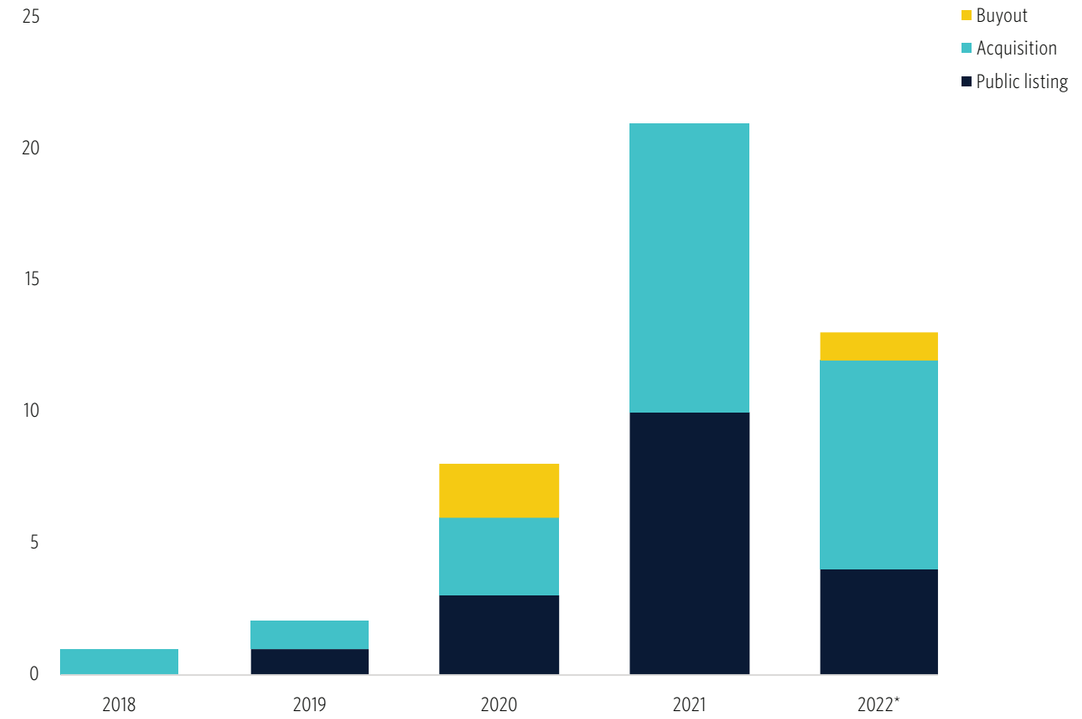
Source: PitchBook | Geography: Global | *As of December 31, 2022

Median carbon & emissions tech VC pre-money valuation ($M) by stage



Source: PitchBook | Geography: Global | *As of December 31, 2022

Carbon & emissions tech VC exit count by type



Source: PitchBook | Geography: Global | *As of December 31, 2022

Key carbon & emissions tech angel and seed VC deals*

Company	Close date (2022)	Category	Stage	Deal value ($M)	Post-money valuation ($M)	Lead investor(s)	Valuation step-up (post to pre)
Jinpu New Energy	December 16	Lithium battery recycling	Seed	$36.8	$75.0	N/A	N/A
Earth Force	October 4	Ecosystem health and monitoring	Seed	$11.0	$31.5	Alley Robotics Ventures	N/A
Neuro Pack	November 10	Manufacturing and chemicals	Seed	$7.0	N/A	N/A	N/A
Kodama Systems	December 15	Ecosystem health and monitoring	Seed	$6.6	N/A	Breakthrough Energy Ventures, Congruent Ventures	N/A
Climatiq	October 14	Carbon accounting/analytics	Seed	$6.0	N/A	Singular	N/A
Urban Machine	December 8	Green construction	Seed	$5.6	N/A	Lowercarbon Capital	N/A
Hysopt	November 17	Building energy efficiency	Seed	$5.3	N/A	N/A	N/A
New Hope Energy	December 28	Recycling - polymers	Seed	$5.0	N/A	N/A	N/A
Carbon Re	November 7	Carbon accounting/analytics	Seed	$4.8	$18.0	Planet Ventures	3.7x
WattCarbon	November 30	Building energy efficiency	Seed	$4.5	$19.5	N/A	2.3x

