



25 September 2023

03
The EUR600bn
opportunity

04
The funding
gap

07
The technology
gap

08
Venture capital
to the rescue?

11
The call to action –
Policy recommendations

Allianz Research

Climate tech – the missing piece in the net zero puzzle

In collaboration with



Executive summary

Authors

Arne Holzhausen
Allianz SE Economic Research
arne.holzhausen@allianz.com

Markus Zimmer
Allianz SE Economic Research
markus.zimmer@allianz.com

Gideon Wangigi
Allianz SE Economic Research
gideon.wangigi@allianz.com

Patrick Hoffmann
Research Fellow
Allianz SE Economic Research

Nhi Huynh
Allianz X
lang-nhi.huynh1@allianz.com

Michael Buchinger
Allianz X
michael.buchinger@allianz.com

Sarah Theinert
UVC Partners
theinert@uvcpartners.com

Johanna Bronisch
UnternehmerTUM
johanna.bronisch@unternehmertum.de

For media queries

Allianz SE Economic Research
Lorenz Weimann
lorenz.weimann@allianz.com

Allianz X
Gregor Wills
gregor.wills@allianz.com

UVC Partners
Maria Poursaiadi
maria.poursaiadi@uvcpartners.com

UnternehmerTUM
Jasmin Eigemann
jasmin.eigemann@unternehmertum.de

The ClimateTech industry is set to grow threefold, reaching a market size of EUR600bn by 2030. However, Europe's position in this emerging market cannot be taken for granted – without further efforts, Europe is likely to lose the race against the US and China.

The mismatch between reality and expectations is alarming. To reach its own climate targets, Europe needs to increase its annual investments in ClimateTech to the tune of EUR140bn in the public sector and EUR560bn in the private sector, compared to the last decade. The current investment gap in the European energy sector alone is as high as EUR200bn per year, with EUR40bn and EUR160bn of missing public and private funding, respectively.

Investments in ClimateTech start-ups by venture capital and private equity have boomed in the last few years, reaching almost USD100bn (EUR93bn) in 2022 worldwide; Europe accounts for around 30% of this. However, funding of sub-sectors is rather uneven: The sectors with the highest emissions (particularly manufacturing, the agrifood sector and the building sector) – and therefore the greatest potential to decarbonize – do not receive the most funding (which goes into the energy and transport sectors).

Beside funding and subsidies, there is a long list of measures that would improve conditions for Europe's ClimateTech industry: reducing red tape, clearing the jungle of funding schemes and streamlining application processes; updating procurement policies to favor start-ups; increasing collaboration between investors and universities building research ecosystems; facilitating the use of institutional capital for ClimateTech investments and improving capital market conditions.

It is not too late for European policymakers, investors and scientific institutions to speed up. But fast, targeted and impactful measures are required to create an environment for European ClimateTech to thrive and become global category leaders. The time to act is now.



The EUR600bn opportunity

The upcoming years are set to be pivotal in determining the success of the global net zero transition and will define the landscape of the future green economy. Achieving European energy autonomy and the targeted 55% reduction in greenhouse gas (GHG) emissions by 2030 requires a competitive ClimateTech industry. This would create benefits not only on the mitigation side of emissions, but also for economic growth as the industry for mass-manufactured clean-energy technologies is projected to balloon to an annual worth of EUR600bn by 2030 – triple its current value². Apart from substantial investments in existing clean-energy technologies and the general clean-energy infrastructure, raising financial, technological and regulatory support for ClimateTech innovation “made in Europe” is essential if the EU wants to maintain the role of a climate leader³. Today, China is already leading on clean-energy investments, spending almost EUR500bn in 2022, while the US has turbocharged its ClimateTech funding, providing hundreds of billions USD for energy and climate-related projects within its Inflation Reduction Act (IRA)⁴.

If Europe wants to seize the opportunity of building ClimateTech category leaders, it needs to take fast action in supporting scientific research and tech investments. The recent decision of the German nuclear fusion company Marvel Fusion to build its laser fusion factory in a USD150mn public-private venture with Colorado State University is clear writing on the wall⁵.

To strengthen Europe’s position in the ClimateTech race, this paper provides an overview of the current public and private funding situation of ClimateTech companies in Europe, shares examples and opinions from European ClimateTech companies and makes calls to action to Europe’s policymakers, investors and scientific institutions. Co-authored by Allianz Economic Research, Allianz X, UVC Partners and UnternehmerTUM, this paper offers a new and unique joint perspective from the eyes of economists, investors and scientific researchers.

1 Exchange rate (1Euro=1.08USD)

2 According to IEA [Energy Technology Perspectives 2023](#)

3 In this paper, we use the term “clean energy” in accordance with IEA, which covers a technology range that is similar to ClimateTech from an investment goods perspective.

4 For total energy spending see [IEA World Energy Investments](#) and for more information on the IRA see for example [Inflation Reduction Act Guidebook](#) and [UNCTAD Investment Policy Hub](#)

5 According to press release: [Marvel Fusion -The ultimate clean energy solution](#)

What ClimateTech startups need, according to STABL

STABL is a developer of virtual battery inverters designed to increase the deployment of energy storage for renewable energy by setting a new standard for battery storage. It engages in manufacturing central inverters to make connecting to the power grid unnecessary, reducing the self-consumption of battery storage to a previously unachievable level. This enables clients to avoid life-threatening high battery voltage, utilizes the full battery capacity and maximizes energy efficiency.

For STABL Co-Founder Arthur Singer, among the most important aspects to improve are the use of institutional capital for ClimateTech investments, as well as the capital market conditions for IPOs of ClimateTech companies in Europe: “If companies want to do an IPO, they will do one, independent of European market conditions. Bad conditions will lead to IPOs abroad,” he says. Also important is the rollout of funding and tax credits for ClimateTech companies to enable their business in the current market environment, as well as easier regulation and faster bureaucracy, which will accelerate the overall adoption and implementation of clean energy production.

