

**START-UP
NATION
CENTRAL**



ISRAEL'S CLIMATE TECH SECTOR CLOSES ANOTHER STRONG YEAR IN 2022

AS OF MARCH 21, 2023



MAIN TAKEAWAYS

- 1 There are over 800 Climate Tech relevant early and growth stage innovation-driven companies mapped on Start-Up Nation Finder, classified according to six climate solution primary domains: Energy Transition, Cleaner Industry Tech, Food & Land Use, Carbon Tech, Transportation & Logistics, and Water Solutions.
- 2 Climate Tech companies raised USD 1.99 billion during 2022 in VC investments across 147 rounds, closing the second-best year since 2019.
- 3 The first half of 2022 was a direct continuation of the 2021 boom, during which USD 1.6 billion was raised in VC investments, representing 82% of the total funds raised in Climate Tech throughout the entire year.
- 4 Since the beginning of 2023, Climate Tech companies have raised USD 210 million in VC funds year-to-date (YTD). This is 40% higher than the previous quarter. As data collection for the year is still partial, we expect that these figures will be revised in the future.
- 5 Climate Tech's prominence in the Israeli high tech industry is emerging. Climate Tech's share of investments in the Israeli ecosystem is growing, averaging 6% from 2019-2021 to 10% in 2022 in terms of amounts and from 12% to 15% in terms of rounds.





FOREWORD



Climate change is a complex challenge that demands a systemic change in all steps of the value chain in any sector. This also represents a major opportunity for entrepreneurs, investors, and businesses – as innovation has an important role to play. Increasingly more resources are being poured into technologies to mitigate and adapt to climate change globally and in Israel.

This report offers a snapshot of the state of the Climate Tech sector in Israel in 2022 based on [Start-Up Nation Finder](#) data, showing that the ‘Startup Nation’ is on the way to becoming a global Climate Tech hub.

Israel’s growing Climate Tech sector is mapped on Start-Up Nation Finder with full transparency in an ongoing research effort that started mid-2021. Our mapping reveals a budding ecosystem with startups and growth companies that are developing technological innovation that can directly or indirectly promote mitigation (decarbonization), assist with adaptation efforts to climate change challenges, and support environmental protection. This definition of Climate Tech aligns with the global narrative, which understands that the world needs a suite of solutions for all industries to transition into a more climate-friendly mode, and thus the scope

of Climate Tech goes beyond renewable energy, recycling, and more traditional boundaries associated with ‘CleanTech’ in the past.

Climate Tech innovation spans many industries and markets and has been classified in our research according to six solution domains, with sub-domains under each: Food & Land Use, Energy Transition, Carbon Tech, Water Solutions (for industry and residential applications), Transportation & Logistics, and Clean Industry Tech.

CLIMATE TECH CLASSIFICATION

Energy Transition	Clean Industry Tech	Carbon Tech	Transportation & Logistics	Food & Land Use	Water Solutions
How we shift to cleaner energy systems	The processes and materials we use to make things	How we monitor and remove emissions and improve our understanding of climate	How we move people and goods sustainably	How we produce food sustainably	How we manage and treat the essential element of life
Energy Generation	Sustainable Materials & Circularity	Carbon Capture, Storage, Sequestration, and Utilization	Mobility Optimization & Logistics	Sustainable Proteins	Water-tech for Industrial and Residential Uses
Transmission and Distribution	Eco-Efficient Manufacturing	Carbon Analytics, Earth Data & Fintech	Electric Vehicles Infrastructure & Platforms	Sustainable Farming	
Energy Usage	Green Construction				
Energy Storage					
Hydrogen					



CLIMATE TECH COMPANIES IN ISRAEL

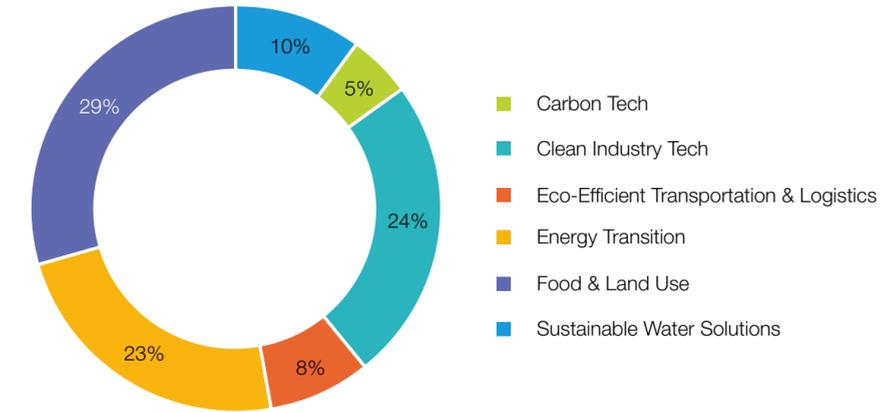
Number of Companies & Maturity by Domain

Food & Land Use and Clean Industry Tech are the biggest domains by number of companies, followed by Energy Transition

