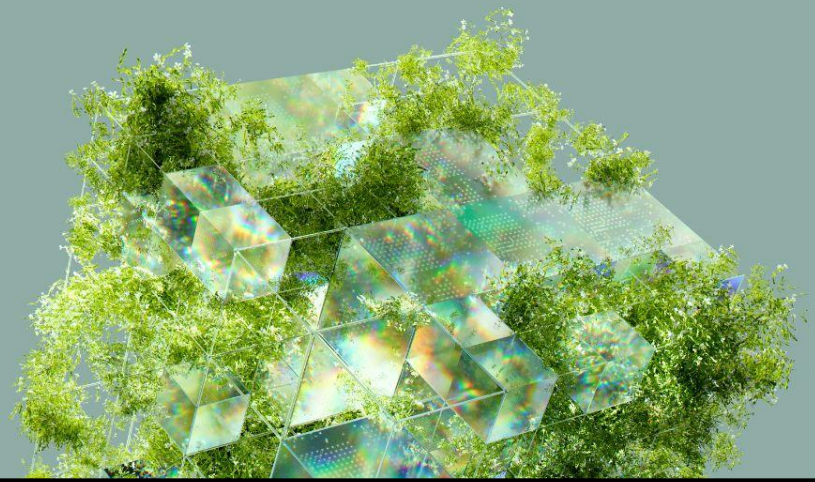
PEAKZONE



ClimateTech REPORT | VENTURE TRENDS

Lorenz Hartung | Elias Maier | Stine-Luise Müller | Juell Woldegebriel

August, 2023 |

ClimateTech Venture Report

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Our Venture Experts

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CEO

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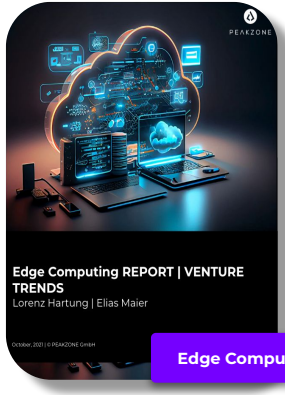
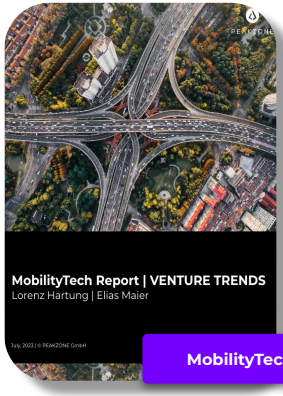


Edge Computing Report



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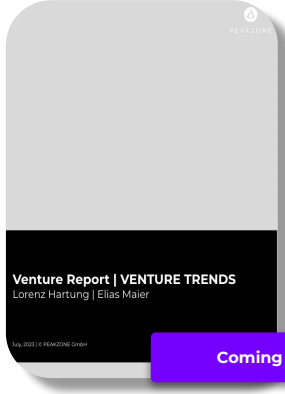

Coming Soon...

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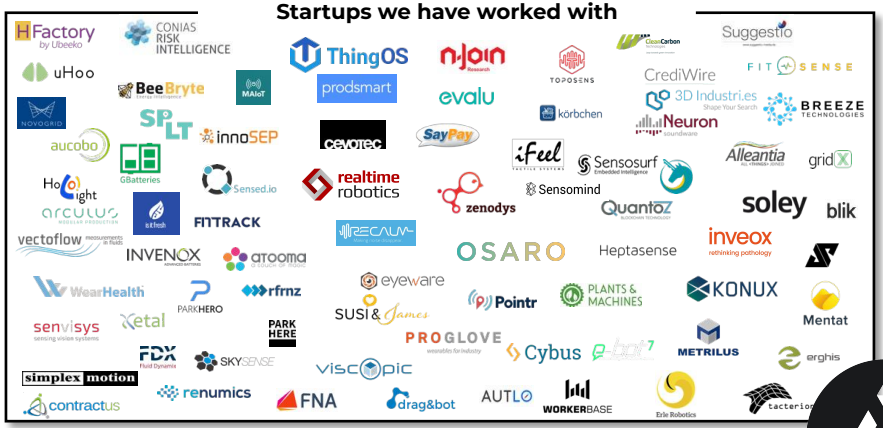
We have a strong corporate, startup and VC network

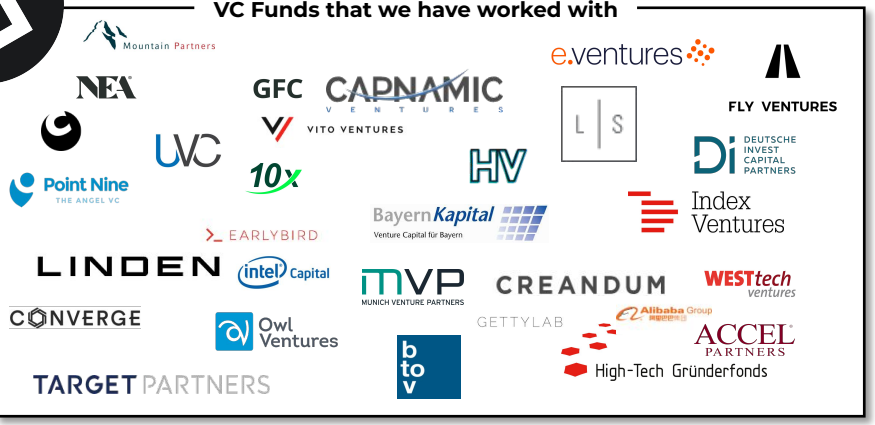
Startups we have worked with



Universities and Dealflow Partners

Corporates we have worked with

VC Funds that we have worked with



EMISSION OVERVIEW

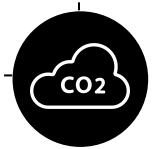
Climate Tech Definition
Emission Chemicals
Key Industries
Emissions by Region
Key Driver

STATUS QUO (1/4): What's now? - Definition and Area of Action from a Climate Tech Perspective

Climate Tech

"Ecompasses a broad set of sectors which tackle the challenge of decarbonising the global economy, with the aim of reaching net zero emissions before 2050."

"This includes low-to-negative carbon approaches to **cut key sectoral sources of emissions** across energy, food & agriculture, heavy industry, mobility & transport, and built environment."



"Plus cross-cutting areas, such as enabling better **carbon management** through transparency and accounting, or carbon capture and storage."

STATUS QUO (2/4): What's now? - Three distinct Types of Greenhouse Gas Emissions that harm the Environment

81%

1x

CO_2

Carbon dioxide (CO2) enter the atmosphere through **burning fuels**, solid waste and as a result of chemical reactions (e.g. cement)

10%

25x

CH_4

Methane (CO4) is emitted during **production / transport of coal, oil and natural gas.** Additionally, they result from organic waste in agriculture.

9%

300x

N_2O

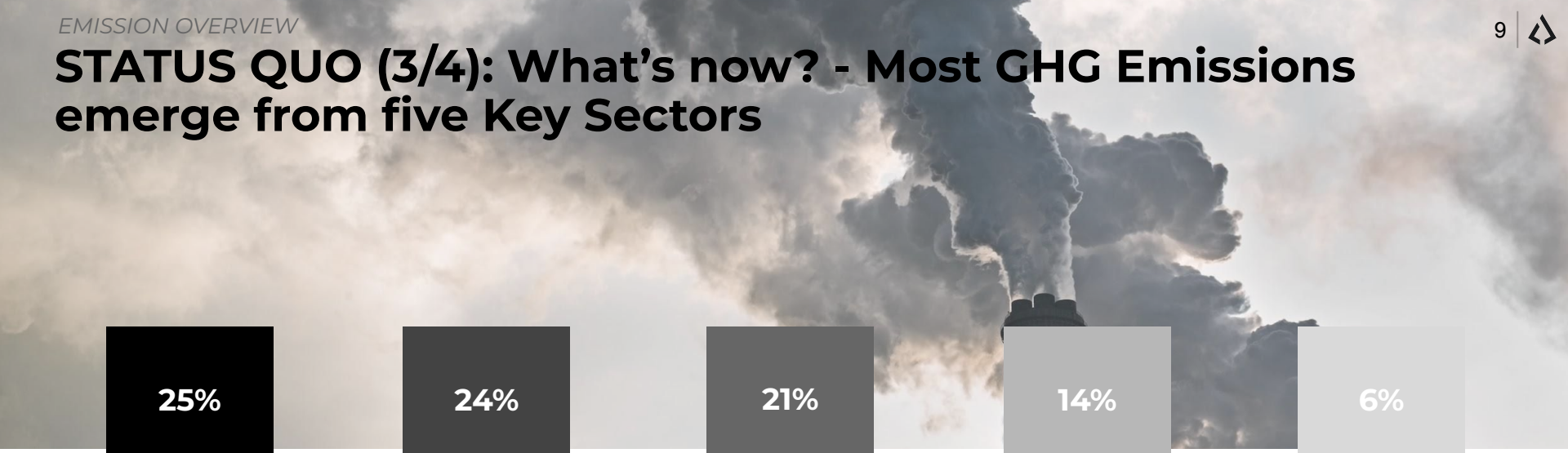
Nitrous Oxides and other F-gases are produced during **agricultural and industrial activities,** such as the treatment of wastewater.

** Greenhouse Gas = GHG*

% As percentage of global GHG

x x-times more harmful to the environment than CO_2

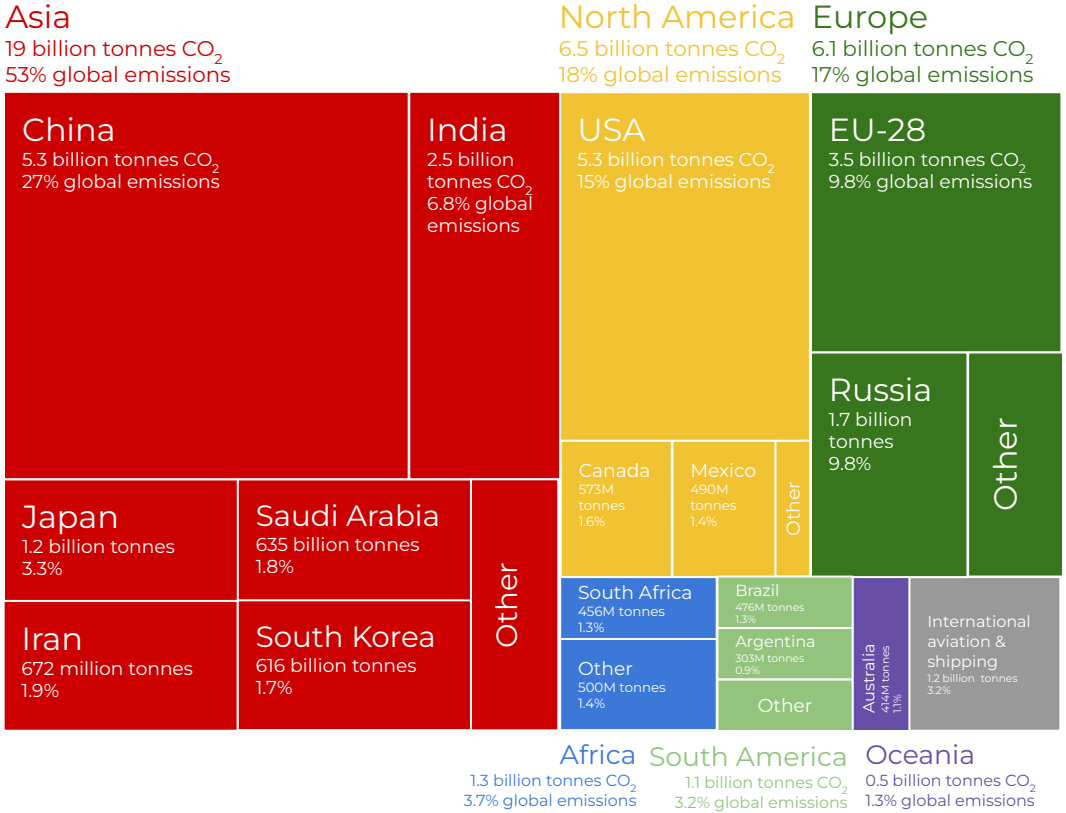
STATUS QUO (3/4): What's now? - Most GHG Emissions emerge from five Key Sectors



25%	24%	21%	14%	6%
Energy	**Food & Agriculture**	**Industry**	**Mobility & Transportation**	**Built Environment**
Burning of **coal, natural gas, and oil for energy** (heat & electricity) is the largest source of global greenhouse gas emissions. Renewable energy sources are still in its infants.	**Cultivation of crops and livestock as well as land use change** make up most of the emissions in agriculture. Does not include CO_2 removement of sequestering carbon.	Primarily burning **fossil fuels on site** at facilities for energy. This sector also includes emissions from **chemical, metallurgical, and mineral transformation processes.**	Fossil fuels arise from burning them for **road, rail, air and marine transportation.** Most of the of the worlds transportation energy still comes from petroleum- based fuels.	Arise from onsite energy generation and **burning fuels for heat** in buildings or cooking in homes. Emissions from electricity use in buildings are included as well.

** Actual percentage of sectors may differ according to different sources, but they all agree on these five to be the most impactful*

STATUS QUO (4/4): What's now? - Asia makes up for more than half of Global Greenhouse Emissions

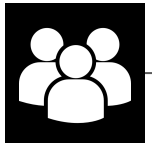


KEY DRIVERS (1/2): Four fundamental Factors are driving Global Greenhouse Gas Emissions

Total CO_2 emissions = Population x CO_2 emissions per capita (Income x Technology)

Population

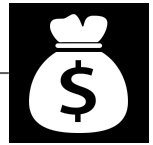
- A rising population causes an **increase in GHG** as per capita number rises.
- Population is projected to reach **9 billion by 2035**



Energy Intensity

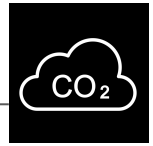
- Describes the amount of energy consumed per unit of GDP (**energy efficiency**)
- Higher intensity can be reached through more efficient production or less energy-intensive industries

Kaya Identity



Income

- **Rich populations** tend to emit **more CO2** than poorer populations
- As people **gain access** to, and increase consumption of electricity, transportation etc.



Carbon Intensity

- Carbon intensity describes the amount of **CO2 emitter per unit of energy**
- Meaning how low- or high-carbon the energy in a country is

Technology describes how much CO2 is emitted per dollar spent. This is then divided into energy and carbon intensity.

KEY DRIVERS (2/2): Increasing Adoption of Climate Goals in Policy, Corporations and Consumers

Policy Demand

189 countries have signed the **Paris Agreement** to keep temperature rise this century well below 2°C.
Currently the world is **not on track** with these goals and need to triple policies to meet the limit of 2°C and fivefold to align with 1.5°C limit.

Corporate Demand

More than 500 Certified B Corporations made **net zero commitments** by 2030, 20 years ahead of Paris Agreement. alongside broader and more concrete ESG goals until now. Additionally, **economic incentives** are reshaping the private sector.