The funding gap

A thriving ClimateTech industry will play an indispensable part in the net zero transformation. But at the same time, its success depends on the breath, depth and speed of the transformation itself – for which public and private investments of an unprecedented scale are required. So far, public and private players do not seem up to the task: Looking at the broad picture and including established players as well as start-ups, we find a huge investment gap, i.e. a difference between what is actually invested under current policies and what is needed to achieve a sustainable development path that limits climate change.

According to recent International Energy Agency (IEA) estimates, treading a path consistent with net zero would require annual global clean energy investments of USD4.5trn in 2030, up from just over USD1.7trn today (total clean and fossil energy sector investments in 2023 were USD2.8trn)⁶. These additional investments, however, are not equal to the investment gap as even under current policies, investments in climate action will increase. The IEA estimates that clean-energy investments will rise to USD2.2trn in 2030 even under currently stated policies and to USD3.3trn under additionally announced policies⁷. Therefore, the global investment gap would be between USD1.2trn and USD2.3trn in 2030⁸.

At the European level, the situation is not much better. The European Commission (EC) estimates that between 2021-2030 annual investments of EUR1.5trn are needed to transform the EU energy system and transport sector

in line with the ‘Fit-for-55’ and REPowerEU’ commitments of the EU Green Deal⁹. This is roughly EUR700bn more than what was spent annually in the EU over the last decade (2011-2020 period)¹⁰. Assuming a share of public investments of around 20%¹¹, additional public investments would amount to EUR140bn; the remaining EUR560bn have to come from the private sector.

But how close is the EU to meeting these targets in reality?

Annual clean energy investments in the EU (Figure 1) are estimated around EUR400bn in 2023, of which EUR80bn can be attributed to the public sector. However, the investments required in the energy sector alone to reach net zero amount to over EUR600bn per year (or roughly 40% of the total EUR1.5trn), leaving the public sector with a share of around EUR120bn. Hence, the resulting public investment gap for energy alone could be as high as EUR40bn annually. The corresponding figure for the private sector is EUR160bn. To achieve targets in the EU, annual public clean-energy funding needs to increase by +50% from its current level¹².

A first step to closing this gap was made on the supranational level. The current EU budget (2021 – 2027) earmarks funding of more than EUR578bn for the green transformation (Figure 2). This accounts for 32% of the total EU budget of EUR1.8trn.

⁶ According to [IEA World Energy Investments 2023](#)

⁷ See Figure 1 for current clean energy investments

⁸ IEA (2023), World Energy Investment 2023, IEA, Paris <https://www.iea.org/reports/world-energy-investment-2023>, License: CC BY 4.0

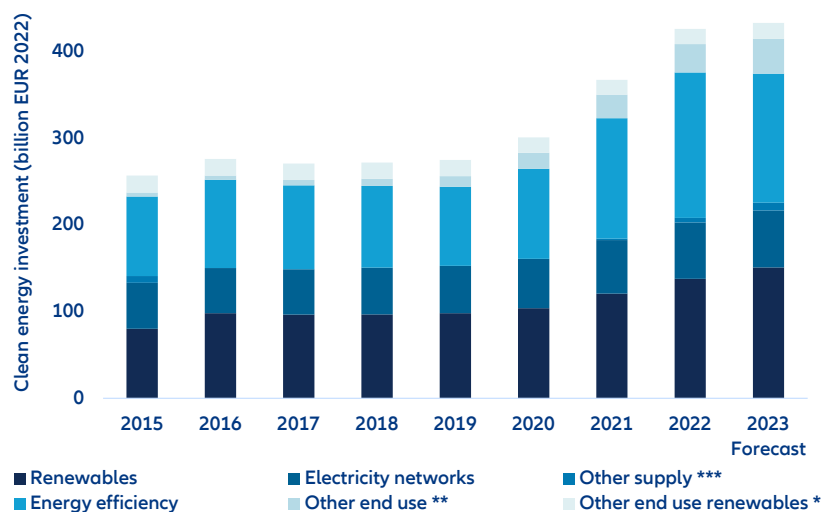
⁹ Fit-for-55 is the EU target plan for achieving a 55% GHG emission reduction by 2030 compared with 1990 levels. The RePowerEU program was implemented after the invasion of Ukraine by Russia to accelerate the transformation process of the energy sector and become more energy independent.

¹⁰ See [Commission Recommendation \(EU\) 2023/1425 of 27 June 2023 on facilitating finance for the transition to a sustainable economy](#)

¹¹ The [EU Commission](#) estimates 17-20% as a realistic public investment share

¹² Calculations are based on a recent [European Commission Staff Working Document](#) (table p.43) to assess the energy investment share and a more recent [assessment by the Commission](#) putting the additional funding needs at EUR700bn compared to the 2011-2020 period.

Figure 1: Clean energy investment in the EU (in EUR bn 2022)



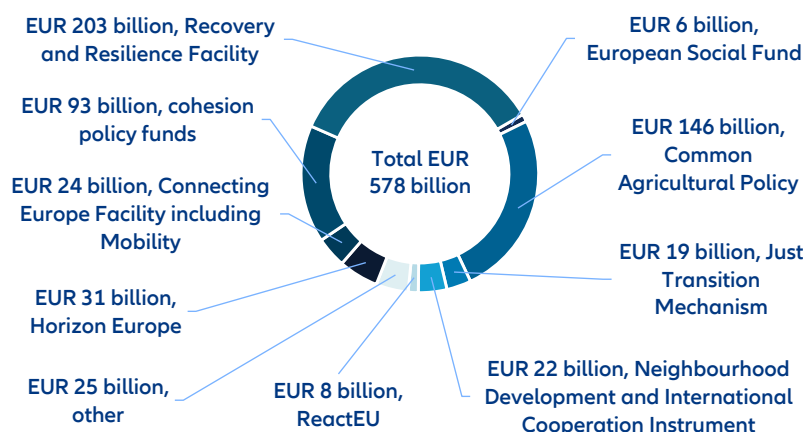
Sources: IEA¹³, Allianz Research

* Bioenergy, geothermal and thermal solar, which are directly consumed by residential and service buildings and industry.

