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EMERGING TECH RESEARCH

VC Investment in Climate Tech

Climate tech VC deal value falls for the third consecutive year

PitchBook is a Morningstar company providing the most comprehensive, most accurate, and hard-to-find data for professionals doing business in the private markets.

Key takeaways

- **Climate tech VC deal value continues to fall:** Climate tech VC investment fell for the third consecutive year in 2024, reaching $37.8 billion—down 37.6% from the vertical's 2021 peak. Relative to 2023 deal activity, 2024's deal value fell 21.7% while deal count fell by a more modest 11.3%. Some of this decline is in line with broader VC deal activity trends.

- **North America remained the largest market for climate tech VC in 2024, outpacing Europe and Asia with $16 billion in deal value:** The North American investment was marked by uneven growth, with segments such as dispatchable energy and hydrogen infrastructure seeing gains while others like lithium batteries declined sharply.

- **Data from early 2025 suggests similar deal activity to that of 2024:** Q1 2025 VC deal value, at $9 billion, held somewhat steady relative to the 2024 quarterly average, though deal count dropped 13.6%. Q1's deal value, however, was dominated by a few large fusion and nuclear energy deals. Large deals continue to shape annual totals. In 2024, 72 deals exceeded $100 million, with low-carbon mobility and grid infrastructure leading in high-value rounds.

- **Supply chain and policy risks continue to impact investment priorities:** Tariffs and global supply chain instability are creating challenges for climate tech development and adoption, particularly for US-based companies reliant on nondomestic mineral supply chains. For some specific areas within climate tech, these challenges are more of a tailwind, driving interest in technologies such as those for alternative mineral sourcing and nonlithium battery chemistries.

- **AI applications within climate tech continue to develop:** AI applications are growing in climate tech, from optimizing battery performance and the predictive maintenance of energy infrastructure to automating waste sorting and validating carbon credit projects. Falling costs for high-granularity aerial and satellite data—commonly used in the climate tech space—are increasing demand for AI data processing.

Vertical overview

"Climate tech" is a broad term, and exact definitions of climate technologies and applications vary. Many see climate tech as the successor of "cleantech 1.0," which is defined as the period of rising and then falling VC investment into climate change mitigation and adaptation technologies from 2006 to 2011. Others use climate tech and cleantech interchangeably, though even these definitions will vary with the technologies and segments involved, with some rigidly conforming to coverage of mitigation technologies while others include adaptation-focused tech and adjacent areas such as water tech, soil pollution remediation, and the like. This note combines two analyst-curated verticals—carbon & emissions tech and clean energy—and adds climate-relevant categories from the mobility tech and foodtech sectors to provide a broad view of the climate tech space. This analyst note is an update to our Q1 2024 Analyst Note: VC Investment in Climate Tech, and as such, we define the climate tech space as inclusive of the following segments:

- **Carbon tech:** Carbon capture, utilization, and storage technologies—including point-source carbon capture, direct air capture, and biological carbon removal—plus carbon accounting software and carbon trading technologies.

- **Industry:** Industrial decarbonization through alternatives to petrochemicals, low-carbon mining approaches, low-carbon metal production, recycling technologies, and technologies that improve industrial efficiency and energy management.

- **Built environment:** Technologies that reduce carbon emissions from the built environment either during construction or through improvements to the postconstruction energy efficiency of buildings.

- **Land use:** Technologies to monitor and reduce emissions from nonindustrial or commercial land, including technologies that offer fertilizer alternatives, emissions leak detection, monitoring of land-use changes, and soil pollution remediation.

- **Intermittent renewable energy sources:** Energy generation technologies reliant on solar and wind energy, including energy generation hardware, structural support technologies, sensing and monitoring solutions, and analytics.

- **Dispatchable energy sources:** Low-carbon energy generation through geothermal, hydropower, and nuclear technologies.

- **Clean fuels:** Generation of low-carbon fuels, including hydrogen, biofuels, and waste-to-energy/fuels as well as air-to-fuel approaches. This also includes hydrogen infrastructure, covering transport and storage technologies plus fuel cell production.

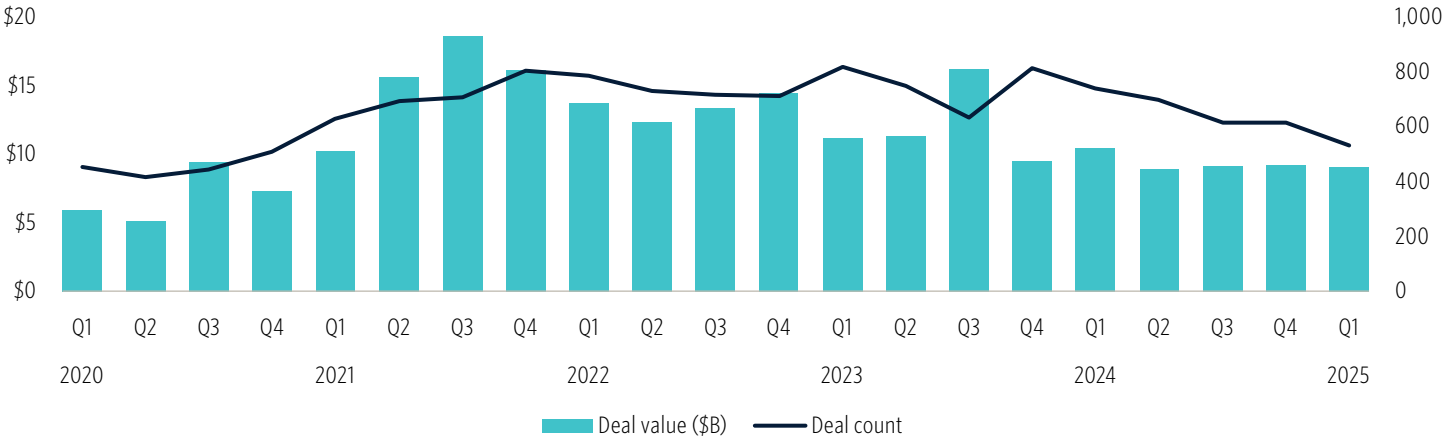
- **Grid infrastructure:** Technologies to improve the efficiency, stability, and resilience of electrical power grids and better incorporate nontraditional energy sources. Energy storage technologies are included in this segment.