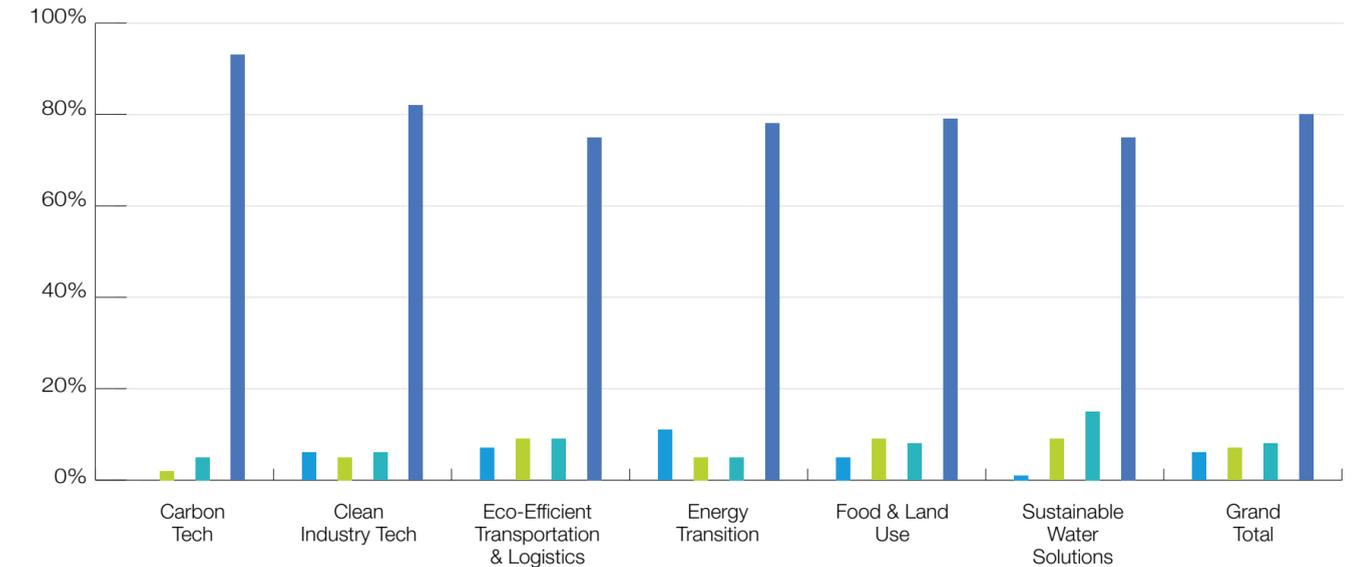


- Food & Land Use is the top domain with 29% of companies (with Sustainable Farming as the largest sub-domain), followed by Cleaner Industry Tech with 24% of the companies (with Sustainable Materials & Circularity as the largest sub-domain) and Energy Transition with 23% of the companies (with Energy Usage as the largest sub-domain).
- All the climate domains have a relatively high percentage of companies in early funding stages, with over 75% identified as bootstrapped, pre-seed, seed, and A rounds. In the Carbon Tech domain, 90% of the companies are in the early funding stages. This is also the youngest domain in terms of the age of companies, with 69% of its companies founded in the last three years.
- The highest percentage of publicly traded companies is in the Energy Transition domain (10%), followed by Transportation & Logistics (8%). The Water Solutions domain has the highest percentage of companies in mature funding stages (16% are established and revenue financed). Over 40% of the companies in this domain are over 15 years old.

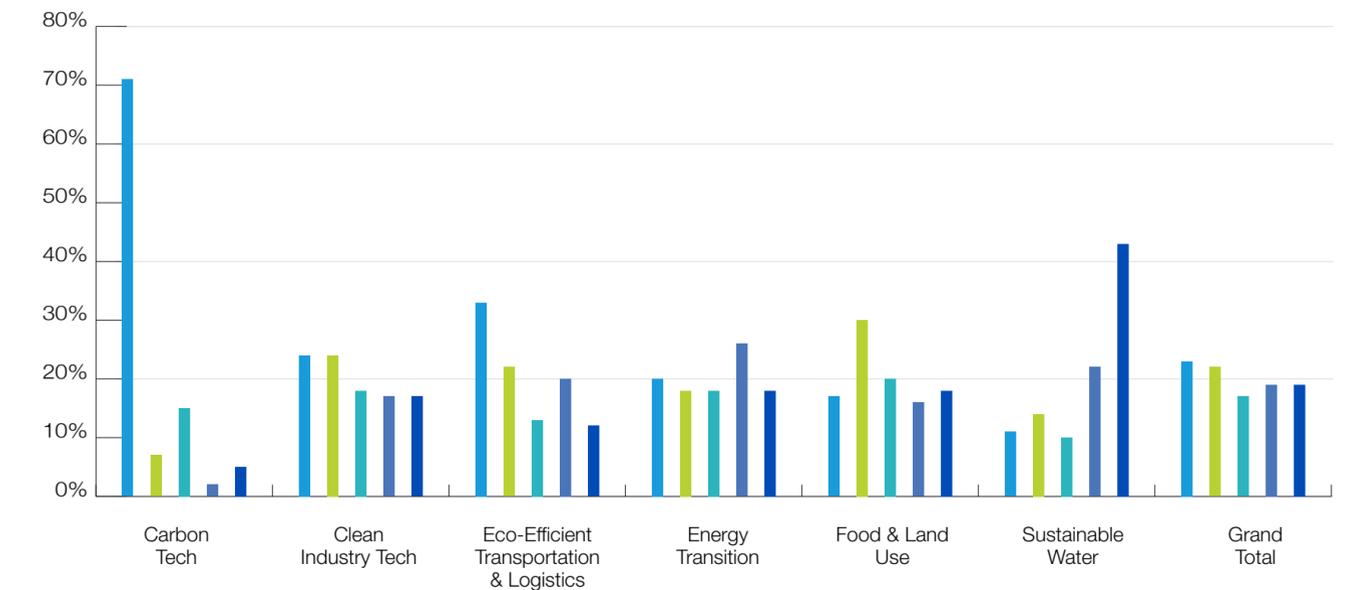
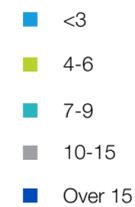
Climate Tech Companies by Primary Domain



