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The Future of Climate Tech

A look at the technologies driving a sustainable future

April 2025

Contents

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Economic Imperatives Drive Climate Tech Adoption

> The climate tech ecosystem is generally healthy. The slower-funding environment has pushed companies to focus on capital efficiency and manage burn, which is ultimately healthier than the unbridled burn we witnessed in late 2021 and early 2022. Signs of growth are emerging, with trailing 12-month venture investment increasing, company formation remaining strong and early-stage activity still relatively vibrant."

There is no getting around it, US climate policy is weaker today. The Trump administration has pulled out of the Paris Climate Agreement, fired EPA scientists, defunded the National Oceanic and Atmospheric Association and initiated executive orders pausing climate-related Inflation Reduction Act (IRA) funding. As a result of the changes, cost-effective climate technology must play a larger role to make up for the vacuum of weaker policy. Adoption of climate technology and solutions will increasingly rely on economic imperatives.

Climate change isn't a future event; it is happening today. We don't just see the warming climate in esoteric graphs but feel it in our communities: severe fires burning neighborhoods in the West, more frequent hurricanes in the Southeast and heat waves in Europe. We are paying a high economic price. The number of billion dollar-plus disaster events has increased five-fold since the 1990s when adjusted for inflation.

Existing climate technologies are expanding. Wind and solar are growing faster than any other generation source. Solar added nearly 600 GW of installed capacity in 2024, up from just 250 GW in 2022. US storage saw a 33% increase in deployments between 2023 and 2024. Wind and solar are still the cheapest levelized cost of energy (LCOE), despite seeing slight increases.

The success of those innovations not only serves as a foundation for new climate technologies, but also shows the potential for current emerging technologies.

While venture capital (VC) investment in climate tech is well off its peak in 2021, it remains strong and in line with 2020 levels. Some companies face liquidity challenges as capital is tougher to raise, but on the whole, the ecosystem is generally healthy and the long-term outlook is good.

The slower-funding environment has pushed companies to focus on capital efficiency and manage burn, which is ultimately healthier than the unbridled burn we witnessed in late 2021 and early 2022. Signs of growth are emerging, with trailing 12-month (TTM) venture investment increasing, company formation remaining strong and early-stage activity still vibrant.

VC investment is a crucial part of new technology formation in climate. According to BNEF,[1] annual investment in the energy transition has doubled since 2020 and exceeded $2T in 2024. Of that, VC investment in US climate tech was $20B last year. That investment drives innovations that improve energy storage, create cost-effective carbon capture and develop low carbon transportation fuels.

Policy challenges remain, and it's easy to be caught up in gloomy climate model outlooks. Yet climate tech remains both a compelling and an essential sector for humanity. We look to the future of climate tech with enthusiasm and excitement.

Dan Baldi
National Head
Climate Tech and Sustainability
dbaldi@svb.com

Jordan Kanis
Managing Director
Climate Tech and Sustainability
jkanis@svb.com

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Note: 1) Bloomberg New Energy Finance.

Macro

Perspectives on Climate Tech Innovation

Climate Tech by the Numbers

$20B
VC investment into US Climate Tech companies in 2024

8
The percentage point outperformance of climate tech deal activity compared to the overall US VC market since 2022

57%
The share of companies that need to raise in the next year

$2.3T
The cost of $1B or larger disaster events since 2003 compared to just $600B between 1980 and 2002

$41M
The median pre-money Series B in 2024 up from just $35M in 2023

A Tale of Two Climate Economies

"The next few years will be a tale of two climate economies. **Those companies deeply reliant on subsidies and on tax codes and then those that weren't reliant on them but rather viewed them as adding some wind in their sails.** I tend to think that businesses based on hydrogen may not materialize or come to fruition, even if some of those subsidies continue to exist. The same may be true for direct air capture. All of those categories were precarious to begin with. Then you have electric vehicles where subsidies were seen as an extra benefit. I don't see these companies going away because climate bills were reversed."

Andrew Beebe
Managing Partner

OBVIOUS VENTURES

A Tremendous Opportunity to Scale

"At Powerhouse Ventures, we believe that there will be substantial advances in moonshot innovations like fusion over the next decade, but we are even more bullish on opportunities related to mature technologies like solar, wind, storage, electric vehicles and grid optimization. Technologies like solar and storage have come down the cost curve much faster than analysts predicted and are competitive with legacy technologies today; and, **there's a tremendous opportunity to scale technologies that ensure reliable grid operations as load grows and variable and decentralized energy resources continue to proliferate.** Since 2018, our focus has been backing startups that are financing, deploying and optimizing proven technologies in established markets."

Emily Kirsch
Managing Partner

POWERHOUSE

Source: SVB Interviews (quotes), PitchBook Data, Inc., SVB proprietary data, NOAA and SVB proprietary taxonomy.

Four Themes Influencing the Future of Climate Tech

Raising Equity Is Tough, Signs of Growth Emerge

VC investment is at half its peak level from late 2021. Limited capital deployment has put a focus on efficiency and runway extension. Of US VC-backed climate tech companies, 57% need to raise in the next 12 months even as more than half the companies are reducing burn YoY. Yet there are encouraging signs of growth. **Venture investment in climate tech may have found a floor in mid-2024 and has shown consistent growth over the last six months.** Median valuations have rebounded from 2023 lows with the greatest gains seen at the late stage.

Early-Stage Investing Stays Active

Early-stage investment in climate tech has remained far more resilient than later-stage activity in the last three years. While the number of active investors at the seed stage has remained flat since 2021, beyond Series C there are half as many active venture investors today. **Further, seed investing accounts for 57% of all activity, rising six percentage points since 2021.** This encouraging early-stage activity means a healthy pipeline of new innovations to come.

Electrification Continues, Demand Accelerates

The demand for electricity is expected to grow 16% in the next five years, with a significant portion needed to power enormous data centers. Steel and cement industries are looking to replace fossil fuel emissions with electricity that can more easily be decarbonized. By 2030, half of electricity generation will come from renewable resources.[1] Utilities must plan accordingly. **Climate tech solutions from storage, to demand response and improved transmission are poised to transform the energy and power sector.**

A Changing Policy Landscape

The Trump administration's fossil fuel-friendly view on the US energy system is likely to turn the policy tailwind behind climate tech investment into more a headwind. **But climate tech is not a red or blue issue. Some of the reddest states attract very high penetrations of climate investment.** Texas, for example, ranks first in terms of total dollars invested in clean infrastructure investment.[2] The economic gains created by climate projects are real and will continue to increase

Notes: 1) According to Bloomberg New Energy Finance. 2) Announced projects in clean energy manufacturing, utility-scale energy and industrial facilities, including dollars not yet spent.
Source: PitchBook Data, Inc., Clean Investment Monitor – MIT and Rhodium Group, SVB proprietary taxonomy and SVB analysis.

Weather or Not, Here They Come

Rising temperatures caused by greenhouse gas emissions are creating an unprecedented surge in extreme and costly weather. Since 2015, the US has experienced 190 weather events that each caused at least $1B in damage. The last four years alone have seen more billion-dollar disasters than the 80s and 90s combined.[1] **Damage from hurricanes, severe thunderstorms and wildfires has collectively increased 5x over the last two decades compared to the prior period.**

Increasingly, the costs from these storms are passed on to consumers and businesses. Costs of climate change are heavily impacting property insurance. Homeowner insurance premiums nationwide spiked 30% from 2020 to 2023, outpacing inflation by 13 percentage points. Major insurers such as Allstate and State Farm have stopped writing new policies or restricted coverage in California and other high-risk areas. A poll in California showed 17% of homebuyers had difficulty in obtaining homeowners insurance in 2023, and 7% of home purchases fell out of escrow because of inability to acquire affordable insurance.[2]

Businesses are already addressing risks of sea level rise and worsening storms. As expenses continue to climb, so will the pressure to address the adverse effects of climate change, driving the need for more innovation.

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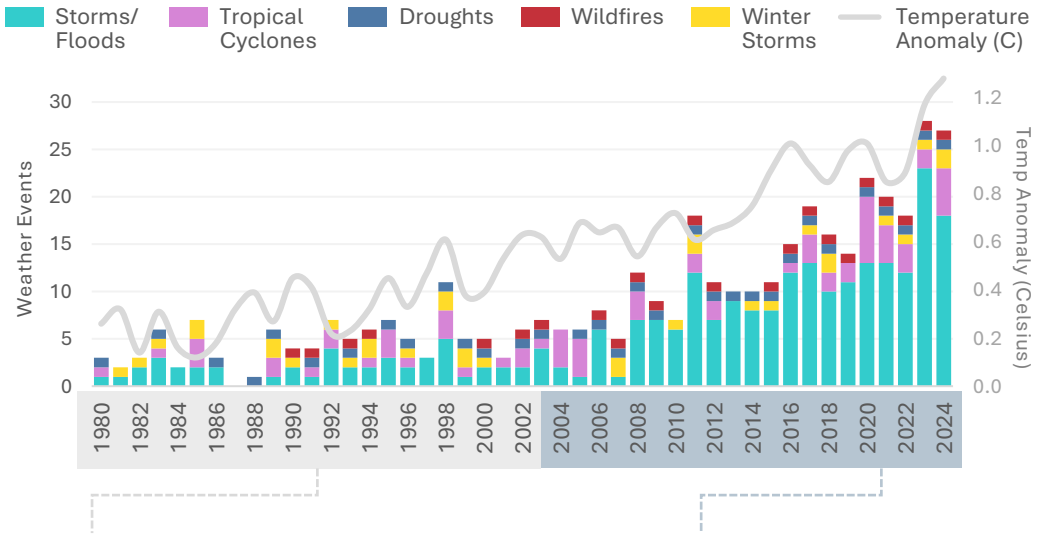
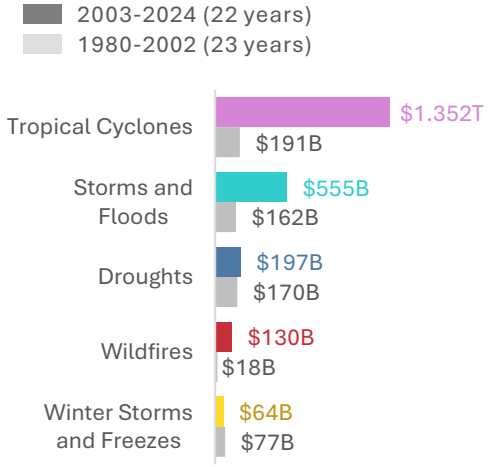
Rising Temps Bring Costlier Storms

CPI-Adjusted Billion-Dollar US Weather Events and Annual Global Temperature Anomaly[3]



CPI-Adjusted Cost of US Storms

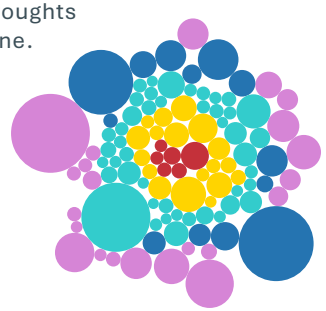


$600B

1980–2002

Grinding Droughts and Rogue Storms

Billion-dollar weather events were once reserved for massive droughts and the one-off hurricane. In the 80s and 90s, wildfires rarely caused widespread damage, with winter freezes posing a more potent threat. Billion-dollar blizzards caused 4x more damage than wildfires from 1980 to 2002.



