

2025

**Responsible
Investment
Report**

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Introduction



“

We stand at a pivotal moment in the industrial economy. AI and automation are reshaping the future of work, creating entirely new products and industries across both the digital and physical world, and driving energy demand to power a new era of human progress. *Amid the acceleration of these forces, investing through an impact lens that centers around people and planet is essential to creating enduring societal value.*”



Ricardo Angel, PhD

Piva CEO & Managing Partner

Mark Gudiksen
Managing Partner

Ricardo Angel
CEO & Managing Partner



A Message from *Our Leadership*

The past year has reinforced what we have long believed: we are at one of the most consequential inflection points in the industrial economy. As AI accelerates software cycles, physical bottlenecks in hardware, infrastructure, and energy persist – creating a powerful catalyst for fundamental system innovation. Reflecting on 2025, we are proud to report that our portfolio companies are not waiting for the world to catch up; they are setting the pace.

Three themes are shaping our outlook this year:

01

Software constraints give way to hardware realities.

AI's appetite for power is approaching the limits of today's energy system, pushing up marginal power prices and upending the assumptions underlying a generation of investment theses. Our portfolio is designing for this reality: Planted Solar and VEIR are expanding power supply; Alloy is reducing energy burdens of compute; Lunar Energy is addressing grid volatility with consumer value.

02

Supply chains are being redrawn.

Geopolitics and resource competition are fragmenting existing supply chains built for efficiency. The beneficiaries are technologies that produce critical materials domestically, economically, and at scale. Boston Metal's metals processing and INERATEC's modular e-fuels plants deliver just that: industrial decarbonization that doubles as energy and resource independence.

03

Economics as the durable standard.

As climate tech matures, 2025 continued the shift from visionary commitments to the discipline required to deploy at scale. At Piva, we have always backed scalable technologies that win on value and cost. Koloma and Pyka exemplify this: durable business models built on structural cost advantages.

Responsible investment as our lens.

Amid shifting landscapes and macroeconomic complexity, responsible investing remains core to how we identify and underwrite enduring, industry-defining businesses. We remain steadfast in transforming industry for people and planet. This year and every year, we are grateful to our team, our portfolio companies, and all the ecosystem partners we build with. The road ahead is ambitious – and we are eager to walk it together.

Sincerely,

Ricardo Angel
CEO & Managing Partner

Mark Gudiksen
Managing Partner

The Piva Team

Diversity, commitment & expertise

45%

Full-time employees are women

122+

Board seats

8

Different nationalities represented

6

Classes of summer associate investors

22

Affiliations with different academic institutions

100%

Carbon neutral since inception

200+

Years investing experience

400+

Years of industrial & business experience



The Piva Team

We are thought leaders, industry experts, innovation seekers, and technologists

CORE TEAM



Ricardo Angel
CEO & Managing Partner



Mark Gudiksen
Managing Partner



Adzmel Adznan
Partner



Adam Lasics
Partner, Strategy & Operations



Maria Buitron
Principal



Jillian Noël
Investor



Lee Larson
Investor



Lisa Blanco
Partner & GC



Tony Di Bona
CFO



Divina Agellon
Office Manager



Issam Dairanieh
Venture Partner



Steve Foster
Venture Partner



Robert Siegel
Venture Partner



Michael Idelchik
Senior Advisor



Elizabeth Lowery
Senior Advisor



Don Wood
Senior Advisor



Piva's Responsible Investment Framework

Our practice is integrated across our firm & investment process

Our responsible investment framework guides informed investment decisions and supports our portfolio companies in achieving sustainable growth and impact.

Given Piva's focus on investments with the potential to transform historically carbon-intensive sectors, we measure, monitor, and report on the environmental profiles of our portfolio companies.

Through an industry- and company-specific lens, we use the following framework as the basis to evaluate and support companies throughout their sustainability journey.

