Data Decoded: Unlocking Climate Tech's Trillion-Dollar Potential

Strengthening Security and Resilience Through Climate Technology Market Intelligence

By the Climate Insider team, powered by Resonance





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Executive Summary

Market intelligence enables organizations to navigate the climate technology landscape with confidence, supporting informed decisions about innovation, investment, and integration. The Climate Insider solution offers:





Research & Development

Identifying promising technologies



Demonstration Building investor confidence



Commercialization Enabling accurate financial modeling



Scaling Optimizing supply chains and market opportunities

This white paper aims to clarify the complexities of climate technology data and show how the Climate Insider platform can drive innovation, optimize resource allocation, promote circularity, and speed up global progress on sustainability targets.

Key findings reveal

Only 35% of companies with sustainability strategies have acted on them, mainly due to insufficient data

A World Economic Forum survey reveals that 50% of companies already use climate data for strategic decisions, with an additional 30% planning to do so within two years.

With only 10% of necessary climate technologies currently mature, there's a critical need to accelerate datadriven innovation in the climate tech sector.

Climate-related risks threaten \$1.26 trillion in revenue losses for suppliers within five years.

Achieving net-zero targets requires a 6-9x increase in climate-focused investment.

The climate tech sector faces significant data challenges known as the four Vs:



Volume Vast amounts of data

from diverse sources



Velocity Rapidly evolving technological landscape.



Variety Complex data ecosystem spanning various sectors.



Veracity

Issues with data quality and standardization.





Monitoring Tracking progress and growth of climate tech sub-sectors



Reporting

Facilitating transparent and comprehensive reporting of market dynamics



Verification Validating climate impact









Context

The international community has set ambitious climate targets, including tripling renewable power generation and doubling energy efficiency by 2030 to keep the 1.5°C climate target within reach^[1]. Achieving these goals requires significant technological innovation and deployment, and credible data intelligence in the climate industry.

Private investment in climate technologies in Canada quadrupled between 2017 and 2022, with Canadian firms attracting approximately US\$7.5 billion out of a US\$300 billion investment pool over the past five years^[2].

The challenge is that experts indicate that Canada's net-zero targets will require a 6–9x increase in climate investment" & "Climate-related risks pose substantial financial threats, with potential revenue losses for suppliers estimated at \$1.26 trillion within the next five year. The Canadian example is not isolated. The IBM Institute for Business Value found that while 86% of companies have created a sustainability strategy, only 35% have acted on it with 13% categorized as leaders in the climate transition^[3].

Data plays a critical role in driving innovation, investment, and policies. Comprehensive and credible climate tech data enables more accurate current and predictive models, optimizes technology performance, promotes circularity, and supports commercialization.

For many climate solutions, robust data collection and management systems are essential for accurately quantifying emissions reductions and ensuring compliance with regulations and standards, to mention two examples^[4].





Navigating the complexities of the climate tech data landscape

The climate technology sector is growing rapidly across multiple subsectors including energy, carbon management, transportation, and industrial decarbonization.

This expansion presents challenges in managing and synthesizing the varied data generated across these sub-sectors.



- Energy-Intensive Industries
- Mining and Critical Mineral Production
- Energy Efficiency and Process
- Optimization Chemicals and Materials
- Plastics and Alternatives
- Circular Econoppy Solutions



- Carbon Capture Technologies
- Carbon Utilization
- Carbon Storage and Sequestration
- Carbon Accounting and Analytics
- Carbon Markets and Finance
- Carbon Dioxide Reduction Services





- Alternative foods and Proteins
- Vertical and Urban farming
- Forestry and Nature-based Soluttions
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- Precision Agricultture





CLIMATE **ADAPTATION 7** MITIGATTION

- Climate Risk and Resiience
- Disaster Risk Reduction
- Resiience infrastructore
- Coastal and marine Adaptation
- Water Security Solution
- Climate Resilence Food Systems
- Ecosystem-based adaptation
- Climate Polutant Reduction



WASTE MANAGEMENT

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- Advanced Recycling Technologies
- Waste-to-Resources
- Industrial Symbiosis & Waste Valorization
- Specialized Waste Management



- Sustainable Construction
- Smart Building Systems
- Residential Solutions
- Commercial Building Optimization
- Urban Infrastructure

- Solar Energy
- Nuclear energy
- Wind Energy
- Hydro and Ocean Energy
- Geothermal Energy
- Electrical grids and Microgrids
- Batteries and Energy storage

The climate technology landscape is complex due to its diverse, interdisciplinary data ecosystem. This includes inputs from Internet-of-Things devices, satellite imagery, corporate sustainability reports, press releases, patent filings, academic research, and more.