Source: PitchBook | Geography: Global | *As of December 31, 2022

Key carbon & emissions tech early-stage VC deals*

Company	Close date (2022)	Category	Stage	Deal value ($M)	Post-money valuation ($M)	Lead investor(s)	Valuation step-up (post to pre)
Verkor	November 2	Manufacturing and chemicals	Early-stage VC	$245.9	N/A	N/A	N/A
Reetec	November 8	Manufacturing and chemicals	Early-stage VC	$113.4	N/A	N/A	N/A
Electra	December 11	Manufacturing and chemicals	Early-stage VC	$57.0	N/A	Breakthrough Energy Ventures	N/A
Readline	November 23	Manufacturing and chemicals	Series B	$41.7	$330.5	Co-Stone Capital	N/A
Fairmat	October 1	Recycling - polymers	Series A	$35.0	N/A	Compagnie Nationale à Portefeuille, Temasek Holdings	N/A
Viridios AI	October 28	Carbon fintech and consumer	Series B	$34.9	N/A	ROC Partners	N/A
Samsara Eco	November 2	Recycling - polymers	Series A	$34.2	N/A	N/A	N/A
Aro Homes	November 3	Green construction	Series A	$21.0	$44.3	Innovation Endeavors	84.3x
Creduce	October 19	Carbon fintech and consumer	Series A	$20.0	N/A	N/A	N/A
Basecamp Research	December 1	Ecosystem health and monitoring	Series A	$18.9	$44.0	Systemiq Capital	3.2x

Source: PitchBook | Geography: Global | *As of December 31, 2022

Key carbon & emissions tech late-stage VC deals*

Company	Close date (2022)	Category	Stage	Deal value ($M)	Post-money valuation ($M)	Lead investor(s)	Valuation step-up (post to pre)
Solugen	October 28	Manufacturing and chemicals	Series D	$200.0	$2,175.0	Kinnevik, Lowercarbon Capital, Refactor Capital	1.2x
Redwood Materials	December 29	Lithium battery recycling	Late-stage VC	$153.9	N/A	N/A	N/A
Mura Technology	October 6	Recycling - polymers	Late-stage VC	$104.2	$569.7	N/A	3.8x
RoadRunner	November 15	Recycling - analytics	Series D	$90.0	$1,070.0	Fifth Wall, General Atlantic	4.2x
Syzygy Plasmonics	November 16	Manufacturing and chemicals	Series C	$76.7	$251.4	Carbon Direct Capital Management	2.8x
Dandelion Energy	November 15	Heating and cooling	Series B1	$69.7	$299.7	Lennar Ventures, NGP Energy Technology Partners	1.2x
MycoWorks	October 18	Manufacturing and chemicals	Series C2	$63.0	$583.0	N/A	1.2x
Plant Prefab	December 3	Green construction	Series C	$42.0	$187.0	Gerdau Next Ventures	1.3x
Circ	November 28	Recycling - polymers	Series B2	$35.0	N/A	Breakthrough Energy Ventures	N/A
Runwise	November 3	Heating and cooling	Series A	$25.0	$120.0	Fifth Wall	5.5x

Source: PitchBook | Geography: Global | *As of December 31, 2022

Top VC investors in carbon & emissions tech companies since 2018*

Investor	Deal count
SOSV	39
Prelude Ventures	35
Cycle Capital Management	32
MCJ Collective	29
Enterprise Ireland	28
Climate Capital	25
Khosla Ventures	22
Keiretsu Forum	22
Capricorn Investment Group	19
Sustainable Development Technology Canada	19

Source: PitchBook | Geography: Global | *As of December 31, 2022

Top VC-backed carbon & emissions tech companies by total VC raised to date*

Company	VC ($M) raised to date	Segment	Category
Northvolt	$5,510.1	Industry	Lithium battery recycling
Generate	$3,252.1	Carbon tech	Carbon fintech and consumer
Redwood Materials	$972.5	Industry	Lithium battery recycling
Enerkem	$893.9	Industry	Manufacturing and chemicals
Vital Thin Film Materials	$831.9	Industry	Manufacturing and chemicals
Climeworks	$785.5	Carbon tech	Direct air capture
Crusoe Energy Systems	$708.1	Carbon tech	Carbon fintech and consumer
Veev	$647.0	Built environment	Green construction
Solugen	$637.8	Industry	Manufacturing and chemicals
Monolith	$625.0	Industry	Manufacturing and chemicals

Source: PitchBook | Geography: Global | *As of December 31, 2022

Emerging opportunities

Ocean carbon capture

Ocean carbon removal provides an alternative to terrestrial approaches.