PRE-INVESTMENT			POST-INVESTMENT	
SOURCING	DUE DILIGENCE	INVESTMENT COMMITTEE	PORTFOLIO SUPPORT	MONITORING
<ul style="list-style-type: none"> Ensure a diverse range of sourcing outlets is explored Identify potential responsible investment concerns 	<ul style="list-style-type: none"> Evaluate specific responsible investment criteria appropriate for a given company 	<ul style="list-style-type: none"> Highlight risks and value-creation opportunities Track relevant findings as the basis for portfolio support 	<ul style="list-style-type: none"> Assist companies with their impact and risk management efforts Re-evaluate considerations for sustainable growth regularly 	<ul style="list-style-type: none"> Collect data from portfolio companies annually Track progress and monitor potential risks

'Walking the Talk' *Starts with Our Actions*

Piva drives sustainability by:



Embedding Our Responsible Investment Framework into Our Operations.

Responsible Investing provides the most effective framework towards securing long-term value for our portfolio. We integrate the principles of responsible investment into everything we do.



Leading and Innovating Through Collaboration.

We believe a rising tide lifts all boats: transforming traditional industries through technology and innovation can't be done in isolation. We work closely with other investors and leverage our deep connections in the industrial world to accelerate opportunities for the innovators we invest in. We also take an active role in shaping the ecosystem — convening ideas through curated hosted events and developing the next generation of investors through our annual Summer Associate Program.



Decarbonizing Our Firm.

We are not just investors in climate positive technologies; we are also customers. We achieve carbon neutrality by purchasing offsets that have a real climate impact. As informed buyers in the carbon markets, we support emerging carbon removal technologies by investing in high-quality offsets.

Investing in **Industry**



Our Investment Focus



Future of Industry & Work

Connected digital technologies are redefining the nature of work in industries from agriculture to manufacturing.



Future of Materials & Production

Innovative chemistry and process technologies are creating a new generation of high-value products with low / negative carbon footprints.



Future of Energy & Mobility

Numerous high-impact technologies will accelerate the energy transition while innovative businesses remake mobility.



Investing in Companies That Matter

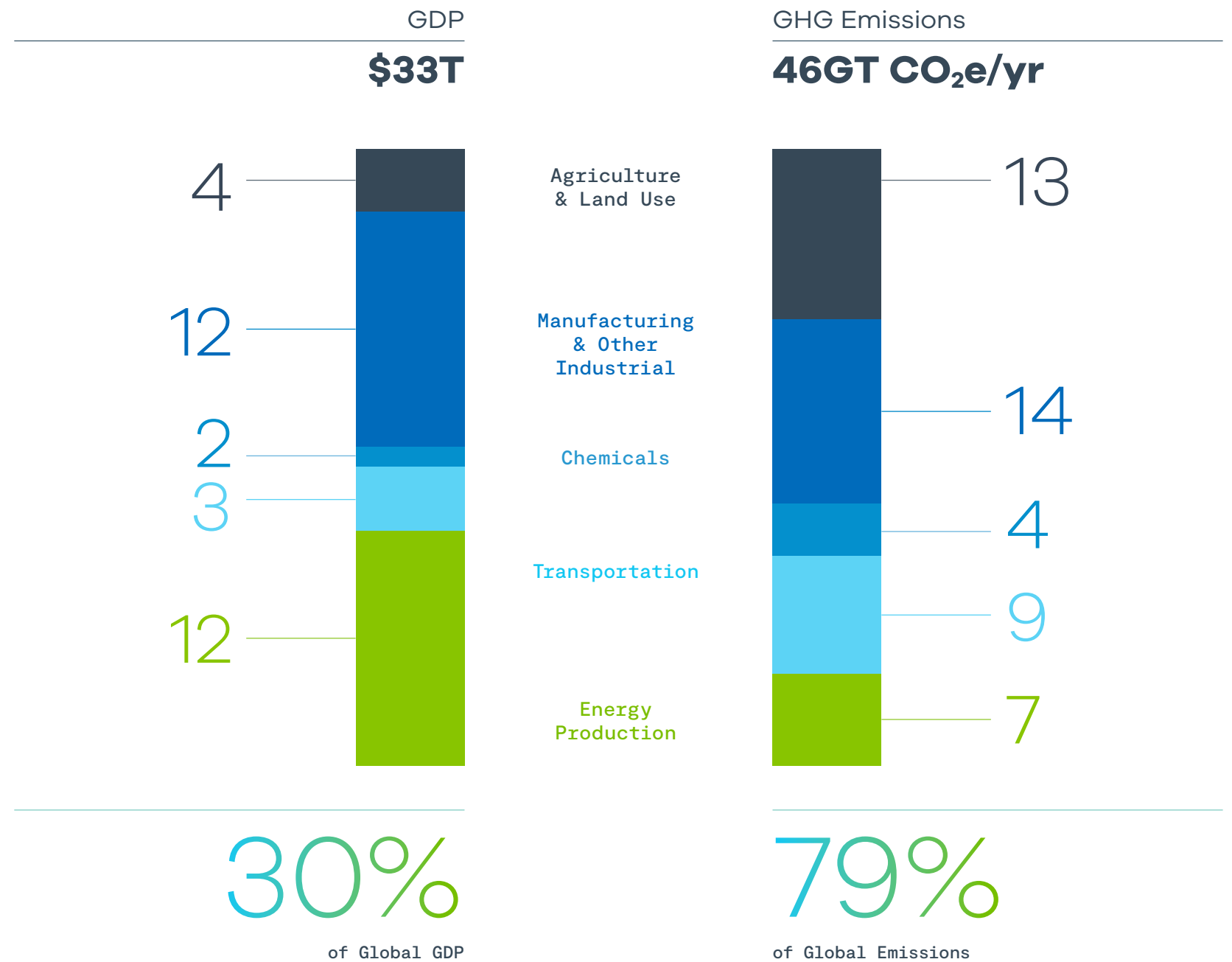
We invest in companies with the potential for both outsized financial returns and significant environmental impact.