- **Low-carbon mobility:** Low-carbon air, land, and sea vehicles, largely involving battery or clean fuel technologies.

- **Sustainable foods:** Foods that result in lower levels of carbon dioxide emissions, often with a heavy focus on alternative sources of protein. This segment also includes more environmentally sustainable packaging materials.

Since the 2024 edition of this note, some elements of the segmentation have been updated and expanded, including the addition of dedicated categories for voluntary carbon market infrastructure, soil pollution remediation, and low-carbon manufacturing & industrial processes. In addition to this, the battery energy storage space has been expanded to distinguish between lithium-based and nonlithium batteries, and the hydrogen category has been similarly split into green hydrogen production, other low-carbon production pathways, and infrastructure for hydrogen adoption.

Climate tech VC deal activity by quarter



Source: PitchBook • Geography: Global • As of March 31, 2025

Climate tech VC ecosystem market map

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

This market map is an overview of venture-backed or growth-stage companies that have received venture capital or other notable private investments.

1 Carbon tech

Carbon accounting/analytics

Carbon fintech & consumer

Biological carbon removal

Point-source carbon capture

Direct air capture

Carbon utilization

Voluntary carbon market infrastructure

2 Industry

Green mining

Recycling - analytics

Lithium battery recycling

Recycling - metals

Green chemicals & materials

Recycling - polymers

Low-carbon manufacturing & industrial processes

3 Sustainable foods

Cultivated proteins

Insect farming

Fermented proteins

Plant-based proteins

Food waste & traceability

Sustainable packaging

4 Low-carbon mobility

Terrestrial/marine battery electric vehicles (BEVs)

Electric vehicle (EV) components

Hydrogen EVs

Electric air vehicles

EV charging

5 Dispatchable energy sources

Geothermal

Nuclear fission

Hydropower

Nuclear fusion

6 Clean fuels

Hydrogen production (green)

Hydrogen production (other)

Hydrogen transport, storage & fuel cells

Biofuels

Waste to energy/fuel

Clean conventional fuels

7 Built environment

Building energy efficiency

Green construction

Heating & cooling

8 Land use

Climate/Earth data

Ecosystem health & monitoring

Fertilizer alternatives

Soil pollution remediation

9 Intermittent renewable energy sources

Solar photovoltaic

Solar thermal

Wind

10 Grid infrastructure

Analytics & grid management

Lithium batteries

Nonlithium batteries

Alternative energy storage

VC deal activity

VC investment into climate tech fell for the third year in a row in 2024, which saw $37.8 billion in VC deal value, down from the peak of $60.6 billion in 2021. 2024's deal value marked a YoY decline of 21.7%, which is larger than the declines of 11% and 10.6% from 2021 to 2022 and 2022 to 2023, respectively. Some of this decline is in line with broader VC deal activity trends. European VC deal activity also fell every year from 2021 to 2024,[1] and US dealmaking showed a steep decline in deal value from 2021 to 2023, though it grew from 2023 to 2024.[2] This growth in overall US VC deal value from 2023 to 2024 is not reflected in climate tech deal value—North American climate tech VC deal value fell from $17.3 billion in 2023 to $16 billion in 2024. Uncertainty over the short and long term regarding policy and support for climate tech—alongside supply chain uncertainty—is likely a significant factor in the lack of growth in North American climate tech investment in 2024 despite the growth in overall US VC deal value. Looking more generally at the regional breakdown, North America still accounted for the largest share of climate tech deal value in 2024 at $16 billion, which exceeded Europe's $11.1 billion and Asia's $9.8 billion. Oceania was the only other region that exceeded $0.5 billion, totaling $0.6 billion in 2024 VC deal value.

Deal counts in climate tech remained somewhat flat from 2021 to 2024, varying between a low of 2,677 in 2024 and a high of 3,018 in 2023. Looking at VC deal activity by stage, the average annual deal count from 2020 to 2024 was similar for early-stage and late-stage totals, at 866 and 871, respectively. The pre-seed/seed stage averaged 763 deals annually over the same period, while venture growth averaged 160 deals annually. Late-stage deal value accounted for 42.6% of the total in 2024, down from 51.9% in 2023.

In Q1 2025, VC deal value for the climate tech space was roughly flat at $9 billion compared with the quarterly average of $9.4 billion for the previous four quarters. If quarterly deal value remains flat, this puts 2025 on track to see $36.1 billion in total

1: For further coverage of the European VC market, see our Q1 2025 European Venture Report.
2: For further coverage of the US VC market, see the Q1 2025 PitchBook-NVCA Venture Monitor.