Founding Stages of Companies per Domain



Age of Companies per Domain





VC INVESTMENTS IN ISRAEL'S CLIMATE TECH SECTOR

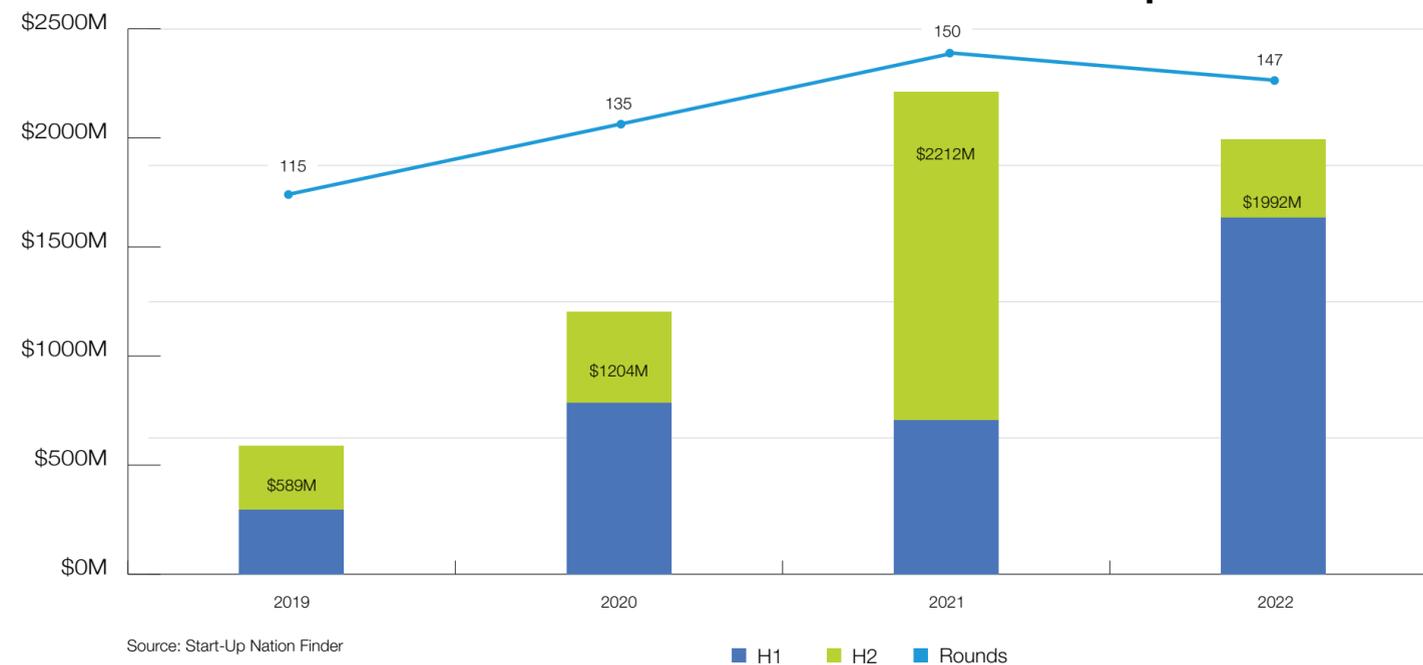
VC invested USD 1.99 billion in 2022 in Climate Tech companies, slightly less than in 2021; Climate Tech public companies raised an additional USD 1 billion in post-IPO equity rounds



- Climate Tech companies raised USD 1.99 billion during 2022 in VC investments across 147 rounds, closing the second best year since 2019. The top rounds included: [Veev](#) (prefabricated efficient smart homes) and [Redefine Meat](#) (3D printed plant-based proteins).
- An additional USD 1 billion was raised by Climate Tech companies in the public markets, with the leading rounds led by two Energy Transition companies: [SolarEdge](#) (renewable energy) and [Ormat](#) (geothermal energy).