$2.3T

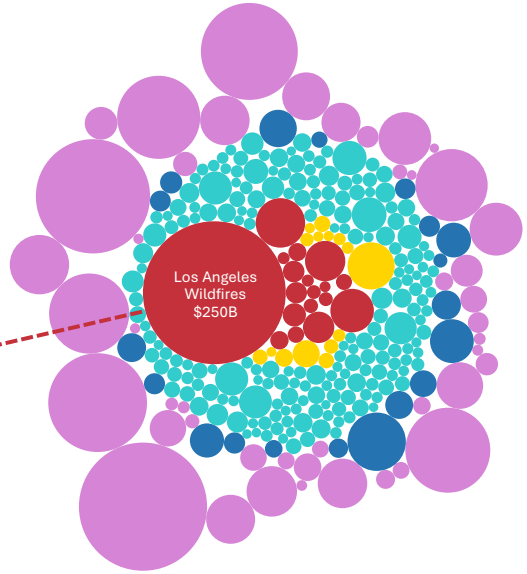
2003–Present

Monster Storms and Raging Fires

The last two decades saw an unprecedented surge in storm and wildfire activity. The damage from billion-dollar events increased 7x for severe and tropical storms and 7x for wildfires.

A Record-Breaking Inferno

The wildfires that ripped through Southern California in January 2025 caused a staggering $250B in damage, making it the most expensive natural disaster in US history.[4]



Notes: 1) In CPI-adjusted dollars. 2) Based on a poll by the California Association of Realtors. 3) Change in global surface temperature compared to the long-term average from 1951 to 1980. Earth's average surface temperature in 2024 was the warmest on record. 4) Initial estimate from AccuWeather.

Source: NASA/GISS, NOAA, California Association of Realtors, AccuWeather and SVB analysis.

Red Lights for Green Initiatives

With the second Trump administration, the policy pendulum is swinging away from climate-friendly initiatives. Billions still hang in the balance in the form of committed grants, loans and tax incentives from Biden-era policies. That uncertainty is making it harder for companies to move forward. In a recent SVB poll of VC-backed companies, government regulation was the top concern among climate tech CFOs, followed by tariffs and supply chains.[1] These concerns differ from the overall ecosystem, showing how vulnerable some climate tech companies are to policy changes.

Incentives from the IRA drastically boosted the business models for many energy producers. **The prospect of those incentives now going away could hinder future investment or degrade existing valuations.** However, money speaks louder than sentiment. While the number of green policies passed and environmental, social, and governance (ESG) mentions is at a five-year low, green energy has rooted into red and blue states alike. Texas is the most prominent example. The leader in fossil fuel is also the leader in renewable energy, producing the most wind energy in the country and drawing over $180B in Biden-era clean energy and infrastructure announcements since 2022. Yet two-thirds of that amount remains in limbo as money that was pledged to announced projects but has not yet been spent. Across the US, there is over $500B in outstanding investments, with more than 72% of that in red states.

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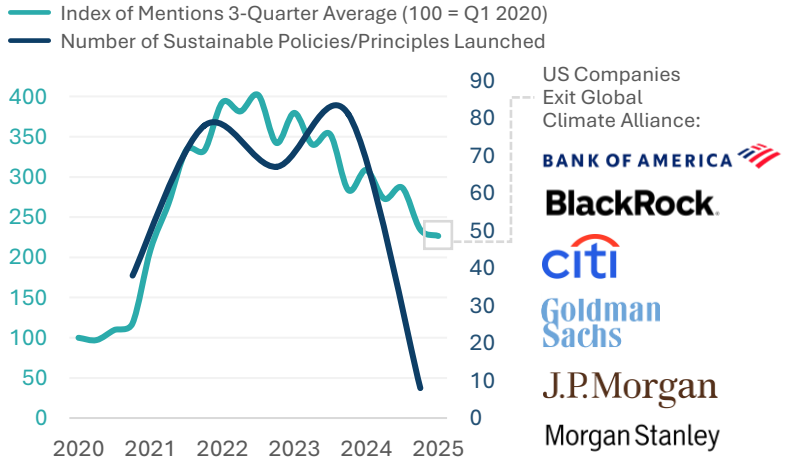
Macro Migraines: Regulations and Tariffs

Survey: Top Macro Concerns Among VC-Backed CFOs[1]

	Climate Tech/ Sustainability	All VC-Backed Sectors
Government Regulation	1	3
Tariffs and Trade	2	7
Supply Chain	3	6
AI Adoption	4	1
Labor Markets	5T	4
Inflation/Interest Rates	5T	2
Geopolitical Tension	7	5

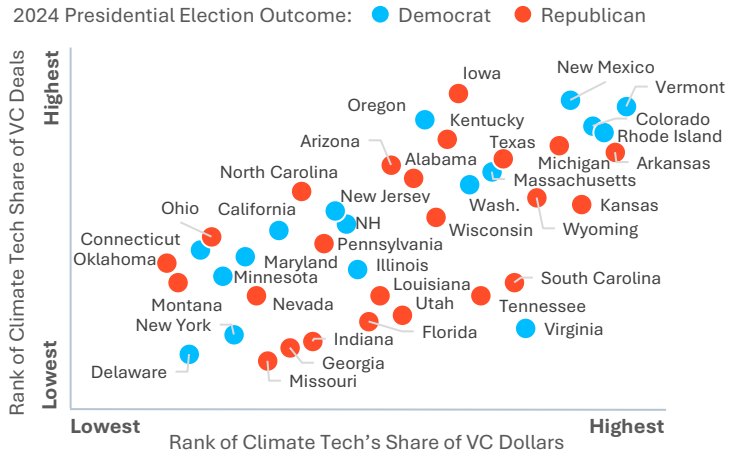
Sentiment Weakens on Climate Action

Global Climate Policies Launched and Corporate Earnings Call Mentions of ESG and Related Terms



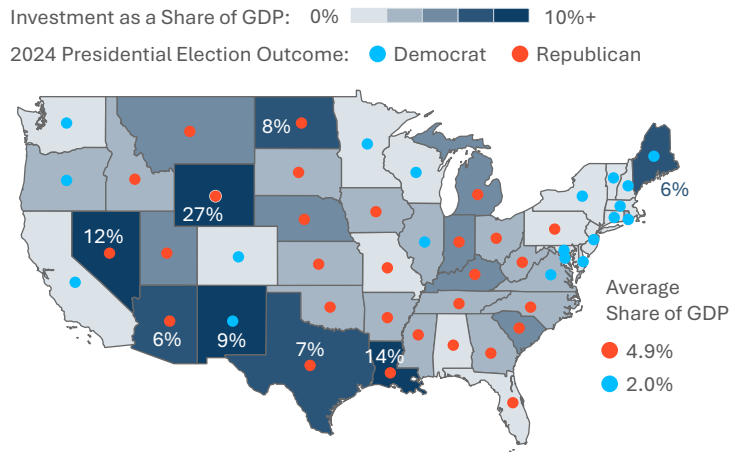
What's Red and Blue and Green All Over?

Ranking States by Climate Tech's Share of VC[2] and Political Majority in the 2024 Presidential Election



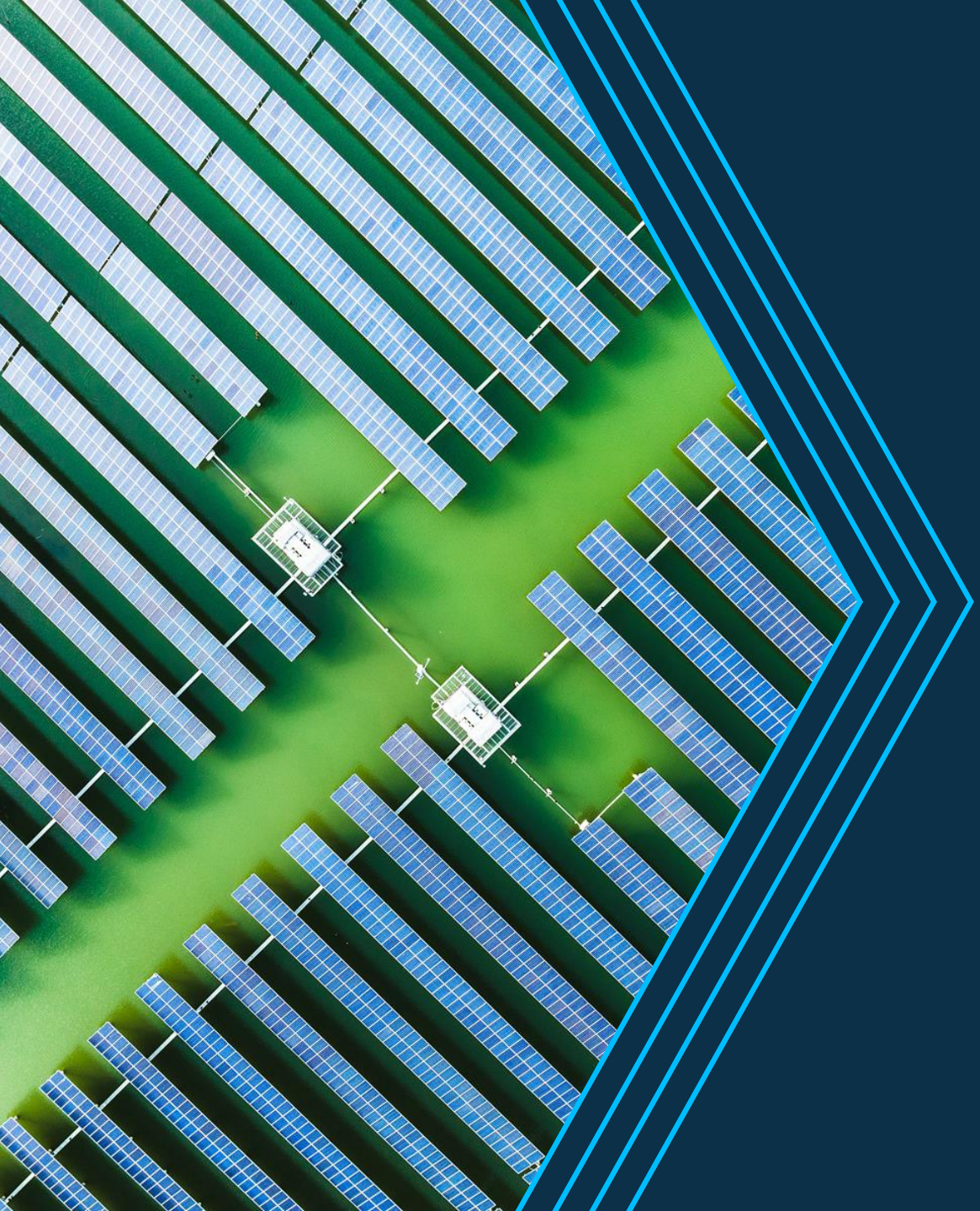
Red States Benefit Most from Clean Investment

Announced Clean Investment[3] as a Share of State GDP, 2022-24



Notes: 1) Survey was conducted in February 2025, before widespread global tariffs were announced. 2) Among states with at least $100M in VC investment in 2024. 3) Announced projects in manufacturing, utility-scale energy and industrial facilities, includes money spent or pledged.

Source: PitchBook Data, Inc., Clean Investment Monitor – Rhodium Group and MIT, SVB's State of the VC-Backed CFO 2025 and SVB analysis.



Capital

Climate Tech Fund Counts Shrink

Climate tech funds[1] raised $9B in 2024 across 23 funds. While total capital raised is on par with pre-2021 levels, the number of funds closed hit a 15-year low. General Catalyst's $8B Fund XII — a generalist fund that plans to invest a portion in climate tech — represented over 80% of climate tech capital raised. The corporate venture capital (CVC) arms of United Airlines and Toyota accounted for nearly $530M. **Over 65% of climate tech funds closed this year were less than $100M, reflecting tighter limited partner (LP) allocations and a more selective fundraising environment.**

Fund performance tells a different story. Climate tech funds are outperforming overall VC on net IRR, generating strong paper returns likely driven by surging valuations in certain climate tech categories like energy and carbon tech. However, distributions to LPs remain on par with broader VC funds, as many gains are still unrealized.

