

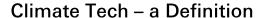
What is 'Climate Tech'?

Technology that can enable the transition to a cleaner environment

February 2024

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What is 'climate tech'?

The term 'climate tech' generally refers to a group of technologies that aim to address climate change by reducing or eliminating greenhouse gases from one or more sectors of economic activity (i.e., decarbonisation) and/or contributing to de-pollution (e.g., reduce water pollution) of industries.

De-carbonisation is achieved either i) indirectly by replacing fossil fuels with clean technologies (e.g., renewable power generation, electric vehicles, electric heat) or by enabling the development of clean technologies; and ii) directly by removing greenhouse gases from the atmosphere (e.g., carbon capture) or by reducing the use of energy in economic activity that would otherwise not have decreased (e.g., energy efficiency, material reuse).

Climate tech also includes technologies that contribute to de-pollution, for example by replacing 'dirty' technologies and processes that generate waste (e.g., chemical waste), usually in a supply chain, with ones that eliminate or reduce it. Climate tech also encompasses technologies that improve climate change resilience and technologies for environmental observation and analysis.

Ultimately, products and services that fall under the broad umbrella of climate tech help organisations and individuals reduce carbon emissions and pollution, help to enable the transition to net zero, and aim to reduce the negative impact of human activity on the environment. Given the emerging nature of many of the technologies and their often-early stages of development, much of the climate tech activity takes place within the venture capital asset class.

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Long-term drivers of growth

Why invest in climate tech venture capital?

There are several reasons investors should consider an allocation to climate tech venture capital. Importantly, the drivers of activity and potential growth within the industry are long-term in nature.

These include:

- 1. Climate change is one of the largest global challenges facing the planet and climate tech is critical to addressing this. With USD6.5tn a year required investment in new technologies to achieve net zero by 2050¹, investing in climate tech can offer an opportunity to generate both financial returns, while having a positive environmental impact.
- 2. The market opportunity has grown considerably in recent years as businesses, governments and consumers focus on reducing carbon emissions and polluting activities. This has resulted in demand for climate technologies. In parallel, the reduction in the cost of foundational technologies means that the products and services often have the potential to scale at rates not previously possible.
- 3. Policy tailwinds can drive activity: Many governments are supportive of the adoption of solutions enabling the transition to net zero, with policies such as the Inflation Reduction Act in the US and the EU's Sustainable Energy for All Initiative, long term demand could potentially be continued for these solutions in our view.
- 4. The fundamentals driving climate tech are strategic, not tactical: the climate tech opportunity is driven by the increasing adoption of climate technologies, such as electric vehicles and renewable energy, the rapidly declining costs of technology and society's appetite to transition to net zero. This can insulate the long-term potential of climate tech companies from short term economic gyrations. Early-stage climate tech companies, in particular, offer an opportunity for diversification, since they are less correlated to public markets than other venture sectors (or later stage) since exits are likely to be achieved via acquisitions rather than Initial Public Offerings (IPOs).

The underlying technology, industry, and regulatory transformations are creating markets for new products and services that were nascent or did not exist five years ago. It is likely that the sector will continue to grow, particularly in these new markets, as a result.

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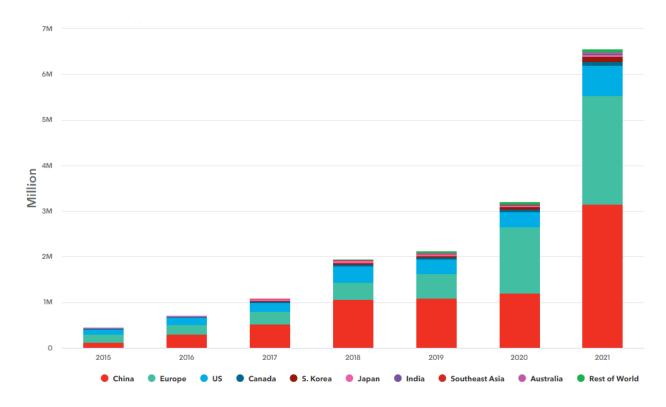
1. McKinsey; Delivering the climate technologies needed for net zero, April 2022



The secular trends that make climate tech a compelling investment opportunity

1. Electric Vehicles' (EV) adoption has been exponential²: New passenger EV sales in 2015 totalled just under 460,000 vehicles; by the end of 2021, this had reached more than 6.5 million – an increase of over 1,200%.

Global passenger EV sales by market



Whilst EVs now account for approximately 10% of all passenger car sales globally, they account for almost half of all bus sales. This rapid growth in EV adoption has seen an equally large expansion in the technology required to support it; in 2015 there were around 200,000 public charging points globally and today there are nearly 2 million³.

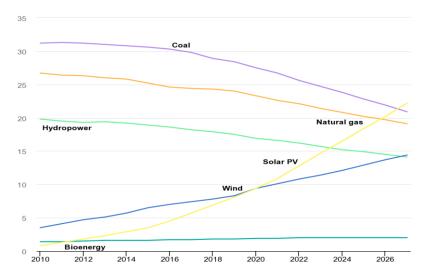
The growth in electrification of transport is expected to result in the demand for oil used for road transport peaking by 2027 and will create significant opportunities for technologies that support this adoption and transition.