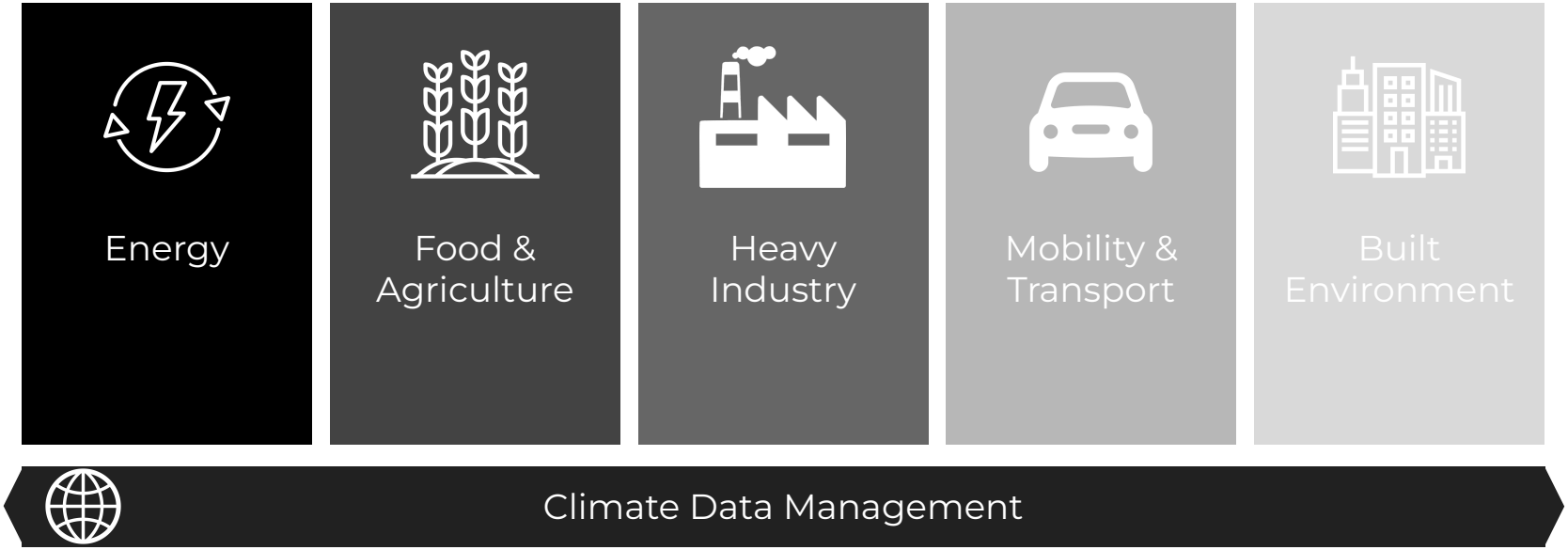
Consumer Demand

High-quality low-carbon products have created a wide range of winners, e.g. Beyond Meat, Tesla, Nest. Civil **society mobilised** through climate crisis. Consumers challenge corporates by demand sustainable products while paying the same prices.

SECTOR ANALYSIS

Taxonomy
Total Deal Activity
Corporate Best Practices

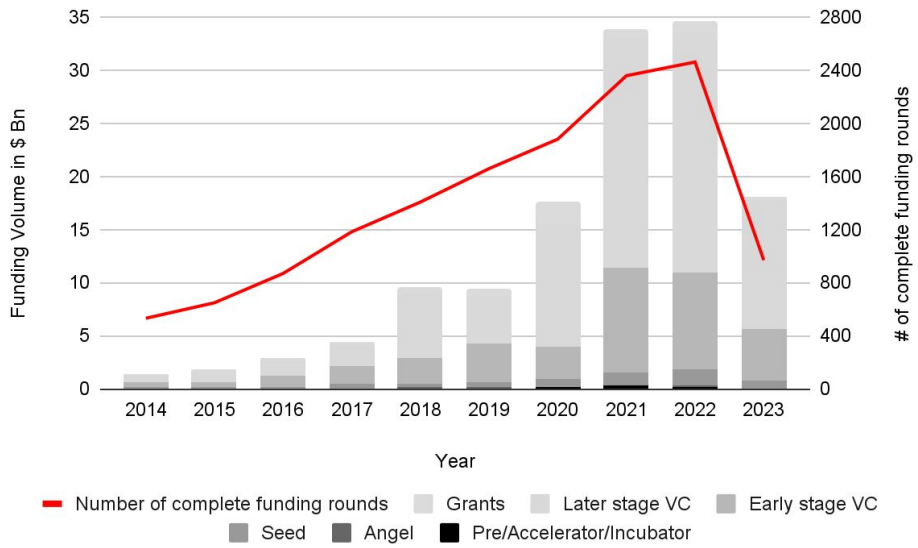
Categorising Climate Tech Startups by Challenge Area: Five Key Sectors and Cross-Cutting Activities



Despite the VC downturn in 2022 ClimateTech investments reached new records

Annual funding in Climate Tech

Total funding and number of rounds, 2014 - 2023



Key take-aways

- **$133 Bn were invested** over the last decade in **ClimateTech solutions**
- There are **5.651 startups in the sector**, of which over **4.200 are VC-backed**
- The **median deal size has quadrupled** from **$1.5 Mn in 2020 to $6 Mn in 2023,** while the **median post valuation rose 156%** from $16 Mn to 41 Mn
- **The Mobility & Transport** segment has **attracted over half the funding volume** in the last 5 years
- **Institutional investors** are driving funding

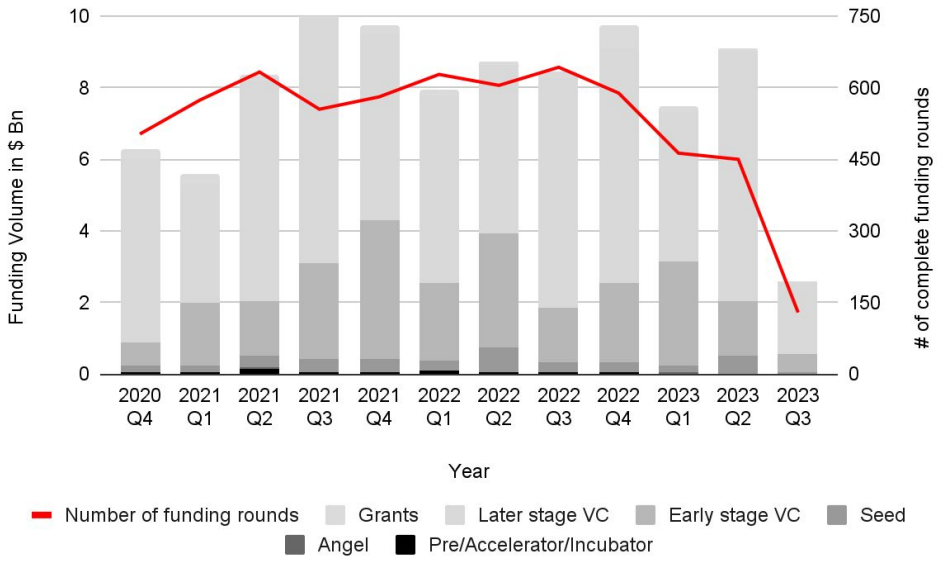
Investors

- **Corporates**: Hyundai, General Electric Ventures, E.ON, BASF, Daimler, ABB, Tencent, Engie (acquisition), Schneider Electric (acquisition), Osram (acquisition)
- **Venture Capitalists:** EIT InnoEnergy, Y Combinator, Plug & Play Tech Center, Demeter, E8, SOSV, Almi Invest, EIT Climate-KIC

Quarterly Funding in ClimateTech has been quite stable over recent years, until dropping off a cliff in Q3/2023

Quarterly funding in ClimateTech

Total funding and number of rounds, Q4/20 - Q3/23



Key take-aways

- **Quarterly funding volume** peaked in **Q3/21** at **$10.05 Bn** invested in **555 rounds**
- **Between Q2/21 and Q2/23** funding has been **stable** and **fluctuating around $8 Bn**
- First **signs of weakness** in the market showed in **Q2/23** when **deal amount dropped** by **-27%**
- So far in **Q3/23** only **$2.61 Bn** have been invested in only **129 rounds -** looking forward to the **end of the quarter**, this **could mean funding dropped** by somewhere **between -50 to -70%** in the sector (q-o-q)
- Almost **80% of the funding** volume in **Q1/23** is made up of **later stage** investments and **grants**

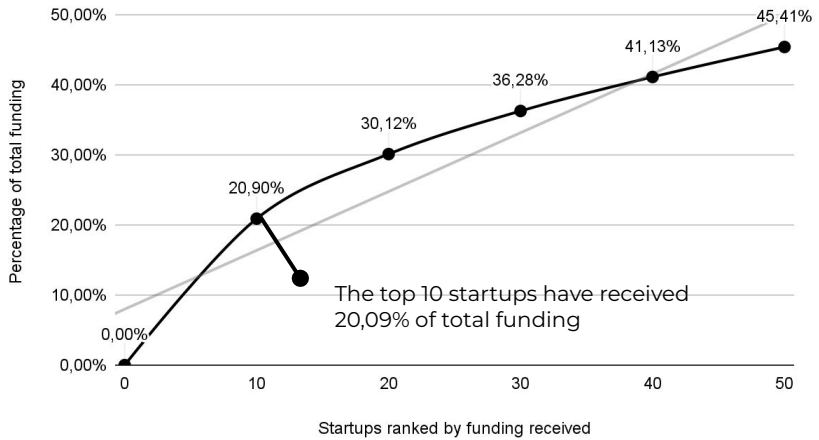
Notable Startups & Investors

- **Notable Startups:** Northvolt (Sweden), Redwood Materials (USA), Climeworks (Switzerland), Xpansiv (USA), Enpal (Germany), 1Komma5 (Germany)
- **Notable VCs:** Breakthrough Energy, US Department of Energy, EIT InnoEnergy, Antler
- **Notable Corporate VCs:** Shell Ventures, Chevron Technologies, Aramco Ventures, Microsoft Climate Fund, BP Ventures, Toyota Ventures, BASF, Amazon, ENGIE, AXA, GV, Samsung

Highly concentrated market with above average funding growth in the last years

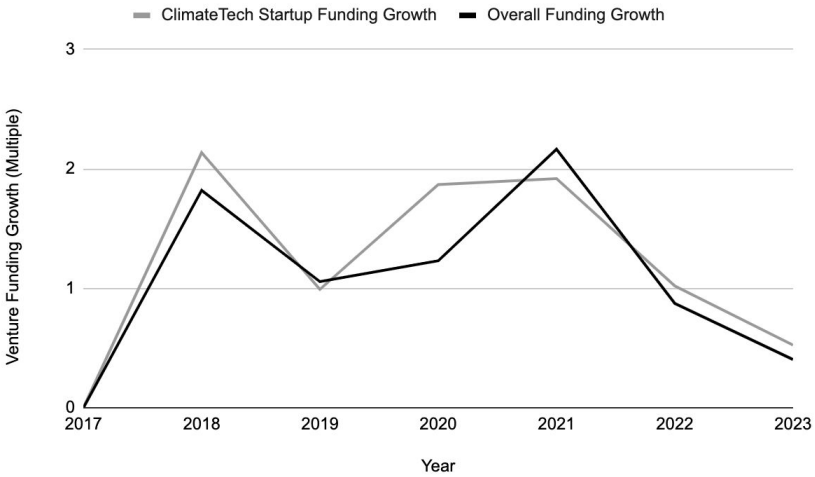
Cumulative funding

Percentage of total funding



Venture funding growth in ClimateTech

Indexed growth, funding in 2017 indexed to 1x



Take-away

Market funding is **dominated by few top funded** startups receiving large rounds to grow.

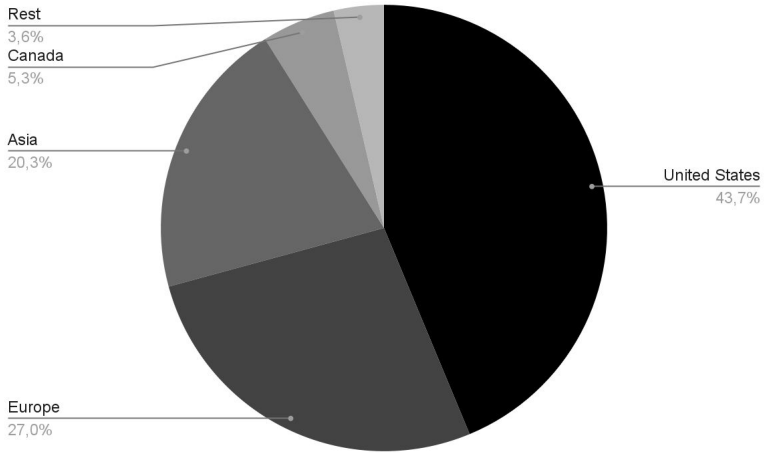
Take-away

Funding growth for **ClimateTech** startups has been **above average** except for the breakout year 2021. The **discrepancy** has been **especially high in 2020**.

Numerous governmental investors are providing substantial funding to startups fighting the climate crisis

Capital Invested by Global Region

by region in %

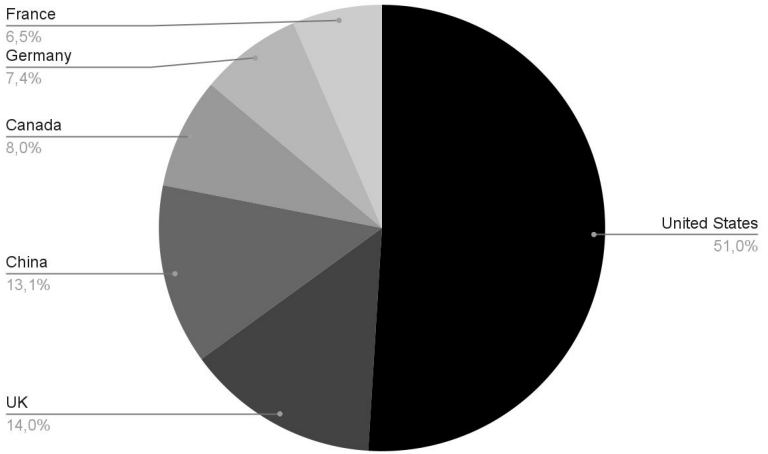


Take-away

- In line with other VC investment sectors, the **USA** clearly holds the **number 1 position** in capital invested in the Climate Tech sector.
- This pole position is driven by **robust national investments** from entities like the **U.S. Department of Energy, The National Science Foundation, and the Massachusetts Clean Energy Center**, as well as having **numerous active US unicorns** in the Climate Tech space.

Company location

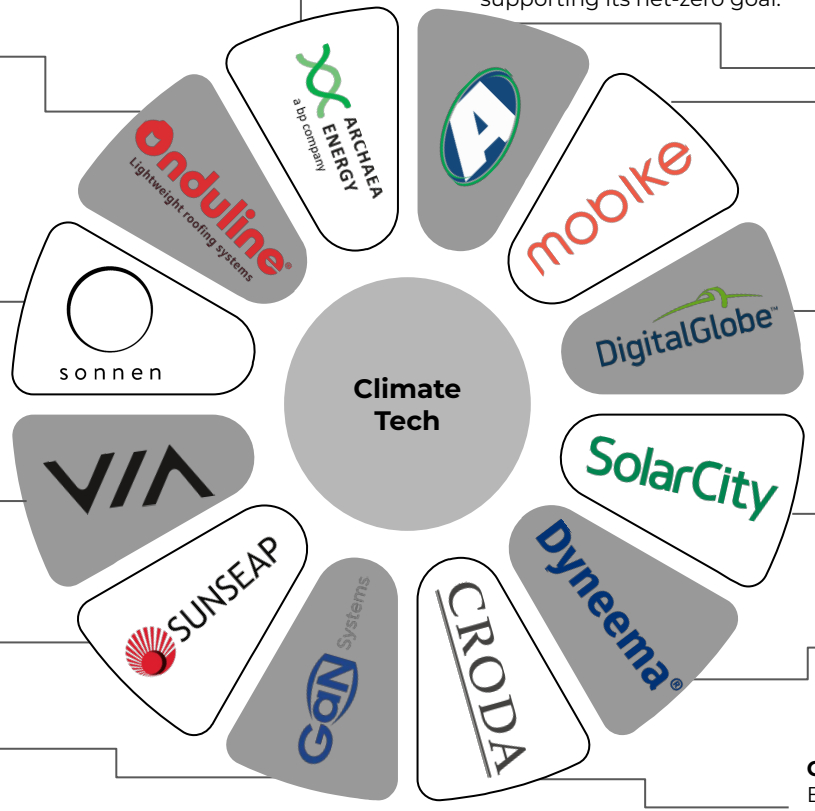
by region in %



Take-away

- Driven especially by the **investments of state investors**, the **USA ranks first with 1.897 companies**, and the **UK ranks second with 522 companies**, leading the countries with the most companies in the Climate Tech sector.
- **Canada**, surprisingly, emerges as an up-and-coming market in the Climate Tech sector, providing the **fourth most companies with nearly 300 firms.**

Major M&A Deals in ClimateTech



Onduline was acquired by **Kingspan** Group for **$547 million** on September 27, 2022.