Distributions to LPs are limited, which suggests climate tech funds are still early on in their life cycle. So while IRR is higher for recent vintages, we won't know real performance until paper gains are realized. The sector's generally longer timelines and high capital demands may delay liquidity and distributions. While climate tech funds now mirror VC in paper returns, they face the same headwinds in today's constrained exit environment.

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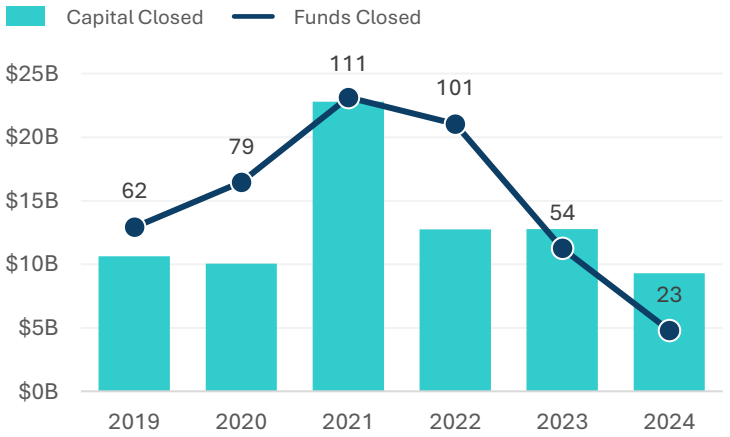
Fewer Funds Raise a Similar Amount

US VC Fundraising[1] for Funds with a Focus on Climate Tech



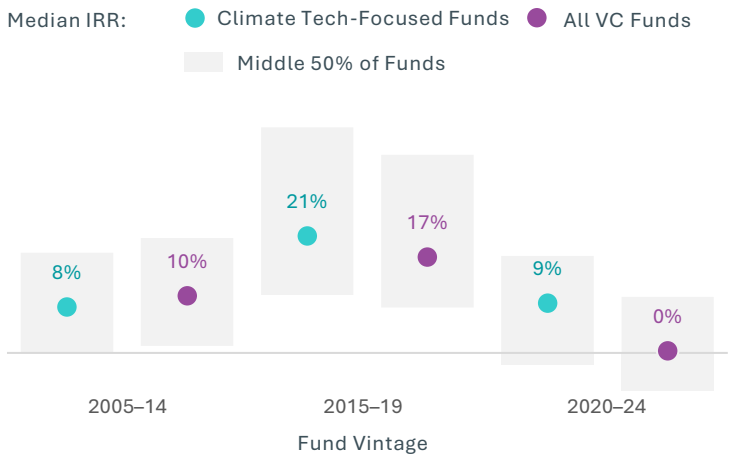
Largest Funds Drove 95% of 2024 Deployment

Five Largest Funds Closed With a Focus on Climate Tech in 2024[1]

Fund Manager	Fund Size	Reported Climate Tech Focus
General Catalyst	$8B	Climate and Energy
Toyota Ventures	$300M	Renewables, Energy Storage, Carbon Tech, Hydrogen Solutions and More
Rethink Capital Partners	$260M	Environmental Sustainability
United Airlines Ventures	$228M	Sustainable Aviation Fuel and Decarbonized Air Travel
Collab Fund	$125M	Materials, Ingredients, Energy, Supply Chains and More

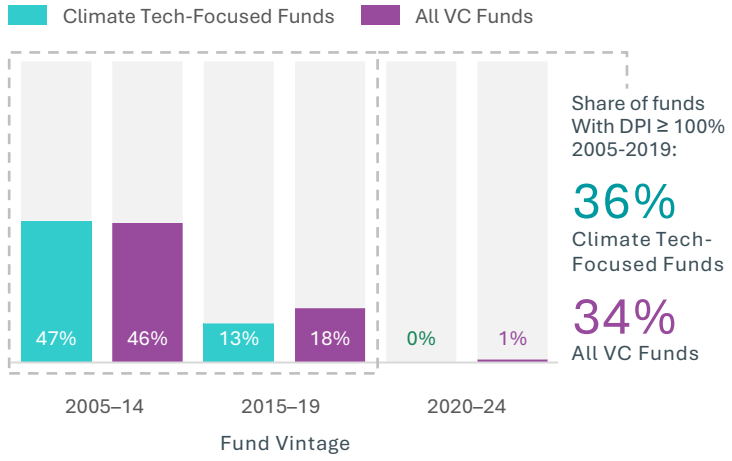
Climate Tech Funds Outperform Overall VC

Net IRR for US Climate Tech VC Funds vs. Overall US Tech VC Funds



Climate Tech Matches VC Fund Returns

Share of US Funds With a DPI[2] of at Least 100%



Notes: 1) Climate tech fundraising is defined as funds with a stated interest in climate tech and related sectors, including generalist funds investing in climate tech. 2) Distributions to paid-in-capital.

Source: Preqin and SVB analysis.

VC Down, But Certainly Not Out

Climate tech is not a sector, but rather a collection of sectors with a common goal. There is substantial variation in how subsectors are performing within the climate tech tent. Some sectors have struggled to gain investor attention such as intermittent renewables where startups face a competitive landscape of fully scaled companies. **On the other hand, carbon tech, dispatchable renewables and clean fuels are opening investor wallets.** Dispatchable renewables benefit from secular trends toward electrification while clean fuels and carbon tech (such as carbon capture) have benefited from the realization that some emissions cannot be avoided through electrification. Growth in these sectors is all the more impressive, given deal activity in climate tech (and VC at large) has seen declining deals since 2022.

VC investment in climate tech is down, but it is in line with late 2020 levels — strong, but not a bubble. While just half what it was at peak in late 2021, the pace of investment has started to pick up steam in the last six months. The fact that VC investment sits at a robust level doesn't mean it's easy to raise. In fact, many companies are kicking the priced round down the road by raising extension rounds.[1] **These in-between rounds are becoming a common stop on the startup journey to avoid a down round and keep companies operating.** The percentage of extension rounds has increased 11 percentage points to 33% between 2021 and 2024.[1]

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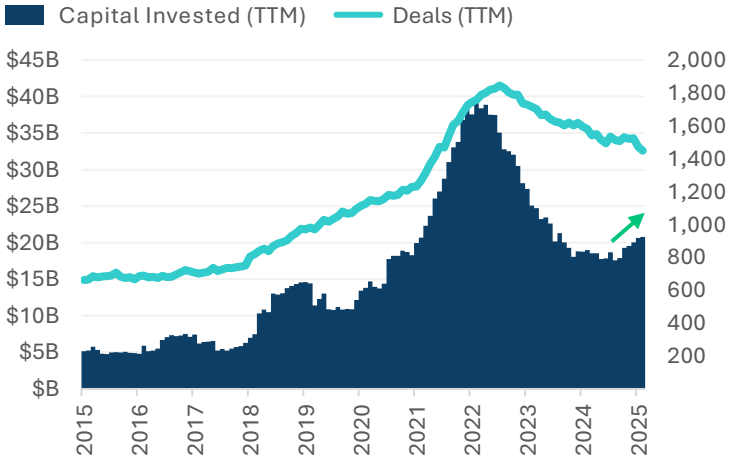
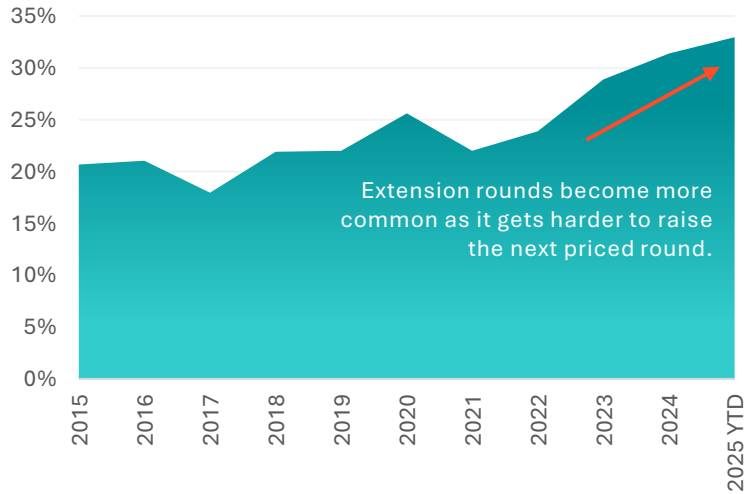
Venture Investment Points Positive in 2025

VC Investment in US Climate Tech Trailing 12 Months



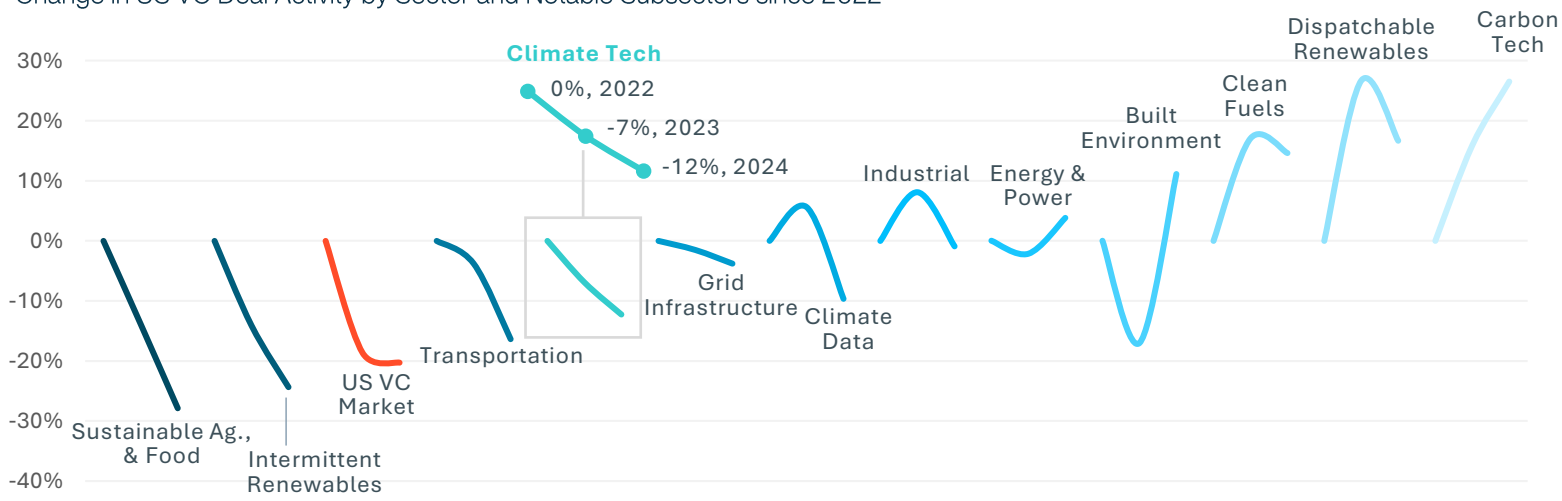
1 in 3 VC Deals Is an Extension Round

US Climate Tech: Extension Rounds as a Percentage of All Deals[1]



Mapping the Recovery: Dispatchable Renewables, Clean Fuels and Carbon Tech in Focus

Change in US VC Deal Activity by Sector and Notable Subsectors since 2022[2]



Notes: 1) Extension rounds are defined as rounds raised between major rounds (seed, Series A, Series B, Series C, etc.).
2) Subsectors are included in the sectors.
Source: PitchBook Data, Inc, SVB proprietary taxonomy and SVB analysis.