** Transport electrification and industry CCUS.

*** Particularly battery storage.

Figure 2: EU 2021-2027 budget for the green transformation



Sources: [European Commission](#), Allianz Research

What ClimateTech startups need, according to Proxima Fusion

Proxima Fusion is a developer of fusion power reactors intended to produce abundant and emission-free power. Its technology is designed to build the first generation of fusion power plants using QI stellarators that aim to generate electricity by fusing nuclei and creating renewable energy, thereby enabling businesses to produce clean, abundant and safe energy.

For Proxima Fusion Co-Founder Lucio Milanese, if the EU does not match in some form support like in the US or China, the fusion energy industry (and similarly for other industries, such as batteries) are unlikely to develop well and survive in the EU. Digitization and the acceleration of bureaucracy processes for subsidy approvals is also tremendously important, as well as enabling more funding and tax credits for ClimateTech companies to level the playing field across the US, EU and China.

The situation at the national level is more diverse and opaque. But there are at least some encouraging signs of change as many governments have started to roll out their own ClimateTech industry-funding programs. Germany, for example, recently announced a massive climate and transformation fund of EUR212bn that could benefit the ClimateTech industry by pushing more investments into renovation, hydrogen production and electric mobility. This can help to create a market pull that stimulates demand for innovative solutions¹⁴. Inspired by the tax credit schemes under the IRA, France has included as part of its industry-funding program a EUR500mn annual tax credit in 2024 (with no end date specified), supporting investments into wind and solar power, heat pumps and batteries¹⁵. This tax credit is expected to not only directly support such companies in making necessary investments, but also help to crowd-in up to EUR23bn in private funding. While the German and French support schemes are the biggest, the Benelux and Nordic countries have programs that are similar or even more ambitious in per capita terms. Southern European countries have also intensified climate-related industrial policies, with Italy, for instance, allocating EUR2bn to different energy technologies in its Recovery and Resilience Plan until 2026, which includes support for ClimateTech start-ups¹⁶.

The overall success of these programs hinges a great deal on their complementarity with existing EU initiatives and support from the private sector. The EU Clean Hydrogen Strategy is an example of how technology-specific support can be structured, involving a mix of EU policy-instruments, member state programs and blended finance instruments¹⁷. Framed within major funding programs, smaller technology-specific funds are created such as the European Hydrogen Bank or the fund for Important Projects of Common European Interest (IPCEI), which offer different hydrogen supporting schemes. Schemes under IPCEI include Hy2use (EUR5.2bn) which focuses on hydrogen-related infrastructure and hydrogen applications in the industrial sector, and Hy2Tech (EUR5.4bn) which complements the funding by supporting end-users in the mobility sector¹⁸.

The blended finance approach for hydrogen in the EU involves funding from both member states and the EU budget, as well as support from the European Investment Bank (EIB), national investment banks (like KfW in Germany or Bpifrance in France) and private investors joining forces to accelerating the deployment of emerging Climate Technologies in projects such as the Breakthrough Energy Catalyst, which seeks to mobilize EUR820mn between 2023-2027¹⁹.



14 [German Climate & Transformation Fund](#)

15 Information about the French tax credit can be found in a recent green industry draft [bill](#)

16 Italy's Recovery and Resilience [Plan](#)

17 <https://fst.eui.eu/hydrogen-funding-flows-in-the-european-union-2023/>

18 For more information on each program see EU commission press releases [Hy2Use](#) and [Hy2Tech](#)

19 <https://breakthroughenergy.org/our-work/catalyst/eu-catalyst-partnership/>

What ClimateTech startups need, according to Claims Carbon

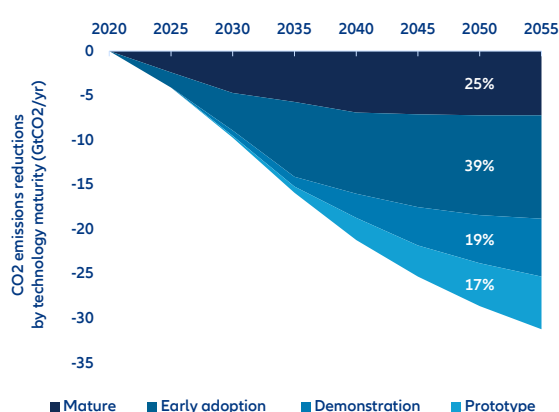
Claims Carbon is a developer of a platform that offers carbon-footprint calculations, designed to decarbonize the insurance industry. Its platform provides features such as identifying and calculating the total carbon footprint, determining the carbon waste of individual claims and engaging with the supply chain, offering green insurance and more, enabling clients to combine insurance and claims data, trusted emissions data and proprietary data sets.

For Claims Carbon CEO & founder, Markko Waas, Europe is at the forefront of ClimateTech investing and needs to keep this position globally by making public financing approvals more efficient and increasing investment volumes in European ClimateTech. Policymakers could also implement cash subsidies and tax credits to increase customer access and increase buy-in, besides implementing more efficient processes and timelines for subsidy approvals. ClimateTech companies would also benefit from a common entrepreneur-friendly policy across Europe that includes funding, tax credits and subsidies for ClimateTech companies, as well as increased use of institutional capital, especially from insurance companies and pension funds that have a long-term horizon and the right risk appetite.

The technology gap

Capital is not the only thing that is missing, but more innovative technologies, too. Figure 3 reveals that today's mature technologies will only contribute to 25% of the additional CO2 emission-reduction required atop of the stated policies to achieve the IEA Sustainable Development Scenario. Consequently, more than 75% of emission-reduction achievable in the long term needs to come from new innovative technologies that are currently in prototype, demonstration or early adoption phases²⁰.