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^{2.} Bloomberg New Energy Finance; Electric Vehicle Outlook 2022

2. Renewables adoption is continuing at pace⁴: Renewable sources of energy will become the single largest source of electricity generation by 2025 (surpassing coal), accounting for 38% of electricity generation. Renewables are the only electricity generation source whose share is expected to grow going forward.



Source: International Energy Agency, Renewables 2022 Report

Renewable generation capacity expansion between 2022 to 2027 will grow by approximately 2,400 GW, equivalent to the entire installed power capacity of China today. This expansion will account for over 90% of new global electricity generation capacity over the next five years.

In addition, geopolitics is accelerating the pace of the transition, with the EU in particular recognising the need to increase energy security and recognising that renewables form an important part of that strategy. As a result, the EU has increased its goal for renewables to account for 45% of the share of energy consumption by 2030.

This trend of power transformation towards renewables will require significant investment in climate technology to succeed.

3. Policy and societal tailwinds: Consumer and business demand for solutions to address the climate challenge in everyday life have grown considerably. In recent years (accelerated by the recent global pandemic), a "climate consciousness" has arisen in many consumers and governments. For example, 61% of countries have committed to achieving net zero CO₂ emissions by 2050, as a party to the Paris Agreement. Meanwhile, 21% of the world's 2,000 largest publicly traded companies (representing approximately USD14tn of annual revenue) have made their own net zero pledges (including HSBC Group plc)⁵.

In addition, a recent consumer survey found both 50% and 54% of Millennials and Gen Z shoppers, respectively, are willing to spend 10% more on goods that they believe are made sustainably⁶. Increased pressure from consumers and investors alike should ensure that businesses seek more sustainable production methods. This could be manifested in more sustainable supply chains, for example.

Additionally, the spotlight that many investors are shining on the sustainable practices of companies, as well as financial investors' increased focus on sustainability and ESG alignment, should mean that greater emphasis is placed on accurately monitoring and measuring data.

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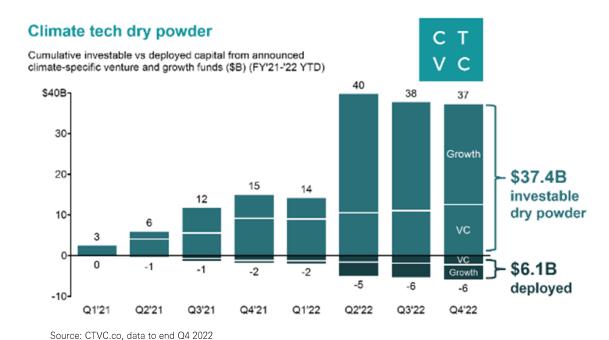
HSBC Asset Management as of January 2024.

- 4. International Energy Agency, Renewables 2022 Report
- 5. Energy & Climate Intelligence Unit, TAKING STOCK: A global assessment of net zero targets, University of Oxford, March 2021
- 6. Sources: 1) First Insight, The State of Consumer Spending: Gen Z Shoppers Demand Sustainable Retail, 2019; 2) Forbes, Sustainable Retail: How Gen Z Is Leading the Pack, Greg Petro, Jan 31 2020

4. Significant dry powder and investor interest in the asset class could support valuations and provide exit opportunities: The significant expansion of the asset class has resulted in a large volume of dry powder available for investment. As at the end of Q4 2022, climate tech dry powder totalled approximately USD37bn, compared with just USD3bn at the end of Q1 2021.

Furthermore, approximately two thirds of this dry powder was in growth funds, which are later stage investors. This dry powder is likely to be deployed over the next five years. As a result, it could provide some valuation support and exit opportunities for earlier stage companies, which will grow and may become viable targets for such funds in the future⁷.

In addition to this, the continued interest from many investors, from early-stage venture capital all the way to public markets, for assets that have some focus on ESG related factors means that many of the companies that are private start-ups now may mature into IPO candidates that fit with such a mandate.



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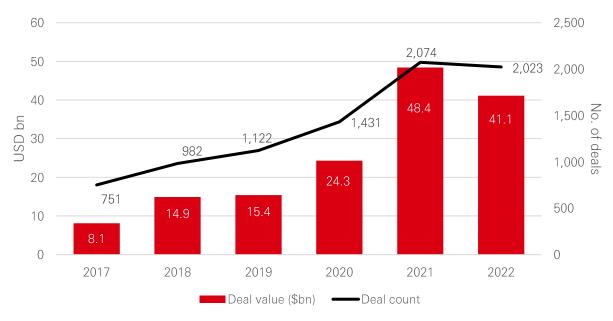
7. CTVC.co, 2022 Mid-Year Update, June 2022



Rising deal activity

The growth of the climate technology sector can also be witnessed through the rising number of deals and aggregate deal values in recent years. Aggregate deal values increased from USD8.1bn in 2017 to reach USD48.4bn at the peak of market activity in 2021 – equal to compound annual growth of 56.3%. During 2022, activity within the climate tech sector slowed for the first time since 2013⁸ but remained at elevated levels. This decline is likely a spill-over from the lower levels of activity within the VC asset class since interest rates began to increase at pace, as 2022 progressed.