- The first half of 2022 was a direct continuation of the 2021 global tech boom, during which USD 1.6 billion was raised in VC investments, representing 82% of the total funds raised throughout the entire year.
- A decline in the financial markets, higher interest rates, and fear of a deep global recession characterized the second part of 2022. During this time, we witnessed a decline in the number of deals and their overall value. Israeli investors made two-thirds of investment rounds in Climate Tech companies in 2022.
- Two of the most active investors are not climate-dedicated funds: OurCrowd (Israel) and Insight Partners (US).
- Two-thirds of the VC-led deals in 2022 raised USD 10 million or less, and only 2% of deals were greater than USD 100 million.
- Since the beginning of 2023, Climate Tech companies have raised USD 210 million in VC funds year-to-date –40% higher than the previous quarter, yet far lower than the levels of investment we saw in Q1 2021 and Q1 2022.

VC Investments in Israeli Climate Tech Companies



Source: Start-Up Nation Finder
*as of March 21, 2023

Most Active VCs	No. of Investments (2022)
OurCrowd (Israel)	14
Capital Nature (Israel)	7
Insight Partners (USA)	6
Firstime VC (Israel)	5
Doral Energy-Tech Ventures (Israel)	4

Most Active VCs are selected based on number of rounds and rounds value, including follow-on rounds.



BREAKDOWN OF VC INVESTMENTS PER DOMAIN

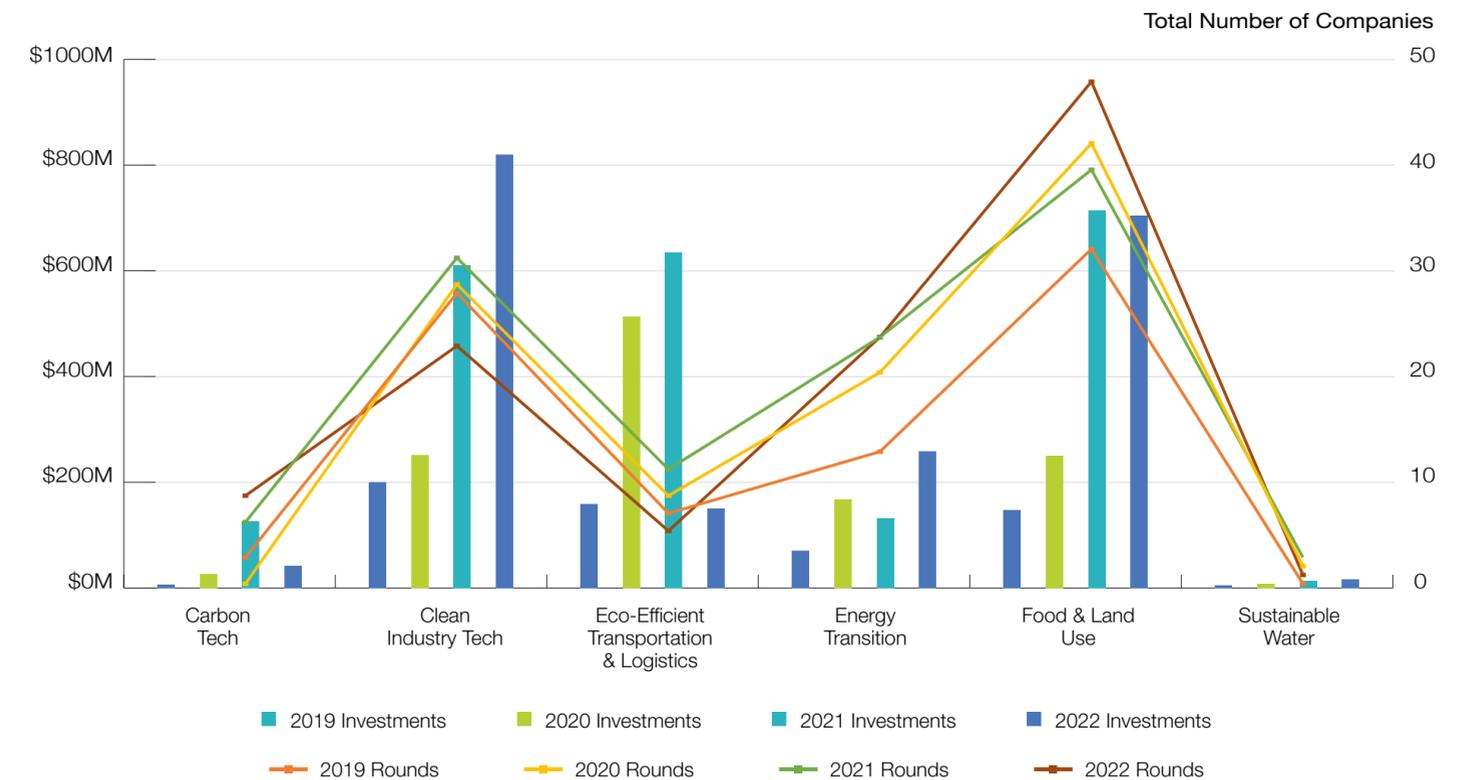
Clean Industry Tech and Energy Transition domains saw VC funding increase from 2021 to 2022; Food & Land Use maintained funding levels



- The most prominent solution domains in terms of the value of investments in 2022 were Clean Industry Tech (USD 829 million, or 42% of the total investments), Food & Land Use (USD 704 million, or 35%) and Energy Transition (USD 258 million, or 13%).
- Carbon Tech is an emerging domain in the sector as wider macro trends are now being felt in solutions for carbon capture, removal, utilization, and storage with increasing investment attention globally and in Israel. Funding in Carbon Tech has grown 8.2 times since 2020, even though the total investment amounts still remain small, as most deals are in the early stages.