BP acquired Archaea Energy for **$4.13 billion** in 2022, bolstering its bioenergy sector and supporting its net-zero goal.

Waste Management bought Advanced Disposal for **$4.1 billion** in 2020

Royal Dutch Shell acquired Sonnen for **$568 million** on February 28, 2019, to leverage new energy market opportunities.

Meituan-Dianping bought mobike for **$2.7 billion** in 2018 to enhance transportation solutions with bike-sharing.

Ideanomics acquired VIA for **$630 million** on January 31, 2023, with $180 million of the total amount contingent on future vehicle deliveries and customers.

In 2017, **MaxarTechnologies** acquired Digital Globe for **$2.32 billion**, expanding its earth observation capabilities.

Sunseap was acquired by **EDP Renováveis**, a subsidiary of EDP Energias de Portugal, for **$679 million** on February 24, 2022.

Tesla acquired the company for **$2.15 billion** in November, 2016.

Avient acquired DSM Dyneema division for **$1.49 billion** in September, 2022, creating growth synergies for DSM Protective Materials.

GaN Systems was acquired by **Infineon Technologies, a subsidiary of Siemens**, for **$830 million on** March 2, 2023.

Cargill acquired Croda International's Bioindustrial Business for **$952 million** in July, 2022, expanding its plant-derived industrial product offerings.

Especially Electric Vehicle Companies top the list of Unicorns in the ClimateTech sector

United States: 70

Tesla

Valuation: **$141 Bn**
Founding Year: **2003**

China: 41

Xiaopeng

Valuation: **$11 Bn**
Founding Year: **2014**

Germany: 9

Lilium

Valuation: **$2.6 Bn**
Founding Year: **2015**

Netherlands: 4

Allego

Valuation: **$2.9 Bn**
Founding Year: **2013**

UK: 4

Arrival

Valuation: **$6 Bn**
Founding Year: **2015**

Canada: 4

NEXII

Valuation: **$1.6 Bn**
Founding Year: **2018**

Take-away

- Particularly due to the long-active and growing Climate Tech market, dealing with **large-scale themes such as electric vehicles** and charging stations, **solar panels,** etc., **145 unicorns** can already be identified within the Climate Tech market.
- The USA houses the **most and also the largest unicorns by a significant margin**, including globally known giants like **Tesla and Lyft**.
- However, **China** is also noteworthy in this spectrum with **41 of its own unicorns**, largely concentrated in the Mobility and Transportation sector, led by companies like **Xiaopeng Motors**.

Sector Spotlight

- The topic of (urban) **Mobility and Transportation** clearly dominates the Climate Tech unicorn scene.
- This is particularly evident as **5 of the 6** listed largest unicorns (USA, China, UK, Germany, Netherlands) operate in this sector, focusing on themes like **charging stations, electric cars, etc.**

Large Corporations have set their Climate Goals but often lack Actions in Investment Activity

amazon

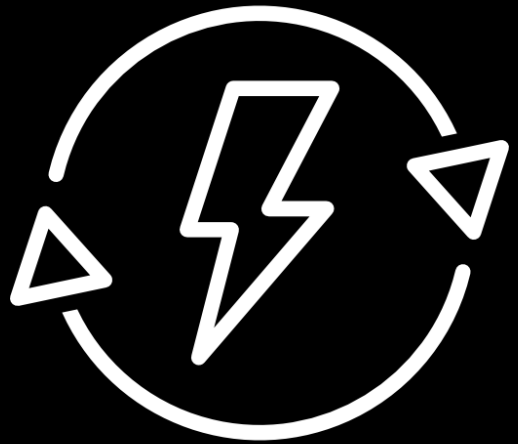
- **Strategy**: Co-founded "The Climate Pledge" - a commitment to be net zero carbon by 2040. $2B will be invested in climate tech (+$10B Bezos Earth Fund for climate change)
- **Investments:** *CarbonCure Technologies* (green concrete solution); *Pachama* (carbon offset marketplace); *Redwood Materials* (green materials); *Rivian* (EV)

FUJITSU

- **Strategy**: Bring CO_2 emissions down to zero by 2050 by energy conservation and use of renewable energy across all departments. As ICT manufacturer and service company, Fujitsu wants to enable *green data centers* (HVAC), *factories*, and *offices* with new tech.
- **Investments**: No actions in climate tech investments have been taken.

SIEMENS

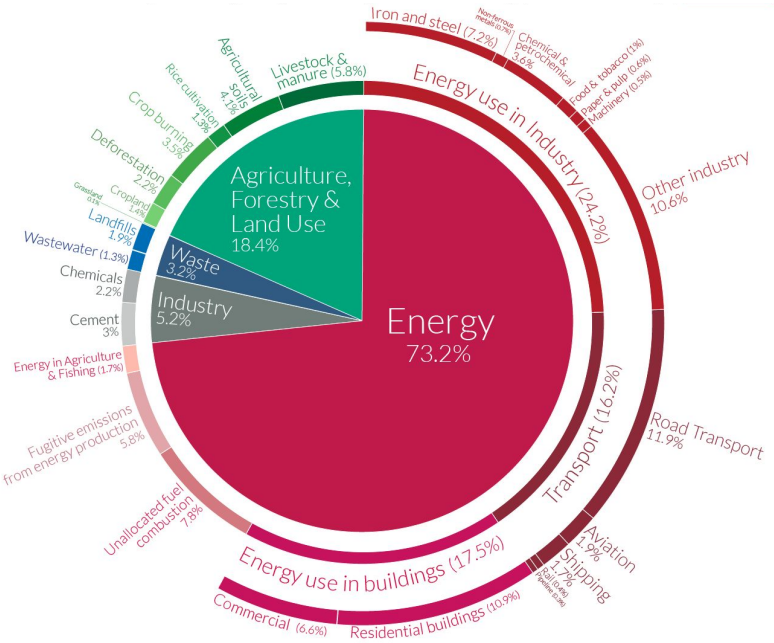
- **Strategy**: Plan is to cut carbon emissions in half and become completely carbon neutral by 2030 using renewable energy at its factories.
- **Investments** in startups include *ChargePoint* (EV charging station network), *tado* (Smart HVAC), *Tendril* (Energy management), *LO3 Energy* (Microgrids)



ENERGY

How can we generate and use renewable energy?

Around 73% of GHG Emissions are caused by Energy Usage in the five most dominant Verticals

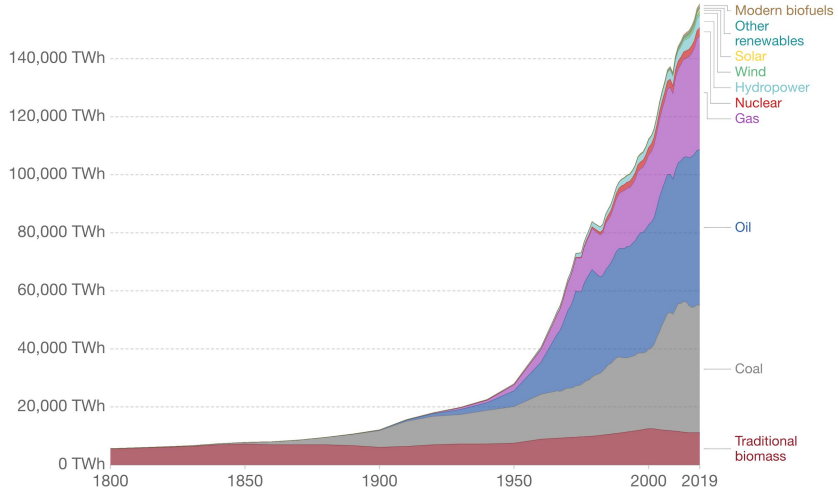


Energy consumption

Energy is the single most important source of GHG (73.2%) that is used in every industry. Industry is the largest, followed by transport and built environment.

Energy Production

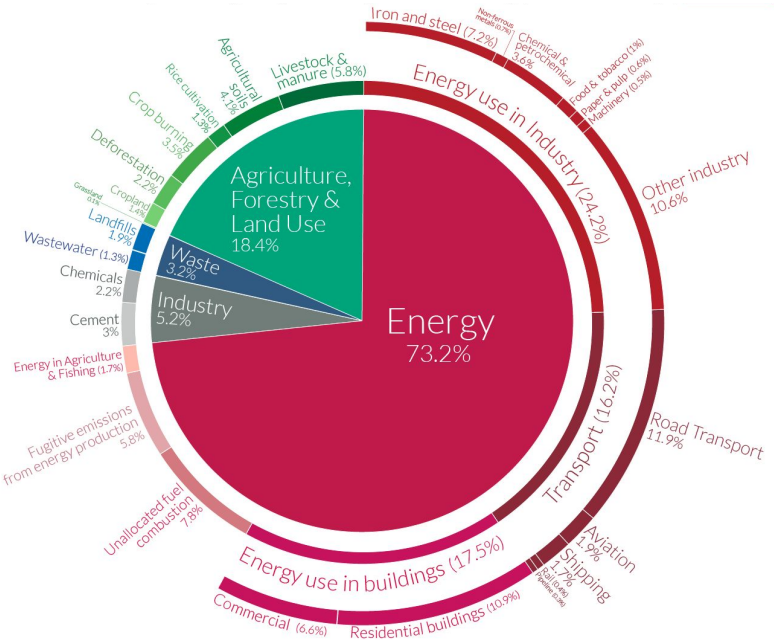
Total energy creation by type of energy



Non-renewable energy

Most of the energy **(94%) still comes from non-renewable sources** such as coal, oil & GAS. Only 6% are sourced from renewable energy sources.

Hydropower is still the most dominant Renewable Energy Source whereas Wind and Solar have minor Positions

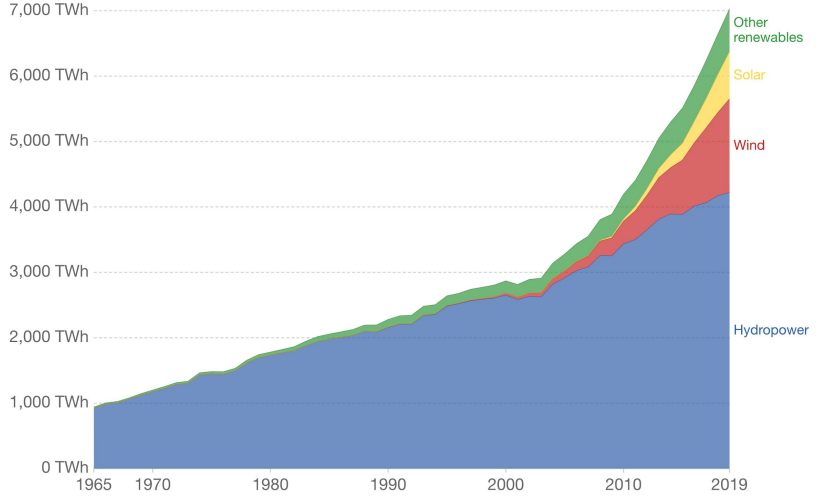


Energy consumption

Energy is the single most important source of GHG (73.2%) that is used in every industry. Using renewable energy efficiently is therefore a major interest of all sectors.

Renewable Energy Production

Total renewable energy creation by type of energy



Hydropower

Hydropower is the major source of renewable energy globally **making up for around 60%.** Solar and wind energy together are only responsible for 30% in 2019.

How Energy Startups aim to tackle the Challenge of Zero Emissions

Generation
of emission free energy

Solar Energy
Technology developers, manufacturers, platforms

Wind Energy
On- & off-shore wind energy

Fuel Cells
Generation of chemical reaction (hydrogen/ oxidants)

Alternative Energy
Bioenergy | Geothermal Energy | Hydro Energy

Nuclear Fusion
Technology to develop nuclear fusion reactors

Management
enabling efficient operation

Smart Grid Management
Network (supply response & demand) management

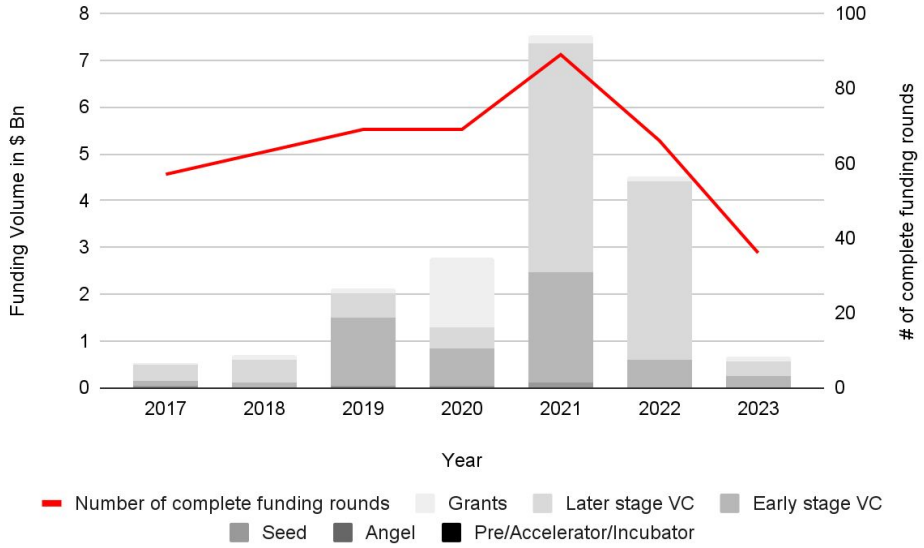
Management Systems
Software solutions for renewable energy generation, sharing, and consumption

Storage
balance volatile supply

Energy Storage
Large-scale storage as hydroelectric or lithium ion

Batteries
Small-scale lithium-Ion, Lead Acid, Supercapacitors

The most GHG emissions emerge from the Energy sector yet this segment is still underfunded



# of Companies *total / funded* **286 / 228**	# of Acquisitions **64**
# of IPOs **48**	Investment Volume *last 24 months* **$8.7 Bn**

Notable Corporates:

BMW i Ventures, Shell Ventures, MAERSK

Notable Exits:

Eco Wave Power, northvolt

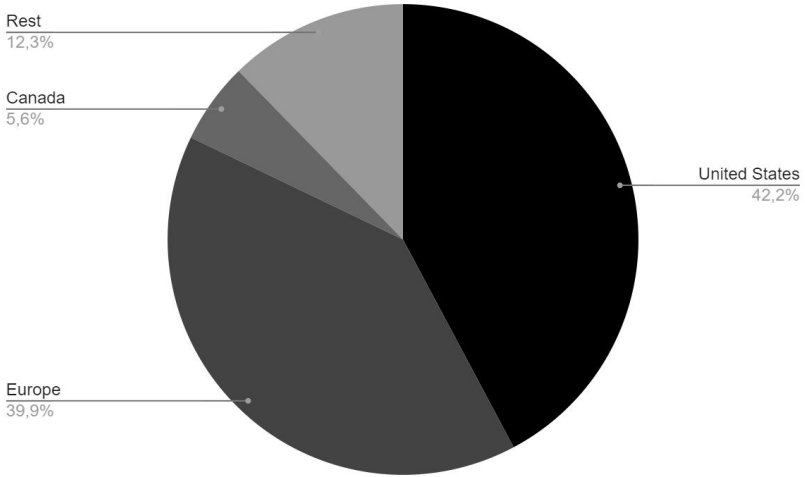
Notable Investors:

SEQUOIA, KLEINER PERKINS

USA and Europe dominate the clean energy transition through mega-rounds invested in Northvolt and CFS*

Capital Invested by Global Region

by region in %



Take-away

- The **USA** and **Europe** are indisputably leading in investments within the Climate Tech Energy sector, significantly **accelerated** by investments in the **Swedish unicorn, Northvolt**.
- This dominance is further bolstered by **multiple large funding rounds** for various **American startups**.