Piva focuses on sectors that account for 30% of global GDP and 79% of global emissions. By targeting foundational industries throughout the economy, we invest in startups that enhance the sustainability, safety, efficiency, and environmental performance of these sectors.

Our diverse team, composed of technologists, investors, and industrialists, helps these companies scale by providing capital, strategic guidance, industry expertise, and access to a broad network of partners and resources.

We measure our success by the financial performance of our portfolio companies and their positive impact on millions of lives around the world.

WHERE PIVA INVESTS



Source: World Bank GDP estimate (2024), IPCC AR6 emissions estimate

Note: Transportation GDP refers to transportation and machinery equipment; Agriculture includes agriculture, forestry, and fishing.

Creating Sustainable Value

How Piva defines and practices responsible investment

Piva defines responsible investment as securing and sustaining the long-term success of a business through sound corporate governance, active risk management, and proactively addressing potential harm caused by operations.

We integrate responsible investment principles into our investment decisions and portfolio monitoring. Our approach recognizes that the success of a company is connected to its responsibilities toward society, the environment, and a broad set of stakeholders.

Piva collects and monitors key metrics from our portfolio companies. This tracking enables the evaluation of progress within these companies and the application of timely, tailored support from our network of partners and experts.

METRICS TRACKED FROM PORTFOLIO COMPANIES

ENVIRONMENTAL ENGAGEMENT

- Scope 1 GHG emissions
- Scope 2 GHG emissions
- Net Zero ambitions

CORPORATE POLICY

- Anti-discrimination & anti-harassment policy
- Data privacy policy & data security policy
- AI risk safeguards
- Diversity & inclusion policy
- FML policy (family and medical leave)
- Code of conduct

GOVERNANCE

- Independent board directors

CORPORATE SUSTAINABILITY

- Corporate diversity
 - Gender
 - Race & ethnicity
- Number of full-time employees
- Employee turnover rate
- Employee satisfaction survey

IMPACT

- Sustainable Development Goal alignment
- Bespoke metrics

Measuring Piva's Impact

How we leverage the UN Sustainable Development Goals to measure impact

The United Nations Sustainable Development Goals (SDGs) were established to align member nations in pursuing inclusive economic development while protecting and preserving the natural environment. They provide investors with an aspirational vision of what the world could look like by 2030, emphasizing the role of private capital stakeholders in driving progress.

Piva leverages the SDGs as a framework to identify the impact our portfolio companies have on global social and environmental challenges targeted by the UN's 2030 Agenda for Sustainable Development.