All Quiet on the Late-Stage Front

Early-stage investing has expanded substantially over the last 15 years. Seed deals accounted for over half of all climate tech investment in 2024, up from just one-fifth in 2010. **First funding rounds — a proxy for new company formation rates — have outperformed the overall US VC ecosystem since 2019**. These companies are fueling future growth of the industry.

Yet there are two troubling trends. First, seed deal activity and first-time financings dropped quickly in 2024. First-time financings in climate tech companies have continued to trend down while the overall innovation economy has seen activity level off. If this trend persists, long-term declines may result. Second, given seed activity accounts for over half of all climate tech VC rounds, the late stage has cooled significantly. There are half as many investors actively participating beyond Series B compared to 2021 while nearly the same number are active at the seed stage. This dynamic could create further challenges for early-stage companies graduating to future funding rounds. **As a result, alternative funding routes, such as unpriced convertible notes and extension rounds, are increasingly common.**

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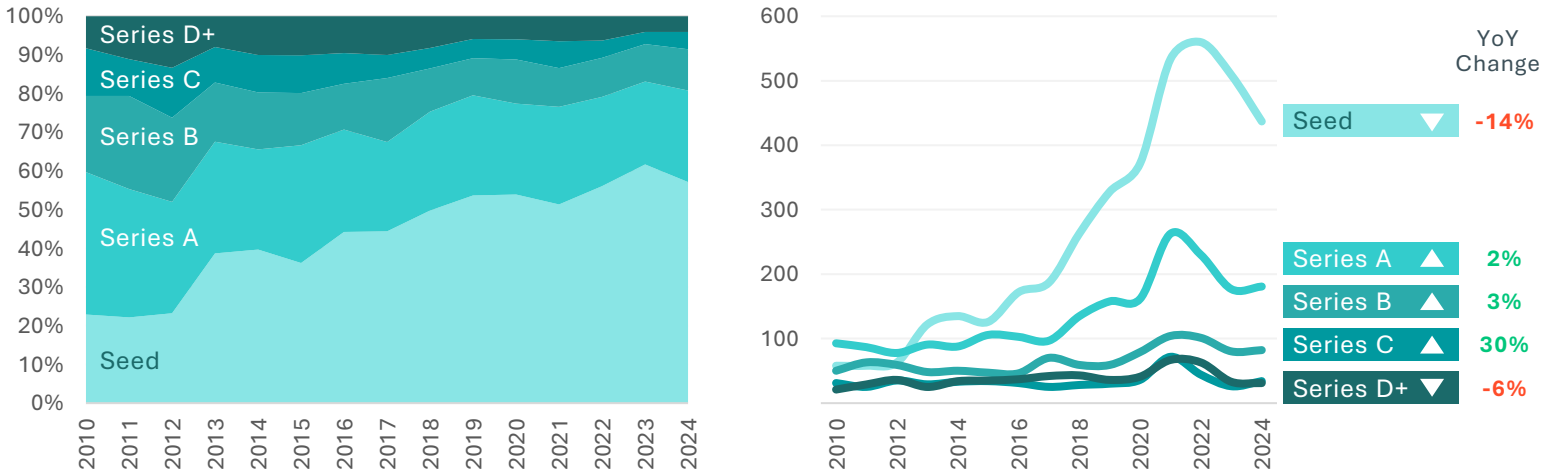
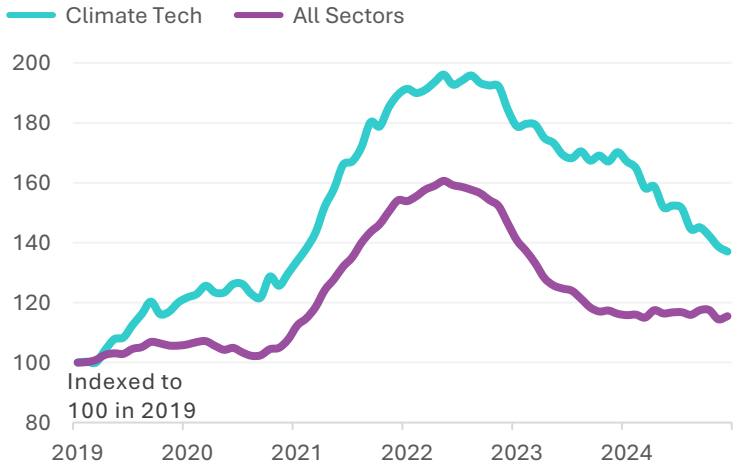
Seed Deals Activity Has Remained More Vibrant

Climate Tech Deal Activity by Stage Expressed as a Percentage of All Deals and Total Number of Deals by Stage



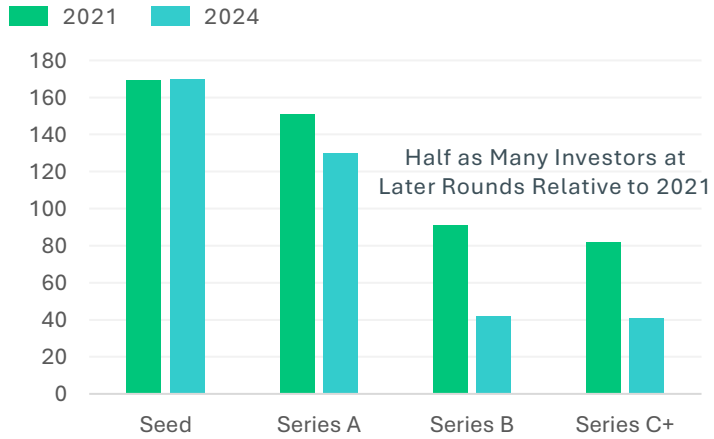
More New Companies in Climate Tech

First-Time Fundraising: Proxy for Company Formation[1]



Late-Stage Investors Pull Back

Number of VC Firms That Have Made at Least Two Investments in a Given Series During the Year



Notes: 1) Data backfill, i.e., addition of more deals likely to occur especially for more recent periods. Thus, most recent periods are likely an underestimate.

Source: PitchBook Data, Inc., SVB proprietary taxonomy and SVB analysis.

Building Resiliency (Even in Valuations)

Climate tech is regaining momentum, with valuations recovering YoY across all stages after a challenging 2023. While overall VC is still leading at the early stages, climate tech valuations are overtaking VC at the later stages.

This recovery, and the limited decline compared to other VC sectors, is driven in large part by structural tailwinds. The IRA, corporate pressure to meet net-zero targets, and global climate commitments have all driven VC into energy, manufacturing and carbon tech. Investment in sectors that are more consumer driven, such as alternative meats and electric vehicles (EVs), has been less resilient. Deals in transportation have fallen 16% since 2022 for example.

Deal sizes tell a similar story. Aside from seed, where median deal sizes have held steady, rounds are getting bigger. **Climate tech valuations have generally remained more measured than the overall venture ecosystem — less prone to booms and busts — at least in recent years.** Series B and C+ rounds are getting larger, even surpassing 2022 levels. There may be a growing willingness for investors to back proven climate tech companies with bigger checks, which is a notable shift after last year's pullback.

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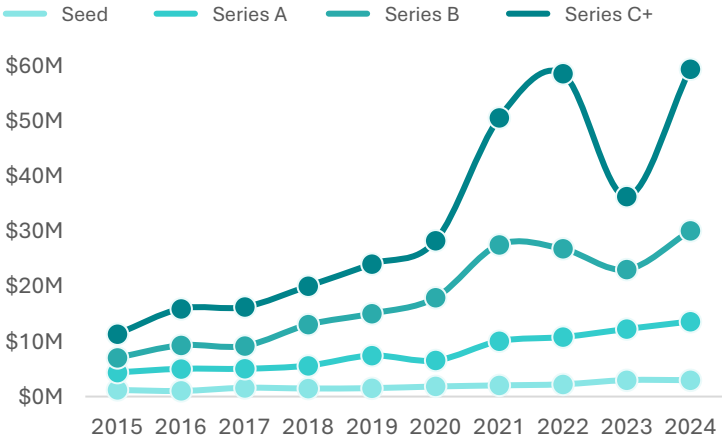
Median Valuations Rise Across the Board, Overall VC Trails Climate Tech at Later Stages

US Climate Tech vs. Overall VC Median Pre-Money Valuations by Stage

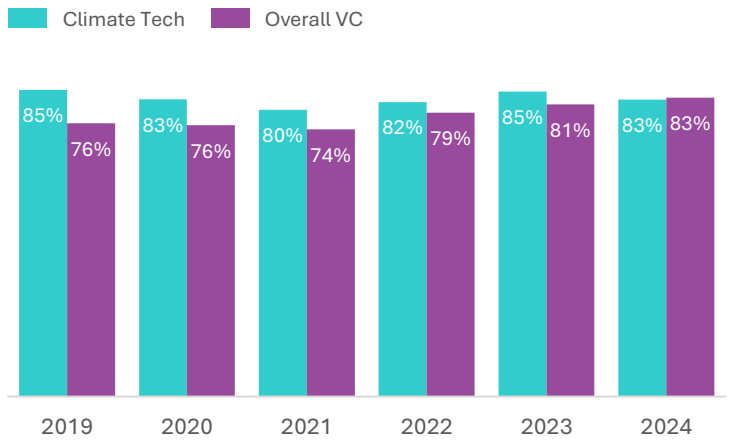
Apart from Seed, Rounds Are Getting Bigger