Top 10 Venture Rounds

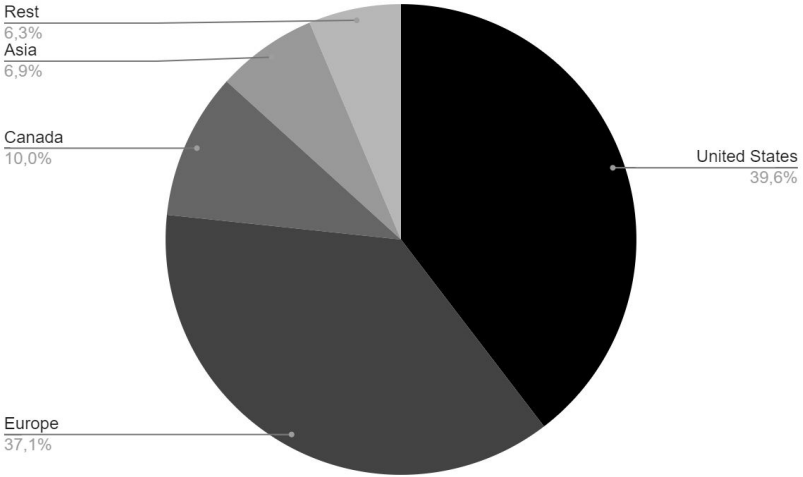
by Funding Amount

Startup Name	Funding in Mn	HQ Location
Northvolt	$2750.00	Sweden
Commonwealth Fusion Systems*	$1800.00	USA
X Energy	$1200.00	USA
Northvolt	$1100.00	Sweden
Northvolt	$992.97	Sweden
TerraPower	$830.00	USA
Climeworks	$634.41	Switzerland
Northvolt	$600.00	Sweden
Helion	$500.00	USA
Summit Power Group	$350.00	USA

Government Investments from the USA and Europe fuel growth in the Energy segment

Deal Count by Global Region

by region in %



Take-away

- Particularly, **governmental institutions** such as the **U.S. Department of Energy and Arpa-E** for the **USA**, **Innovate UK** for the **UK**, and **EIT InnoEnergy** for the **EU**, are driving investments in the Climate Tech Energy sector.
- These efforts are propelling the global regions of the **USA and Europe to the clear forefront** of overall investments made in this sector.

*US Department of Energy

Top 10 Investors

by Deal Count

Investor Name	Deal Count	HQ Location
U.S. DoE*	26	USA
Innovate UK	22	UK
EIT InnoEnergy	13	Netherlands
Arpa-E	12	USA
Breakthrough Energy	12	USA
Chevron Ventures	12	USA
California Energy Commission	11	USA
Energimnydigheten	11	Sweden
Sustainable Development Technology Canada	11	Canada
US DoE*	10	USA

Major Investments in the Energy segment

	Business Model	Investors	Investment Stage
northvolt	**Northvolt** produces eco-friendly **lithium-ion batteries** for **electric vehicles**, promoting a decarbonized auto industry with sustainable, high-quality cells and systems.	ABB Technology Ventures, IKEA, EIT InnoEnergy, etc.	$2.7 Bn - Series E
COMMONWEALTH FUSION SYSTEMS	CFS is on track to bring **fusion energy technology** to market. The spin-off from MIT has assembled a team to build fusion machines that will provide limitless, clean, fusion energy to combat climate change.	Temasek, Khosla Ventures, Breakthrough Energy, Starlight Ventures, etc.	$1.8 Bn - Series B
X energy	X Energy offers clean and reliable **small modular nuclear reactors** and **fuel technology**, providing safe, carbon-free, and affordable energy solutions for various industries to reduce greenhouse gas emissions.	U.S. Department of Energy	$1.2 Bn - Grant
TerraPower	TerraPower offers safe, affordable, and abundant **carbon-free nuclear energy technology,** providing **energy independence, sustainability, and various opportunities**.	Bill Gates, ArcelorMittal, Cascade Investment, Korea Shipbuilding and Offshore Engineering, etc.	$830 Mn - Series 2
climeworks	Climeworks offers fully automated **carbon removal technology to capture CO2 from the air,** providing sustainable solutions for clients and the environment.	Baillie Gifford, J.P. Morgan, ETH Zürich Foundation, GIC (Singapore), etc.	$634 Mn - Series F

Innowatts

Search Field	Smart Grid
Location	Housten, US
Year Founded	2013
Funding in $ Mn.	$22.36 Mn
Last Round	$0.36 Mn Series C1 (06.2022)
Investor	Energy Impact Partners, Shell Technology Ventures
Website	innowatts.com

Energy

Business Overview

- Offers **big data analytics** services to enable customers to monitor consumption and providers to offer customized products
- Capture data at the **meter level** to make **data-driven decisions** for superior grid maintenance, reliability and sustainability
- Enable more **reliable grid** with higher profits

Use case & customers

- Serves **energy retailers** and **utilities** & grid operators to monitor usage and data
- An unique footprint is created, which becomes the input for other modules
- AI-powered demand forecasting with Shell

Similar Companies

- **Bidgely** (2011, $60M (Series C), Canadian Imperial Bank, E.ON, RWE, Khosla Ventures)
- **Measurabl** (2013, $31M (Series B), Salesforce)

Business Overview

- Provider of an **intelligent grid platform**
- Solution is provided to network provider for the **automated planning and management** of power grids
- Features include energy efficiency through intelligent recommendations for action with the help of **AI and ML algorithms**

Use case & customers

- Connection of formerly disconnected devices, **identify bottlenecks**, and development of digital twin
- Customers include Wattenfall, E.ON, e.dis, Westnetz

Similar Companies

- **ResilientGrid** (2016, $1.5M (Seed), Capital Factory, Capital Innovators)
- **Zaphiro Technologies** (2017, $1.5M (Seed), European Comission, Atmosclear Invest)

Envelio

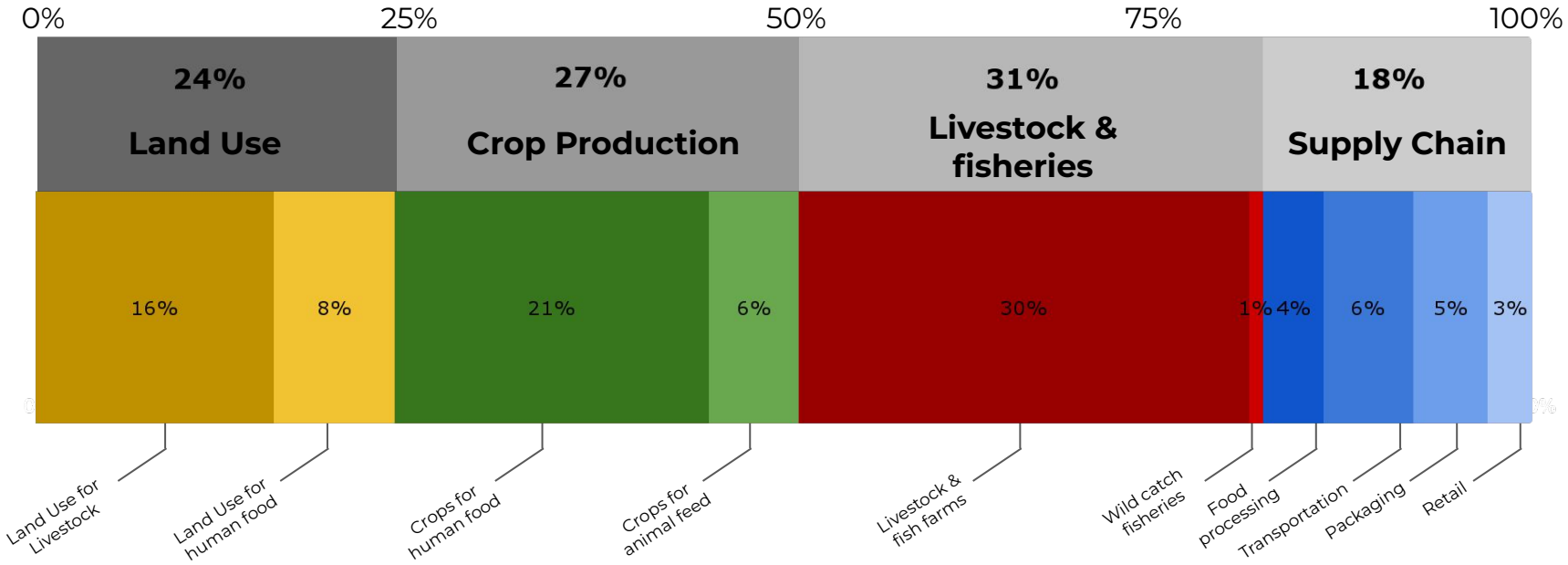
Search Field	Smart Grid
Location	Cologne, DE
Year Founded	2017
Funding in $ Mn.	$7.81 Mn
Last Round	Undisclosed (12.2021)
Investor	Demeter, HTGF, eCapital
Website	envelio.de

Energy

FOOD & AGRICULTURE

How can we reduce emissions to zero?

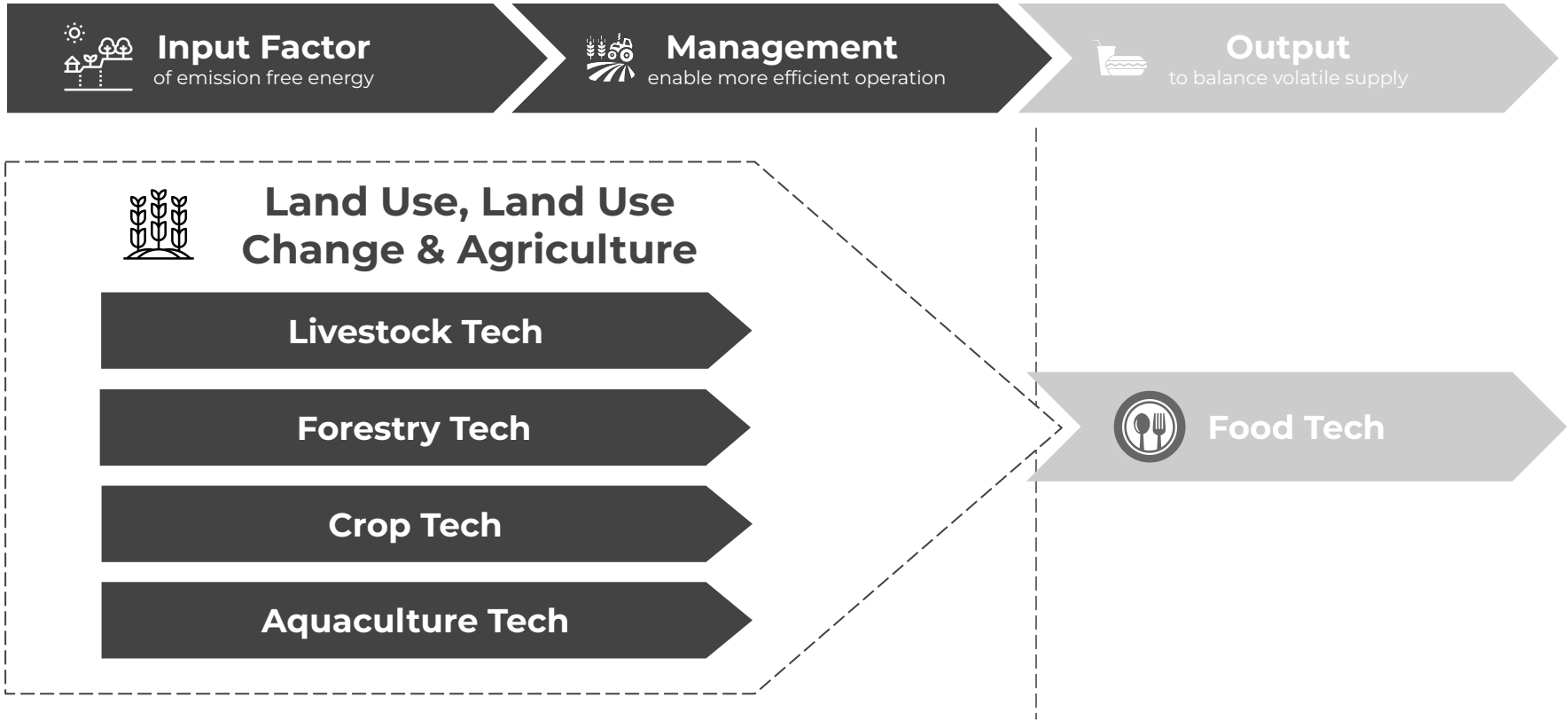
Plant & Animal based Food Production play a crucial role in global GHG Emissions



GHG Emissions

- **58%** of **GHG** emissions are caused from **crop & livestock production** in Food & Agriculture
- **31% of GHG in Food & Agriculture** result from **animal-based food** (meat, dairy, eggs & seafood production)
- **Land Use for Livestock (16%)** causes **twice** the GHG emissions compared to **Land Use for human food (8%)**

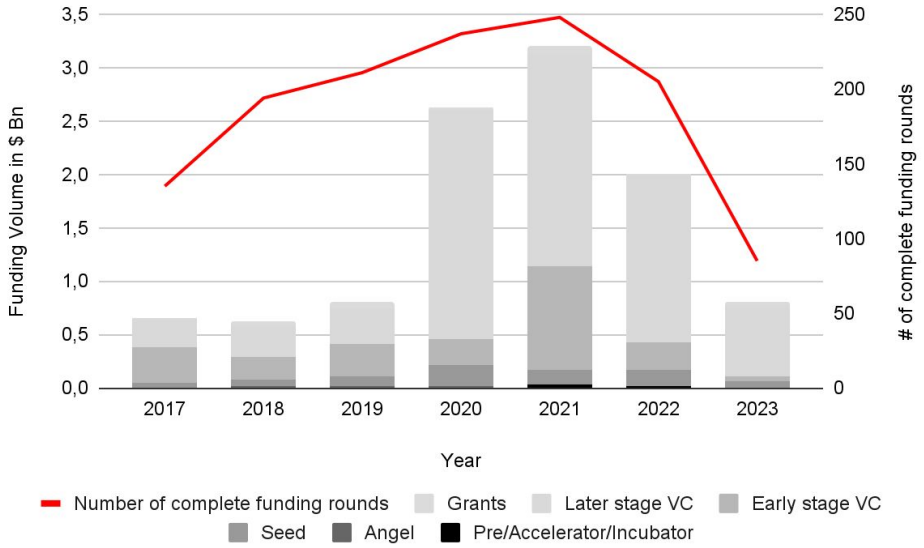
How Agriculture Startups aim to tackle the Challenge of Zero Emissions