Integrating and sorting this eclectic climate tech data into coherent, actionable intelligence is challenging, and climate technology's global reach further complicates this landscape.

Data variability across regions—driven by differences in regulations, policies, metric systems, diverse aims, industrial development level, and economic conditions—adds complexity.

The climate tech data problem is rooted in global differences. Data from countries with strict environmental regulations, for instance, often contrasts with data from developing nations where economic growth may take priority over environmental concerns. These regional differences make it difficult to agree on globally applicable standardized data models, complicating international collaboration and harmonization in climate initiatives. The dynamic nature of climate technology adds another challenge. Occurring against the backdrop of technological innovation, data requirements are prompting new agreements between governments, regions, and institutions. Emerging technologies necessitate the collection of novel data types that balance leveraging historical data for context and integrating real-time insights for relevance. Adding to the complexity, advanced deep learning algorithms are beginning to be utilized in the sorting and prediction of climate models. This ongoing evolution requires a flexible, adaptive approach to data intelligence that can anticipate emerging trends while remaining rooted in reliable historical insights and grounded conclusions.

Navigating the climate technology data landscape is intricate, requiring an understanding of the sector's growth, diverse data sources, global and regional nuances, differences in technological sources, and data's dynamic nature. Effective data intelligence in this field is important for driving climate solutions, fostering collaborations, shaping initiatives, informing policies, and enabling decarbonization throughout global value chains. It empowers stakeholders to make informed decisions that advance environmental goals and economic growth.

How data can help solve a 1.26 trillion dollar climate problem

Addressing the \$1.26 trillion climate challenge requires financial investment, global collaboration, and informed policies—and core to all is the problem with unreliable climate tech data.

Focusing on investments and funding, credible climate tech data is critical in unlocking the needed capital to meet sustainability targets by reducing perceived risks, enhancing project viability, and enabling innovative financing mechanisms^[5].

Risk mitigation

Enabling risk assessments by providing insights on technology performance and market trends. This empowers investors to make informed decisions and for innovators to attract capital grounded in credible performance data^{[6].}

Market expansion

Identifying potential areas for climate technology deployment through market analyses and product-market fit such as in emerging markets, where data has revealed opportunities (Global Emerging Markets Risk^{[9].}

Climate tech data drives value across multiple dimensions:

Innovation acceleration

Facilitating technology development by enabling data sharing among researchers and companies, and within organizations to break down silos. This is necessary, given that merely 10% of climate technologies are mature^{[7].}

Performance enhancement

Eeveraging data analytics to optimize climate technologies' efficiency, boosting their economic viability and market competitiveness^{[10].}

Project viability

Increasing climate technology projects investment viability, particularly first-of-a-kind (FOAK) initiatives, by enabling financial modeling and performance quantification. This is important for attracting investment, as investors typically require project returns north of 15%^[8]

Impact measurement

Delivering evidence of emissions reductions, for example, through data collection and analysis to attract investors and ensure regulatory compliance^[11]

The motivation to adopt novel climate tech data intelligence models for stakeholders is significant. The World Economic Forum found that half of companies use climate tech data to inform their strategic decisions, with another 30% planning to do so in the next two years.

As we navigate the complexities of climate change, data-driven insights are important for paving the way for a more sustainable and resilient future.

The Climate Insider Platform

The Climate Insider Intelligence Platform addresses the complexity of data intelligence by offering a structured breakdown of classifications and segmentation's within the climate technology ecosystem. A platform designed and built by professionals who understand the climate industry and technologies.

Our platform collects and organizes global data on climate technologies, enabling datadriven decision-making for stakeholders.

Investors, startups, corporations, accelerators, policymakers, researchers, and governments are dealing with data fragmentation and poor accessibility in the climate technology sector, challenges our platform directly addresses.

Navigate the climate industry through a three-tiered classification system. First primary classifications such as Carbon Management, secondary classifications like Direct Air Capture, and third, tags providing keywords for searchability and analysis. This three-tiered structure can be further visualized through interactive charts, helping users navigate industry subsectors and their relationships.

Example capabilities for informed decision-making

Data-Driven Custom Taxonomy

Expert Insights On-Demand

Gain access to our climate technology experts, business insiders, and strategists for tailored insights. This feature goes beyond data by providing context, interpretation, and strategic guidance tailored to specific needs, situations, and queries.

Detailed Entity Profiles

Each climate entity profile features a description, a short technology explanation, headquarters location, publicly disclosed funding, primary and secondary classifications, and tags. Profiles include relevant links, sourced information, and curated articles about the entity. Interactive visualizations display funding history, technology focus areas, and climate ecosystem connections.

Ecosystem Explorer

This visual tool allows users to map and explore the interconnected relationships within the climate technology ecosystem. From academic institutions to corporate endusers, users can navigate connections, identify key players, and uncover relationships through an interactive interface.