Median Deal Size by Stage

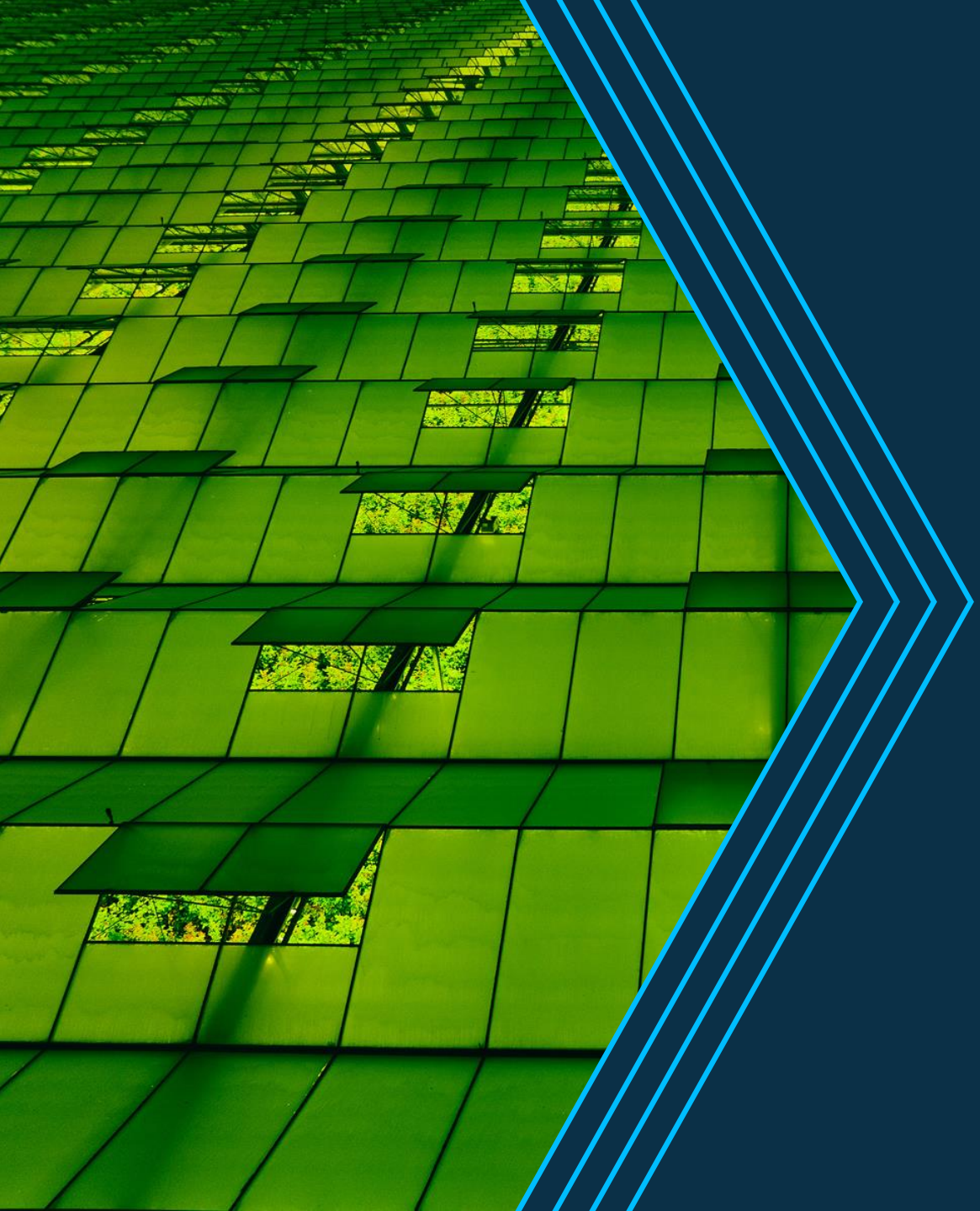


Climate Tech Valuations Go Unreported

Share of Climate Tech and VC Undisclosed[1] Rounds by Year



Notes: 1) Undisclosed rounds refer to follow-on funding rounds where the company valuation is not publicly disclosed after a previously disclosed equity round.
Source: PitchBook Data, Inc. and SVB analysis.



Company Operations

Watch Out, the Runway Is Short

In 2020, high VC investment levels meant most companies had significant cash. But as investment fell, the amount of cash and equivalents VC-backed climate tech companies held dwindled and runway decreased. At the end of 2022, 42% of climate tech companies needed to raise or reduce net burn in the next 12 months or face illiquidity. By the end of 2024, that number reached 57% — seven percentage points higher than the overall tech ecosystem — most likely due to the capital-intensive nature of many climate tech companies, which rely on hardware.

Tariffs could further compound runway issues for hardware companies with impacted supply chains. **Some CFOs we spoke to have said in the near term, tariff costs would likely impact many companies' bottom lines, making net burn higher and shortening runway.** In the mid to long term, companies may increase prices and adjust supply chains. Onshoring is likely to continue, presumably driven by continued tailwinds from the CHIPS and Science Act, the IRA and now tariffs.

For companies that are projected to run out of cash in the next six months, nearly 37% need to raise more than $20M to operate for an additional 18 months. Because this aligns with the typical raise for companies Series B and beyond, and that investors have pulled back at later stages, these companies may face a tougher fundraising market.

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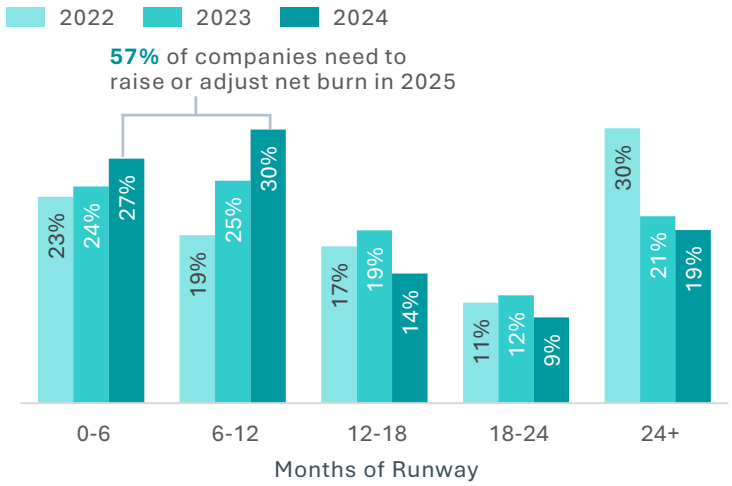
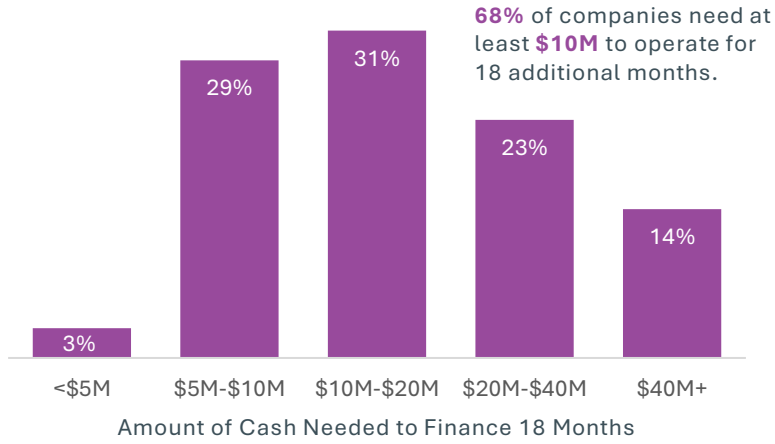
More Companies Run Low on Runway

Distribution of Runway Among US VC-Backed Climate Tech



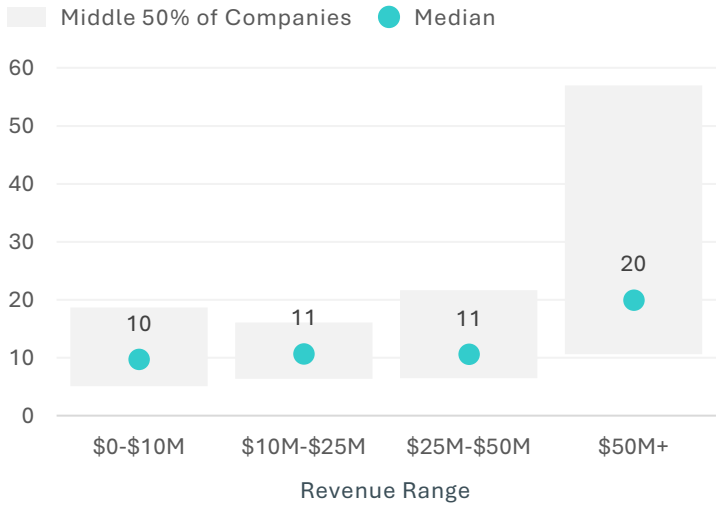
How Much Do Companies Need to Raise?

Distribution of Round Sizes to Fund 18 Months of Operations for US VC-Backed Climate Tech Companies with <6 Months of Runwway[1]



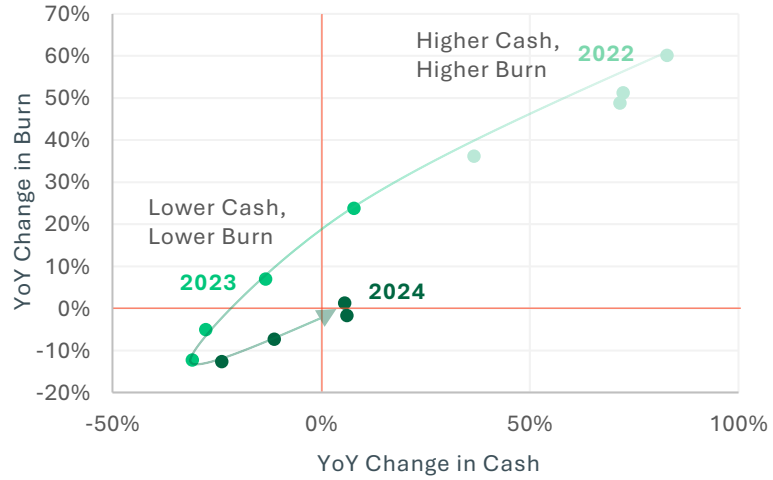
More Runway for the Largest Companies

Runway for US VC-Backed Climate Tech by Revenue



Cash Dwindles, Burn Smolders

Change in Median Cash and Equivalents and Median Burn for US VC-Backed Climate Tech Companies (Quarterly Values)



Notes: 1) Assumes an 8% increase in burn, consistent with current increases in burn rates for companies raising capital.
Source: SVB proprietary data, SVB's State of the Markets H1 2025, SVB proprietary taxonomy, PitchBook Data, Inc. and SVB analysis.

Extinguishing Burn, Improving Margins

As burn and runway came into focus in late 2022 and 2023, the percentage of companies reducing burn YoY jumped substantially. In Q2 2022 only 21% of VC-backed climate tech companies had decreasing burn YoY. By Q1 2024 nearly half of companies had reduced net burn YoY.

Cutting burn doesn't come without tradeoffs. As companies reduced burn, margins improved but revenue growth rates fell. On the one hand, exogenous factors, such as a higher rate environment, mean lower spending and investment in climate tech products and services, thus decreasing growth grades. **But reducing net burn often means spending less on growth initiatives like marketing, sales, and even new, non-core product offerings, which further reduces growth rates**. Taken together, these twin headwinds meant climate tech hardware companies saw growth rates fall from a median of 58% at the end of 2021 to just 19% by the end of 2023. However, since then, growth rates have bottomed out and marginally improved through 2024.

With the greater emphasis on efficiency, what does profitability look like today? The answer is that it significantly depends on both company size and technology type. Climate tech software companies consistently have higher profit margins than hardware companies, but the difference shrinks as companies grow.

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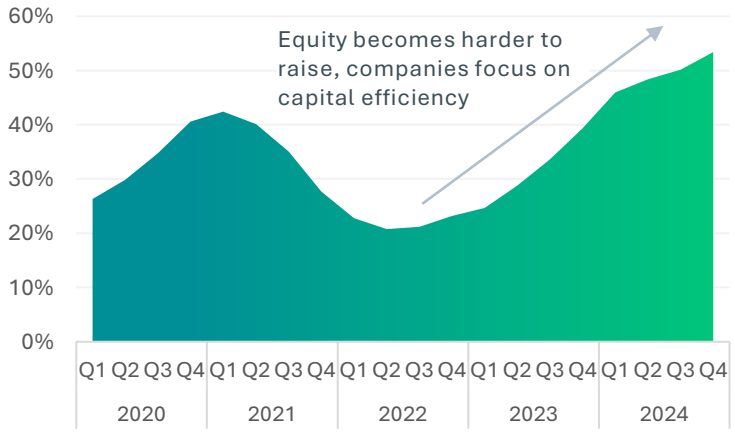
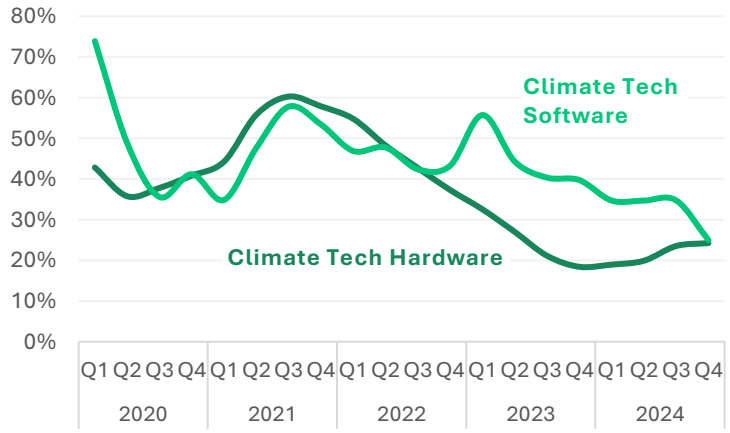
As More Startups Reduce Net Burn...