The work of our portfolio companies most significantly supports the advancement of the six SDGs shown on the right. In the case studies that follow, we highlight where a portfolio company's impact activities align with and contribute to these SDGs.



















Number of Piva portfolio companies working to advance each SDG →



Driving Impact



Our Portfolio Companies' *Economic Significance & Impact*

Investment Theme	Company	Business	Economic Significance	3	7	8	9	12	13
 Industry & Work	 menlomicro	Next-gen MEMS-based switch	\$15B global switch market						
	 OneRail	Last-mile delivery fulfillment solution	\$165B last mile delivery market						
	 Urbint	AI-enabled incident prevention for Infrastructure	\$45B industrial AI market						
	 WORLDS	Spatial AI for industrial environments	\$45B industrial AI market						
	 xage SECURITY	Zero-trust security for industrial operations	\$220B global cybersecurity market						
 Materials & Production	 Alloy	Next generation thermal management	\$25B data center cooling market						
	 BOSTON METAL	Low-carbon steel and critical metals production	\$1.5T global steel and alloys markets						
	 INERATEC	Sustainable e-Fuels and synthetic chemicals	\$45B sustainable fuels market						
	 Oobli	Protein-based sweeteners	\$90B sweetener market						
	 plantible	Functional plant-based protein ingredients	\$55B protein ingredients market						
 Energy & Mobility	 KOLOMA	Geologic hydrogen technology	\$230B hydrogen market						
	 lunar energy	Next-generation residential battery storage systems	\$20B residential energy storage market						
	 MALTA	Long-duration grid-scale energy storage	\$120B stationary energy storage market						
	 PlantedSolar	Smarter solar deployment, from planning to power	\$250B solar power market						
	 PYKA*	Autonomous electric aircraft	\$50B autonomous cargo market						
	 VEIR	Superconducting power delivery systems	\$350B power transmission market						



Policies & Good Governance

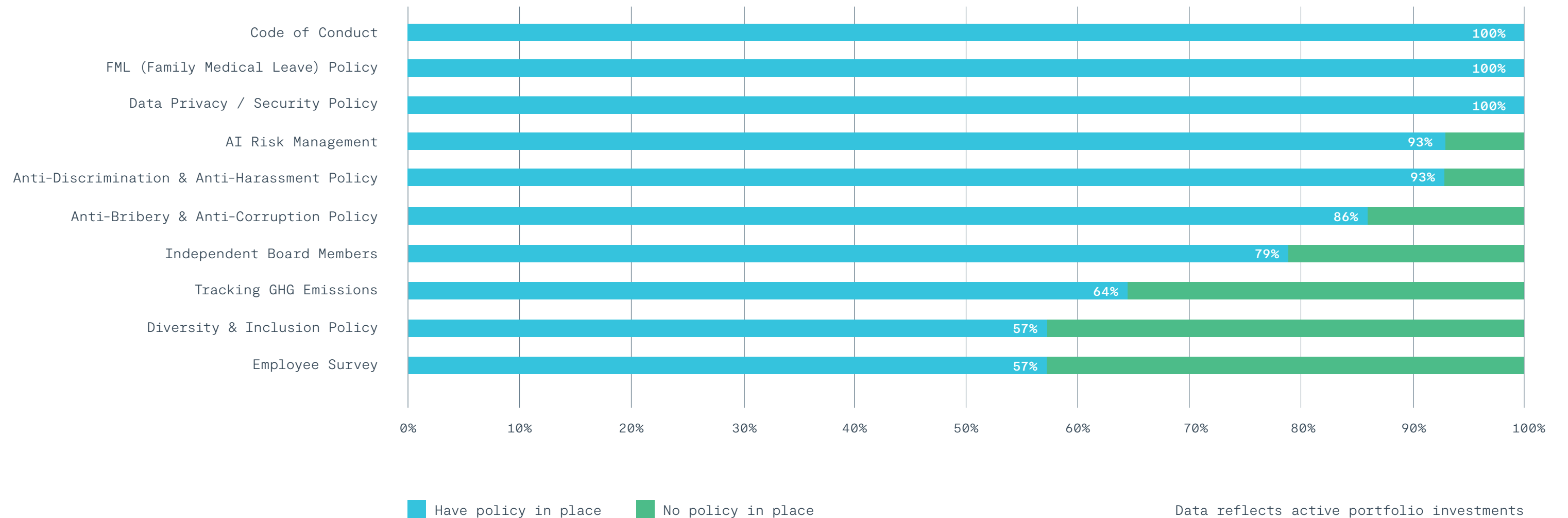
We actively help our portfolio companies develop good governance

Well-defined, clear policies can effectively manage business risks.