VC deal value in the climate tech space. Deal count fell 13.6% in Q1 2025, however, from 618 to 534. Q1 2025's deal value skewed toward the dispatchable energy sources segment, which saw $2.3 billion in quarterly deal value, followed by the industry segment at $1.4 billion—the only other space with a total deal value greater than $1 billion. The dispatchable energy sources segment typically varies strongly in quarterly deal value, as it contains relatively few companies raising large rounds. In Q1 2025, more than half of the segment's deal value came from Pacific Fusion's $900 million Series A and X-energy's $682.4 million Series C1. These were the two largest deals of the quarter, which saw 13 deals of $100 million or more.

The five largest climate tech deals of Q1 2025 were:

- Pacific Fusion's $900 million Series A, which was initially announced in Q4 2024. The funding will be used to continue developing the company's pulsed magnetic fusion designs and components.

- X-energy's $682.4 million Series C1. The US-based nuclear fission technology developer will use the investment to finalize the design of its reactor and develop its TRISO-X fuel fabrication facility.

- Reneo's $624.3 million Series B, which consisted of a combination of debt and equity. The funding will be used to continue the company's identification, modernization, and decarbonization of stranded real estate assets.

- KoBold Metals' $537 million Series C, which will be used to continue mineral exploration efforts, including mining a copper deposit in Zambia. The round will also further fund the company's use of AI tools and hardware for subsurface mapping to identify mineral deposits.

- Helion's $425 million Series F, which is intended to continue the company's fusion reactor construction and component manufacturing.

The median pre-money valuation in the climate tech space was relatively flat from 2022 to 2024, varying between $17.9 million and $19 million, following strong growth from $10.2 million in 2020. The median deal value in the climate tech space has grown over the past five years, increasing every year from $2.1 million in 2019 to $4.7 million in 2024. Within this period, median deal values for pre-seed/seed and late-stage VC increased slightly from 2022 to 2024, whereas the median early-stage deal value decreased from $6.3 million in 2022 to $4.7 million in 2024. Climate tech exit value has been extremely limited in the past few years following a very strong year in 2021, in which strong market conditions coincided with maturing technologies in the low-carbon mobility segment. That segment accounted for 83% of the $104.7 billion in VC exit value in 2021.

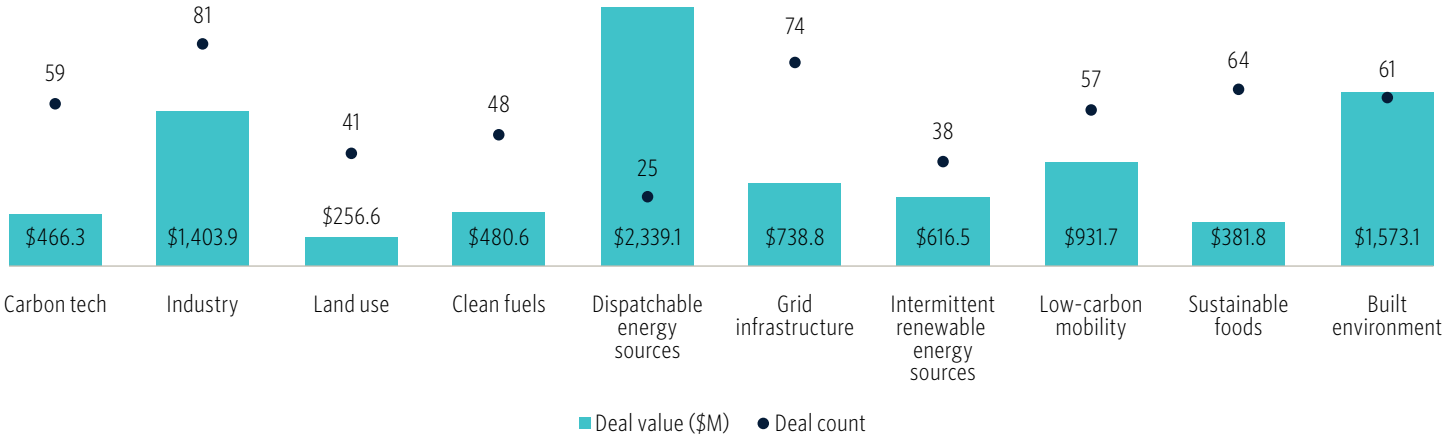
In 2024, the four largest segments by VC deal value were:

- **Low-carbon mobility:** $8 billion raised across 225 deals.
- **Grid infrastructure:** $5.7 billion raised across 369 deals.
- **Industry:** $4.4 billion raised across 383 deals.
- **Clean fuels:** $4.3 billion raised across 243 deals.

Looking at individual categories, terrestrial/marine BEV technologies secured the highest level of VC funding in 2024, at $4.5 billion in deal value, up 14.5% from $3.9 billion in 2023. This was followed by solar photovoltaics at $3.7 billion and lithium batteries at $2.5 billion, though both of these categories declined in deal value relative to 2023, falling 37.4% and 51.3%, respectively. Several categories saw substantial growth from 2023 to 2024, including clean conventional fuels, which grew 595% from a four-year low of $147.7 million in 2023 to a record high of $1 billion in 2024. Hydrogen infrastructure, including transport, storage, and fuel cell production, also saw strong YoY growth of 213% to $1.3 billion in 2024 after a substantial decline from the high-water mark of $1.5 billion in 2022 to $426.9 million in 2023. Nonlithium batteries also saw strong YoY growth, coming in at a record high of $1.4 billion in 2024, growing 171.4% from $511.9 million in 2023.