Trusted Market Intelligence

Our platform generates databacked insights on evolving climate technologies, policy shifts, national strategies, investment trends, emerging trends, and market dynamics. These insights are presented through analytic tools and interactive data visualizations, offering depth and accessibility.

News & Media Search

Stay informed with our media monitoring and news search feature. This tool provides access to developments, press releases, and breakthroughs from vetted sources. Users can filter by date, language, country, and more while receiving alerts on specific topics. Interactive visualizations display trend analysis and sentiment tracking across various news sources and regions.

Transform market complexity into strategic advantage through validated market intelligence

Companies

Database of climate technology firms from startups to corporations, detailing focus areas, growth stage, key personnel, and partnerships.

Investors

Catalog of climate technology investors, including VCs, PE groups, corporate arms, angels, and government bodies, with investment strategies and portfolio data.

Funding

Overview of climate technology funding rounds, showing investment trends, valuations, and investor participation across sectors and regions spanning Seed investments to exits.

Universities

Academic institutions in climate technology research, highlighting research domains, faculties, industry partnerships, and technology transfer initiatives.

News

Repository of climate technology media content, enabling sentiment analysis, policy tracking, and trend identification across regions.

Government

Database of governmental entities in climate technology development and policy, covering funding, regulations, collaborative projects, and regional developments.

Database of climate technology patents, providing insights on innovation, emerging technologies and trends, and competitive dynamics.

Overview of climate technology ecosystem collaborations, including joint ventures, research partnerships, and industry consortiums.

Research

Collection of general climate technology research spread out on focus areas, personnel, collaborations, breakthroughs, and trends across domains.

Partnerships

By centralizing, structuring, and converging these 9 data types with the 6 core features, users can harness insights and ground decisions in credible intelligence, foster collaboration, and drive progress in addressing climate challenges.

Our commitment to expanding coverage and enhancing analytical tools ensures the platform evolves alongside the climate tech sector.

Fig.2: Identifying Strategic Investment Opportunities in Wind Energy

01

EXPLORATION THROUGH CUSTOM TAXONOMY

A venture capital firm is looking to invest in climato technologies, specifically in Energy. The user with the platform's three-tiered classification system selects Energy as the primary category, narrows down to Wind Energy under the secondary classification, and refines their search further using specific tags such as "offshore wind", "onshore wind" "wind farm", etc.

TRUSTED MARKET INTELLIGENCE 8 NEWS ANALYSIS

VC gathers insights into recent policy shifts around the Wind Energy market, subsidies, and incentives, upcoming regulations, and emerging market dynamics. They access trend analyses and sentiment tracking through the News & Media Search to stay on top of recent press coverage, filtering results to track how legislation in North America is impacting the Wind Energy industry.

IN-DEPTH ENTITY PROFILES

The user goes through a list of companies that fit the search criteria. They choose a few entities and dive into their Detailed Entity Profiles. viewing comprehensive data, including company descriptions, technology summaries, headquartars, publicly disclosed funding, etc.

FUNDING

After proper due diligence, the VC user delves into the category comprising "Private Funding Rounds and "Public Funding identifying which relevant entities have received funding, from who, when and how much. They review past funding rounds, valuations, and investor participation across key players in Wind Energy. This allows them to understand the competitive landscape and see where others. have invested. They use this data to gauge the growth stage and potential of targets and evaluate market opportunities.

ECOSYSTEM MAPPING

The user identifies how specialist companies are positioned and clustered within the broader Ecosystem Explorer. They identify relationships such as spinouts, partnerships and M/A between companies, academic institutions, and governmental bodies that are key players in the Energy transition.

03

EXPERT GUIDANCE

Before making any decisions, the VC user uses Expert Insights On-Demand to connect with a climate technology specialist. They ask for a tailored report on the regulatory landscape, funding trajectories, and strategic partnerships from the identified and aggregated data information they've accrued.

02

Real-World Impact of Data Intelligence

Research shows that data-driven organizations achieve higher productivity and profits, highlighting the importance of data intelligence in business and government^[12].

The CI platform enhances decisionmaking across industries and departments by grounding them in solid and credible data intelligence. We have experienced the following use cases in our intelligence platforms:

The CI platform transforms credible climate tech data into strategic assets, enabling stakeholders to navigate the climate technology landscape. By offering a source of intelligence, the platform empowers users to make data-driven decisions that drive innovation, optimize resource allocation, and accelerate progress toward climate goals.

Due Diligence

Conduct comprehensive due diligence processes covering technical, financial, market, environmental, and compliance aspects of climate technology ventures and projects. Leverage this thorough analysis to make informed investment decisions and mitigate risks.