Our engagement with active portfolio companies demonstrates Piva's commitment to strong corporate governance.

We identify areas where management teams may need assistance in policy development or other governance aspects. We then customize our support to expedite the adoption of governance best practices, utilizing global standards to improve risk management and encourage sustainable growth.

PORTFOLIO COMPANIES GOVERNANCE & POLICIES

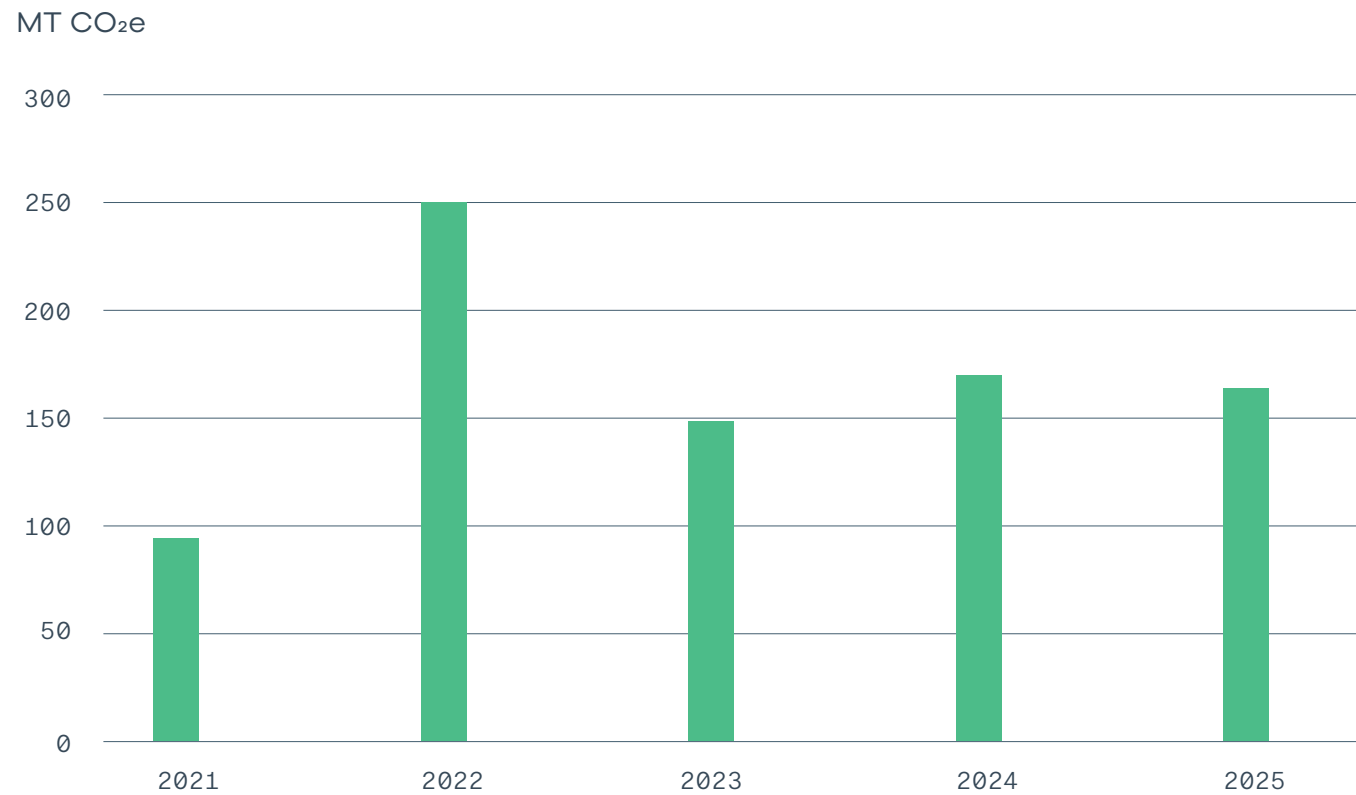


Data reflects active portfolio investments

Carbon Neutral *Since Inception*

Measuring emissions from Piva's operations

SCOPE 1 + 2 EMISSIONS



Increased emissions in 2022 reflected a growing team, and post-COVID return to in-person events and meetings including international travel.