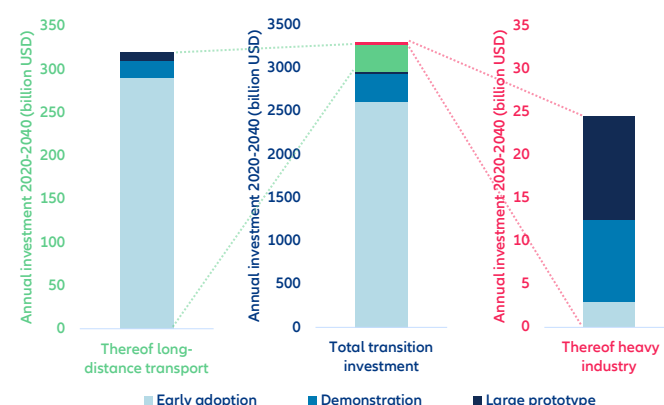
Figure 3: The contribution of current versus emerging technologies to emission-reduction



Sources: IEA²¹, Allianz Research

Figure 4 highlights that between 2020-2040, technologies that were in pre-commercial or early adoption stages in 2020 need USD3.3trn in average annual investment to achieve the targets of the IEA's Sustainable Development Scenario. This includes annual investments of USD320bn in innovative technologies for long-distance transport and close to USD25bn in heavy industry.

Figure 4: Required global average annual investment in innovative technologies over the next 20 years in the IEA Sustainable Development Scenario *



Sources: IEA²², Allianz Research

* Innovative technologies refers to technologies that were in pre-commercial or early adoption stages in 2020

20 "Early adoption" refers to technologies for which some designs have reached markets. Examples are offshore wind, grid batteries and industrial heat pumps. Examples for "demonstration" are carbon capture in cement kilns, electrolytic hydrogen-based ammonia, methanol and large long-distance battery-electric ships. Large "prototypes" include ammonia powered vessels, electrolytic hydrogen-based steel production and direct air capture.

21 IEA, Global energy sector CO2 emissions reductions by current technology readiness category in the Sustainable Development Scenario relative to the Stated Policies Scenario, 2019-2070, IEA, Paris <https://www.iea.org/data-and-statistics/charts/global-energy-sector-co2-emissions-reductions-by-current-technology-readiness-category-in-the-sustainable-development-scenario-relative-to-the-stated-policies-scenario-2019-2070>. Licence: CC BY 4.0

22 IEA, Number of clean energy technology designs and components analyzed in the ETP Clean Energy Technology Guide, IEA, Paris <https://www.iea.org/data-and-statistics/charts/number-of-clean-energy-technology-designs-and-components-analysed-in-the-etp-clean-energy-technology-guide>, IEA. Licence: CC BY 4.0

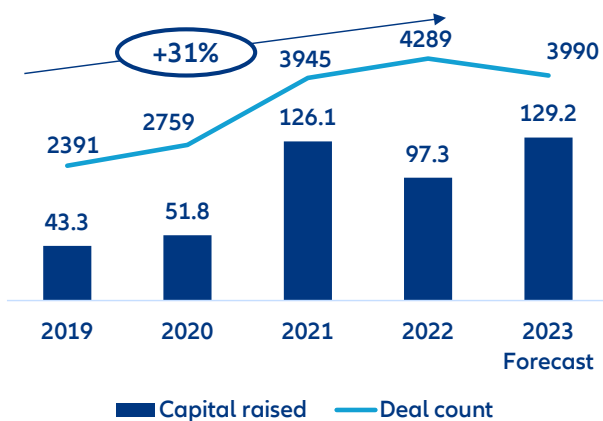
Venture capital to the rescue?

How can ClimateTech venture capital (VC) and private equity (PE) funding volumes contribute to close the funding and technology gaps?

Investments in ClimateTech start-ups have boomed in recent years and climate-focused private funds have also increased, with more than 60 new investors since 2021²³. Globally, annual VC and PE investment in ClimateTech and clean tech companies increased with a compound annual growth rate of +31% from USD43.3bn in 2019 to USD97.3bn in 2022, though this is 23% lower than its peak in 2021, resulting from the gloomier macroeconomic environment amid rising inflation and interest rates. Nevertheless, compared to other sectors such as fintech or health tech, for example, the decline in private ClimateTech and clean tech investments is less severe. And H1 2023 figures suggest that global funding levels are likely to reach if not surpass 2021 levels (Figure 5).

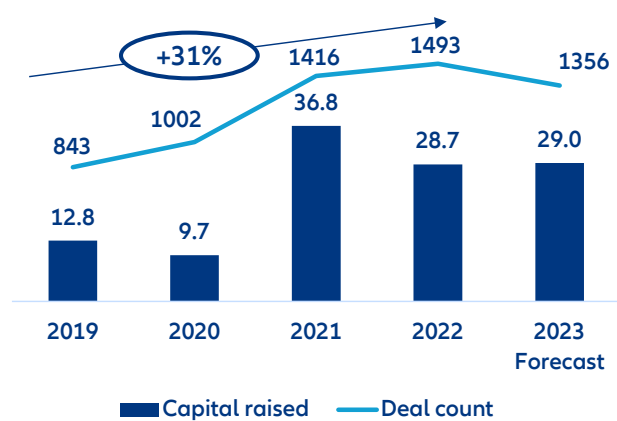
In line with the global development, we also observe strong traction in Europe: The amount of capital raised for European ClimateTech and clean tech companies also increased by a CAGR of +31% from USD12.8bn in 2019 to USD28.7bn in 2022. Compared to 2021, it fell by -22% but unlike global funding, it is expected to stabilize at the 2022 level using forecasts based on H1 2023 figures (Figure 6). European companies secured around 30% of worldwide VC & PE funds in 2022, while US-based companies received 35%. The number of deals, however, was even higher in Europe (1,493) than in the US (1,242) in 2022. While the total amount of funding for European companies is smaller compared to that of US companies, the status of European ClimateTech funding is quite promising as the US private investment environment is typically more mature compared to Europe. Nevertheless, there is still room for improvement in Europe and further private capital is required, especially for scale-ups and later stage companies.