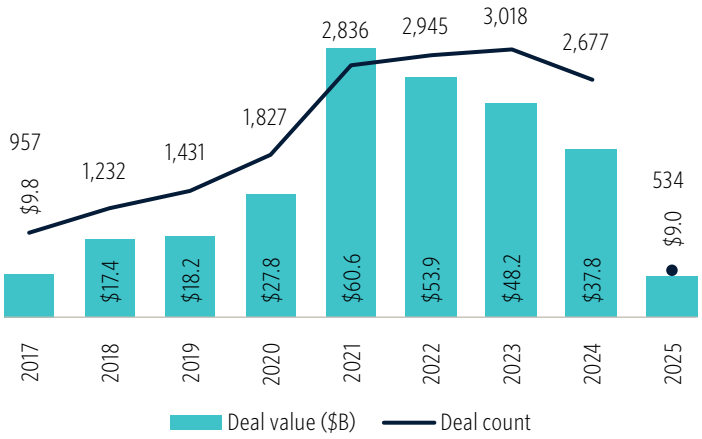
A small number of large deals typically have a strong influence when looking at the year-to-year deal value of specific climate tech categories. 2024 saw 72 deals of $100 million or more and 20 deals larger than $250 million. Of the 72 deals of $100 million or more, 21 were raised by low-carbon mobility companies, followed by 11 deals for grid infrastructure technology developers.

Trailing 12-month (TTM) climate tech VC deal activity by segment



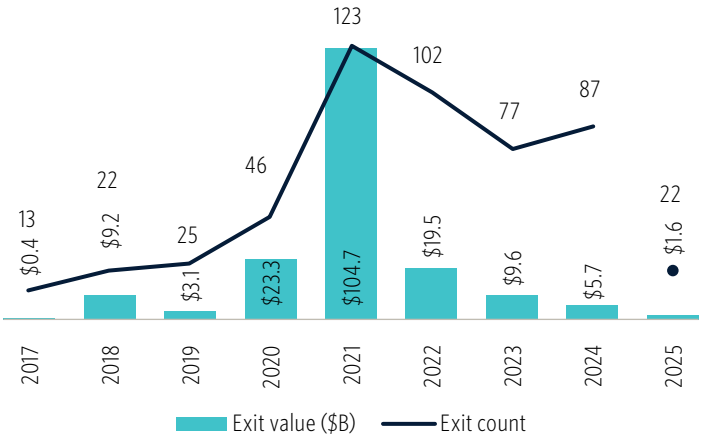
Source: PitchBook • Geography: Global • As of March 31, 2025

Climate tech VC deal activity



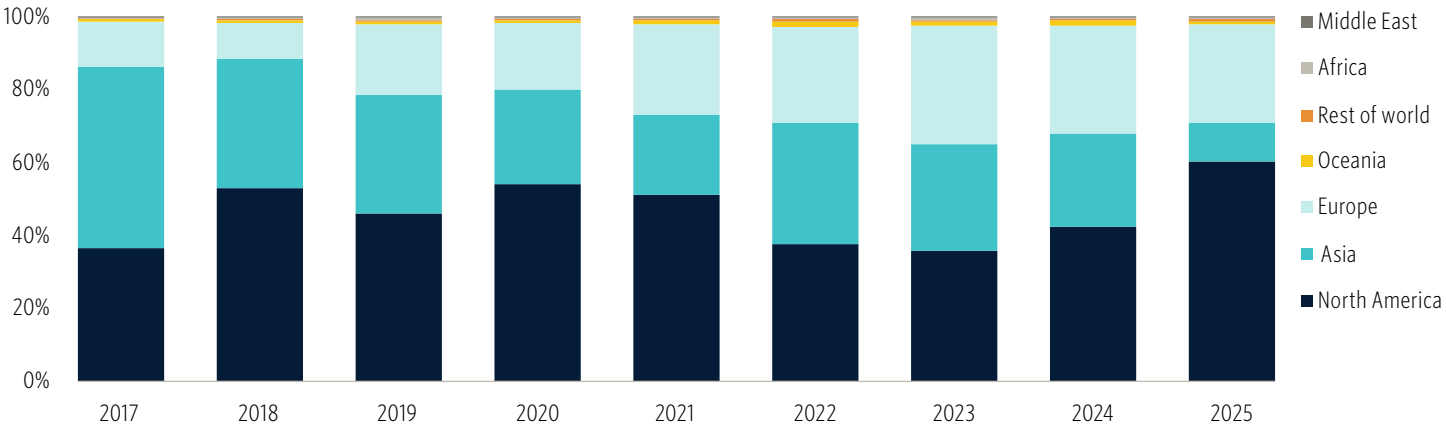
Source: PitchBook • Geography: Global • As of March 31, 2025