PIVA'S OFFSET PROGRAM

Methodology: By calculating our own CO₂e emissions, defining quality parameters, and validating and purchasing offset projects, we understand what it means to decarbonize a business.

For 2025, we offset 162 MT CO₂e. We set our budget parameters by establishing an internal price of \$150 per ton of CO₂e.



Permanently stores organic waste underground



Removes CO₂ from ambient air via Direct Air Capture and stores permanently underground



Injects CO₂ into concrete, permanently mineralizing carbon while improving material strength



Uses microorganisms to accelerate soil mineralization and drive long-term carbon storage




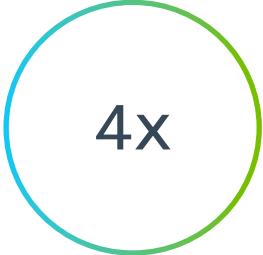


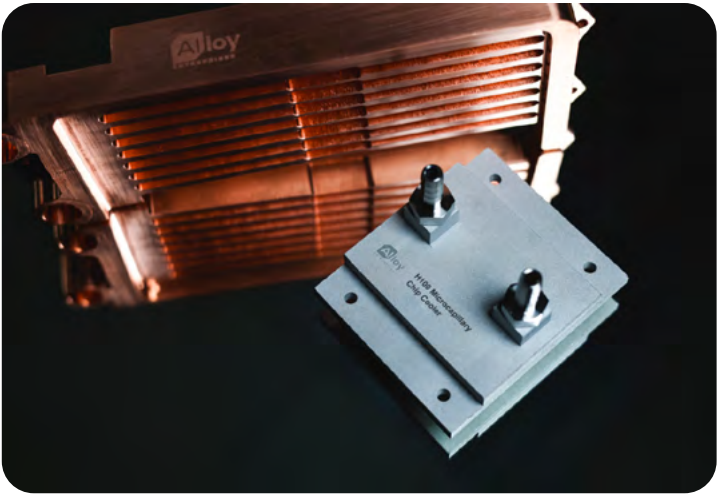


Eliminates methane from orphaned oil and gas wells, avoiding high-impact emissions

Accelerating Innovation



PORTFOLIO IMPACT HIGHLIGHT

Building the thermal infrastructure for the AI era

	<h2>What they do</h2>	<h2>Why it matters</h2>	<h2>By the numbers</h2>
<p>Next generation thermal management</p>	<p>Every watt of AI compute generates heat that must be removed, and today's cooling technology can't keep up. Alloy Enterprises is changing that with its Stack Forging™ manufacturing process that produces single-piece copper and aluminum thermal management components with embedded 3D microgeometries no conventional method can match.</p>	<p>Energy demand from data centers is expected to double over the next five years, reaching 945TWh by 2030¹. As AI workloads push compute hardware to its limits, traditional air cooling and legacy direct liquid cooling approaches are reaching their physical and economic limits. Inefficient cooling not only drives higher energy consumption but can also result in thermal throttling and reduce equipment lifetime, lowering data center performance and revenue. Standard cold plates force a tradeoff: finer microchannels improve cooling but increase pressure drop, requiring more pumping power and energy consumption.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>4x</p> </div> <div style="text-align: center;">  <p>>35%</p> </div> <div style="text-align: center;">  <p>1%</p> </div> </div>
<p>LOCATION Burlington, MA</p>	<p>Already shipping from its ISO 9001 certified facility in Burlington, MA, Alloy's technology directly cools GPUs, CPUs, and peripheral components on the server blade across data centers, semiconductors, and defense, making it a critical enabler of the next generation of energy-efficient computing.</p>	<p>Alloy's technology is changing the equation. As the industry moves toward 100% direct liquid cooling, its high-performance thermal management components reduce pump power requirements, eliminate the need for chilled-water HVAC systems, and support higher rack-level power densities. In defense and mission-critical electronics applications, the same single-piece architecture enables higher-power operation in space- and weight-constrained environments while reducing failure risk under extreme conditions. By solving the cooling bottleneck, Alloy enables the next era of infrastructure to scale faster, run cooler, and operate more sustainably.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Lower pressure drop²</p> </div> <div style="text-align: center;"> <p>Better thermal performance²</p> </div> <div style="text-align: center;"> <p>of a data center's power goes to cooling with Alloy³</p> </div> </div>
<p>FOUNDED 2020</p>			
<p>PIVA INVESTMENT 2023</p>			
<p>PRIMARY SDG SDG9: Industry, Innovation & Infrastructure</p> 			