Opportunity Identification

Proactively analyze market trends, technological advancements, and policy shifts to identify and capitalize on business opportunities and areas for innovation. Use these insights to drive strategic planning and resource allocation.

Investment & **Funding Strategy**

Develop and implement data-driven investment strategies, optimizing portfolios for financial returns and climate impact, and anchor investor collateral in credible data intelligence to show product performance.

Market Tracking & **Competitive Intelligence**

Monitor market developments, track competitors' activities, and benchmark performance against industry standards. Use this intelligence to refine your competitive strategy and maintain a market-leading position.

Ecosystem Mapping

Actively visualize and analyze interconnections within the climate technology landscape to identify key players, potential partners, suppliers, specialization clusters, emerging trends, and more.

Policy & Regulatory Navigation

Stay informed of policy changes, assess their implications, and proactively adapt strategies accordingly. Engage in policy discussions and advocacy efforts to shape favorable regulatory environments.

Supply Chain Optimization

Develop strategies to optimize supply chains with sustainable procurement and energy-efficient practices. Monitor and cut Scope 3 emissions using supplier data, alternative materials, and innovative climate technologies. Continuously improve this approach to meet stricter carbon targets and apply insights to circularity initiatives.

Risk Assessment

Perform detailed risk evaluations, incorporating climate-related factors into decision-making processes and strategic planning. Develop robust risk mitigation strategies to enhance organizational resilience.

Innovation Acceleration

Systematically access and analyze research, patent information, and emerging technologies to accelerate innovation cycles in climate technology. Establish crossfunctional innovation teams to rapidly prototype and test new solutions on insights gained.

How to Get Access

Explore a light and free version of the Climate Insider Intelligence Platform at <u>www.climateinsider.com</u> Premium access is available through a monthly subscription, with pricing based on seats and access rights. This flexible model accommodates various organization sizes and needs.

A CI intelligence platform subscription also means bespoke proposals with lower prices for the Climate Insider's consulting and enterprise marketing services, and other solutions offered by Resonance deep technology verticals.

For market intelligence-driven consulting. Our expert team provides tailored insights and analysis to meet specific climate technology sector needs fitted for the client's situation, aims, opportunities, and challenges.

To discover more about subscription options or discuss custom consulting services and enterprise marketing offerings, contact us at **hello@climateinsider.com**.

Start leveraging comprehensive climate technology intelligence for your organization today with Climate Insider.

About Us

Founded in 2019, Resonance aims to bridge information asymmetries and build the intelligence engine of the future. In doing so, Resonance owns and operates multiple highgrowth technology verticals, each vertical offering media, market intelligence, and strategic consulting solutions to enterprise clients. These verticals are run by data scientists, analysts, marketing experts, social media experts, editors, researchers, journalists, and consultants.

The Climate Insider is a leading organization that delivers comprehensive news, market intelligence, and insights on the climate technology sector. Its user-friendly platform collects and structures global data on climate technologies, enabling data-driven decision-making for governments, policymakers, investors, startups, corporations, and accelerators. By providing accessible, indepth coverage of developments, innovations, and policies, Climate Insider plays a crucial role in shaping understanding and driving progress in the climate industry.

Resonance operates:

1. Quantum Technology: <u>www.thequantuminsider.com</u>

2. Space Technology: <u>www.spaceinsider.tech</u>

3. Climate Technology: <u>www.climateinsider.com</u>

4. Digital Twin Technologies: <u>https://digitaltwininsider.com/</u>

5. AI/ML Technology: <u>www.theaiinsider.com</u>

About Climate Insider

The Climate Insider is Resonance's vertical dedicated to covering the climate technology market, specializing in providing data, market intelligence, research, and strategic consulting. The Climate Insider is the leading resource dedicated to making climate technologies accessible through media and market intelligence. The platform provides daily updates on climate technology trends, news, and market updates.

The Climate Insider Difference

Climate Insider tailors its data, media, and consulting services to meet each client's specific needs. These services are informed by comprehensive market intelligence from the Climate Insider Market Intelligence Platform. This resultsoriented approach leverages the world's largest database of climate technology entities. The database includes information on partnerships, funding rounds, government support, and up-to-date insights from industry, government, and climate stakeholders.

End notes

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^[6]Gupta, Himanshu. "Climate Data Can Solve a \$1.2 Trillion Problem." World Economic Forum, 2 Feb. 2024, www.weforum.org/stories/2024/02/datadecisions-technology-climate-change-problem/.

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[4] Rolnick, David, et al. "Tackling Climate Change with Machine Learning." ACM Computing Surveys, vol. 55, no. 2, 31 Mar. 2023, pp. 1–96, https:// doi.org/10.1145/3485128.

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FULLTEXT01.pdf (diva-portal.org)