Different approaches to reduce GHG Emission in Food & Agriculture

Greenhouse Gas	Source	Approach
 **51%** of agriculture emission in GER	"Enteric fermentation" of livestock (e.g. cattle)	Reduction of livestock & nitrogen food; **capture air**
	"Anaerobic decomposition" (rice fields)	stop flooding; use organic fertilizers
	Sewage sludge treatment	**Wastewater Management**
	Biomass Burning	Stop Burning; **increase efficiency on fields**
	40% of produced food is Food Waste	**Improve supply chain** (harvesting, packaging); Reduce consumer waste *significant factor*
 **44%** of agriculture emission in GER	Application of nitrogenous fertilizers	**Reforestation**, legumes, use of organic fertilizers
	Application of slurry (liquid manure)	**Reforestation**, legumes, use of organic manure
 **5%** of agriculture emission in GER	Conversion of "carbon sinks" to farmland	**Reforestation,** legumes, **Carbon Capture/Storage**
	Use of agriculture machinery	Use alternative drives machinery
	No use of land between the crops	Use of catch & nurse crops; **efficient agriculture, carbon to soil**

Many Indoor Farming startups shut down or relocated to the Middle East due to better energy & climate conditions



# of Companies *total / funded* **552 / 493**	# of Acquisitions **40**
# of IPOs **64**	Investment Volume *last 24 months* **$4.42 Bn**

Notable Corporates:

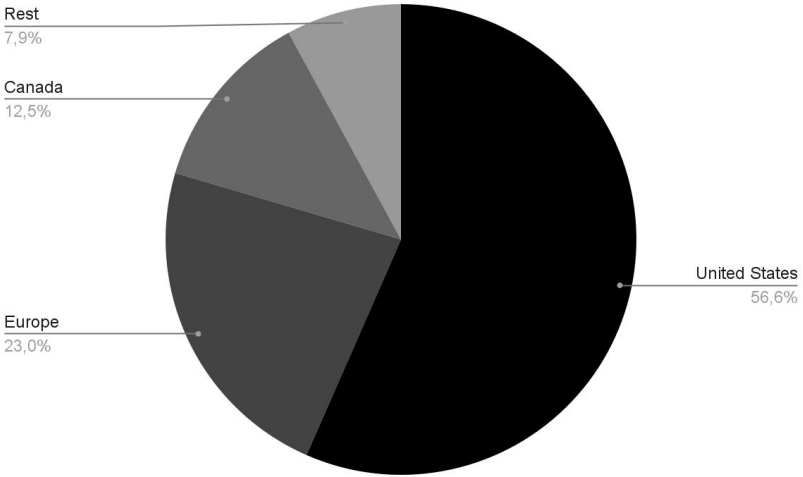
Notable Exits:

Notable Investors:

Many of the largest Indoor Farming startups are located in the United States, namely Plenty, AeroFarms, and Bowery

Capital Invested by Global Region

by region in %



Take-away

- While the **USA** is represented diversely with several larger funding rounds for various startups such as **Pivot Bio, Plenty, and Motif Food Works (aggregating to $1.58 Bn)**
- Countries like **Germany (aggregating to $404.31 Mn)** and **France (aggregating to $547 Mn)** are matching pace with individual startups that have been able to secure large funding rounds.

Top 10 Venture Rounds

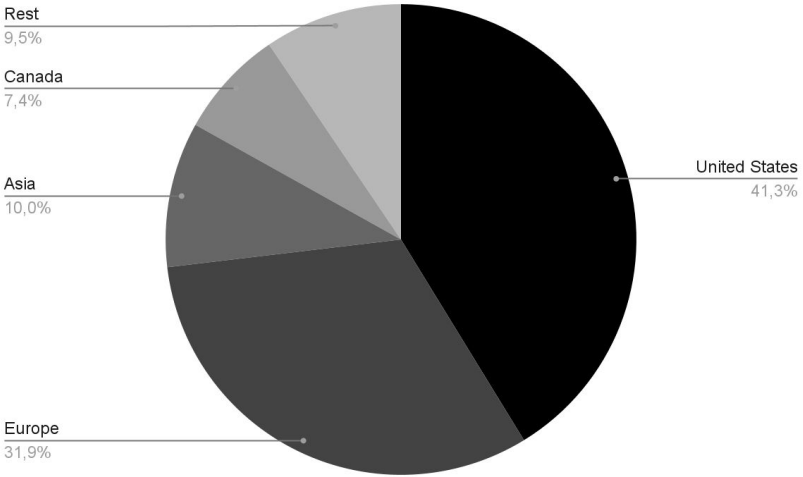
by Funding Amount

Startup Name	Funding in Mn	HQ Location
Pivot Bio	$434.54	USA
Plenty	$400.00	USA
Ynsect	$372.00	France
Motif FoodWorks	$226.00	USA
Infarm	$202.97	Germany
Infarm	$201.34	Germany
Plenty	$200.00	USA
Plenty	$175.00	USA
Ynsect	$175.00	France
Plenty	$140.00	USA

VCs and Government Investors with a FoodTech focus are the most active in the segment

Deal Count by Global Region

by region in %



Take-away

- The **USA leads the growth and potential** in the Climate Tech Food & Agriculture market with **8 of the top 10 investors**.
- Notably, the **Princeton-based VC fund SOSV**, specializing in sectors such as **food supply chain, nutrition and wellness, and future food**, leads the market with **73 investments**.

*US Department of Agriculture

Top 10 Investors

by Deal Count

Investor Name	Deal Count	HQ Location
SOSV	73	USA
IndieBio	24	USA
Plug and Play Tech Center	23	USA
Innovate UK	21	UK
SVG Ventures-THRIVE	21	USA
USDA*	21	USA
EIT Food	20	Belgium
National Science Foundation	19	USA
CPT Capital	18	UK
Techstars	18	USA

Major Investments in the Food & Agriculture segment

	Business Model	Investors	Investment Stage
PIVOT BIO	Pivot Bio offers **microbial nitrogen fertilizers** to **replace synthetic alternatives**, enabling cost-effective farming and promoting cleaner water and air.	Breakthrough Energy, Continental Grain Company, Rockefeller Capital Management, etc.	$434 Mn - Series D
Plenty®	Plenty is a operator of a **GMO-free indoor vertical farm** using **proprietary systems** to grow **nutritious, water-efficient crops** year-round.	Eric Schmidt, Jeff Bezos, JS Capital Management, Walmart, etc.	$400 Mn - Series E
Ynsect	Ynsect acts as a **operator of insect vertical farms** producing premium organic alternative proteins and fertilizer. Their bio-refineries transform insects into**, nutritious livestock** and **pet feed**, providing large access to the natural goodness of insects for farmers and animal feed markets.	Armat Group, Bpifrance, Eurazeo, Happiness Capital, OurCrowd, etc.	$372 Mn - Series C
motif FOODWORKS	MFW creates **plant-based food** using **genetic engineering and fermentation** to offer sustainable alternative proteins and ingredients. Their products provide tasty, healthy, and gluten-free options for innovative food producers and consumers.	BlackRock, Bloom8, CPT Capital, Breakthrough Energy, Good Startup, etc.	$226 Mn - Series B
infarm	Developer & provider of **IoT**-powered **indoor hydroponic vertical farms** for urban farming to grow herbs & vegetables. InFarm sensors collect & analyse data and allow user to remotely monitor crop growth.	Triple Point Capital, Astanor Ventures, LocalGlobe	$202 Mn - Series D

ECF Farmsystems

Search Field	Aquaponic Indoor Farming
Location	Berlin, GER
Year Founded	2012
Funding in $ Mn.	Undisclosed
Last Round	Undisclosed
Investor	IBB Beteiligungsgesellschaft, unknown investor group from Switzerland
Website	ecf-farm.de

Business Overview

- Consulting, design & construction of **aquaponics farm systems**
- **Combining** the two synergetic cycles of **plant & fish farming** (CO_2 & dirt water from fish is transferred to plant, O_2 & clean water to fish)
- arms can be **setup** in **small** spaces in **urban areas**

Use case & customers

- **Valuable & resource saving process**
- Lowering **operating costs** by up to **7%** by reducing **water costs by 90%** and **decreasing freshwater & fertilizer** demand
- **Direct distribution t**o REWE & **selling technology** to customers (e.g. BIGH Farming)

Similar Companies

- **Infarm** (2013, $300M (Series C), European Commission, Triple Point Capital)
- **Stadtfarm** (2015, €387T (unknown), crowdfunding)

Agriculture

Business Overview

- Drone-based **precision agricultural solutions** for large farming corporations
- Large scale **cloud-based data analysis**, **swarm robotics** & **advanced data analytic**
- Illustrates data from UAV aerial imagery for **crop status & health**, and **providing operations** to optimize agri. efficiency

Use case & customers

- **Data-driven farming** is the use of **right** farm **data** at the **right time** to improve profitability
- Turning **flood of data** into simple, **decision-supporting** tools to **save land**, **fertilizer**, time & money and therefore **reduces emissions**
- Customers of are **large corporate farmers**

Similar Companies

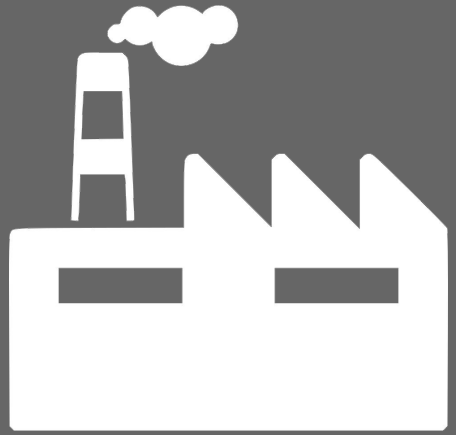
- **Aerobotics** (2014, $10M (Series B), Naspers, AgFunder)
- **Raptor Maps** (2015, $5.5M (Series A), Y Combinator, Massachusetts Clean Energy)

Resson Aerospace

Search Field	Precision Agriculture
Location	Fredericton, CAN
Year Founded	2013
Funding in $ Mn.	$30.04 Mn
Last Round	$14.00 Mn Series C (05.2018)
Investor	Y Combinator, Data Collective
Website	resson.com

Agriculture

HEAVY INDUSTRY

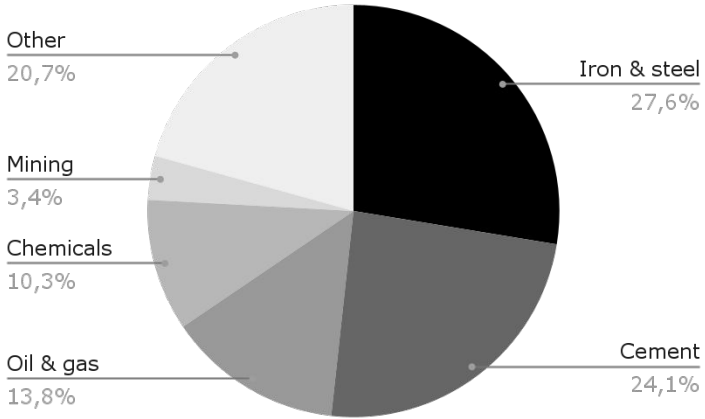


How can we operate more sustainably?

Zero Emissions in Heavy Industry mainly depend on the use of Materials

Direct* GHG emission in Heavy Industry

By resource in % of total emissions

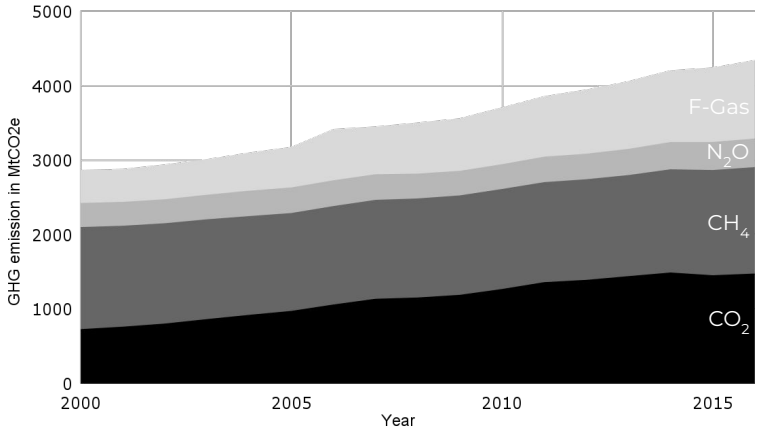


GHG emissions

- **Iron & steel** and **cement** production cause **>50% of GHG** emissions, mainly **CO_2**
- Heavy Industry is **main consumer** of energy
- Indirect emission by **energy use for facilities increases**
- **Waste & Wastewater** result from industrial processes
- Reused materials cause **less emissions** than primary

Direct GHG emission in Heavy Industry

by gas in % of total emissions



GHG gases

- Overall **emissions** in the heavy industry are **increasing**
- **CO_2** emissions are caused by **industrial processes** like cement and iron & steel production
- **Oil & gas** and waste industry are the main producer of **CH_4**
- **N_2O** is a result of processing in the **chemical industry**
- **F-Gases** are a byproduct in **non-ferrous metal** production

** Indirect emissions from energy usage are excluded*

Funding Activity: How Heavy Industry Startups aim to tackle the Challenge of Zero Emissions

Advanced Materials
Developers & manufacturers of new or modified to obtain better performance

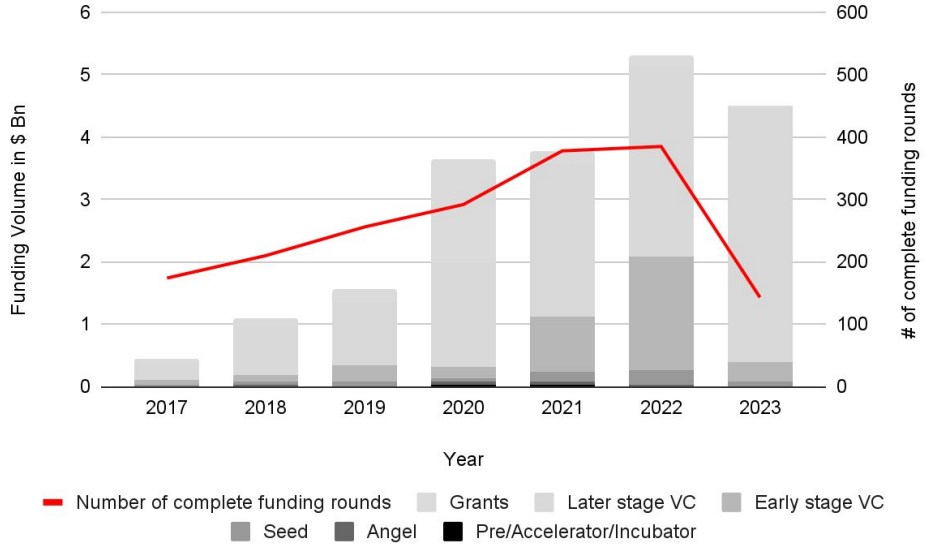
Efficient Manufacturing
Technology developers, manufacturers, platforms

Carbon Capture & Storage
Capturing, reusing & storing Carbon

Solid Waste Management
Technology developers, manufacturers, platforms

Water & Wastewater Management
Technology developers, manufacturers, platforms

Remarkable growth in the Heavy Industry with 2023 already surpassing 85% of last year's funding volume



# of Companies *total / funded* **834 / 725**	# of Acquisitions **104**
# of IPOs **95**	Investment Volume *last 24 months* **$13.86 Bn**

Notable Corporates:

BASF, أرامكو السعودية saudi aramco

Notable Exits:

ARCHAEA ENERGY a bp company, JOVO

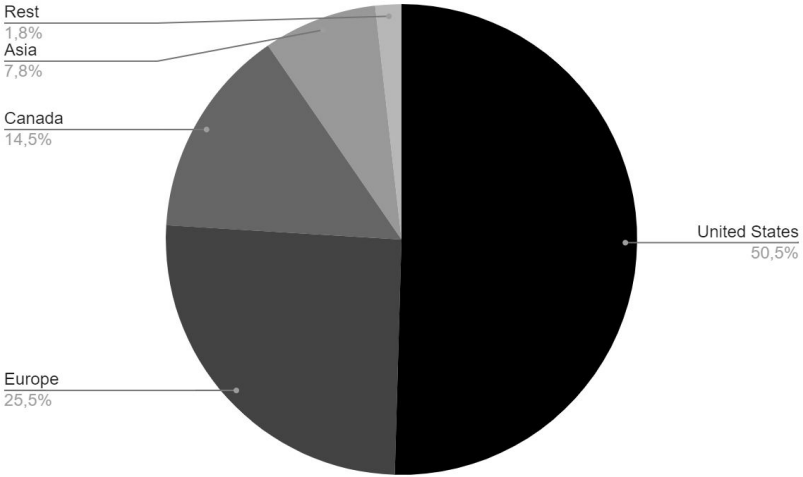
Notable Investors:

PLUG AND PLAY, techstars_

The US accounts for over half of the funding volume in the Heavy Industry segment

Capital Invested by Global Region

by region in %



Take-away

- The **USA** accounts for just **over half of the capital invested** consolidating its leading position with **6 different startups** in the top 10 funding rounds (**aggregated to $3.07 Bn**)
- However, the **Swedish startup H2 Green Steel** stands out, marking the largest round with approximately **$1.6 Bn from a Series C** financing round that has been underway **since April 2023**.