¹ International Energy Agency Base Case (2025)

² When compared to industry standard solutions

³ Compared to 24% with industry standard solutions

PORTFOLIO IMPACT HIGHLIGHT

“

Piva shares our commitment to building the thermal infrastructure needed for more sustainable computing. *Alloy's liquid cooling technology helps data centers and mission-critical environments support rising power densities with better efficiency, reliability, and reduced energy use.”*



Ali Forsyth

CEO, Alloy Enterprises

PORTFOLIO IMPACT HIGHLIGHT

Reinventing solar deployment: 5x faster, 50% less land, and 70% less steel

	<h2>What they do</h2>	<h2>Why it matters</h2>	<h2>By the numbers</h2>
<p>Rapid, scalable clean power deployment</p>	<p>Planted Solar is an integrated hardware and software platform for rapid deployment of fixed-tilt solar arrays. First, proprietary design software optimizes site layouts in days rather than weeks. Then, a simplified racking system with significantly less steel than conventional trackers is installed by autonomous robots to dramatically shorten build timelines. The result is a turnkey solution that delivers solar plants faster, simpler, and cheaper than the tracking systems used in most utility-scale projects today.</p>	<p>Solar energy is central to the clean energy transition, with the U.S. deploying a record 40+ GW of capacity in 2025¹. As module prices have fallen, the greatest opportunity now lies in reimagining how solar plants are built — the fieldwork, equipment, labor, and land that dominate project costs. Planted is seizing that opportunity, replacing conventional single-axis trackers with a streamlined approach that delivers up to 30% lower levelized cost of energy.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>5x</p> </div> <div style="text-align: center;">  <p>30%</p> </div> <div style="text-align: center;">  <p>10x</p> </div> </div>
<p>LOCATION California, USA</p>			<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Faster deployment</p> </div> <div style="text-align: center;"> <p>Lower levelized cost of energy versus trackers</p> </div> <div style="text-align: center;"> <p>Higher labor productivity</p> </div> </div>
<p>FOUNDED 2020</p>			
<p>PIVA INVESTMENT 2025</p>			
<p>PRIMARY SDG SDG7: Affordable & Clean Energy</p> 		<p>The environmental advantages are equally compelling. High-density arrays produce equivalent energy on roughly half the land, preserving acreage for agriculture, habitat, and open space. A terrain-following design eliminates the need for grading, protecting soil health and natural hydrology. With ~70% less steel and ~50% less copper than tracker installations, every megawatt carries a significantly smaller embodied carbon footprint.</p> <p>All these qualities make solar easier to welcome into communities. Dense, low-profile arrays leave vegetation intact and minimize visual impact, reducing siting challenges and simplifying project approvals. Lower costs, faster timelines, and stronger community alignment positions Planted to accelerate solar deployment at the pace the energy transition demands.</p>	

¹ US Energy Information Administration (2026)

PORTFOLIO IMPACT HIGHLIGHT

“

In Piva, we found a partner who understands that the energy transition won't be won by incremental improvements — it demands a complete rethinking of how solar gets built. *Planted's platform deploys power up to 5x faster on land others overlook, and with Piva's support, we're scaling that capability to meet the urgent demand for clean, abundant and affordable energy.*”