Breakdown of VC Investment per Domain





SPOTLIGHT: ENERGY TRANSITION

Companies in the Energy Transition domain raised USD 258 million across 32 VC rounds during 2022, two times more than in 2021

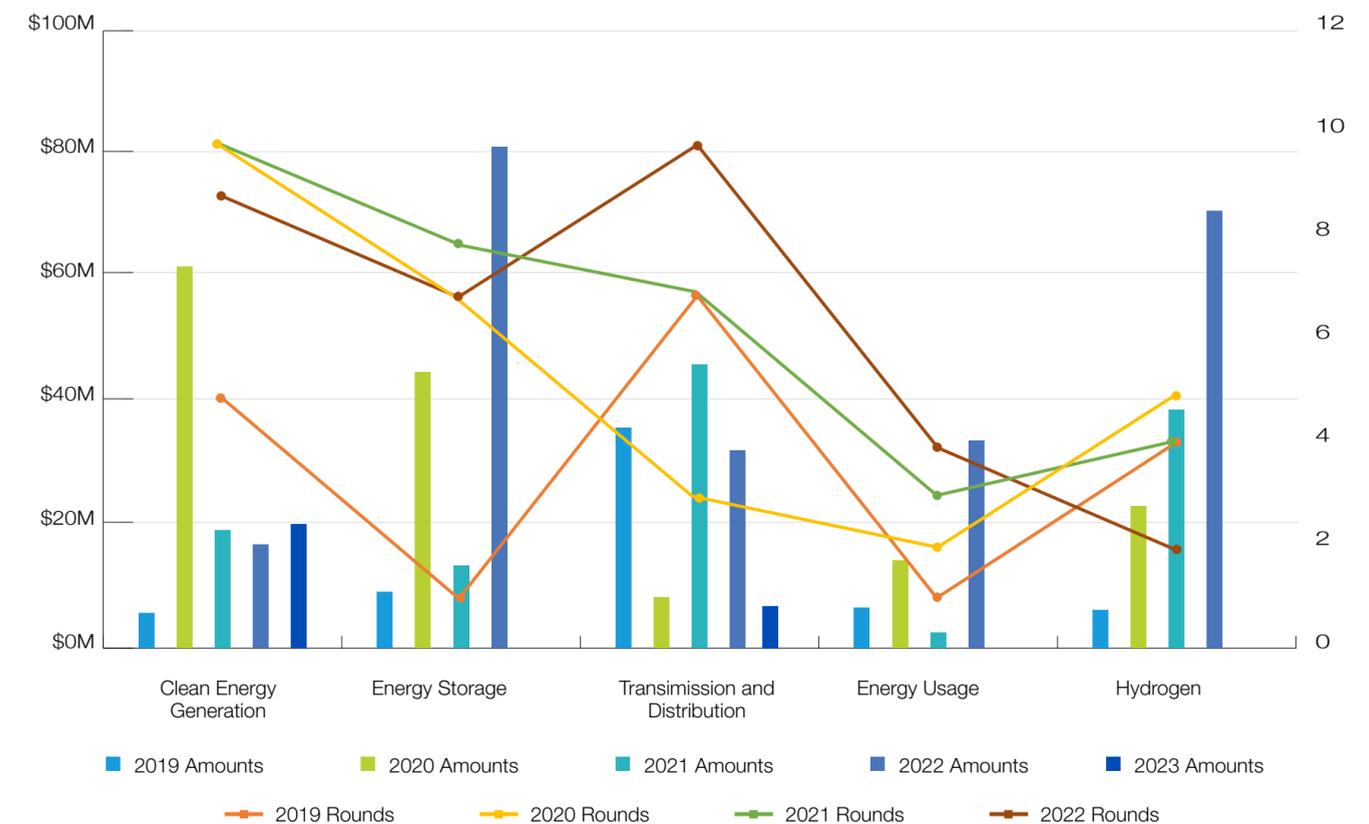


- We have identified 208 active Energy Transition companies in Israel. 36% are in the Energy Usage sub-domain, and 31% are in Clean Energy Generation. Almost 80% of the companies are in the early funding stages, and 11% are public. 40% are less than six years old.
- The Energy Transition domain saw a significant net increase in VC funding last year, raising two times more than in 2021 and seven times more than in pre-covid years. The largest VC rounds were in [StoreDot](#), [H2Pro](#), and [Addionics](#). Three VC rounds have been announced since January 2023, including that of [NT-Tao](#), raising a USD 22 million A round.
- The Storage, Hydrogen, and Transmission & Distribution sub-domains saw the most significant increase in terms of VC value in 2022, yet 60% of the number of rounds were attracted by the Usage and Generation sub-domains, corresponding with earlier-stage deals.
- 2022 saw public Energy Transition companies raise USD 855 million as post-IPO equity. [SolarEdge](#) (renewable generation and storage) and [Ormat](#) (geothermal generation and storage) led the largest of these rounds. Early in 2023, [Ormat](#) reported an additional round of USD 300 million on NYSE.