Percentage of US VC-Backed Climate Tech Companies Reducing Net Burn YoY



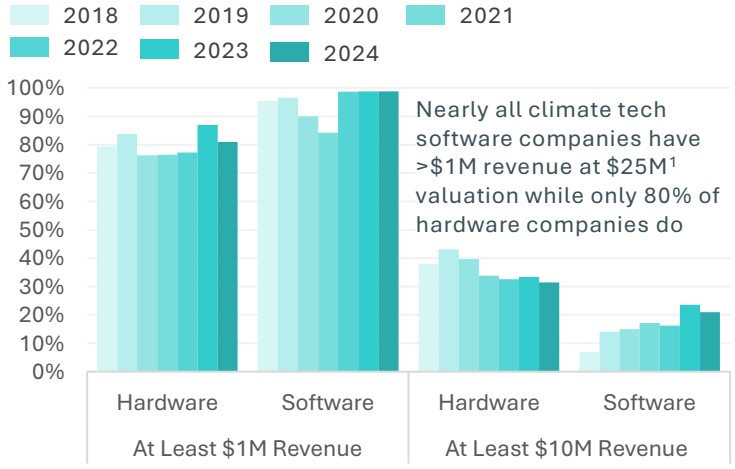
...Revenue Growth Remains Low

Median Revenue Growth Rates for US VC-Backed Climate Tech Companies



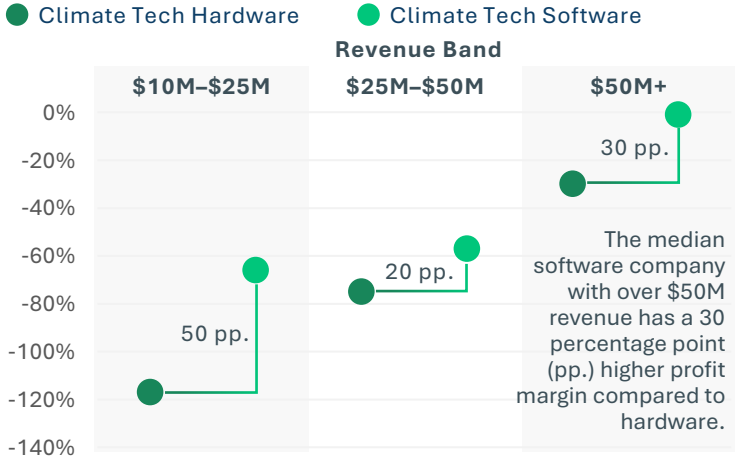
More Companies With Revenue

Percentage of Climate Tech Companies with at Least $1M or $10M in Annual Revenue for Those Valued Above $25M



Climate Tech Software: Higher Margins

2024 Median Profit Margin for US VC-Backed Climate Tech by Revenue



Note: 1) Post-money valuation.
Source: SVB proprietary data, SVB proprietary taxonomy, PitchBook Data, Inc. and SVB analysis.

AI, Electricity and the Grid

Flipping the Switch on Electrification

Demand for electric power in the US is rising, and by 2030 about half of new generation capacity will come from renewable sources. Given that most renewables aren't consistently available, this presents challenges for climate tech solutions, but also great opportunities for growth.

The 16% increase in demand in the next five years, reported by consulting firm Grid Strategic, will come from industry, transportation, building electrification and data centers. **The power needs of large data centers are still a big unknown, as AI is early in its development and application**. Analysis from the Lawrence Berkley National Laboratory (LBNL) and the US Department of Energy (DOE) found that data center power demand could account for between 6.7% and 12% of US energy demand in the next five years.

Here's a good example of the intermittent nature of renewables: the demand for electricity from the California Independent System Operator, or CAISO, on March 7, 2025. On that day, 51% of electricity was supplied through renewables. Between 10:30 a.m. and 3:30 p.m., when wind and solar power are readily available, 85% of the power came from renewables, exceeding the actual demand for electricity and creating an oversupply. But as solar generation ended for the day, other sources, including power from fossil fuels, had to ramp up quickly (and expensively). These dynamics create opportunities for climate tech companies to develop solutions to optimize demand and supply and offer alternative clean generation sources more consistently.

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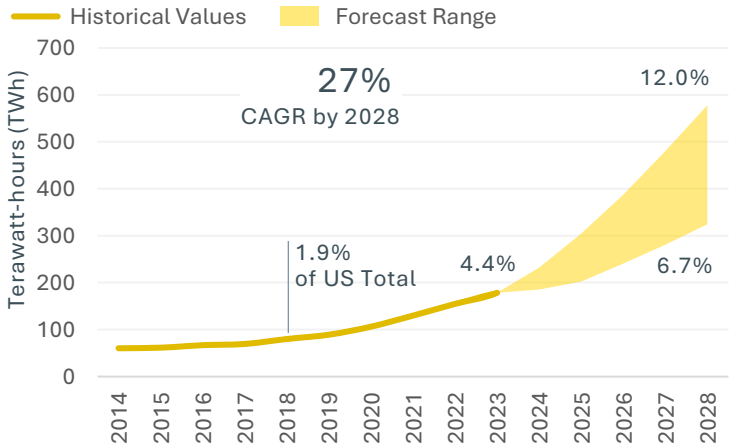
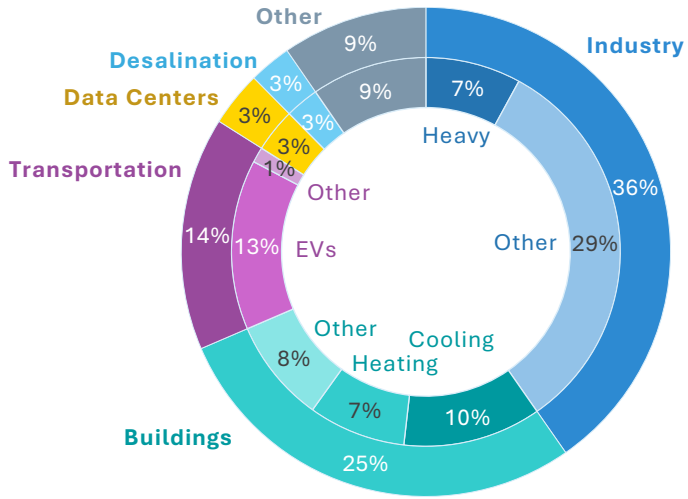
Inflection Point in US Data Center Power Use

US Data Center Electricity Use Forecast from DOE and LBNL as of December 2024



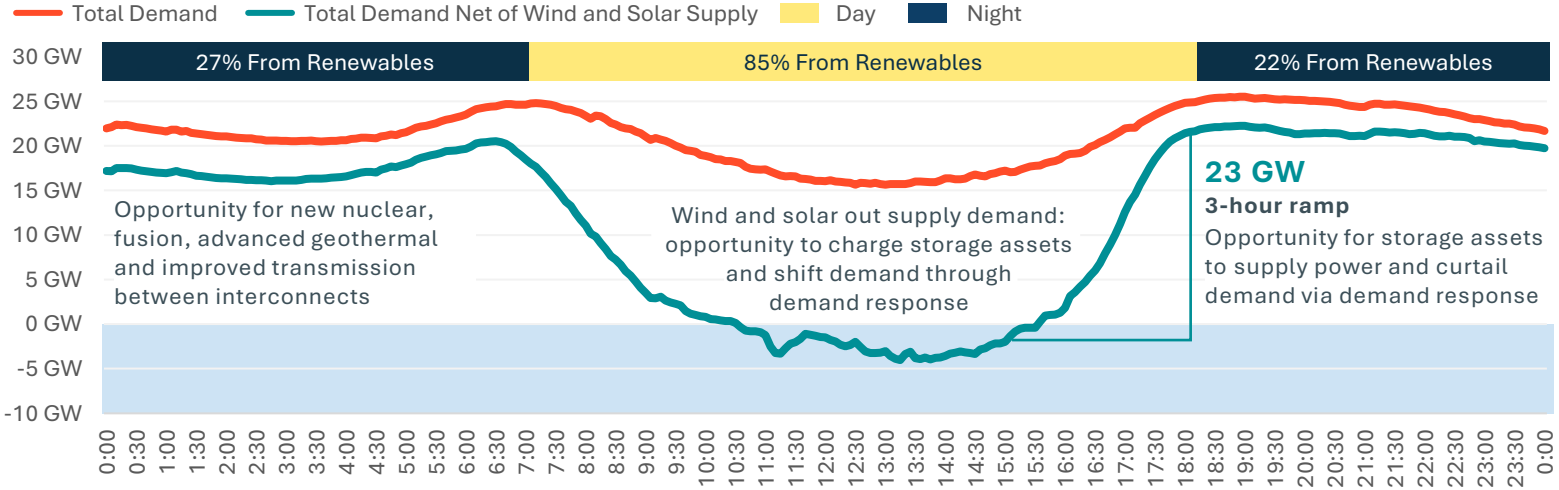
It Isn't Just AI Driving Global Electron Demand

Increase in Global Electricity Demand 2023–30 by Sector[1]



Challenges and Opportunities: How to Provide Renewable Energy Consistently

Electricity Demand March 7, 2025, in CAISO: 51% of Electricity Supplied by Renewables



Notes:1) According to International Energy Agency. Demand growth is different from the top left given geographic differences and different modeling.
Source: US Department of Energy, LBNL, International Energy Agency, Grid Strategics, Bloomberg New Energy Finance and CAISO.

Amping Up Innovation

Many renewable generation technologies are reaching the peak of productivity and are the foundation for today's energy and power companies. Solar, for example, was a nascent technology 15 years ago, capable of powering just 500,000 households. Today, it is the fastest-growing (and cheapest) power generation source, capable of powering 37 million homes.

Dispatchable clean energy is the next wave of generation technology receiving funding. Moonshots like fusion and technologies closer to scalability, such as enhanced geothermal and new nuclear offer the potential to supply high-capacity factor, clean generation consistently.[1] Once at scale, these technologies have the potential to provide stable, baseload power throughout the day. But scalability is unlikely to be reached soon, given it can take up to a decade to obtain a permit for some nuclear and geothermal projects.

For now, many energy and power companies are solving for how to manage large intermittent loads on the power grid with a patchwork of technologies. Demand response technologies shift demand to match supply. Demand from battery charging, vehicle charging and even bitcoin mining operations are all flexible loads that can be shifted. Storage assets are especially helpful, as they not only shift demand, but also become a supply source when supply of intermittent renewables drops and other assets must ramp quickly to meet demand.