Figure 5: Global funding development



Sources: Pitchbook, Allianz Research

Figure 6: European funding development



Sources: Pitchbook, Allianz Research

23 BCG (2023): Private Capital and the Climate Opportunity in Europe; [Private Capital and the Climate Opportunity in Europe | BCG](#)

What ClimateTech startups need, according to Electra

Electra is an operator of charging stations for electric vehicles. The company sets up charging points for EV (electric vehicles) and provides an application where car owners can reserve a charging station and view the estimated charging time for the vehicle from the dedicated information dashboard, enabling electric car users to help charge their vehicles quickly and reduce carbon emissions and pollution.

For **Electra Deputy CEO, Vincent Gaillard**, “French public investors and private investors are well positioned to fund EV infrastructure and ClimateTech companies.” Public subsidies for both, car manufacturers to produce more EV fleets and funding for charging infrastructure operators are important to grow EV use. Standardization at the European level is crucial for example in the case of CO2 emission certificates.

Looking at the 2022 numbers by maturity stage is revealing: While European climate and clean tech early-stage start-ups account for 36% of global transactions and secure 30% of global venture funding, later-stage companies account for 32% of global transactions and only 25% of global funding. These numbers underline that further growth capital is required to back later-stage European companies.

Analyzing the details on funding further, we find a certain mismatch: the sectors with the highest emissions – and

therefore greatest potential to decarbonize – are not receiving the most funding. The mobility and transport sector is a case in point: While 48% of all ClimateTech VC and PE investments are allocated to this sector, it only contributes to 15% of global emissions. On the other hand, the sector with the highest share of global emissions (34%) – industry, manufacturing and resource management – receives only 9% of funds. The food & agriculture and built environment²⁴ sectors face the same problem²⁵ (Figure 7).

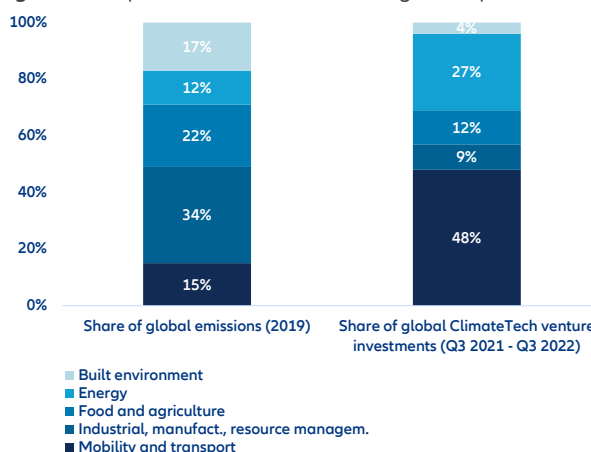
Table 1: VC funding by stage

	Early stage*	Later stage**
Global		
Deal count	5628	2279
Funding volume (in USDmn)	50440	55625
Europe		
Deal count	1998	722
% of global	36%	32%
Funding volume (in USDmn)	15163	13981
% of global	30%	25%

Sources: Pitchbook, Allianz Research;

* before early stage, ** before later stage

Figure 7: European emissions versus funding development



Sources: PwC²⁶, Allianz Research

²⁴ The built environment refers to the human-made environment, encompassing the buildings we live in or use for commercial activities, and the infrastructure, including distribution systems that provide us with water and electricity, or the roads, bridges, and transportation systems we use to get from place to place. From a technology point of view it includes all ClimateTech services that are aimed at urban infrastructure or smart city applications.

²⁵ PwC (2022): PwC State of ClimateTech report 2022; [The climate-tech mismatch \(pwc.com\)](https://www.pwc.com/climate-tech-mismatch)

²⁶ PwC (2022): PwC State of ClimateTech report 2022; [The climate-tech mismatch \(pwc.com\)](https://www.pwc.com/climate-tech-mismatch)

Blended funding

There is no one-size-fits-all financing structure for funding ClimateTech. Instead, blended financing solutions could be most useful, especially for the following applications:

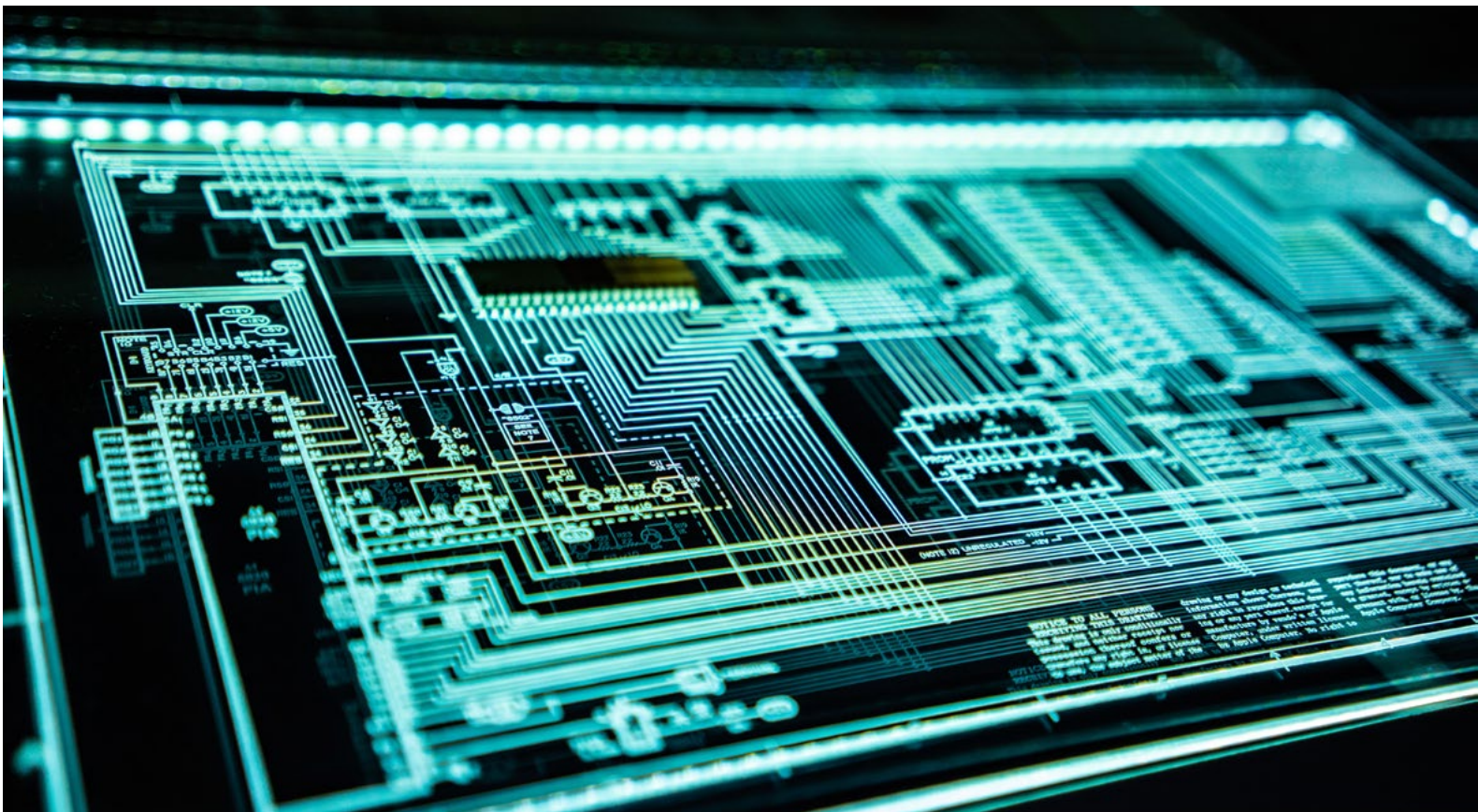
Pre-commercial deep tech applications: While research-heavy applications require decades of development until commercialization, VC and PE investment horizons are often limited to five to eight years. This gap in time horizons requires remediation through public-private instruments. Germany and Europe lack instruments for financing this type of public-private partnerships in fusion energy, for example, where the US department of energy has established the LaserNetUs program, enabling clear milestone-based funding²⁷.