IGNITE THE SPARK ² In collaboration with [Ignite the Spark](#),
*as of March 20, 2023



VC Investments in Energy Transition





TOP CLIMATE TECH INVESTMENTS

2022 saw four mega-rounds of over \$100M, while the previous year saw nine.

Leading Rounds for all Domains - 2022

Domain	Company	Deal size (\$)	Round type	
Clean Industry Tech	Veev	\$400M	D	Smart, lower carbon construction
Food & Land Use	Redefine Meat	\$135M	B	Plant Based Proteins
Food & Land Use	Remilk	\$120M	B	Animal-Free Dairy
Transportation & Logistics	Optibus	\$100M	D	Management and Optimization for Public Transportation
Clean Industry Tech	Lusix	\$90M	B	Lab-grown diamonds
Energy Transition	H2Pro	\$75M	B	Hydrogen generation
Energy Transition	StoreDot	\$60M	D	Li-ion battery cells
Transportation & Logistics	GoTo Global	\$22M		Shared mobility
Water Solutions	WINT Water Intelligence	\$15M	B	Enterprise-grade Water Management and Control Solutions
Carbon Tech	PlanetWatchers	\$11M	A	Natural Resource Management System
Carbon Tech	RepAir Carbon	\$10M	A	Direct Air Carbon Capture
Water Solutions	Drizzlex	\$1.6M	A	Water Use Monitoring and Management Solution for Built Environment

EXITS



- A USD 200 million acquisition of BreezoMeter (air quality intelligence) by Google was the highest value exit in the sector in 2022, followed by two mega acquisitions - Driivz (EV charging management software) by Vontier, and Seebo by Israeli-based predictive maintenance company Augury, another Climate Tech relevant Israeli-based company offering predictive maintenance solutions for industrial plants.
- In 2021, the Israeli Climate Tech sector saw 21 IPOs, but that activity dramatically decreased to only three throughout 2022, two of which were undertaken by [Brenmiller Energy](#), which is dually listed in Israel and Nasdaq.

Leading M&As in 2022

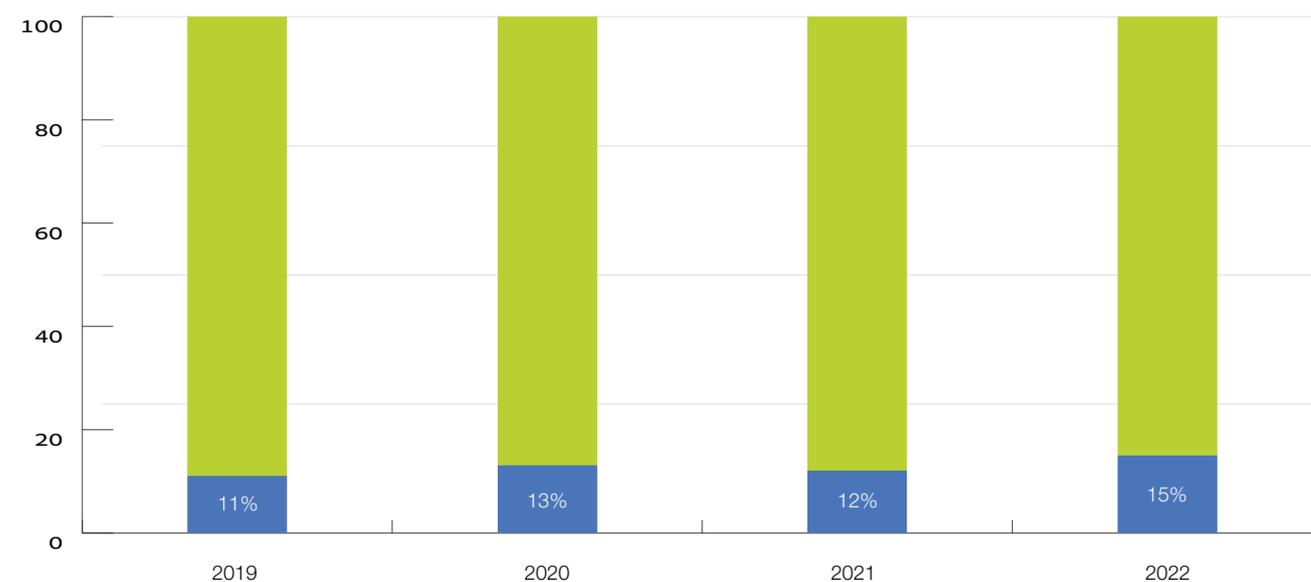
Domain	Company	Year	Deal size (\$)	Acquired by / Stock exchange	Exit type
Carbon Tech	BreezoMeter	2022	\$200M	Google (USA)	Acquisition
Clean Industry Tech	Seebo	2022	\$100M	Augury (Israel)	Acquisition
Transportation & Logistics	Driivz	2022	\$100M	Vontier (USA)	Acquisition