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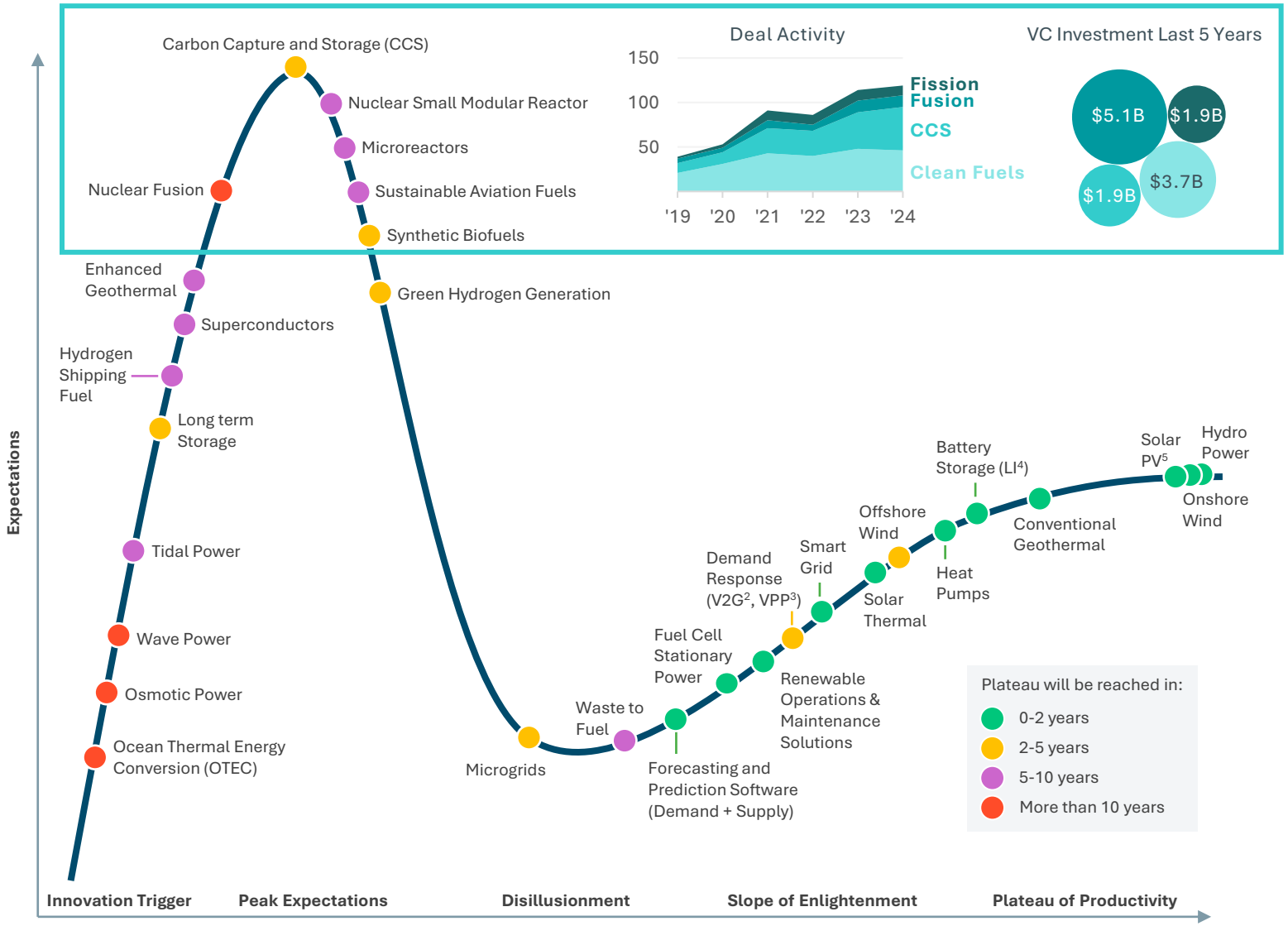
Energy and Power Innovation Hype Cycle

Charting the Adoption of Climate Power Technologies



Notes: 1) Capacity factor is the ratio of actual energy output to the theoretical output. 2) Vehicle to grid. 3) Virtual power plant. 4) Lithium ion battery storage. 5) Photovoltaic.

Source: Pitchbook Data, Inc., SVB proprietary taxonomy and SVB analysis.

If “Clean” Is Dirty Again, Will VC Flee?

Within the wide umbrella of climate technologies, those involved in producing low-carbon energy and electricity are among the most important in fighting climate change over the short term. While VC investment has fallen from 2021 highs in most sectors, investment in clean energy has remained remarkably high. Bolstered by incentives within the IRA and CHIPS and Science Act that improve profit margins for most renewable energy producers, VC investment in clean energy and power companies surpassed $7B in 2024. This is up 15% YoY and a more than 3x increase over pre-COVID-19 levels. **Deal counts for clean energy and power companies hit an all-time high in 2024. The question now is whether that momentum will survive.**

An about-face in policy sentiment has quickly reshuffled the trajectory for emerging climate technologies that were, until recently, making great strides toward commercial adoption. Nascent clean energy companies often rely heavily on government backing, both in terms of funding and supportive regulations. Now, with funding commitments uncertain and regulations potentially rolling back, technologies such as green hydrogen generation and sustainable aviation fuels face a rockier outlook. Others, such as carbon capture technology and nuclear fusion reactors — forms of renewable energy largely championed by conservatives — may see their progress fast-tracked. Despite the near-term uncertainty, attractive economics from now-mature renewables such as solar may trump reactionary moves and keep investors’ gaze fixed on long-term outcomes.

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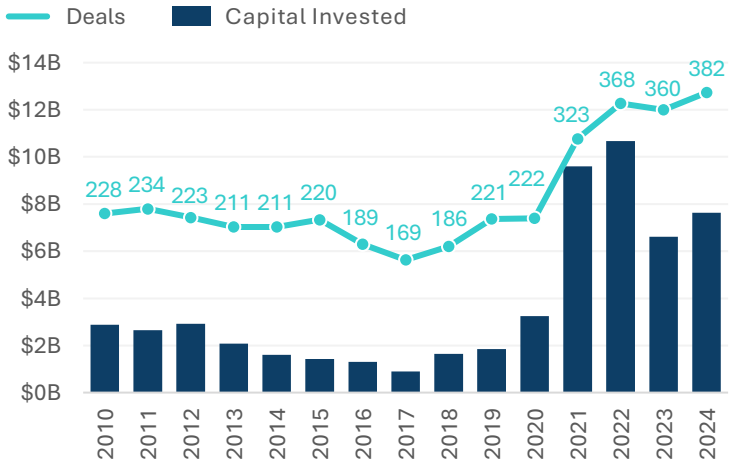
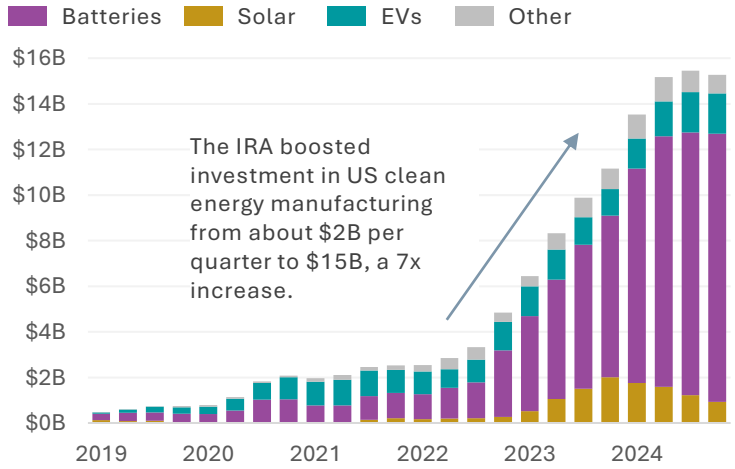
All-Time High for Clean Power Deals

VC Investment in US Clean Energy and Power Companies[1]



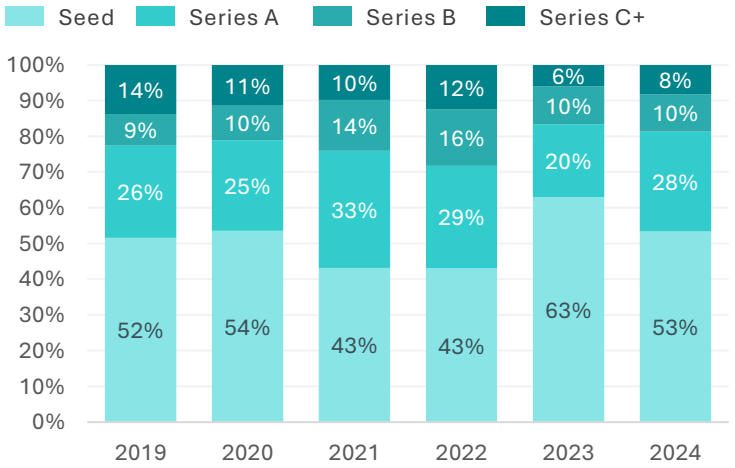
A Boom in Clean Energy Manufacturing

US Clean Energy Manufacturing Investment, Quarterly Total[2]



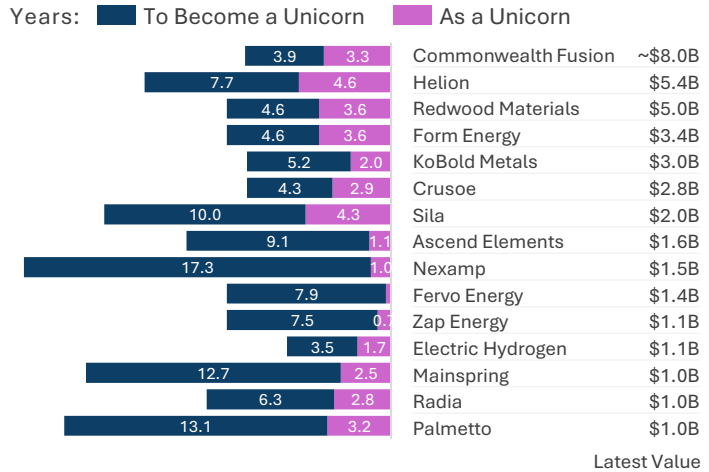
A Healthy Increase for Series A Deals

Share of US Clean Power and Energy VC Deals by Series[3]



Energy Unicorns Aren’t Born Overnight

Time Since Founding and Unicorn Status for Active Private US Energy and Power Unicorns



Notes: 1) Companies with energy as the primary industry and cleantech or climate tech as a vertical. 2) Other includes critical minerals, fueling equipment, wind technology and electrolyzers. 3) Percentages may not add to 100% due to rounding.
Source: PitchBook Data, Inc., SVB proprietary taxonomy and SVB analysis.

Exits

Going Public: Not as Easy as It Looks

Public markets were not kind to many climate tech companies that tested the waters primarily through de-SPACs[1] in 2020-2021. Their performance proves that most companies should wait for more attractive metrics (or some revenue for that matter) to tap public markets.

But what are those metrics? The median public climate tech company in 2024 had $800M in annual revenue, a slim but profitable EBITDA margin of 5%, and a 5% YoY decline in revenue. Performance at the median has been lackluster, so it is fair to expect climate tech companies that wish to tap public markets successfully to aim above those benchmarks, especially for profitability and growth.

A focus on efficiency and getting to profitability has contributed to lower growth rates. The bottom quartile for EBITDA margin was -70% in 2022, but it quickly improved to -39% in 2024. Yet as profitability has improved and companies burn less, growth has dipped 57 percentage points at the median.

Headwinds in the form of tariffs and less favorable climate policy may erode margins and growth for many public and private climate tech companies. For the 56 US VC-backed climate tech unicorns that are active today, it may mean a longer wait to exit.