Climate tech VC deal activity:



Source: Pitchbook, 2022 data as of June 2023

Why access climate tech at the early-stage?

Though investing in early-stage venture capital can be a higher risk versus public or private equity, owing to the relative immaturity of companies, the potential for positive returns, particularly in complex sectors such as climate tech, is significant. Early-stage companies are often at the forefront of innovation and have the potential to grow quickly, delivering considerable value for investors.

Attractive valuations at an early stage

There are a number of reasons why valuations in early-stage climate tech are more attractive than later stage:

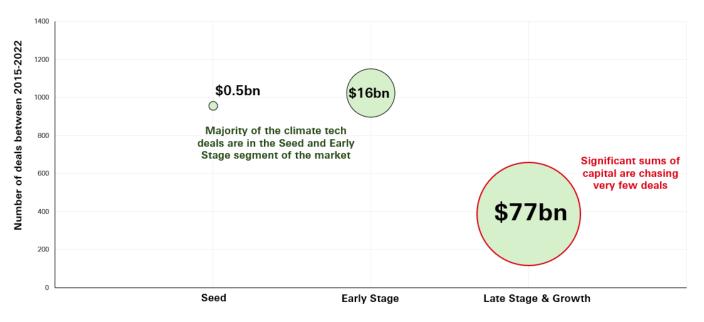
1. Supply and demand imbalance; capital is being raised to target the later-stage/growth segment of the market, but the majority of the opportunities are in the early stage

There is substantial capital being raised in large (USD750m+) funds focused on climate tech, as a greater number of asset managers have entered the space. This is partially driven by the strong thesis underpinning investment in the asset class. These funds need to deploy relatively large ticket sizes (USD50m+), so therefore focus on the later stage/growth part of the market to ensure they can achieve their deployment targets.

The issue with raising a large fund in climate tech is that the climate technology space is nascent, with technological advancement in underlying infrastructure only making the opportunity viable recently. This means that most of the opportunities today remain in the early stage.

Between 2015–2022, there were over 1,000 early-stage climate tech deals, compared to just 238 later stage VC deals, and only 87 growth stage deals. However, the vast majority of the capital currently in market is targeting later-stage and in many instances, the growth component of the market. The high velocity of company formation, mostly at the earlier seed stage, shows that climate tech is still a relatively young industry. The result of this imbalance is that there is a lot of capital chasing few deals, resulting in the prices being paid for later stage & growth stage deals being higher, due to the increased competition.

Majority of climate tech opportunities are in early-stage but majority of capital is targeting later stage. (Size of bubbles represents capital raised in 2021 and 2022)



Source: ctvc.co as of December 2022

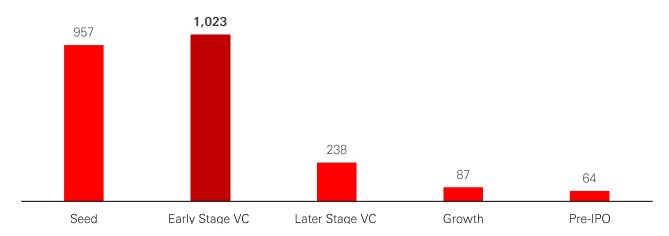
2. Exit opportunities; abundance of exit avenues for early stage, while public markets offer an attractive exit route for later-stage

Earlier stage transactions offer a greater diversity of potential exit opportunities, owing to the fact that the entry valuations are generally lower (typically USD30–50mn). This means that even after significant growth (5-10x), the companies can still be at a valuation that makes them attractive for corporate M&A.

In contrast, the higher valuations of late-stage companies (USD100mn+) means that to deliver attractive returns, they will be required to exit at valuations that frequently do not make them viable targets for corporate M&A. This leaves public markets (via Initial Public Offering (IPO) the most obvious exit route. As a result, these investments can be highly correlated to public markets, given that exit opportunities depend on equity market conditions. The lack of variety of exit opportunities therefore increases the risk for investors that funds fail to realise exits, or are required to compromise on valuation, to sell and return capital to investors.

Data from PitchBook shows that between 2015 – 2022, there have been more deals in the 'early-stage VC' segment of the market (defined as Series A to Series C deals) than any other segment, reflecting the scale of the opportunity.

Number of climate tech deals globally, by stage, 2015 to 2022



Source: PitchBook as at 31st December 2022

Conclusion

The long-term opportunity for climate tech-focused companies appears positive. With significant drivers of activity and potential growth, investors and fund managers have contributed to the ongoing establishment and institutionalisation of the sector. This is driven by:

- Long-term drivers of activity within this part of the market
- Significant company formation (as measured by the number of firms) at early stage
- Early-stage investments offering more potential exit opportunities (trade sales, private & growth equity acquisition, secondary sales, future funding rounds)
- Valuations across early-stage companies have remained grounded, potentially providing greater downside protection, mitigated by the fact that valuations did not increase as substantially as other parts of the market.

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HSBC Asset Management as of January 2024.



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