.

Top 10 Venture Rounds

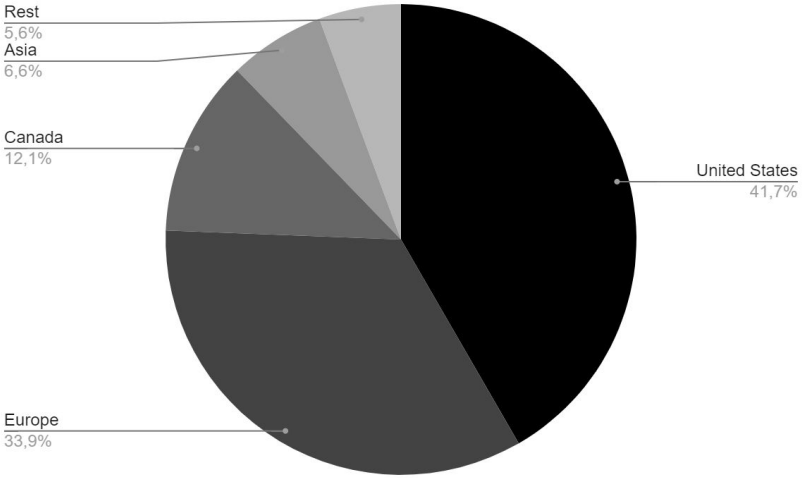
by Funding Amount

Startup Name	Funding in Mn	HQ Location
H2 Green Steel	$1640.38	Sweden
X Energy	$1200.00	USA
Hithium	$628.99	China
Cruose	$505.00	USA
Solugen	$357.00	USA
Electric Hydrogen	$355.75	USA
Summit Power Group	$350.00	USA
Svante	$318.00	Canada
Monolith	$300.00	USA
Ovo Energy	$280.89	UK

In the US few investors invest heavily in single rounds, while in Europe many investors make smaller bets

Deal Count by Global Region

by region in %



Take-away

- The **USA and Europe** stand out as **leading investors**, with the USA having **fewer investors but bigger investment rounds**, while Europe has **more investors but smaller investment rounds**.
- Consequently, among the **top 10 investors**, there is a **clear surplus of American investors** from various sectors such as **VC funds and governmental institutions**.

*US Department of Energy

Top 10 Investors

by Deal Count

Investor Name	Deal Count	HQ Location
National Science Foundation	72	USA
U.S. DoE*	59	USA
Plug and Play Tech Center	48	USA
Sustainable Development Technology Canada	48	Canada
Innovate UK	43	UK
SBIR.gov	36	USA
Breakthrough Energy	29	USA
SOSV	29	USA
Techstars	24	USA
Lowercarbon Capital	23	USA

Major Investments in the Heavy Industry segment

	Business Model	Investors	Investment Stage
H2 green steel	H2GS Northern Sweden's **steel production plant** offers large-scale **fossils-free steel** through a fully **integrated, digitalized, and automated greenfield approach**. Clients gain access to cost-effective fossil-free steel using raw materials, renewable energy, local expertise, and AI.	Altor Equity Partners, Hitachi Energy, Schaeffler, Kobe Steel, Kinnevik, etc.	$1.6 Bn - Series C*
HTHIUM	Manufacturer and developer of **critical material of lithium-ion battery** and **lithium iron phosphate battery**. Hithium focuses on storage battery and battery storage systems, enabling clients with safe, efficient, clean and sustainable energy storage solutions.	CDH Investments, Bank of China Group Investment, CICC Capital, etc.	$628 Mn - Series C
Crusoe	Crusoe is a operator of **mobile modular data centers eliminates gas flaring, reduces cloud computing costs**, and **lowers emissions from oil production**.	Bain Capital Ventures. Castle Island Ventures, Founders Fund, etc.	$505 Mn - Series C
Solugen	Solugen offers a **specialty chemicals platform** using **plant-derived substitutes made with enzymatic technology**. These environmentally-friendly chemicals enable businesses to reduce costs, carbon dioxide emissions, and their carbon footprint.	Fifty Years, Kinnevik, Lowercase Capital, Refactor Capital, etc.	$357 Mn - Series C1
SUMMIT	Summit Power specializes in **electric power projects** for energy-intensive sectors, including **oil recovery, natural gas, coal, wind, and solar**. They offer high-efficiency natural gas-fired power and carbon capture projects, providing access to capital, technology validation, and partnerships.	CCM Energy, Wellford Capital Management	$350 Mn - Grant

* in Progress

Svante

CC&S

Svante

Search Field	CC&S
Location	Burnaby, CA
Year Founded	2007
Funding in $ Mn.	$447.15 Mn
Last Round	$318.00 Mn Series E (04.2023)
Investor	Chevron, OGCI, Husky Energy
Website	svanteinc.com

Business Overview

- Carbon capture solutions **from air** by patented technology **directly from industrial source**
- Vision is to **reduce CO_2 emissions** & make **net-zero emissions** achievable
- Pre-engineered turnkey plants **fully automated & customized**
- 30 - 1,000 tonnes per day at half the cost

Use case & customers

- Carbon **produced in productions** (cement steel, ...) is captured **from flue gas**, enriched & provided for **safe storage or industrial use** by using **tailor-made nano-materials**
- Customers are from agriculture, food & renewable fuels & material markets

Similar Companies

- **Climeworks** (2009, $125M (Series D), Venture Kick, Zuricher Kantonalbank)
- **Carbon Clean Solutions** (2009, $47M (Series B), Chevron, Marubeni)

Business Overview

- Large scale **CO_2 capture technologies** by direct air capturing (DAC)
- Carbon capture **faster than plants & trees**, with smaller land footprint
- Can capture roughly **500 tons CO_2 per year**
- Carbon is **stored underground or reused**

Use case & customers

- Air is sucked in, plastic surfaces with **potassium hydroxide binds CO_2** molecule
- Use cases are **synthesising of clean transportation fuels** & **geological storage**
- Plan to commercialise solution with Shopify

Similar Companies

- **Climeworks** (2009, $125M (Series D9, Venture Kick, Zuricher Kantonalbank)
- **Opus12** (2014, $350T (Seed), National Science Foundation, Breakout Labs)

CC&S

Carbon Engineering

Search Field	CC&S
Location	Wigan, UK
Year Founded	2009
Acquired in $ Bn.	$1.1 Bn
Last Round	Acquired by OXY (08.2023)
Investor	Chevron, Oxy, BHP, ERA
Website	carbonengineering.com

Carbon Engineering

Acquired by Occidental Petroleum on August 15th, 2023

Saperatec

Search Field	Solid Waste Recycling
Location	Bielefeld, GER
Year Founded	2010
Funding in $ Mn.	$5.69 Mn
Last Round	Undisclosed Series A (10.2019)
Investor	HTGF, Henkel Tech Ventures
Website	saperatec.de

saperatec
back to values

Heavy Industry

Business Overview

- **Micro-emulsion separation technology** for recycling composite packaging materials
- Provider of **specialized micro-emulsions** based on **surfactants**
- **100% recycling** in aluminium, plastic, lithium, copper, graphite, glas & cardboard and **return into raw material cycle**

Use case & customers

- Surfactants **reduce surface tension**, the micro-emulsion then **channels** its way **between the layers** resulting in **separation** of the composite, resulting in **reusable single material**
- Building own **pilot facilities** & planning plant manufacturing for **industrial recycler** (Henkel)

Similar Companies

- **PVC separation** (2017, n.a. (unknown), Innovyz)
- **Ucomposites** (2008, n.a. (unknown), Accelerace, Capnova)

Business Overview

- **Water soluble & biodegradable thermoplastic pallets** made of **natural milk protein**
- **Substitute for pollutant oil-based plastics** & can easily be **integrated in recent production** processes
- High-performance, mass-producible & environmentally compatible material solution

Use case & customers

- Use Cases are **water soluble packaging**, **sustainable packaging**, **single-use plastic** & **emerging markets** (e.g. dishwasher tab)
- Material compatible with standard machinery
- Customers like BASF want to **replace chemical solutions** in home care and I&I market

Similar Companies

- **Novomer** (2004, $46M (Series C), DOE, National Science Foundation)
- **RWDC Industries** (2015, $169M (Series B), WI Harper Group, Vickers Venture Partners)

Heavy Industry

Lactips

Search Field	Biodegradable Plastic
Location	Saint-Jean-Bonnefonds, FR
Year Founded	2014
Funding in $ Mn.	$6.64Mn
Last Round	$27.69Mn Series B (02.2023)
Investor	Demeter, Bpifrance, BASF
Website	lactips.com

Lactips

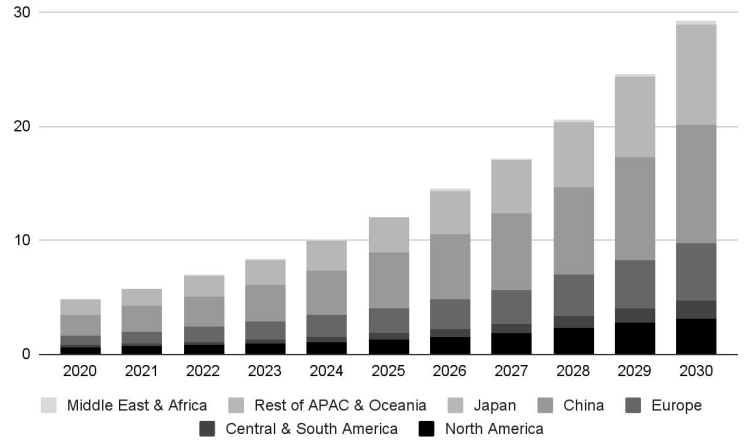
MOBILITY & TRANSPORT

How can move towards emission-free mobility?

Zero Emissions in Mobility highly depend on Infrastructure and E-Mobility Adoption Progress

Global Electric Car Sales Forecast

by region in million units

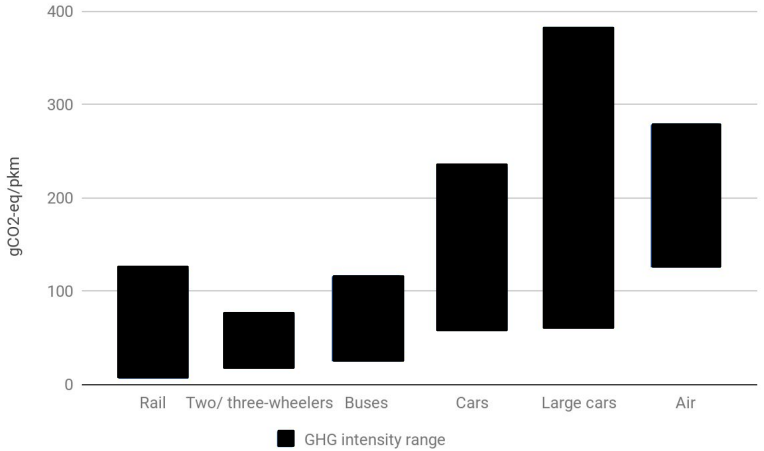


Increasing Adoption

Exponential adoption of electric vehicles (Full and Hybrid EVs). China as most important player in the e-mobility sector and with most units sold.

GHG Intensity of transport modes

GHG intensity range by mode of transport



Rail Transportation

Rail transportation with one of the **lowest GHG intensity.** Cars & trucks have the highest potential for GHG savings. GHG intensity significantly increases within-city transport.

Funding Activity: How Mobility & Transportation Startups aim to tackle the Challenge of Zero Emissions

Alternative Drives
with emission-free power

Automaker
Batter e-vehicles or fuel cell e-vehicles, Hydro-power

Components
Improvements empowering the technology of new drives

Aerospace & Maritime
Vertical landing vehicles

Management
for more efficient operation

Vehicle Management
Connectivity and battery management systems

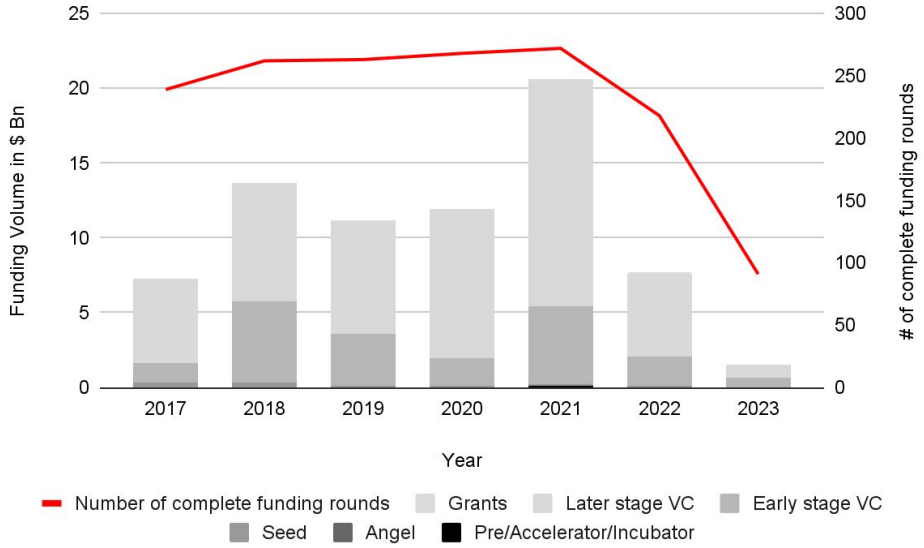
Charging Solutions
Charging networks for EVs

Utilization
to increase usage of goods

Vehicle-as-a-Service
Self drive rentals as cars, scooter, bicycles etc.