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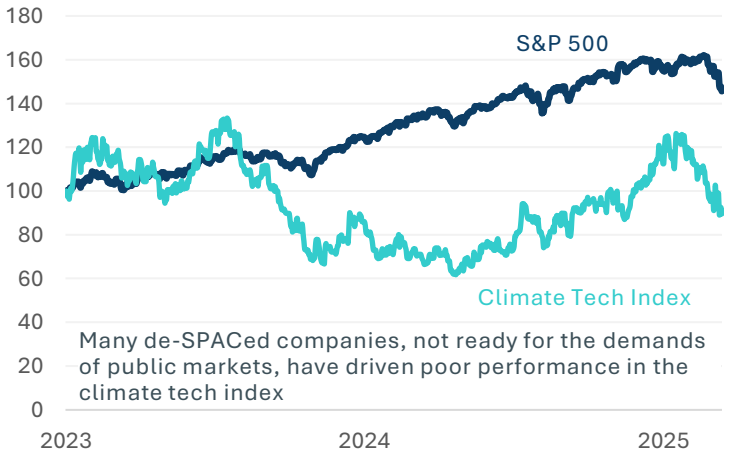
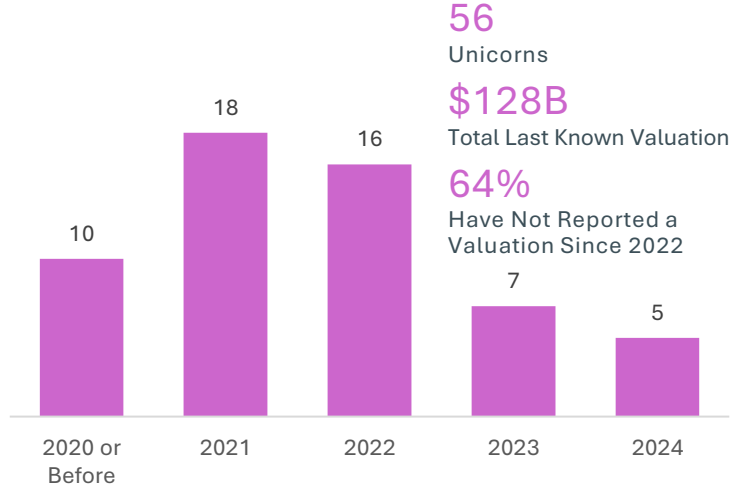
Weak Climate Tech Stock Performance

Climate Tech Public Market Cap Weighted Index vs. S&P 500[2]



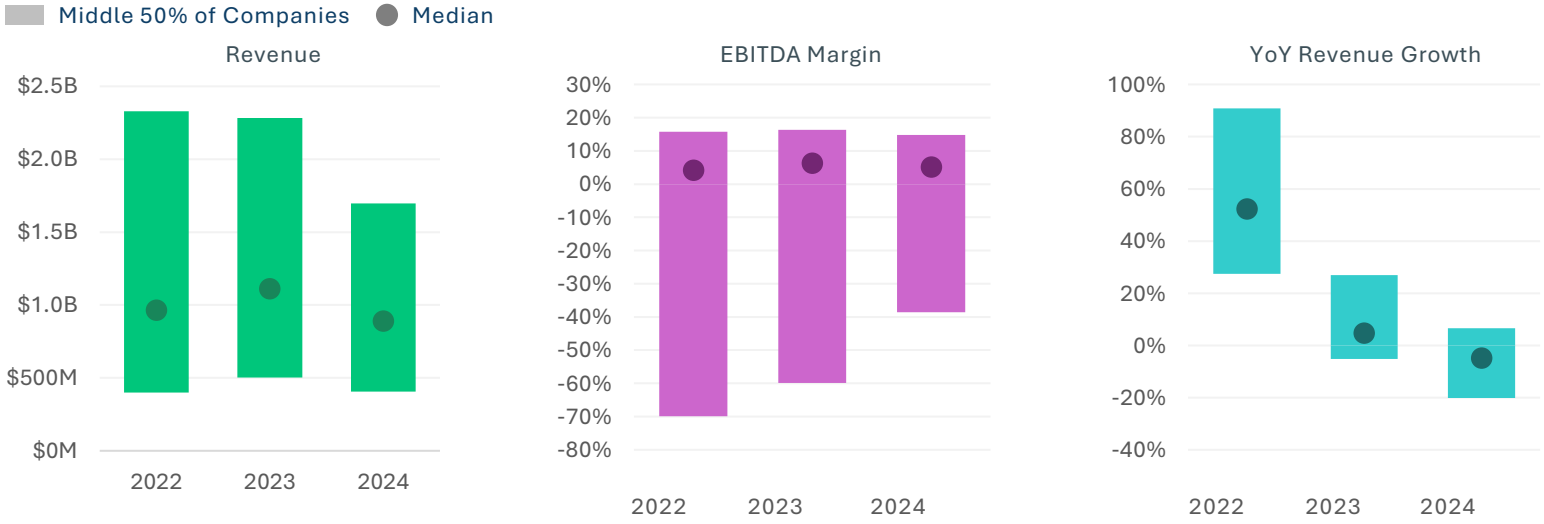
Unicorn Birth Rates Fall

US Climate Tech Unicorns by Date of Unicorn Creation



Under Pressure: Public Climate Tech Companies Protect Margins (No Matter What)

Revenue, EBITDA Margin and Revenue Growth for Public Climate Tech Companies



Notes: 1) Special Purpose Acquisition Company (SPAC). 2) The Climate Tech Index is an equal weight index of 20 public climate tech companies.
Source: S&P Capital IQ, PitchBook Data, Inc. and SVB analysis.

Top M&A Buyers May Surprise You

For VC-backed climate tech companies, M&A activity peaked in mid 2022 at about 18 transactions per quarter. In 2024, we saw between 10 and 12 VC-backed companies purchased each quarter, as buyers trended more financial in the climate tech space. Between mid 2023 and early 2024 deals coming from financial buyers jumped from 15% of transactions to 40% of transactions. It has since fallen with about 20% of deals done by financial buyers. Potentially this speaks to the fact that some financial buyers have been able to scoop up companies that have come on hard times as VC-investment remains low.

Among strategic buyers, the most active companies have been large corporates, many of which have been built on the fossil industry and are turning to climate tech for solutions to future-proof their businesses. That said, 18% of buyers in the space are VC- or PE-backed companies, indicating trends of consolidation among private companies.

With a new chair of the FTC expected to block fewer merger transactions, tailwinds could propel M&A markets. This should provide an outlet for high-performing companies in a market that has been dominated by soft-landing M&A transactions for the last three years.

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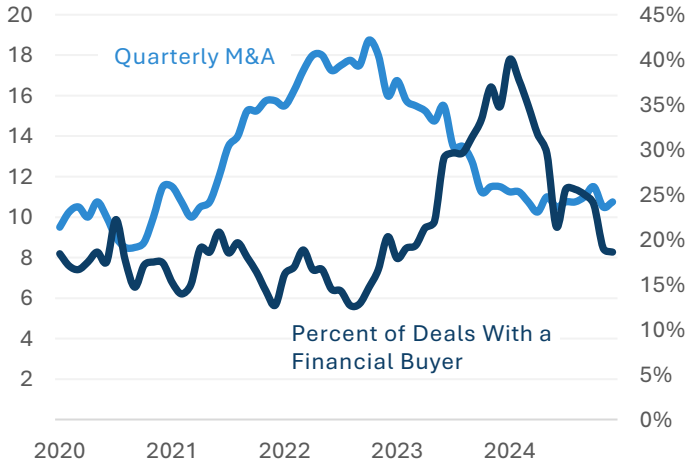
M&A Back to 2020 Levels

Rolling Quarterly M&A Transaction TTM and Share That Have Financial Buyers



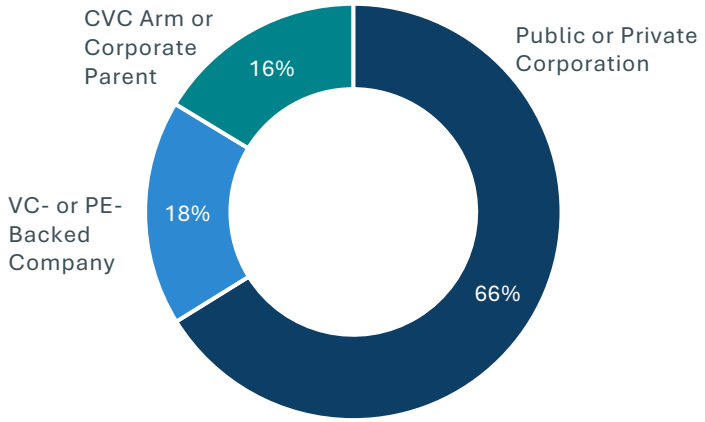
Financial Buyers in Half of the Biggest Deals

Notable M&A Transactions Since 2022

Seller	Buyer	Sector
XLFleet	SHYFT GROUP	Energy & Power
EV PASS PORT	Northleaf Capital Partners	Transportation
CAMBRIAN	Pennybacker Capital	Waste
AutoGrid	Schneider Electric	Energy & Power
IMPERFECT FOODS	Misfits Market	Agriculture & Food
aspen POWER	The Carlyle Group	Energy & Power

1 in 5 Bought by VC/PE-Backed Companies

Breakdown of Strategic Buyers by Type[1]



Many Fossil-Dependent Buyers

Notable Buyers of US Climate Tech Companies

Schneider Electric
KOCH ENGINEERED SOLUTIONS
CATERPILLAR
GENERAC
Ford
BIRD
Shell
BAYER

Note: 1) For M&A transactions in the last five years.
Source: PitchBook Data, Inc. and SVB analysis.

Authors

Lead Authors

Dan Baldi
National Head
Climate Tech and Sustainability
dbaldi@svb.com

Dan is the head of the Climate Tech and Sustainability practice. He and his team manage hundreds of client relationships in low carbon energy, food, agriculture and transportation technologies. He is experienced in many aspects of early stage, growth, middle market, corporate and project financing.

Jordan Kanis
Managing Director
Climate Tech and Sustainability
jkanis@svb.com

Jordan is a managing director of the Climate Tech and Sustainability practice. He provides insights, advice, banking and financing solutions to innovative companies that develop and deploy technologies to mitigate climate change. Jordan has dedicated his career to helping early-stage and established private and public companies with their financial needs.

Contributing Author

Danny Donovan
Director
Climate Tech and Sustainability
ddonovan@svb.com

Danny covers the New England market for SVB's Climate Tech and Sustainability practice, working with dozens of clients from seed stage and beyond. He helps facilitate clients' success through SVB's comprehensive suite of commercial banking offerings, creative lending solutions and broader market connections.

Market Insights Authors

Eli Oftedal
Senior Researcher
Market Insights
eoftedal@svb.com

Josh Pherigo
Senior Researcher
Market Insights
jpherigo@svb.com

Anjalika Komatireddy
Analytics Researcher
Market Insights
akomatireddy@svb.com

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SVB's Climate Technology & Sustainability practice partners with innovators whose passion and purpose lie in building businesses to develop sustainable resources and protect our planet. With decades of industry-specific experience, SVB team members tailor a range of banking and financing solutions to meet the needs of climate technology and sustainability leaders. SVB supports founders, enterprises, projects and investors to help increase the probability of their success and move sustainability forward.

Learn more at: www.svb.com/cleantech

Project Finance Practice

SVB's Project Finance practice delivers flexible banking solutions and expertise to help entrepreneurs bring innovative climate tech and infrastructure projects to life. The team specializes in crafting financing structures to advance ventures in solar, wind, battery storage, fuel cell, utility storage and more. Solutions such as construction financing, tax equity bridge loans, back leverage debt financing, loan syndications and agency, unitranche financing and aggregation facilities allow our clients to deploy large-scale projects aimed at creating a healthier planet.

Learn more at: www.svb.com/corporate-banking/project-finance

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