New asset classes: The government actively de-risks the adoption of novel tech developments, encouraging private investors to fund demonstration projects at an early stage. Such pilots are usually expensive and early-stage customers are afraid of the risks and lack working capital.

New markets: Public incentives could encourage consumers to buy new climate-friendly technology while simultaneously subsidizing private manufacturers to remain in or move production sites to the EU. This would increase sovereignty for climate-friendly technology such as electric cars, batteries or photovoltaic solar panels²⁸.

Financing the climate transition in developing economies: In these markets, clean-energy investments need to increase by more than seven times to above USD1trn by 2030²⁹.

Climate-smart infrastructure: Public-private partnerships are sorely needed to finance electric charging infrastructure or climate-neutral construction and building methods, which are largely underfinanced by VC & PE investors (see Figure 7: European emissions versus funding development)³⁰. For instance, for every USD1 spent on climate-resilient infrastructure, USD87 is spent on infrastructure projects that do not integrate climate-resilience principles³¹.



27 US Department of Energy – LaserNetUS (2022): [Milestone-based Fusion Development Program \(DE-FOA-0002809\) | LaserNetUS](#)

28 European Automobile Manufacturers' Association (2023): [Electric cars-Tax benefits_purchase_incentives_2023.pdf \(acea.auto\)](#) & Bundesministerium für Wirtschaft und Klimaschutz (23.06.2023) ([Amtliche Veröffentlichungen – Bundesanzeiger](#))

29 UK government (2023): [UK and US to rally efforts to help developing nations tackle climate change - GOV.UK \(www.gov.uk\)](#)

30 World Bank (2022): [Climate Toolkits for Infrastructure PPPs documents1.worldbank.org/curated/en/099120004052270615/pdf/P1746330d584ff0210a9670dcf49a-5becb0.pdf](#)

31 Climate Policy Initiative (2022): [Tracking Investments in Climate Resilient Infrastructure Tracking Investments in Climate Resilient Infrastructure - CPI \(climatepolicyinitiative.org\)](#)

The call to action – Policy recommendations

Although funding of ClimateTech start-ups and companies has made massive strides in recent years, building a thriving and above all globally competitive ClimateTech industry requires even more efforts, both from the public and private sector in Europe. While money is key, further improvements are equally important – from reducing red tape to updating regulation:

- Streamlining funding (making it easier and less bureaucratic). Lengthy applications as well as extensive documentation once funding has been granted slow down start-up development. As an example, the time for funding is similar for early-stage start-up development in the US and Europe but for later-stage start-ups it is about one year longer in Europe³².
 - Creating a common EU platform to access public funding from the EU as well as national sources (easier navigation through plethora of different schemes), including the possibility to extend the coverage to private funding initiatives. The platform should feature best practices, guidelines, mutual exchange of experiences and consulting to navigate the EU funding landscape. In turn, such a platform will gather insights on start-up needs and challenges to inform further policy development.
 - Improving long-term financing through more blended financing, similar to what is already done in the case of hydrogen.
 - Mandating procurement of novel ClimateTech solutions and services from public utilities as they can take larger risks and are a prime first user of first-of-its-kind systems. Tenders could be specifically designed to attract next-generation ClimateTech companies.
- Requirements have to be able to be met by start-ups/scale ups: e.g. taking into account expertise and novelty in addition to financial stability and experience. Tenders could also be split into shares to allow companies with a smaller capacity to enter. They could also allow systems that are still being tested or in a pilot stage.
- Integrating more start-ups and new tech companies into the policymaking process to shape the regulatory and funding environment.
 - Adding improved country-level tax credit and subsidizing schemes similar to the IRA.
 - Providing tax benefits for customers of “first-of-a-kind” systems to compensate for technological risk and the high initial cost for ClimateTech start-ups. This would be a simple way to attract early adopters and demonstrate demand without creating additional funding hurdles for start-ups. Tax exemption has to be admitted within reasonable time.
 - Implementing staged subsidies as in the IRA, where the percentage subsidized decreases with units sold to support cost-effective scaling.
 - Favoring founder-friendly non-dilutive public funding instruments for early-stage start-ups with no minimum TRL³³ to support growing markets like carbon capture³⁴. Non-dilutive funding preserves the founders’ incentive and motivation by maintaining their ownership rights, which is necessary to successfully raise significant funding rounds later on.