Eric Brown
CEO, Planted Solar

PORTFOLIO IMPACT HIGHLIGHT

Functional protein ingredients that are grown, not raised

plantible	What they do	Why it matters	By the numbers
<p>A better way to feed the world</p>	<p>Plantible is reimagining protein production with lemna, a tiny aquatic plant that doubles in size in as little as 48 hours. Plantible’s vertically integrated platform spans cultivation, extraction, and formulation, producing sustainable, drop-in ingredients without compromising taste or texture. Their proprietary process isolates RuBisCO — nature’s most abundant protein — unlocking emulsifying, foaming, and gelling performance typically found only in animal products like eggs. Rubi Protein™, the company’s first product, recently became the first isolated RuBisCO food product to receive FDA GRAS acknowledgement¹. The result: sauces that stay creamy, baked goods that rise beautifully, and dressings that hold — all without eggs or other animal products.</p>	<p>Our food system generates ~25% of global CO₂ emissions, occupies 50% of all habitable land, and uses 70% of the world’s freshwater². Animal-based supply chains are also increasingly volatile: egg prices spiked up to 350% YoY in 2025 after an avian flu outbreak³. Unlike alternative proteins derived from commodity crops like soy or peas, lemna is grown domestically in Plantible’s controlled aqua farms, using zero arable land and 9x less water than soybeans (and nearly 100x less water than beef). Lemna’s hyper-productive growth cycle also enables it to absorb up to 10x more CO₂ than a healthy forest.</p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>100x</p> <p>Faster harvest cycle than traditional crops</p> </div> <div style="text-align: center;">  <p>10x</p> <p>Less CO₂ emissions than eggs</p> </div> <div style="text-align: center;">  <p>9x</p> <p>Less water than soy-based protein</p> </div> </div>
<p>LOCATION California, USA</p>			
<p>FOUNDED 2018</p>			
<p>PIVA INVESTMENT 2022</p>			
<p>PRIMARY SDG SDG3: Good Health and Well-being</p> 		<p>Plantible’s impact extends beyond ingredients: the company is putting skilled, sustainable manufacturing jobs where they’re typically hard to find. The company’s first commercial site in Schleicher County, Texas, helped raise the median household income 60% YoY⁴. Further, the fast, repeatable aquatic crop cycle limits exposure to seasonal and environmental volatility, enabling steady harvests and stable income for rural communities. Plantible’s approach to rebuilding the food system with cleaner, healthier, and more resilient ingredients demonstrates that climate technology can strengthen rural economies rather than bypass them.</p>	<div style="display: flex; justify-content: space-around;">   </div>

¹ FDA Generally Recognized As Safe “No Questions” letter is the final step of FDA food product review

² Poore & Nemecek (2018); UN FAO

³ Food Bureau (2025)

⁴ US Census Bureau (2023)

PORTFOLIO IMPACT HIGHLIGHT

“

We founded Plantible to rebuild the food system with cleaner, healthier and more resilient ingredients and to show that climate tech can lift rural economies rather than bypass them. *We are glad to have found a partner in Piva that agrees that real change sticks only when everyone has a seat at the table.”*



Tony Martens
CEO, Plantible Foods

Looking Ahead

Driving impact across our portfolio and industry

As the landscape of responsible venture capital investment continues to evolve, Piva will remain at the forefront of thought leadership. Here are some areas where we aim to make a difference:



Investing Where It Matters

Piva will continue to invest in companies that matter applying our responsible investment lens to identify durable value creation.

We are at the forefront of investing in cutting-edge sustainable technologies that have the potential to revolutionize industries. By identifying and supporting breakthrough innovations, we accelerate the transition to a resilient, low-carbon economy.



Partnering to Build Capabilities

We are active partners with the companies in our portfolio, assisting in scaling their business and impact. We will reinforce our targeted approach throughout our portfolio, offering support where needed to accelerate growth.



Measuring to Ensure Impact

We will continually refine our methodologies to assess the impact of our investments, and to quantify the environmental, social, and economic outcomes of our portfolio companies.

Acknowledgements

Thank you



Portfolio Companies

Many individuals across our portfolio companies contributed to the data contained in this report. Thank you!



Patch

The Patch team assisted us in identifying high-quality credits, developing our offset strategy, and acquiring an impactful offset portfolio.



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