Climate tech VC exit activity



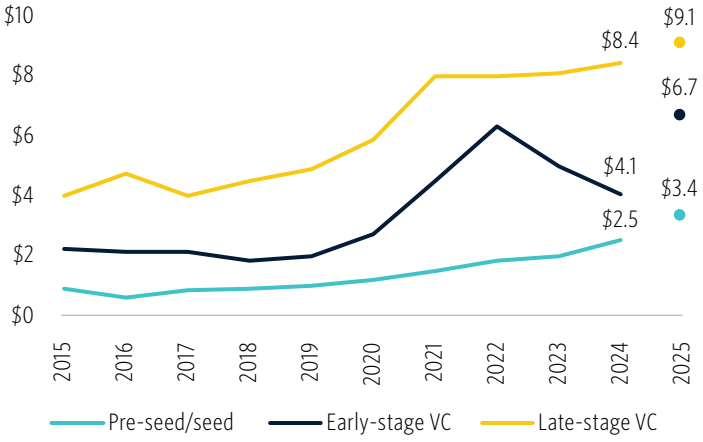
Source: PitchBook • Geography: Global • As of March 31, 2025

Share of climate tech VC deal value by region



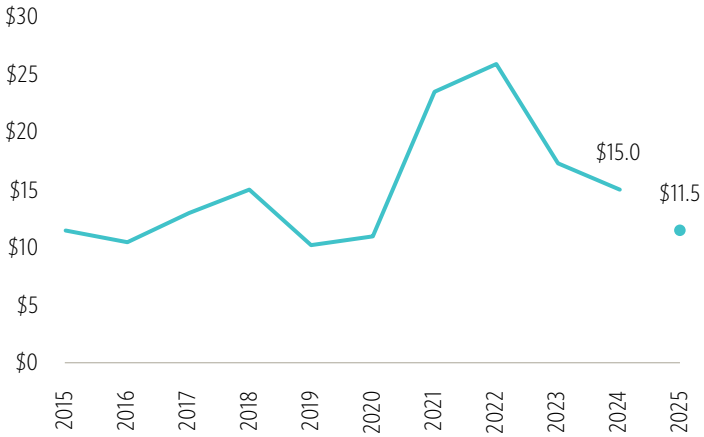
Source: PitchBook • Geography: Global • As of March 31, 2025

Median climate tech VC deal value ($M) by stage



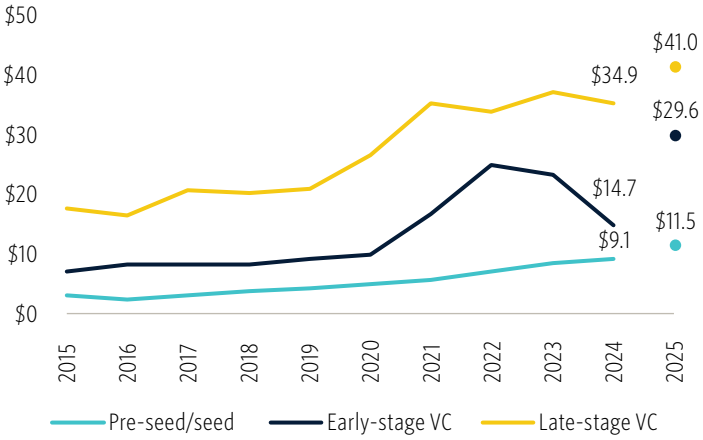
Source: PitchBook • Geography: Global • As of March 31, 2025

Median climate tech venture-growth deal value ($M)



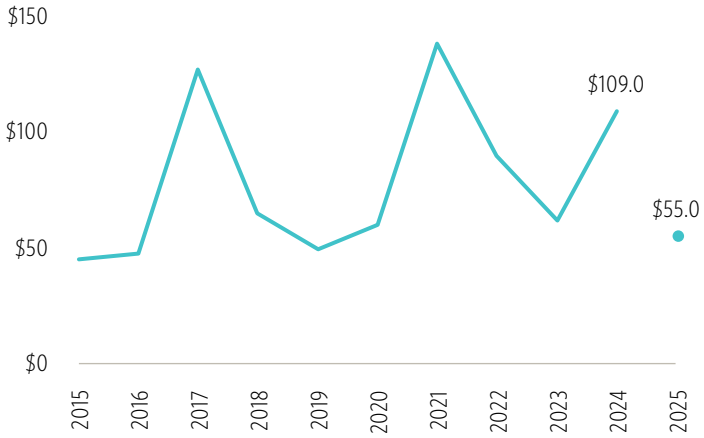
Source: PitchBook • Geography: Global • As of March 31, 2025

Median climate tech VC pre-money valuation ($M) by stage



Source: PitchBook • Geography: Global • As of March 31, 2025

Median climate tech venture-growth pre-money valuation ($M)



Source: PitchBook • Geography: Global • As of March 31, 2025

Climate tech heatmap by segment

Segment	TTM total VC deal value ($M)	TTM total VC deal count	YoY VC deal value growth	YoY VC deal count growth
Built environment	$2,739.2	329	-28.6%	9.3%
Carbon tech	$3,553.9	347	-21.1%	-3.6%
Clean fuels	$4,277.7	243	3.3%	-1.2%
Dispatchable energy sources	$2,465.0	85	39.1%	-5.6%
Grid infrastructure	$5,721.4	369	-28.3%	7.9%
Industry	$4,356.1	383	-62.5%	-13.2%
Intermittent renewable energy sources	$4,816.4	283	-23.7%	-13.7%
Land use	$1,354.7	151	-14.0%	-14.2%
Low-carbon mobility	$8,012.7	225	-12.2%	-38.5%
Sustainable foods	$2,749.0	341	-2.3%	-29.0%