³² According to data from the [IEA Start-up Data Explorer](#).

³³ TRL refers to Technology Readiness Levels, which is a method for estimating the maturity of technologies.

³⁴ EIC accelerator under Horizon Europe: https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator_en

- Increasing investment volumes in European ClimateTech, especially in the later stage:
 - o Increasing fund-of-funds vehicles and co-investments with private investors on both a national and European level, such as the Invest EU program for Climate and Infrastructure Funds by the EIF (European Investment Fund)³⁵.
 - o Attracting more VC and PE funds to increase commitments to ClimateTech investments via alliances like the UN-backed Venture Climate Alliance³⁶.
 - o Increasing investment volumes in European scale-ups, including ClimateTech through instruments like the European Tech Champions Initiative co-funded by France, Germany, Italy, Spain, Belgium and the European Investment Bank Group³⁷.
 - o Focusing on increasing PE investment activity for privately underfunded sectors with high contributions to global emissions such as industry and manufacturing, food and agriculture and built environment.
- Facilitating and increasing the use of institutional capital for ClimateTech investments:
 - o Attracting institutional capital through dedicated programs at the national level, such as France's Tibi initiative with EUR6bn in investments pledged for VC funds by insurance companies³⁸.
 - o Implementing VAT tax breaks for ClimateTech venture capital funds.
 - o Facilitating consortium-building for debt and equity funding of ClimateTech companies.
- Improving capital market conditions for ClimateTech companies in Europe³⁹ :
 - o The Listing Act Package for EU companies and SMEs is a good start. However, the bureaucratic process hurdles for listings are still present and need further simplification. Furthermore, the Listing Act is missing strong incentives for ClimateTech companies to list in Europe instead of the US, for example.
 - o The EU should also establish a European ClimateTech index at the Euronext and/or local indices similar to the Euronext Eurozone SBT 1.5 index but for tech companies⁴⁰.
 - o The EU should promote European tech companies who are candidates for future IPOs like France's indexes La French Tech Next 40 and French Tech 120⁴¹.
 - o The EU and national governments could facilitate capital market access for growth companies like in Germany by⁴²:
 - o Reducing minimum capital requirements.
 - o Simplifying steps in the application process.
- Increasing collaboration between the private sector and investors with university and research institution ecosystems by:
 - o Increasing research and development budgets for universities in ClimateTech solutions.
 - o Facilitating research-based ClimateTech investments for university spin-offs.
 - o Granting tax breaks for endowments in university or research institutions' ClimateTech budgets/wfunds.
 - o Creating a ClimateTech ecosystem of researchers, investors and customers around technical research ecosystems at universities such as UnternehmerTUM, which is closely associated with the Technical University Munich.

35 EIB (2020): EIB Group Climate Bank Roadmap 2021-2025, [EIB Group Climate Bank Roadmap 2021-2025 \(eif.org\)](https://www.eib.org/en/press/2020/01/eib-group-climate-bank-roadmap-2021-2025)

36 According to Venture Climate Alliance webpage: Home | [Venture Climate Alliance](https://ventureclimatealliance.org/)

37 EIF (2023) : ETCI (European Tech Champions Initiative), [ETCI: European Tech Champions Initiative \(eif.org\)](https://www.eif.org/en/etci/)

38 French Finance ministry (2023): Financing the Fourth Industrial Revolution – The Tibi initiative, [Financing the Fourth Industrial Revolution | Direction générale du Trésor \(economie.gouv.fr\)](https://www.economie.gouv.fr/finances/financing-the-fourth-industrial-revolution)

39 EC (2023): EU Listing Act, [Listing Act – making public capital markets more attractive for EU companies and facilitating access to capital for SMEs \(europa.eu\)](https://ec.europa.eu/economy_finance/eu-listing-act)

40 According to [Euronext Eurozone SBT 1.5 Index](https://www.euronext.com/en/eurozone-sbt-1.5-index)

41 According to [La French Tech Next 40 and 120](https://www.lafrenchtech.com/en/next-40)

42 According to [Zukunftsfinanzierungsgesetz](https://www.zukunftsforschung.de/zukunftsforschungsgesetz)



Our team

**Chief Economist
Allianz SE**



Ludovic Subran
ludovic.subran@allianz.com

**Head of
Economic Research
Allianz Trade**



Ana Boata
ana.boata@allianz-trade.com

**Head of Insurance, Wealth
& Trend Research
Allianz SE**



Arne Holzhausen
arne.holzhausen@allianz.com

Macroeconomic Research



Maxime Darmet Cucchiarini
Senior Economist for US & France
maxime.darmet@allianz-trade.com



Roberta Fortes
Senior Economist for Ibero-Latam
roberta.fortes@allianz-trade.com



Jasmin Gröschl
Senior Economist for Europe
jasmin.groeschl@allianz.com



Françoise Huang
Senior Economist for Asia Pacific
francoise.huang@allianz-trade.com



Maddalena Martini
Senior Economist for Italy & Greece
maddalena.martini@allianz.com



Luca Moneta
Senior Economist for Africa & Middle East
luca.moneta@allianz-trade.com



Manfred Stamer
Senior Economist for Middle East &
Emerging Europe
manfred.stamer@allianz-trade.com

Corporate Research



Ano Kuhanathan
Head of Corporate Research
ano.kuhanathan@allianz-trade.com



Aurélien Duthoit
Senior Sector Advisor, B2C
aurelien.duthoit@allianz-trade.com



Maria Latorre
Sector Advisor, B2B
maria.latorre@allianz-trade.com



Maxime Lemerle
Lead Advisor, Insolvency Research
maxime.lemerle@allianz-trade.com

Capital Markets Research



Jordi Basco Carrera
Lead Investment Strategist
jordi.basco_carrera@allianz.com



Bjoern Griesbach
Senior Investment Strategist
bjoern.griesbach@allianz.com



Pablo Espinosa Uriel
Investment Strategist, Emerging
Markets & Alternative Assets
pablo.espinosa-uriel@allianz.com

