

climate tech

for a Sustainable Planet

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FOR TOMORROW



The Climate Tech Startup Corner..

HOW CLIMATE TECH STARTUPS CAN HELP US TRANSITION TO A CARBON-FREE WORLD



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THE KEY TO OUR FIGHT AGAINST CLIMATE CHANGE



Over the past two decades, startups have become a critical source of innovation as a perfect blend of technology and talent, supported by unprecedented private capital funding: since 2015 the Venture Capital industry (VC) investments into startups amount to \$2.6 trillion¹ globally. This has been, and still is, the era of cloud, data and software, contributing to the digital transformation of the economy and disrupting nearly every industry.

The changes required to achieve 2050 Net Zero target and return to pre-industrial CO₂ levels in the atmosphere go beyond digital and will require massive investments to transition to clean energy, transform our production and consumption models, or minimize our use of natural resources.

Interestingly, Venture Capital industry is now also directing investments into promising startup solutions active at building our future carbon-free world. After a record 2021 year, VC funding was not immune from the geopolitical context in 2022 and is taking a more conservative stance post recent negative newsflow, however the climate tech segment is showing some resilience.

We believe there are fundamental factors supporting startups engaging in sustainability and climate tech moving forward. And this is why.



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¹ CB Insights data



Re-imagining energy is on the critical path, as it contributes to 34%² of global carbon emissions.

VC industry is currently backing about 38%³ of startups engaged in the race for clean energy supply (also referred to as Energy Tech)⁴, which received \$26 billion⁵ funding in 2022, a 40% CAGR over 2018 - 2022⁶ (4 times the global VC funding growth over that period). Renewables, energy storage⁷ and management⁸ still receive the lion's share, but VC industry is also fostering emergence of Green Hydrogen and New Generation nuclear energy (including fusion) breakthrough solutions.

According to International Renewable Energy Agency recent report, investment into climate tech would need to annually quadruple until 2050, while current pledges and plans lead to an emission gap of 16 GT.

² <https://www.lesechos.fr/monde/enjeux-internationaux/climat-ce-qu'il-faut-retenir-des-six-derniers-rapports-du-giec-1917145#:~:text=Le%20rapport%20sur%20un%20monde,%25%20d'ici%20%C3%A0%202030>

³ Traxcn data

⁴ Energy Tech top-funded sub-sectors are: energy storage tech (Energy Storage Systems, Battery Systems, Charging Solutions), energy efficiency tech (Energy Management Systems, Utility Bill Management), smart grid (Advanced Metering Infrastructure, Green Utilities), renewable energy tech (Horizontal Software, Solar Energy, Bioenergy)

⁵ Traxcn data

⁶ Traxcn data

⁷ In 2022 the top-funded startup was Sweden-based Northvolt.

⁸ Eg: US based Form Energy uses a low-cost battery system to store wind and solar energy for a long duration and dispatch it on the electric grid all year round/ Canada based Hydrostor - Advanced Compressed Air Energy Storage solution for smart grid energy storage

Carbon Capture Utilization & Storage solutions are expected to address close to 15%⁹ of total CO2 reduction by 2050

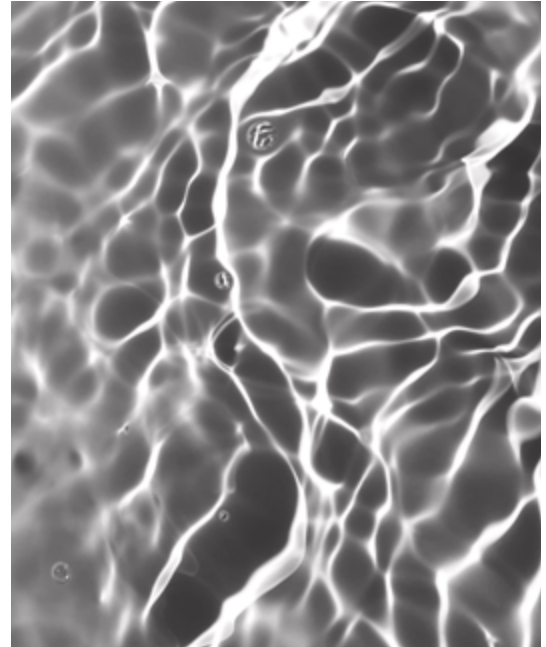
Startups focusing on direct carbon capture and/or storage solutions from the air¹⁰ or at industrial sites¹¹ are attracting major funding for their projects by corporates¹², on top of VC funding, which accounts in 2022 for \$3.3B¹³.