Ride Hailing
On-demand ride booking services and ridepooling

The hype in the Electric Vehicle market until 2021 subsequently led to a strong decline in funding volume



# of Companies *total / funded*	# of Acquisitions
786 / 679	**170**
# of IPOs	**Investment Volume** *last 24 months*
123	**$17.84 Bn**

Notable Corporates:

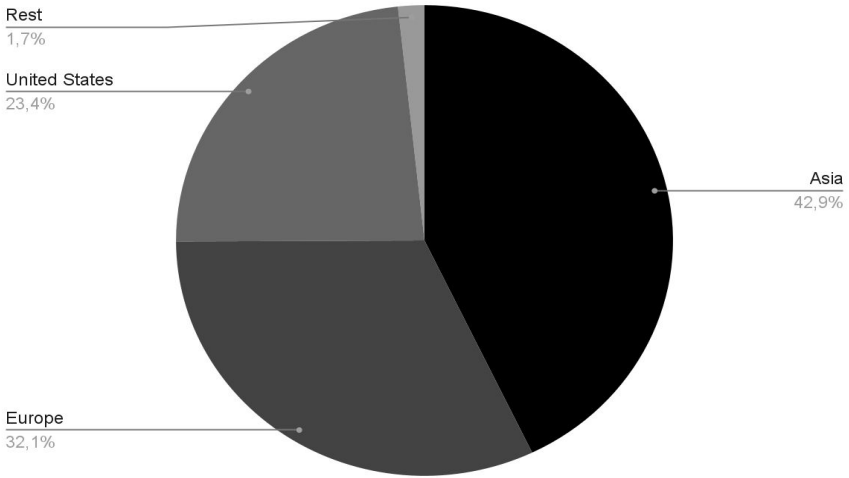
Notable Exits:

Notable Investors:

China saw the largest investments in the EV space, especially for vehicle manufacturers and charging infrastructure

Capital Invested by Global Region

by region in %



Take-away

- **Sweden and China** emerge as clear leaders in the Mobility market, with **Sweden boasting 3 of the 10 largest rounds (aggregated to $4.84 Bn)** and **China claiming 7 of the 10 largest rounds (aggregated to $5.9 Bn**). Notably with the Swedish **unicorn Northvolt**, which develops and produces lithium-ion batteries for electric cars and energy storage, and **various Chinese startups** shaping the field.

Top 10 Venture Rounds

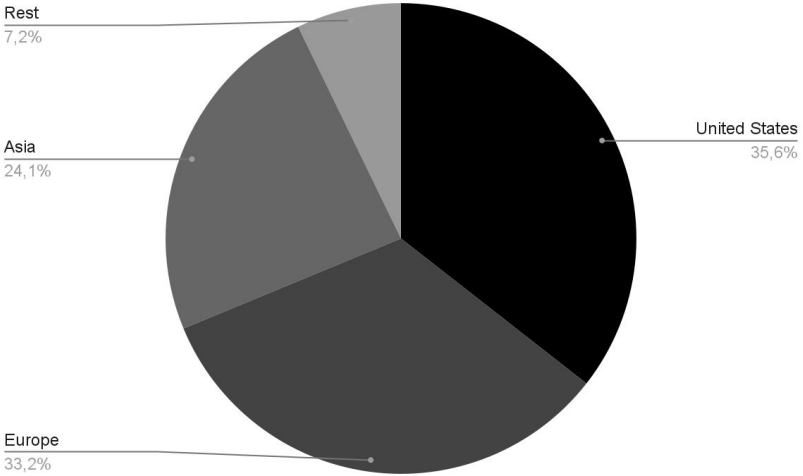
by Funding Amount

Startup Name	Funding in Mn	HQ Location
Northvolt	$2750.00	Sweden
Weltmeister	$1470.00	China
Northvolt	$1000.00	Sweden
Hello Inc.	$1000.00	China
Northvolt	$992.97	Sweden
Enovate Motors	$735.85	China
Hello Inc.	$700.00	China
AIWAYS	$688.47	China
Hozon	$621.68	China
Didi Bike	$600.00	China

Again, funding and deal volumes are largely driven by government investors and research hubs

Deal Count by Global Region

by region in %



Take-away

- Although the **USA** is **no longer among the top funding rounds**, it positions itself with **7 of the top 10 investors** as the global region with the **largest share of investments made** in ClimateTech Mobility market.
- This clearly indicates its **active role** and **continuous efforts to establish itself** in the Mobility market.

*US Department of Energy

Top 10 Investors

by Deal Count

Investor Name	Deal Count	HQ Location
Innovate UK	32	UK
Plug and Play Tech Center	30	USA
EIT InnoEnergy	23	Netherlands
SOSV	20	USA
Techstars	15	USA
US DoE*	14	USA
GGV Capital	13	USA
NYSERDA	12	USA
California Energy Commission	11	USA
EIT Climate-KIC	11	Netherlands

Major Investments in the Mobility & Transport segment

	Business Model	Investors	Investment Stage
WELTMEISTER 威马汽车	Weltmeister is a developer of **electric vehicles (EV)**. The company **manufactures and develops energy-conserving electric vehicles** in addition to **intelligent data hardware**, providing customers with alternative affordable EV options.	Baidu Ventures, Agile Group, Hefei Hi-Tech VC, SDIC Chuangyi, etc.	$1.5 Bn - Series D
哈啰	Hello Inc´s **bike sharing platform** creates an **intelligent urban traffic system** with bikes equipped with **smart locks and GPS**. Users can easily find nearby bikes, reducing traffic congestion and urban pollution.	All-Stars Investment, Ant Group, Fosun International, Redview Capital, etc.	$1 Bn - Series F
NOVAT	The developer and manufacturer Enovate specializes in **electric vehicles** and innovative **controlling systems**. They offer various models to elevate customers' driving experience and reduce environmental pollution.	Nanning Industrial Investment Group, etc.	$735 Mn - Series B
AIWAYS	AIWAYS electric vehicle company **utilizes AI in their automobiles**, offering **customized travel services** to elevate the driving experience and reduce environmental pollution.	CCI Holdings (China), Fuxiang Capital, Shagang Capital, etc.	$688 Mn- Series A
HOZON 合众汽车	Hozon develops and manufactures **electric vehicles** with a focus on **new energy automobile products**. They use innovative technology in research, intelligent manufacturing, and omni-channel sales to create intelligent electric vehicles with a high price-to-performance ratio.	CCB International, CITIC Capital, Guxin Capital, etc.	$622 Mn - Series D1

Virta

Search Field	Charging Solutions
Location	Helsinki, Finland
Year Founded	2013
Funding in $ Mn.	$140.57 Mn
Last Round	$93.03 Mn Undisclosed (04.2023)
Investor	E.ON, JXTG Group, Helen Ventures
Website	virta.global

Mobility & Transport

Business Overview

- Cloud-based management solution for EV charging stations
- Provides whitelabel solution that connects EV drivers, charging points, and energy system in a **scalable ecosystem**
- Features include cloud-connected charging devices, automated billig, energy mgmt etc.

Use case & customers

- Helps **E.ON** to make charging stations available to EV users across Europe.
- “Aim to set up the digital backbone for mobility world.”
- Fastest EV charging service provider in 2020

Similar Companies

- **EV Connect** (2009, $25M (Series B), Mitsui & Co, Plug & Play Tech Center)
- **Greenflux** (2011, $13M (Series B), ICT, BOM)

Business Overview

- Developer of e-vehicle charging solution
- Claims to **charge lithium-ion batteries** in half of the usual time
- Use **AI-based software algorithms and electronics** to optimize charging system in vehicles
- Goal is to accelerate **adoption of EVs**

Use case & customers

- **Self-learning algorithm** creates unique battery profiles to charge them more efficiently
- Technology can be **applied to vehicles, drones, electric tools** and similar

Similar Companies

- **Chargefox** (2017, $8M (Series A), Renewable Energy Agency, Greg Roebuck)
- **CaCharge** (2015, $2,5M (Series A), EIT InnoEnergy)

Mobility & Transport

GBatteries

Search Field	Charging Solution
Location	Ottawa, CA
Year Founded	2012
Funding in $ Mn.	$0.02 Mn
Last Round	Undisclosed Accelerator (02.2020)
Investor	Y Combinator, Breakthrough Energy, BDC
Website	gbatteries.com

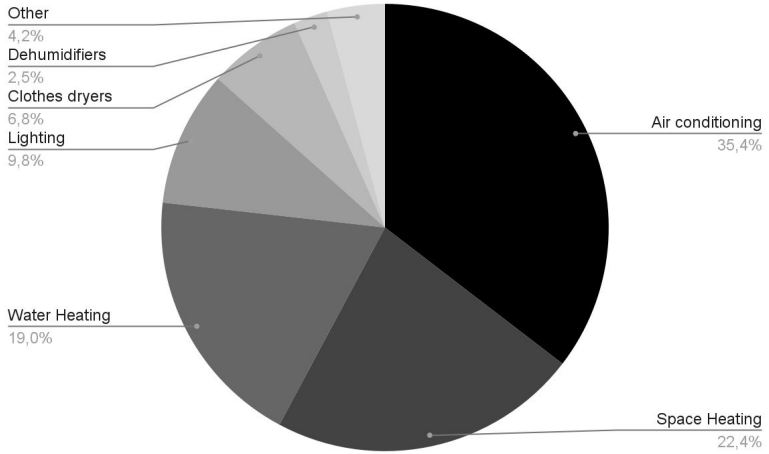
BUILT ENVIRONMENT

How can we reduce energy usage in buildings?

Zero Emissions in Built Environment highly depend on Heating Utilization and Air Conditioning

Final Energy Consumption in Buildings

Energy consumption in TWh

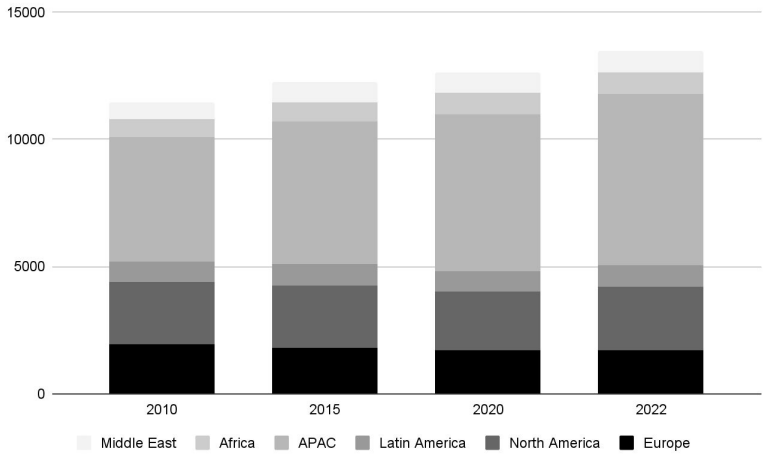


Key Take Away

Air conditioning is the largest energy consumer in US buildings at 35.4%, according to 2023's RECS by EIA. Space heating (22.4%) and lighting (9.8%) follow as other significant energy uses.

Global Energy Consumption

Energy Consumption in Mtoe



Energy Intensity Improvement

While from **2010**, **Europe's** energy use **fell 12%, North America's remained the same** growing by **0.003%.** And **energy consumption** in **Asia surged by 27%.**

How Building Startups aim to tackle the Challenge of Zero Emissions

Construction Tech
for emission-free building construction

Advanced Building Materials
Green concrete and other sustainable materials

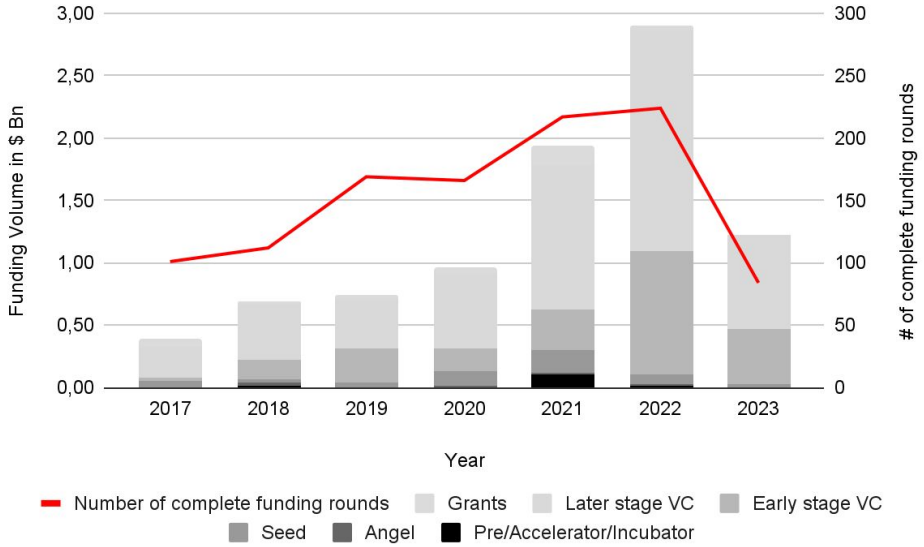
Management
to enable smart homes and cities

Energy Efficiency
Smart monitoring / management
LED, OLED, ESCO

Smart Cities
Smart management and control of public utilities

Data Center Infrastructure
More efficient (green) data centers

Boom in the Climate Tech Built Environment Market: Record-Breaking Years of 2021 and 2022 Back to Back



# of Companies *total / funded* **488 / 437**	# of Acquisitions **54**
# of IPOs **36**	Investment Volume *last 24 months* **$4.88 Bn**

Notable Corporates:

bp ENGIE

Notable Exits:

Dyneema®

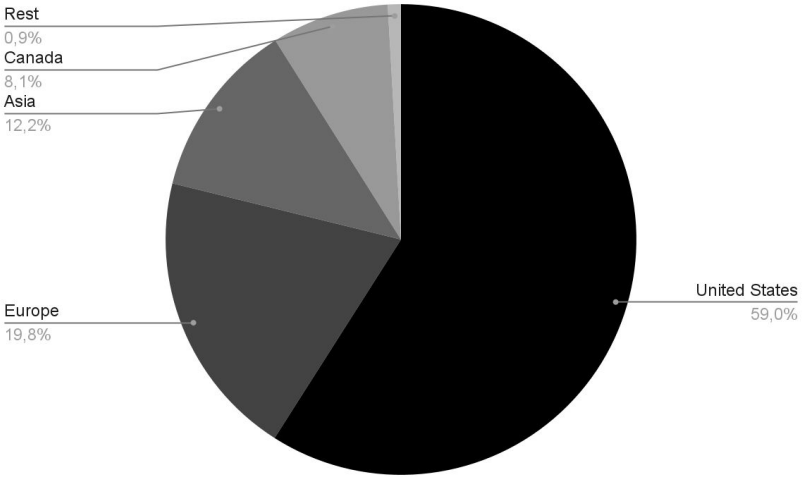
Notable Investors:

khosla ventures
Breakthrough Energy

US-based Startups are leading the charge in Built Environment funding

Capital Invested by Global Region

by region in %



Take-away

- The **US clearly dominates** the Climate Tech Built Environment Market with **7 out of the top 10 funding rounds** and **+55%** share of the invested capital belonging to the USA
- **Seven different US-based startups** collectively garnered over **$1.25 Bn** in this sector.