Biopolymers

Biopolymers offer biological approaches to reduce petrochemical consumption.

Ocean carbon capture

Carbon removal efforts have largely focused on terrestrial approaches, whether these are biological in nature or rely on chemical and hardware installations. However, a small group of companies is looking to use ocean-based approaches to remove carbon, essentially trying to enhance the ocean's existing ability to absorb atmospheric carbon. The world's oceans absorb carbon dioxide from the air, and some of this is taken in by oceanic organisms. This process is not limitless, and absorbing carbon dioxide also increases the acidity of ocean water, which is potentially damaging to ocean ecosystems.

As with atmospheric carbon removal, ocean-based approaches are varied. At one end of the spectrum are biological approaches involving essentially the farming of seaweed, which stores carbon that is then sequestered. On the other end of the spectrum, abiotic approaches rely on chemical and mechanical means to capture and store carbon dioxide. Phykos is a startup using a biotic approach by growing seaweed on platforms in the ocean and then sinking it in deep water to sequester carbon over long timescales. Revenue generation for these approaches involves creating and selling carbon offset credits generated by the sinking seaweed, though some challenges exist around verifying ocean carbon credits due to the difficulty in measuring deep ocean environments. Similar approaches involve fertilizing areas of the ocean with nutrients, triggering rapid growth in phytoplankton—photosynthetic microorganisms present in seawater, which capture carbon during photosynthesis—which then fall to the ocean floor as part of a natural process called "the natural carbon pump."[6] There are challenges with this type of approach in that the phytoplankton can have unforeseen effects on natural ecosystems and require careful evaluation to ensure their effects are limited to capturing carbon.

Abiotic approaches are also viable; they include:

- **Ocean alkalinity enhancement**, which involves increasing ocean alkalinity through either the addition of minerals or through electrochemical means. Increasing alkalinity effectively enhances the ocean's ability to absorb carbon dioxide from the atmosplhere. Ebb Carbon uses an electrochemical approach to alkalinity enhancement, providing carbon removal offsets—including $1.5 million of carbon removals purchased by Stripe in December 2021.[7] On October 25, 2022, Ebb Carbon raised $10.8 million in Series A funding.

- **Direct carbon removal**, which is similar to direct air capture in that seawater is extracted, the carbon dissolved in it is removed, and the water is pumped back into the ocean with the captured carbon dioxide ready for either storage or utilization. Captura uses this kind of approach, employing a patented electrodialysis technology powered by renewable energy to extract carbon dioxide from seawater before returning a stream of decarbonized water into the ocean. In late December 2022, Captura raised $12.0 million in Series A funding in a deal led by Equinor Ventures and is currently carrying out ocean trials of its technology as a pilot project.

6: "Multi-Faceted Particle Pumps Drive Carbon Sequestration in the Ocean," HAL, Philip W. Boyd, et al., November 27, 2020
7: "Introducing Ebb Carbon: Turning the Tide on Climate Change," Ebb Carbon, April 14, 2022.

Biopolymers

Alongside their use as fuels, fossil fuels are heavily used as petrochemicals, including as the core component in most plastics and polymers. An alternative is to use polymers originating from biological sources, which take in carbon as they grow. Such plastics are highly varied in their inputs and final composition—in many cases, they can act as analogs to conventional plastics or can have additional properties, such as the ability to biodegrade. Historically, the adoption of bioplastics has been hampered by high costs relative to conventional plastics, but increasing consumer interest in particular is a key driver of bioplastic adoption. Currently, the global bioplastics market accounts for less than 1% of total plastics production,[8] but demand is rising overall, alongside awareness. Outside of plastics, biopolymers are seeing increased uptake for nonplastic uses, such as in foams and textiles.