Source: PitchBook • Geography: Global • As of March 31, 2025

Climate tech heatmap by subsegment

Segment	Subsegment	TTM total VC deal value ($M)	TTM total VC deal count	YoY VC deal value growth	YoY VC deal count growth
Built environment	Building energy efficiency	$870.1	112	-62.0%	-1.8%
	Green construction	$1,104.0	128	36.2%	17.4%
	Heating & cooling	$765.1	89	4.2%	14.1%
Carbon tech	Biological carbon removal	$313.0	43	-61.7%	-25.9%
	Carbon accounting/analytics	$595.3	122	16.7%	16.2%
	Carbon fintech & consumer	$870.3	37	-31.6%	0.0%
	Carbon utilization	$592.9	27	96.4%	-12.9%
	Direct air capture	$557.2	39	133.3%	0.0%
	Point-source carbon capture	$279.7	23	-6.0%	0.0%
	Voluntary carbon market infrastructure	$345.5	56	-67.6%	-16.4%
Clean fuels	Biofuels	$109.2	18	-64.2%	-28.0%
	Clean conventional fuels	$1,026.3	35	588.5%	84.2%
	Hydrogen production (green)	$1,087.3	57	-34.7%	-3.4%
	Hydrogen production (other)	$338.5	24	-7.9%	9.1%
	Hydrogen transport, storage & fuel cells	$1,336.2	54	213.0%	-14.3%
	Waste to energy/fuel	$380.6	56	-69.0%	-5.1%
Dispatchable energy sources	Geothermal	$806.0	19	83.6%	0.0%
	Hydropower	$128.4	20	-10.5%	-23.1%
	Nuclear fission	$845.0	24	88.8%	20.0%
	Nuclear fusion	$685.6	22	-7.7%	-12.0%
Grid infrastructure	Alternative energy storage	$1,070.5	49	44.4%	14.0%
	Analytics & grid management	$2,123.8	189	3.9%	26.8%
	Lithium batteries	$1,138.1	81	-75.7%	-12.9%
	Nonlithium batteries	$1,389.0	50	171.4%	-12.3%

Source: PitchBook • Geography: Global • As of March 31, 2025

Climate tech heatmap by subsegment (continued)

Segment	Subsegment	TTM total VC deal value ($M)	TTM total VC deal count	YoY VC deal value growth	YoY VC deal count growth
Industry	Green chemicals and materials	$1,592.3	173	-44.7%	10.2%
	Green mining	$99.8	20	-92.4%	-58.3%
	Lithium battery recycling	$910.4	25	-76.0%	-32.4%
	Low carbon manufacturing and industrial processes	$452.6	54	-80.7%	-6.9%
	Recycling - analytics	$356.9	38	45.1%	-13.6%
	Recycling - metals	$503.5	23	52.3%	-36.1%
	Recycling - polymers	$440.5	50	-39.0%	-18.0%
Intermittent renewable energy sources	Solar - photovoltaic	$4,433.7	219	-25.9%	-21.2%
	Solar - thermal	$83.9	9	-11.9%	50.0%
	Wind	$298.7	55	29.1%	25.0%
Land use	Climate/earth data	$578.2	61	7.1%	1.7%
	Ecosystem health and monitoring	$469.0	41	34.8%	-26.8%
	Fertilizer alternatives	$300.0	42	-56.1%	-17.6%
	Soil pollution remediation	$12.4	8	234.3%	-11.1%
Low-carbon mobility	Electric air vehicles	$540.9	16	34.5%	-5.9%
	EV charging	$1,462.0	74	-1.7%	-41.3%
	EV components	$1,389.8	50	-56.4%	-56.5%
	Hydrogen EVs	$111.0	11	-4.0%	-35.3%
	Terrestrial/marine BEVs	$4,509.1	74	14.5%	-18.7%
Sustainable foods	Cultivated proteins	$379.7	56	-45.1%	-28.2%
	Fermented proteins	$811.2	75	15.5%	-19.4%
	Food waste and traceability	$134.4	47	-60.3%	-27.7%
	Insect farming	$133.9	13	-45.6%	-50.0%
	Plant-based proteins	$1,153.2	113	72.6%	-31.9%
	Sustainable packaging	$136.5	37	-17.9%	-28.8%

Source: PitchBook • Geography: Global • As of March 31, 2025

Key climate tech pre-seed/seed deals in Q1 2025

Company	Close date	Segment	Deal value ($M)	Lead investor(s)
Elvy Energy	February 20	Built environment	$153.5	N/A
Tulum Energy	March 12	Clean fuels	$25.0	N/A
Phoenix Manufacturing	February 1	Carbon tech	$20.7	N/A
Valar Atomics	February 20	Dispatchable energy sources	$19.0	Riot Ventures
Foundation Alloy	February 21	Industry	$16.9	Engine Ventures, Material Impact Fund
Oxyle	January 30	Carbon tech	$16.0	360 Capital, Axeleo Capital
ReSource Chemical	March 6	Carbon tech	$15.0	Fathom Fund, Khosla Ventures
Vema Hydrogen	February 18	Clean fuels	$13.0	Extantia Capital, Propeller
Food Brewer	February 21	Sustainable foods	$10.2	N/A
Augmenta	February 3	Built environment	$10.0	Prelude Ventures