CLIMATE TECH VS NON-CLIMATE IN THE ISRAELI ECOSYSTEM

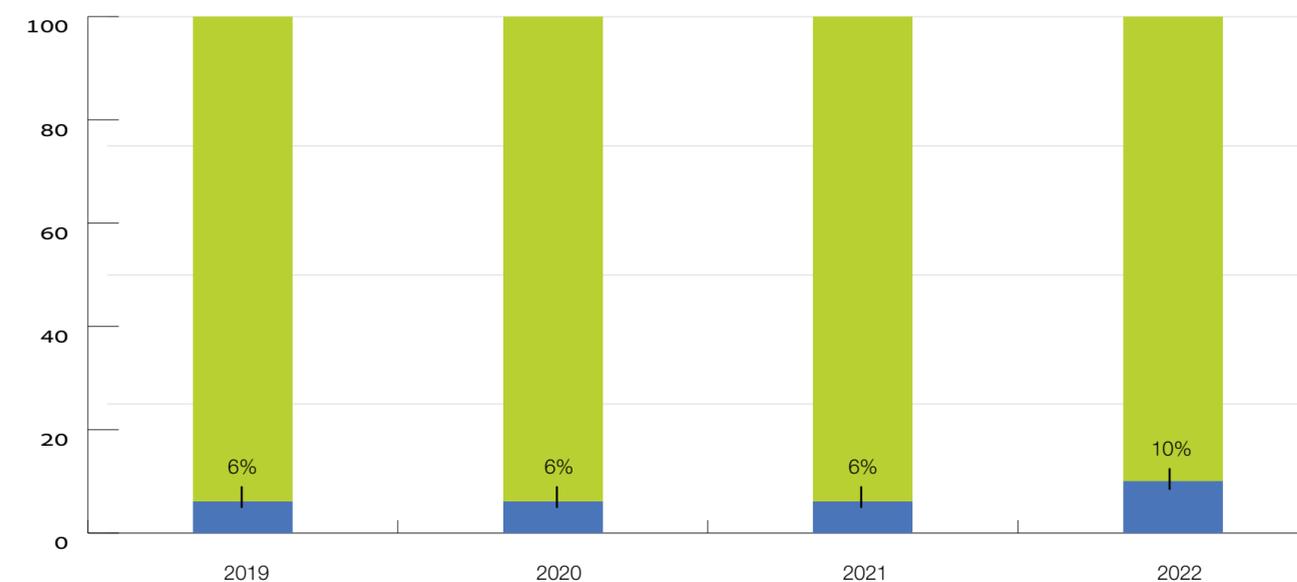


Climate Tech VS Non-Climate by Number of Rounds



Regarding the number of rounds, Climate Tech maintains its multi-year average, slightly increasing its share from 12% in 2021 to 15% in 2022.

Climate Tech VS Non-Climate by amounts invested



Climate Tech's share of investments in the Israeli ecosystem is growing, averaging 6% from 2019-2021 to 10% in 2022 in terms of amounts invested.



Multinationals Partnering with the Israeli Ecosystem

Multinational Companies



Israeli Startups



AltaSea is launching the first grid-connected wave energy project, powered by EcoWave, at the Port of Los Angeles reaching a key milestone in its commitment to bring innovative wave energy technology to the United States. [Read More](#)

Announced at COP27, Microsoft is collaborating with Israeli company Tomorrow.io to provide innovative solutions for climate adaptation, helping African governments to deliver weather intelligence. [Read More](#)

Partnership deal worth \$20M annually for NDrip's precise irrigation solution to be accessible to farmers across PepsiCo's network. [Read More](#)

Continental uses Security Matters' marker substance to verify the geographical origin of raw materials for ESG monitoring and reporting. [Read More](#)

PepsiCo is expanding its use of UBQ™ from logistics pallets across its supply chain by launching eco-friendly Lay's display stands with advanced UBQ materials made from waste. [Read More](#)

Film application that cools down surfaces by 12C below ambient temperature when exposed to the sun, allowing cars' engines to cool, and resulting in a 60% reduction in energy consumption, which could alleviate pressure on energy grids. [Read More](#)

Ecoplant's solution will help Ecolab's customers significantly reduce electricity usage in compressed air systems, which is one of the largest energy users in a plant, accounting for up to 30% of the site's overall electricity usage. [Read More](#)

The lightweight solar energy film-based systems will be installed on roofs and sidewalks at Amazon logistics centers, providing 450 kilowatts of electricity. [Read More](#)