Manufacturing biopolymers uses a variety of feedstocks, including plant, fungi, and bacterial approaches. This is further expanded by the varied sources within each of these categories—while fungi and bacterial approaches are frequently cultivated specifically to produce biopolymers, for plant matter it is possible to instead rely on waste products, either from agriculture or even municipal waste streams. Because growing plants specifically for biopolymer use is somewhat controversial based on agricultural emissions,[9] water and fertilizer use, and competition with food production, the ability to leverage waste streams is potentially very beneficial, though it does bring scaling challenges.

One of the fastest-growing applications for biopolymers is for textiles and consumer products, including materials for apparel, upholstery, and the automotive industry. The core element driving this is consumer interest in low-impact goods, and several biopolymer companies in Q4 raised venture funding for these applications. One such startup is Natural Fiber Welding, which raised $20.0 million in late-stage VC funding in December 2022. It develops technologies to make a range of biopolymer products, including textiles made from a combination of waste and virgin materials, in addition to an additive that makes natural rubber more suitable as a replacement for conventional synthetic rubber—in this case, aimed at footwear. In a similar implementation, ALT TEX is also developing biopolymer technology—though using chemically regenerated food waste rather than a combination of agricultural waste and virgin plant biomass to produce a polyester alternative.

8: "Bioplastics: Facts and Figures," European Bioplastics, n.d., accessed January 31, 2023.
9: As with crops grown specifically for biofuels

Select company highlights

Svante

Founded
2007

200 employees

Total raised:
$447.2M over six deals

First institutional round:
$9.3M Series A

Last financing:
$318.0M in a Series E

Post-money valuation:
Undisclosed

Overview

Svante is a carbon capture technology provider, developing and providing a solid sorbent carbon capture technology for point source carbon emission,[10] though it has direct air capture applications as well. By using a solid sorbent rather than liquid solvents like alkanolamines, the energy requirements for recharging the carbon capture chemistry are reduced, reducing the overall cost of operation and thus the cost per ton of carbon dioxide captured. In particular, Svante uses metal-organic frameworks that are recharged using low-pressure steam as part of a patented temperature-swing process. The modular nature of Svante's carbon capture allows flexible scaling for installations, and Svante focuses solely on providing technology to carbon emitters rather than operating carbon removal projects themselves. In June 2022, groundbreaking began on Svante's newest facility in Burnaby, British Columbia, to be used to scale up commercial manufacturing of Svante's hardware.

In Q4 2022, Svante raised $318.0 million in Series E funding, with Chevron Technology Ventures as the lead investor, along with 13 other investors, some existing and some new. This funding round will be used to accelerate the manufacturing of carbon capture hardware and follows a pilot project from Chevron using Svante's technology for carbon capture.

10: A solid material with high surface area that carbon dioxide can bind to

Leadership

- **CEO:** Claude Letourneau
- **CFO:** Matthew Stevenson

Competing technologies

Carbon capture approaches are highly varied at the moment, with most variations between approaches in the chemical methods used. The most mature approach uses a liquid alkanolamine solvent—usually monoethanolamine—which is then recharged using a temperature-swing process. Though it has been in use for a long time—originally developed to remove carbon dioxide from fossil fuel streams in the oil and gas industry—the energy requirements are fairly high, and the solvent slowly degrades with use and exposure to impurities. Solid sorbents like those developed by Svante reduce some of these problems and have seen adoption and development in many forms by companies including Climeworks, although Climeworks has a different business model that relies on building carbon removal installations rather than directly selling the technology. Other methods and chemistries that allow chemical regeneration through electrochemical means are currently growing in adoption, as they offer potentially low energy requirements. However, these approaches are somewhat recent and are generally yet to be commercialized.