Source: PitchBook • Geography: Global • As of March 31, 2025

Key climate tech early-stage VC deals in Q1 2025

Company	Close date	Segment	Deal value ($M)	Lead investor(s)
Pacific Fusion	March 6	Dispatchable energy sources	$900.0	General Catalyst
Reneo	February 20	Built environment	$624.3	Eurazeo
Harbinger	January 14	Low-carbon mobility	$100.0	Capricorn Investment Group, Leitmotif
Hybot	March 24	Low-carbon mobility	$62.0	State Development and Investment Corporation
Cyclic Materials	January 23	Industry	$57.0	ArcTern Ventures
Liberation Labs	February 10	Sustainable foods	$52.0	N/A
Vivici	February 25	Sustainable foods	$33.8	APG Group, Invest-NL
Plantd	March 3	Built environment	$33.0	American Family Ventures
Mombak	March 14	Carbon tech	$31.3	Union Square Ventures
Spiritus	March 6	Carbon tech	$30.0	Aramco Ventures
IMPT Platform	March 6	Carbon tech	$30.0	N/A

Source: PitchBook • Geography: Global • As of March 31, 2025

Key climate tech late-stage VC deals in Q1 2025

Company	Close date	Segment	Deal value ($M)	Lead investor(s)
KoBold Metals	January 1	Industry	$537.0	Durable Capital Partners, T. Rowe Price Group
Changan Kaicheng	January 2	Low-carbon mobility	$274.6	N/A
Tidal Vision	January 31	Industry	$172.1	N/A
Terabase	March 13	Intermittent renewable energy sources	$147.0	SoftBank Investment Advisers
Terra CO2	March 31	Built environment	$125.0	Eagle Materials, GenZero, Just Climate
Marvel Fusion	March 28	Dispatchable energy sources	$121.6	HV Capital
PassiveLogic	January 8	Built environment	$99.0	N/A
Omnidian	March 31	Grid infrastructure	$87.0	B Capital Group
Sion Power	January 15	Grid infrastructure	$75.0	Bricks Capital Management, Euclidean Capital, GM Ventures, LG Energy Solution
VEIR	January 28	Grid infrastructure	$75.0	Munich Re Ventures, Tyche Partners

Source: PitchBook • Geography: Global • As of March 31, 2025

Key climate tech venture-growth deals in Q1 2025

Company	Close date	Segment	Deal value ($M)	Lead investor(s)
X-energy	January 24	Dispatchable energy sources	$682.4	Amazon, Ontario Teachers' Pension Plan, The Climate Pledge
Helion	January 28	Dispatchable energy sources	$425.0	N/A
XOCEAN	January 9	Intermittent renewable energy sources	$119.8	N/A
Euler Motors	March 20	Low-carbon mobility	$73.3	Caladium Investment, Hero MotoCorp
Readline	February 22	Industry	$68.9	N/A
Zeitview	March 5	Intermittent renewable energy sources	$60.0	Climate Investment
GridPoint	March 26	Built environment	$45.0	Marunouchi Innovation Partners
75F	February 6	Built environment	$45.0	Accurant Investments
RTS	January 24	Industry	$40.0	Edison Partners
tado	March 17	Built environment	$31.9	N/A

Source: PitchBook • Geography: Global • As of March 31, 2025

Key climate tech VC deals in 2024

Company	Close date	Segment	Deal value ($M)	Lead investor(s)
IM Motors	March 1	Low-carbon mobility	$1,117.5	BOC Financial Assets Investment
China Hydrogen Energy Technology	August 8	Clean fuels	$1,000.0	N/A
Huakong Power	March 25	Intermittent renewable energy sources	$696.2	N/A
Neta Auto	April 15	Low-carbon mobility	$693.3	N/A
Crusoe	December 12	Carbon tech	$685.7	Founders Fund
Ascend Elements	February 15	Industry	$621.9	Decarbonization Partners, Qatar Investment Authority, Temasek Holdings
Nexamp	April 10	Intermittent renewable energy sources	$520.0	Manulife Investment Management
CORE POWER	October 17	Dispatchable energy sources	$500.0	N/A
Fervo Energy	December 19	Dispatchable energy sources	$499.0	Capricorn Investment Group, Devon Energy
NIO China	September 29	Low-carbon mobility	$466.1	N/A

Source: PitchBook • Geography: Global • As of March 31, 2025

Key climate tech VC exits in 2024

Company	Close date	Segment	Exit value ($M)	Acquirer
REFIRE	December 6	Low-carbon mobility	$1,536.1	N/A
Human Horizons	May 17	Low-carbon mobility	$1,000.0	iAuto Group
Yonz Technology	June 25	Intermittent renewable energy sources	$580.8	N/A
Metagenomi	February 9	Sustainable foods	$469.2	N/A
XCharge	September 10	Low-carbon mobility	$347.1	N/A
Synspective	December 19	Land use	$274.0	Mitsubishi Electric
Bolt Threads	August 13	Sustainable foods	$250.0	Golden Arrow Merger
SEA Electric	April 5	Low-carbon mobility	$229.4	Exro Technologies
Damon Motorcycles	November 14	Low-carbon mobility	$220.1	XTI Aerospace
Ojjo	June 20	Intermittent renewable energy sources	$120.2	Nextracker