Enel uses Brenmiller's thermal energy storage system to support industrial heating demand and offer decarbonization services to industrial customers, integrating long-term storage solutions with renewable plants. [Read More](#)

Second ECOcrete Project with Port of Rotterdam waterfront infrastructure. [Read More](#)

The world's largest provider of RFID and digital ID solutions and a strategic investor will incorporate Wiliot's tags to increase supply chain sustainability and eliminate waste. [Read More](#)

Solchip's solution will work to develop a digitalization solution that will allow Japan Post to monitor the status of post boxes over its vast network in Japan and provide optimised mail collection operations. [Read More](#)

Zenith Energy announced it will build a facility to produce Electricq Powder, an end-to-end safe hydrogen solution, at the Port of Amsterdam. [Read More](#)

ACME uses Asterra's satellite-based technology for the discovery of the highest values of lithium to date in Fish Lake Valley, Nevada. [Read More](#)



SUMMARY AND OUTLOOK



The global focus on Climate Tech in recent years, driven by policy and regulatory changes, climate and energy crises, corporations' decarbonization commitments, and consumer demand is catalyzing more innovation and investments toward climate-relevant solutions in Israel as well as globally.

Starting with an all-time investments record in 2021, private VC investment in Israeli Climate Tech remained strong in 2022, becoming the second-best year in terms of investments. As a proportion of the tech innovation activity in Israel, the Climate Tech sector is growing by both total rounds and investment amounts.

Investment activity in tech is generally falling in 2023 due to global economic volatility and lower market valuations. In Israel, this trend is magnified by the internal political instability currently experienced. While this may create more challenging conditions for Climate Tech entrepreneurs, we expect the sector to be relatively more resilient than others due to the global urgency for climate solutions.

Israel is already a recognized global leader in developing and implementing water solutions and precision agriculture, making it one of the few countries in the world reversing desertification. The extensive traction of Israeli Alternative Protein companies in recent years further contributes to this leadership position in the Food & Land Use and Water Solutions domains.

The growth of investments in Clean Industry Tech and Energy Transition domains in 2022, together with the global leadership of renewable energy companies SolarEdge and Ormat, and the collaborations that are being developed by the local startups with multinational corporations in a wide variety of climate-relevant domains, may imply that the Israeli ecosystem is starting to show strong value beyond the traditional Food & Land Use and Water domains.

Multinational corporations are playing a key role in activating the local innovation ecosystem to address more climate-relevant needs. Israel is one of the few countries globally with a significant presence of multinational companies operating in its territory, with over 530 innovation centres from 35 different countries, in the form of R&D centres, investments in startups, and collaborations with entrepreneurs. Many of these entities are approaching the ecosystem in search for solutions to their sustainability needs, whether it is packaging, energy, wastewater, cleaner manufacturing processes, carbon capture, and more. This engagement strongly signals to local entrepreneurs that there is a demand for climate-relevant solutions and a real opportunity for the Israeli ecosystem.

Israel is well-positioned to become a global Climate Tech innovation hub, leveraging its ingenuity, agility, and entrepreneurial spirit in times of increased pressure, as well as its track record in innovation in relevant technological fields such as IOT, artificial intelligence, machine learning, biotech, and more.



METHODOLOGICAL NOTES



All data in this report, unless otherwise stated, are based on the Start-Up Nation Finder (Finder) database. The data was retrieved from Start-Up Nation Finder on March 21, 2023. Investments include types: pre-seed, seed, A, B, C, D, E, and G Rounds, Convertible Debt, SAFE, Undisclosed. Crowdfunding events, Post-IPO Equity Rounds and grants were not included in this document.

Analysis of activity in a sector as dynamic as the Israeli high-tech industry so close to the end of the year poses genuine data collection challenges. In particular, data relating to funding rounds in early-stage startups are usually obtained with a delay; thus, we expect that these figures will be revised in the future.

The Climate Tech Sector classification used in this report was developed by Start-Up Nation Central following the guidelines and best practices of leading international sources, including Pitchbook, HolonIQ, the Israel Innovation Authority, and PLANETech's reports.

The number of companies identified as Climate Tech in early 2022 was 700, which grew to 838 by March 21, 2023, and continues to grow due to our ongoing research and proactive reach-out to relevant companies.

We expect the number of Climate Tech companies to grow further, as the mapping efforts continue. In addition, we recently launched the possibility for companies to add information about their 'Climate Tech Relevance' as part of their Finder profiles, which will help us further validate the data.



Start-Up Nation Central is the address for corporations, governments and investors to connect with the Israeli tech ecosystem. We catalyze growth opportunities by bringing Israeli tech innovation to global business and societal challenges. Established in 2013 and headquartered in Tel Aviv, Israel, Start-Up Nation Central is a not-for-profit organization funded by philanthropy.

Start-Up Nation Finder is a free online platform for identifying and engaging Israeli tech organizations based on customers' specific interests. This Business Innovation Platform is a comprehensive knowledge hub on Israeli startups, investors, acceleration hubs, multinational corporations, and technology-based innovation associated with academic research. The open-source platform provides up-to-date information and insights into thousands of active Israeli tech companies.

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