Top 10 Venture Rounds

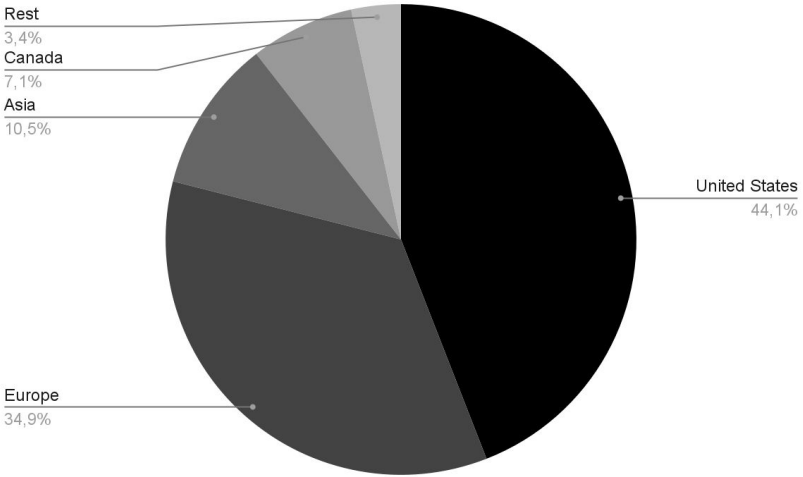
by Funding Amount

Startup Name	Funding in Mn	HQ Location
Veev	$400.00	USA
Peak Power	$200.00	USA
Sunly	$196.44	Estonia
BlocPower	$154.50	USA
FreeWire Technologies	$140.47	USA
MycoWorks	$125.00	USA
Aspen Power Partners	$120.00	USA
Wunder Capital	$112.00	USA
Gropyus	$107.01	Austria
Benma Graphene	$101.59	China

Governmental investors are once again driving funding in the segment - with well-known VCs also active in the field

Deal Count by Global Region

by region in %



Take-away

- While the **USA** boasts **not only governmental institutions**, such as the National Science Foundation, but **also major VC players**, the **majority of European investors** can primarily be identified as **governmental entities, like Innovate UK and EIT InnoEnergy**

*US Department of Energy

Top 10 Investors

by Deal Count

Investor Name	Deal Count	HQ Location
Innovate UK	22	UK
Plug and Play Tech Center	22	USA
National Science Foundation	21	USA
Breakthrough Energy	26	USA
NYSERDA	18	USA
Sustainable Development Technology Canada	21	Canada
EIT InnoEnergy	14	Netherlands
Khosla Ventures	19	USA
Techstars	18	USA
2150	11	UK

Major Investments in the Built Environment segment

	Business Model	Investors	Investment Stage
Veev	Veev offers innovative **housing systems** that reinvent home building and experience. Their **all-in-one systems** include **asset management, design, modular build, and a digital home backbone**, giving customers control over home operations, safety, maintenance, and comfort.	BOND Capital, Fifth Wall, JLL Spark, Lennar Ventures, Zeev Ventures, etc.	$400 Mn - Series D
PEAK POWER	Peak Power offers **AI-powered energy optimization software** for building owners, project developers, and utilities. It **optimizes energy storage operations,** enabling customers to pursue net-zero goals, cut expenses, and unlock new revenue opportunities.	Madison Energy Investments	$200 Mn - Undisclosed
sunly	Sunly is a **Developer, Constructor, and Operator of renewable energy projects** in the **Baltics & Poland**, including **large-scale storage in Estonia**. It invests in renewable energy startups and offers funding and ancillary services to cleantech startups.	European Bank for Reconstruction and Development, Mirova, etc.	$196 Mn - Undisclosed
BLOC POWER	Bloc Power empowers **underserved communities** with green, smart cities through revolutionary climate tech. **Saving energy costs** and improving health with **cutting-edge technologies like data analysis, thermodynamic models, structured finance, and edge computing**.	529 Ventures, Credit Suisse, Milkbox Partners,MCJ Collective, Kimbal Musk, etc.	$155 Mn - Series B
FREEWIRE	FreeWire Technology creates **mobile electric charging systems** to replace fossil fuels in industries. These systems offer clean, quiet on-site power, saving customers from construction or infrastructure costs.	BlackRock, BP Ventures, Daishin Private Equity, GLY Capital Management, etc.	140 Mn - Series D

Built Environment

SolidiaTech

Search Field	Building Materials
Location	Piscataway, US
Year Founded	2008
Funding in $ Mn.	$291.19 Mn
Last Round	Undisclosed (06.2023)
Investor	Kleiner Perkins, OGCI, BASF, Total, BP Ventures
Website	solidiatech.com

Business Overview

- Provides technology that **injects CO2 into concrete** during the manufacturing process
- Transforming CO2 into a usable element as it helps in curing concrete and produces **more durable and flexible product**
- Gives concrete producers competitive edge without losing out on any parameters.

Use case & customers

- Claim to reduce CO2 emissions, **require less energy**, makes more cement with less raw materials while increasing performance
- Customers include companies in construction chemicals (**Chryso)**

Similar Companies

- **CarbonCure** (2007, $89M (Series E), Microsoft, BDC, 350 Capital)
- **Carbicrete** (2016, $2.5M (Seed), Harsco, SDTC, Innovobot)

Business Overview

- Technology solutions for energy conservation and **resolve temperature imbalance**
- Provider of **cloud platform** along with wireless zone controllers to monitor temperature and tracking energy requirements

Use case & customers

- Enables customers to **save energy and improve air quality** while having no disruptive install of additional devices
- Customers include **Daimler, Shell, Hewlett Packard**, and customers in the food, retail and industrial space

Similar Companies

- **SensorFlow** (2016, $12M (Series A), Openspace Ventures, GAW Capital Partner)
- **enVerid** (2010, $35M (Series B), Breakthrough Energy, DOE, Building VC)

Built Environment

75fahrenheit

Search Field	Energy Efficiency
Location	Mankato, US
Year Founded	2012
Funding in $ Mn.	$34.70 Mn
Last Round	$27.85Mn Series A (07.2021)
Investor	Breakthrough Energy, Clean Energy Trust, OGCI
Website	75f.io

EMISSION MANAGEMENT

How can we measure GHG Emissions?

Emission Management

GHGSat

Search Field	Emission Intelligence
Location	Montreal, CAN
Year Founded	2011
Funding in $ Mn.	$65.66 Mn
Last Round	$0.06 Mn Grant (06.2022)
Investor	BDC, OGCI, Space Angels, Schlumberger, FSTQ, Investissement Quebec
Website	ghgsat.com

Business Overview

- Proprietary platform for **collecting greenhouse emission data** from industries
- Launched **satellites that orbit the earth** and **measure concentration of gases**
- **Predictive algorithms** are used to detect leakages and **monitor emission patterns** which are offered as services to industries

Use case & customers

- Provides customers **environmental reporting** as well as leak detection and repair activities
- Serves customers in **oil & gas, power generation, mining, agriculture** and similar

Similar Companies

- **Pixxel** (2019, $5.8M (Seed), Techstars, Blume Ventures)
- **Planet Labs** (2010, $388M (Series D), DFJ)

Business Overview

- Provider of SaaS solutions for **carbon footprint management**
- Enables companies to easily measure and report on carbon footprints
- Automates **sustainability reporting** and eases investor disclosure process

Use case & customers

- **Carbon accounting**, planning, forecasting & reporting all in one tool
- Enables customer to plan and forecast **carbon inventory**
- Management of entire **carbon lifecycle** from accounting to reporting

Similar Companies

- **Normative** (2014, $2.1M (Seed), Byfounders)
- **Aclima** (2010, $24M (Series A), Social Capital, Impact Partners)

Emission Management

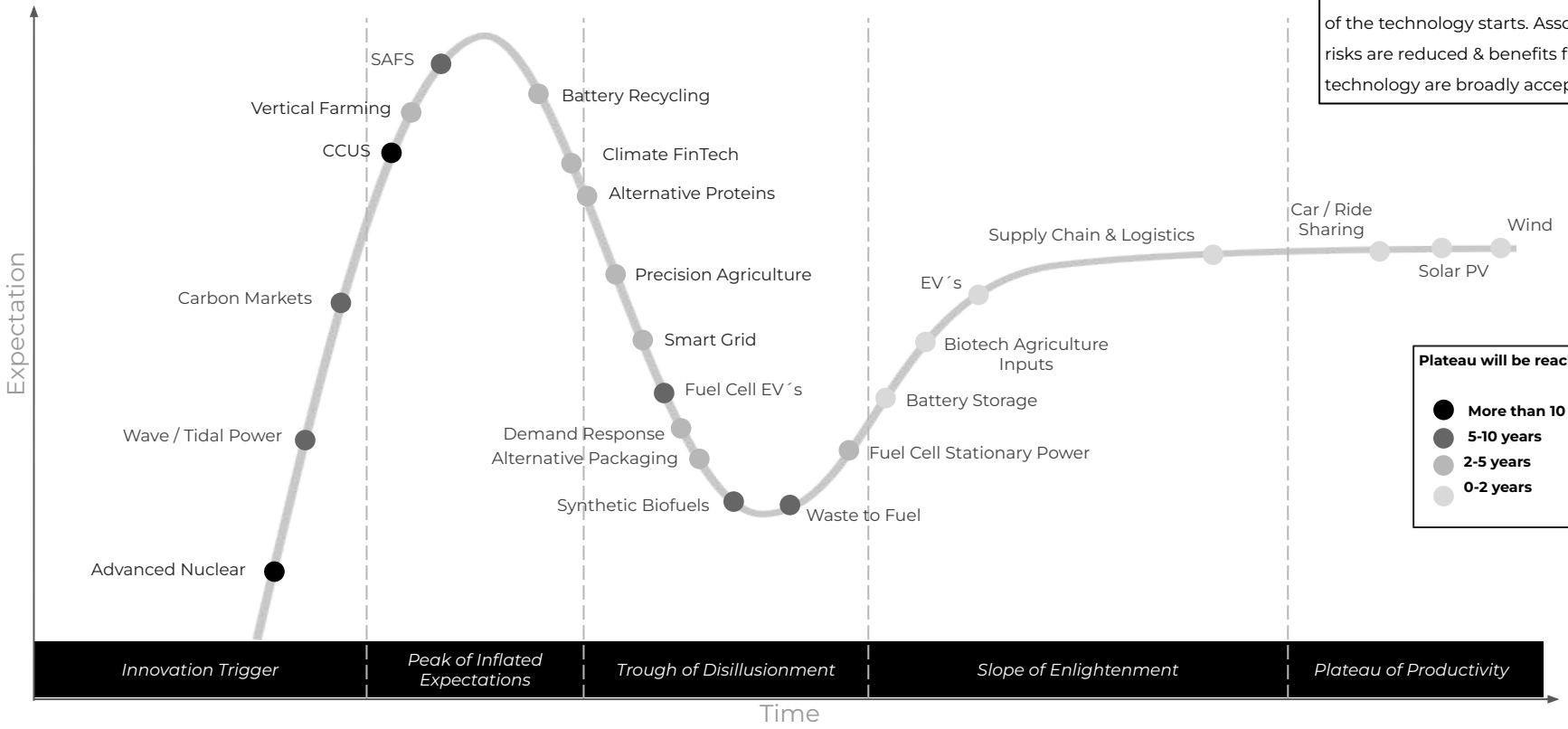
Persefoni

Search Field	Carbon Management
Location	Tempe, US
Year Founded	2020
Funding in $ Mn.	$114.48 Mn
Last Round	Undisclosed (08.2022)
Investor	Rice Investments
Website	persefoni.com

SUMMARY

The current State of Innovations: Climate Solutions in the Gartner Hype Cycle

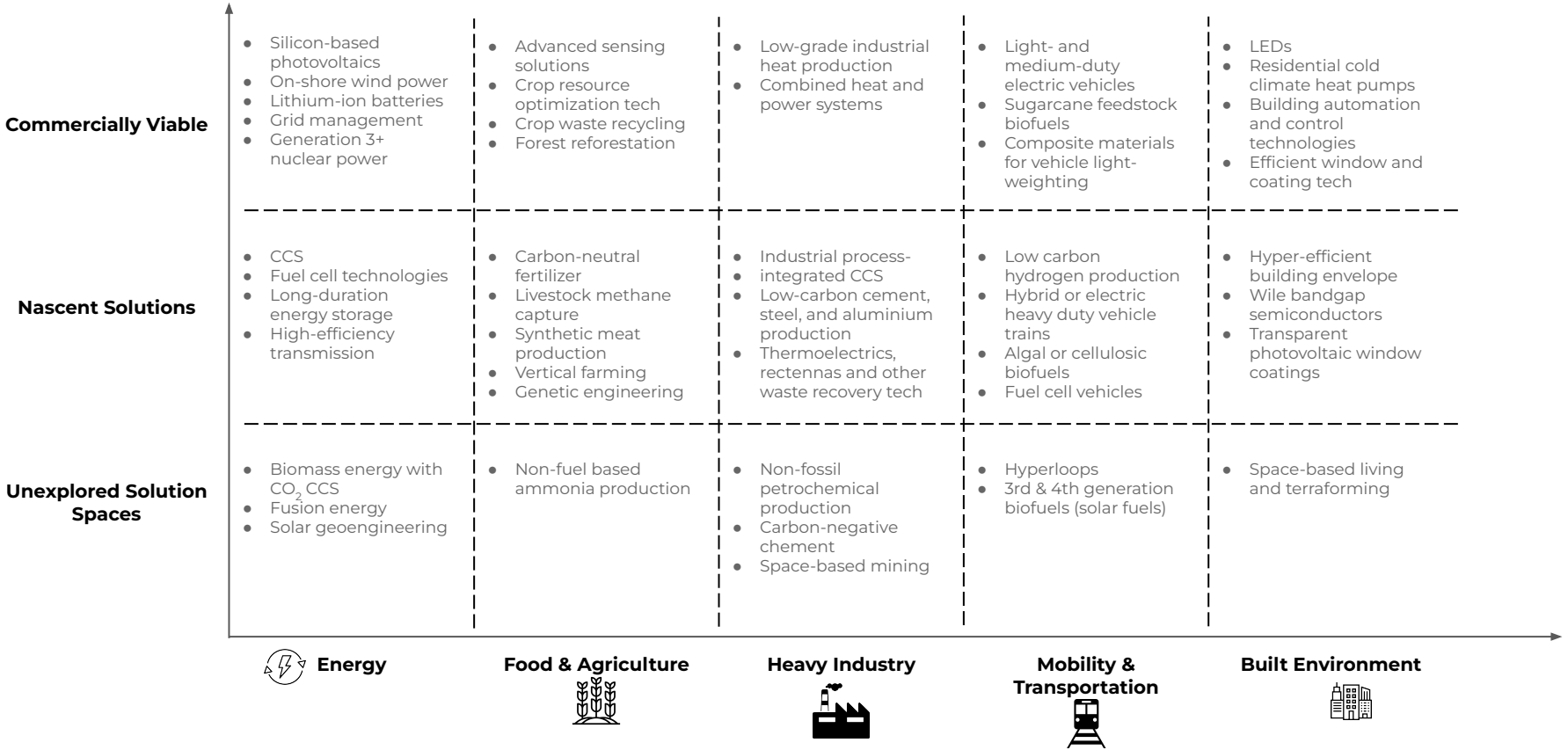
Reaching the Plateau:
This is when mainstream adaptation of the technology starts. Associated risks are reduced & benefits from the technology are broadly accepted.



Plateau will be reached in:

- More than 10 years
- 5-10 years
- 2-5 years
- 0-2 years

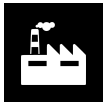
The current State of Innovations: Climate Solutions by Innovation Stage and Vertical



SUMMARY

Energy: *Smart grid* is a mature technology. If Corporates are interested in investing in ground-breaking technologies, they should have a look at *Fusion Energy* Systems or *Battery* technologies.

Food & Agriculture: Food and Agriculture, strong drivers of the climate crisis, have seen exciting technological advances in the last 3 years in the USA and Europe. *Vertical Farming*, *Alternative Cultivation*, and more are being explored to tackle climate challenges.



Heavy Industry: Enabling more efficient manufacturing & advanced materials are the mature developments in the segment. Very promising and direct impact for Corporates is offered by *Carbon Capture & Storage* technologies and *Recycling* technologies.

Mobility: The segment is dominated by the *Sharing Economy* and manufacturers of *Electric Engines*. Promising for Corporates could be an investment in *Charging Infrastructure Networks* or new *Battery Swapping and Recycling* technologies.

Built Environment: Energy efficiency in buildings is a major interest of many VCs. As the space is very fragmented, Corporates could invest in *Advanced Building Materials* or *Green Data Centers*.

CONTACT DETAILS

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