Source: PitchBook • Geography: Global • As of March 31, 2025

Top VC investors in climate tech companies since 2020

Investor	Total deal count	Pre-seed/seed	Early-stage VC	Late-stage VC	Venture growth	Investor type
Climate Capital	262	123	91	39	9	VC
SOSV	193	102	38	49	4	VC
Breakthrough Energy	174	21	73	65	15	Impact investor
InnoEnergy	151	21	43	72	15	Impact investor
Lowercarbon Capital	150	43	68	37	2	VC
ImpactAssets	108	26	29	45	8	Impact investor
Gaingels	102	24	36	36	6	VC
Unreasonable Impact	97	6	15	54	22	Impact investor
Collaborative Fund	94	45	31	15	3	VC
Alumni Ventures	92	29	27	29	7	VC

Source: PitchBook • Geography: Global • As of March 31, 2025

Top VC-backed climate tech companies by total VC raised to date

Company	VC ($M) raised to date	Segment	Category	IPO probability	M&A probability	No exit probability
Generate	$4,323.1	Carbon tech	Carbon fintech & consumer	47%	49%	4%
Start Campus	$4,157.1	Grid infrastructure	Analytics & grid management	N/A	N/A	N/A
Neta Auto	$4,018.2	Low-carbon mobility	Terrestrial/marine BEVs	N/A	N/A	N/A
SVOLT	$3,231.3	Grid infrastructure	Lithium batteries	N/A	N/A	N/A
GAC Aion	$2,965.4	Low-carbon mobility	Terrestrial/marine BEVs	N/A	N/A	N/A
Stegra	$2,315.0	Industry	Green chemicals & materials	34%	46%	20%
Commonwealth Fusion Systems	$1,999.0	Dispatchable energy sources	Nuclear fusion	61%	11%	28%
Verkor	$1,963.6	Industry	Low-carbon manufacturing & industrial processes	95%	3%	2%
Impossible Foods	$1,862.5	Sustainable food	Plant-based proteins	97%	1%	2%
Redwood Materials	$1,818.6	Industry	Lithium battery recycling	93%	5%	2%

Source: PitchBook • Geography: Global • As of March 31, 2025
Note: Probability data is based on PitchBook VC Exit Predictor methodology.

Key climate tech drivers

Tariffs and global supply chain disruptions

While the direct effects of newly imposed or expanded tariffs are most visible in their impact on the US deployment of climate technology, their indirect impacts are far more widespread. These include disruptions to global supply chains and operational challenges for climate tech companies with international operations and client bases. The clean energy sector—especially solar and battery technology—is particularly vulnerable due to its reliance on global supply chains. China continues to dominate the manufacturing, extraction, and processing of key minerals essential for both clean and conventional energy technologies. These include lithium, cobalt, nickel, and manganese—materials critical to lithium-ion battery production—in addition to minerals like gallium, which is commonly used in solar panels. As a result, the US faces significant challenges in scaling up domestic hardware production given its dependence on nondomestic supply chains.

Despite these headwinds, supply chain challenges also represent an opportunity for some VC-backed companies. Those focused on alternative mineral detection and extraction methods hold the potential to provide alternative supply chains for minerals vital to clean energy. Nonlithium energy storage technologies—such as sodium-ion, redox flow, and metal-air batteries—are also emerging and maturing as alternatives to core lithium-ion technologies with the potential to reduce reliance on scarce or geopolitically sensitive minerals. For more information on supply chain and tariff challenges in the clean energy space, see our Q2 2025 Analyst Note: Tariffs and Supply Chain Challenges in Clean Energy.

Uncertainty around the potential rollback of federal support in the US poses a significant challenge for investors. Since 2020, the growth of climate tech investment has been influenced by the emergence of strong federal support and incentives. While much of this support may ultimately remain untouched, the lack of clarity as of 2025 adds complexity to any efforts to evaluate the value chains of climate tech companies in the future. Despite this, Q1 2025 deal activity shows strong US investment in climate tech companies, including nuclear energy companies Pacific Fusion, X-energy, and Helion, as well as green mining company KoBold Metals.

AI in climate tech

AI is playing an increasingly important role within climate tech, particularly due to the intersection of multiple climate tech applications and large, high-resolution time-series datasets. These datasets come from aerial and satellite monitoring, ground-based sensors, and industrial systems. With the falling costs of drones and small satellites driving the availability of continuous monitoring for large areas of land, including for forests and natural ecosystems as well as industrial facilities, startups employing AI are able to generate more accurate and timely environmental assessments. AI models are used to process, interpret, and interpolate this data at scale, including for uses such as validating carbon credit projects by detecting land-use changes or estimating biomass. Similarly, AI is being applied to analyze

energy usage and emissions data from buildings and facilities, helping identify inefficiencies and opportunities for decarbonization in addition to controlling appliances, energy generation, and storage.

Beyond monitoring, AI is also being used to optimize the performance of climate technologies as well as potentially improve their longevity. In energy systems, AI algorithms can be deployed to manage battery usage by predicting demand patterns and optimizing charge-discharge cycles, which improves the system's efficiency and the battery's lifespan. AI is also being applied to maintenance, allowing more effective predictive maintenance of energy infrastructure, such as wind turbines, solar farms, and grid components, by identifying early signs of wear or failure. Early clean energy installations are beginning to reach the end of their planned operation periods, increasing the demand for monitoring and maintenance technologies, which can be used together with robotic cleaning and inspection technologies. In the waste management sector, computer vision coupled with robotics is increasingly being used to sort waste streams, improving the efficiency and accuracy of recycling processes and reducing contamination.