Financing history

Series A	Series B	Series B2	Series C	Series D	Series E
June 1, 2012	**July 30, 2014**	**July 11, 2017**	**June 25, 2019**	**March 18, 2021**	**December 15, 2022**
Deal size: $9.3M	**Deal size:** $11.3M	**Deal size:** $7.6M	**Deal size:** $26.0M	**Deal size:** $75.0M	**Deal size:** $318.0M
Post-money valuation: N/A	**Post-money valuation:** N/A	**Post-money valuation:** N/A	**Post-money valuation:** N/A	**Post-money valuation:** N/A	**Post-money valuation:** N/A
Lead investor: The Roda Group	**Lead investor:** Chrysalix Venture Capital	**Lead investors:** Cenovus Energy, Husky Energy	**Lead investors:** BDC Industrial, Clean and Energy Technology Venture Fund, OGCI Climate Investments	**Lead investors:** Chart Industries, Temasek Holdings	**Lead investors:** Chevron Technology Ventures

Founded
2013

160 employees

Total raised:
$256.2M over four deals

First institutional round:
$17.0M Series A

Last financing:
$65.0M in a Series C2

Post-money valuation:
$583.0M

Overview

MycoWorks is a biomaterials company focusing on producing textiles from fungal mycelium—a fungal, root-like structure consisting of chitin-based branching threads—producing a product sometimes described as "mushroom leather."[11] MycoWorks makes a distinction between standard mushroom leathers and its product, though, based on the process and technology used to create the final product, which is a low-impact material. "Traditional" mushroom leathers generally rely on growing fungal mycelium and compressing it, often using glues or resins to provide additional structural benefits, to then be made into textiles or solid structures used in applications like furniture-making or construction. MycoWorks uses a different approach that engineers the growth of mycelium strands, thus allowing increased strength and durability relative to standard mushroom leathers. In addition to improving strength, the technology can also allow for finer control over properties like flexibility, density, and texture.

After producing the mycelium product, MycoWorks uses a partner to finish the product into its final state, determining the color and surface texture. The mycelium product is then sold to be used in collaborations, including one with Hermès since 2021 to make high-end bags, wherein it was chosen due to its properties as a viable leather substitute that has a lower environmental impact than plastics. MycoWorks raised $65.0 million in Series C2 funding in October 2022, following its Series C funding in January 2022. It will use the funding to develop its "Fine Mycelium" approach and target applications in automotive design.

Leadership

- **CEO:** Matthew Scullin
- **COO:** Douglas Hardesty
- **CTO:** Philip Ross
- **Chief of Staff and Culture:** Sophia Wang
- **Chief of Product:** Mike Todd
- **Chief Infrastructure Development Officer:** Mike Lindheim

11: "Advanced Materials From Fungal Mycelium: Fabrication and Tuning of Physical Properties," *Nature*, Muhammad Haneef, et al., January 24, 2017.

Competing technologies

MycoWorks' specific product operates in a somewhat niche space, producing fungus-derived polymer products aimed at the textiles and consumer products industry. As mentioned in the emerging opportunities section, other biopolymer textiles such as those from Natural Fiber Welding and ALT TEX compete in a similar space, as do those of AMSilk, though the specific use within the wider textiles context differs. On a less specific level, polymer recycling technologies also generate low-carbon polymers, many of which are used in similar end products, including consumer and fashion products, among others.

Within the polymer recycling space, several approaches are used to produce low-carbon textiles, including those that convert conventional plastic waste into raw plastic fibers that can then be used to make products. Alternative approaches that convert polymer-rich recycling streams into virgin feedstocks for polymer production also allow low-carbon materials creation without the degradation or purity concerns that exist with conventional recycling.

Financing history

Series A	Series B	Series C	Series C2
February 25, 2020	**October 13, 2020**	**January 6, 2022**	**October 3, 2022**
Deal size: $17.0M	**Deal size:** $45.0M	**Deal size:** $125.0M	**Deal size:** $65.0M
Post-money valuation: $30.0M	**Post-money valuation:** $125.0M	**Post-money valuation:** $450.0M	**Post-money valuation:** $583.0M
Lead investor: DCVC Bio Ventures	**Lead investors:** DCVC Bio Ventures, WTT Investment	**Lead investor:** Prime Movers Lab	**Lead investor:** Crentech Gamma

About PitchBook Emerging Tech Research

Independent, objective and timely market intel

As the private markets continue to grow in complexity and competition, it's essential for investors to understand the industries, sectors and companies driving the asset class.

Our Emerging Tech Research provides detailed analysis of nascent tech sectors so you can better navigate the changing markets you operate in—and pursue new opportunities with confidence.

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