Insurance, Wealth and Trends Research



Michaela Grimm
Senior Economist,
Demography & Social Protection
michaela.grimm@allianz.com



Patricia Pelayo-Romero
Economist, Insurance & ESG
patricia.pelayo-romero@allianz.com



Kathrin Stoffel
Economist, Insurance & Wealth
kathrin.stoffel@allianz.com



Markus Zimmer
Senior Economist, ESG
markus.zimmer@allianz.com

Recent Publications

- 21/09/2023 | [All eyes on fiscal in the Eurozone](#)
- 14/09/2023 | [Germany needs more than a plan](#)
- 12/09/2023 | [Sector Atlas: Assessing non-payment risk across global sectors](#)
- 07/09/2023 | [A slow landing for china](#)
- 05/09/2023 | [Is diversification dead?](#)
- 04/08/2023 | [Global boiling: Heatwave may have cost 0.6pp of GDP](#)
- 01/08/2023 | [Critical raw materials- Is Europe ready to go back to the future?](#)
- 28/07/2023 | [US & Eurozone growth defying gravity](#)
- 27/07/2023 | [Playing with a squared ball: the financial literacy gender gap](#)
- 21/07/2023 | [US immaculate disinflation: How much should we thank the Fed for?](#)
- 20/07/2023 | [Back to the beach: Tourism rebound in Southern Europe?](#)
- 13/07/2023 | [A new Eurozone doom loop?](#)
- 12/07/2023 | [European Retail: a cocktail of lower spending and tighter funding](#)
- 06/07/2023 | [Eurozone converge: two steps forward, one step back](#)
- 04/07/2023 | [More emission, than meet the eye: Decarbonizing the ICT sector](#)
- 29/06/2023 | [De-dollarization? No so fast ...](#)
- 27/06/2023 | [Toasted, roasted and grilled? Walking the talk on green monetary policy](#)
- 20/06/2023 | [Climbing the wall of worries](#)
- 16/06/2023 | [Automotive industry unplugged?](#)
- 14/06/2023 | [Biodiversity loss part II: portfolio impacts and abatement measures](#)
- 09/06/2023 | [Past the peak – European corporate margins down again?](#)
- 07/06/2023 | [The right to work versus the right to retire](#)
- 02/06/2023 | [Sector vulnerability to rising financing costs](#)
- 01/06/2023 | [Allianz Trade Global Survey 2023: Testing resilience](#)
- 25/05/2023 | [European commercial real estate – selectivity matters!](#)
- 17/05/2023 | [Allianz Global Insurance Report 2023: Anchor in turbulent times](#)
- 17/05/2023 | [G7 summit in Japan could trigger new protectionism phase](#)
- 11/05/2023 | [Bank of England: First to hike, last to pause and pivot](#)
- 09/05/2023 | [The Chinese challenge to the European automotive industry](#)
- 05/05/2023 | [European housing – home, \(un\)sweet home?](#)
- 03/05/2023 | [No quick wins: more jobs but little productivity in the Eurozone](#)
- 28/04/2023 | [Policy rate decisions: the end of the beginning or the beginning of the end?](#)
- 26/04/2023 | [Unpacking returns on equity](#)
- 21/04/2023 | [Commercial real estate concerns for US banks](#)
- 19/04/2023 | [Allianz Pension Report 2023: Reforming against the demographic clock](#)

Director of Publications

Ludovic Subran, Chief Economist
Allianz Research
Phone +49 89 3800 7859

Allianz Group Economic Research

https://www.allianz.com/en/economic_research
<http://www.allianz-trade.com/economic-research>
Königinstraße 28 | 80802 Munich | Germany
allianz.research@allianz.com

 @allianz

 allianz

Allianz Trade Economic Research

<http://www.allianz-trade.com/economic-research>
1 Place des Saisons | 92048 Paris-La-Défense Cedex | France
research@allianz-trade.com

 @allianz-trade

 allianz-trade

About Allianz Research

Allianz Research encompasses Allianz Group Economic Research and the Economic Research department of Allianz Trade.

Forward looking statements

The statements contained herein may include prospects, statements of future expectations and other forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties. Actual results, performance or events may differ materially from those expressed or implied in such forward-looking statements.

Such deviations may arise due to, without limitation, (i) changes of the general economic conditions and competitive situation, particularly in the Allianz Group's core business and core markets, (ii) performance of financial markets (particularly market volatility, liquidity and credit events), (iii) frequency and severity of insured loss events, including from natural catastrophes, and the development of loss expenses, (iv) mortality and morbidity levels and trends, (v) per-sistency levels, (vi) particularly in the banking business, the extent of credit defaults, (vii) interest rate levels, (viii) currency exchange rates including the EUR/USD exchange rate, (ix) changes in laws and regulations, including tax regulations, (x) the impact of acquisitions, including related integration issues, and reorganization measures, and (xi) general competitive factors, in each case on a local, regional, national and/or global basis. Many of these factors

No duty to update

The company assumes no obligation to update any information or forward-looking statement contained herein, save for any information required to be disclosed by law. may be more likely to occur, or more pronounced, as a result of terrorist activities and their consequences.

Allianz Trade is the trademark used to designate a range of services provided by Euler Hermes.

Allianz X invests in digital frontrunners in ecosystems relevant to insurance and asset management. In just a few years, it has grown to a portfolio of almost 30 companies and AuM of approximately 2 billion euros. Allianz X has counted 11 unicorns among its portfolio so far. The heart and brains behind it all is a talented team of around 40 people. As one of the pillars of the Allianz Group's digital transformation strategy, Allianz X provides an interface between Allianz Operating Entities and the broader digital ecosystem, enabling collaborative partnerships in insurtech, fintech, and beyond. As an investor, Allianz X supports mature digital growth companies to take the next bold leap and realize their full potential. Keep up with the latest at Allianz X on [Medium](#), [LinkedIn](#), and X ([formerly Twitter](#)).