Another area of high potential is carbon-recycling technologies¹⁴, carbon transformation¹⁵ or even carbon sequestration solutions¹⁶.

VC backed innovation can be adjacent but critical to climate tech and sustainability agenda

New space-based Earth observation imaging systems and AI allow for natural resources monitoring and climate intelligence¹⁷, as well as biodiversity monitoring¹⁸.

Pending the promises of Quantum Computing, synthetic biology is already opening new frontiers when it comes to



“
synthetic biology
is already opening new
frontiers when it comes
to the development of
new materials.”

9 International Energy Agency <https://www.iea.org/data-and-statistics/charts/global-energy-sector-co2-emissions-reductions-by-measure-in-the-sustainable-development-scenario-relative-to-the-stated-policies-scenario>

10 Switzerland based Climeworks - Designs and manufactures devices for extracting carbon dioxide from ambient air (see article in this edition)

11 Canada based Svante - technology that traps carbon produced from industries such as cement, steel

12 Microsoft announced in July 2022 a 10 year carbon removal agreement with Climeworks

13 CB Insights

14 US based LanzaTech – Bioprocessing technology to capture and recycle carbon from industrial off-gases and syngas

15 US Based Carbix – Produces carbon enriched concrete

16 Iceland based Carbfix – Converts carbon captured from the atmosphere into underground rock

17 France based Prométhée - NewSpace operator of nanosatellite constellations for earth observation, Israel based Agrosout - Provider of crop scouting solutions and UK based Cervest-Climate intelligence platform

18 UK based Nature Metrics - Developer of molecular methods for biodiversity assessment, Norway based Spoor - Provider of cloud and AI-driven biodiversity monitoring solutions

INNOVATION CAN ALSO BE INSPIRED BY NATURE, AS REFLECTED BY BIO-MIMETIC SOLUTIONS.

the development of new materials¹⁹, or enabling biodegradable plastics to be created from waste recycled using enzymatic bioprocesses²⁰. Innovation can also be inspired by nature, as reflected by bio-mimetic solutions, while sustainable product design and manufacturing is already made possible by 3D printing technology²¹.

Public research, policy and carbon markets provide the tailwind for climate tech...

Climate tech development is enjoying a unique combination of levers, among which the ability to leverage IP from academic and public research : UK based Mimicrete comes out of Cambridge University research, US based Verdox's CO2 removal technology was developed at MIT²². Similarly, in the nuclear field, startups Hexana and Stellaria developing fourth-generation small AMRs²³ are stemming from France's CEA Research labs²⁴.

Public policies and regulation mandating change towards energy transition (alike EU Green Deal) or funding climate projects through tax credits (alike US IRA²⁵) foster investments into new infrastructure, as reflected by the Gigafactories for batteries being currently built in Europe and North America. They also pave the way to bankable business cases for entrepreneurs in Deep Tech, who consequently are more likely to be eligible

19 US based Bolt Threads – Produces protein-based silk fibers or Japan based Spiber- Produces protein-based yarn

20 France based Carbios

21 German based Aeditive - for ready-to-use precast concrete

22 BusinessWire, "Verdox Wins \$1M XPRIZE Carbon Removal Award Together with Partner Carbfix", April 2022

23 AMR : Advanced Modular Reactors

24 CEA : Commissariat à l'Energie Atomique et aux Energies Alternatives – French Atomic Energy and Alternative Energy commission

25 IRA : Inflation Reduction Act

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for VC funding, despite climate deep tech being more capital intensive and longer horizon ROI compared to software.

Last, but not least, offset mechanisms provide eligible startups with an additional funding source, as corporates investing into their projects to fast track their NetZero targets can benefit from offset credits. On that front, digital marketplace solutions are aiming at making the carbon credit markets more efficient²⁶, some being blockchain technology based²⁷. No doubt that quality of carbon credits and transparency in trading are prerequisites for an efficient carbon credit market that will further back the climate tech expansion.

... as well as sense of purpose!

Every day I meet talented startup founders fully determined to bring their solutions to market, enthused and energized by the unique confluence of public and private interests in preserving the planet. This fuels my confidence about our collective ability to embark on this new industrial revolution and address the existential challenge of our age.



²⁶ US based Aspiration – Tech platform to source high-quality nature-based carbon projects

²⁷ Singapore based AirCarbon - Provider of blockchain-based carbon credits trading exchange



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