

Every product you own was made with heat. We're making that heat electric



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Technology Y Combinator Notable Angel B2B Hardware

Highlights

VC-Backed

Raised \$250K or more from a venture firm



Y Combinator

Raised from Y Combinator



Regular Updates

Founders have a strong track record of investor updates.



- 1 \$6.5M+ raised from Y Combinator, DCVC, Daphni VC, Polytechnique Ventures & 2000+ retail investors
- 2 \$4.4M awarded by ADEME (French Agency for Ecological Transition) via France 2030
- 3 LOI with large chemical manufacturer for a paid pilot starting in 2028
- 4 High-temperature industrial heat pump targeting up to 250°C, containerized plug-and-play
- 5 Hybrid by design: uses electricity when cheap, keeps existing gas boilers for 24/7 uptime
- 6 Targeting 4–7 year payback; typical energy savings of 15–25% (site-dependent)
- 7 2 patents granted or pending and team of industry experts and PhDs
- 8 \$1.2T/yr global industrial process heat spend; 3,000 TWh still fossil-fueled in the 150–550°C range

Featured Investors



Eren Groupe

Follow

Invested \$1,150,000

A long time horizon and the ambition both to preserve natural resources and to contribute to the emergence of a low-carbon world.

Daniel Corchia, Executive Director

"Eren Groupe is determined to back technologies that minimize the carbon footprint of industry while relying on solid economic fundamentals. Airthium is pursuing that goal through a method allowing to conserve resources and slash emissions in order to adjust to industrial realities"



Daphni VC

Follow

Invested \$1,000,000

Investing in tech startups with a European DNA and a strong international ambition

Paul Bazin, Partner

"The thing that convinced us at daphni is the team's solid technical skills accompanied by a clear grasp of what industries struggle most with. Airthium is going after a huge decarbonization problem and at the same time they want to make a European deeptech company that impacts the whole world."



Polytechnique Ventures

Follow

Invested \$950,000

The venture capital arm of École Polytechnique, backing ambitious deep-tech founders and breakthrough technologies.

Maxime Cardinal, Partner

"Airthium is the kind of deeptech that we wish to invest in: a scientific discovery applied to major industrial and climate challenges. Through delivering a viable solution for very high-temperature industrial heat, the team is creating a tangible lead towards sustainable innovation and industrial decarbonization."



Y Combinator
Notable Investor

Follow

Invested \$120,000

Startup accelerator and VC firm that's launched over 4,000 companies, including Airbnb, Coinbase, DoorDash, Dropbox, Instacart, Reddit, and Stripe
ycombinator.com



DCVC

Follow

Invested \$50,000

Backing brilliant entrepreneurs who address the hardest, highest-stakes problems in the world.



Philippe KAVAFYAN

Follow

Invested \$20,000

Philippe Kavafyan is a senior energy executive and former CEO of MHI Vestas Offshore Wind. He has held leadership roles at GE, AREVA, Adwen Offshore, and Mitsubishi Heavy Industries, with deep experience in wind, renewables, and energy services. He has al

"Airthium is tackling one the hardest challenge of the energy transition - decarbonizing industrial heat while securing reliable supply. The team is progressing on their engineering milestones while signing first industrial pilots, the proper combination to help the industry switch to a sustainable energy system."

& 2527 more

Team



Andrei Klochko Co-Founder, CEO & CSO

Creator of the engine at the core of Airthium's technology. PhD in plasma physics. Mechanical engineering from École Polytechnique. Designed the proprietary compression cycle that no competitor has replicated.



Franck Lahaye Co-Founder, COO

Y Combinator 2017 alum. Former EMEA Sales Director at Intelsat. Ran a satellite capacity brokerage company. Leads strategy and operations from the US.



Houssam Houssein Multiphysics Simulation Engineer

PhD in applied mathematics, Sorbonne Université. Former engineer at STRUSIM. M2 from École Centrale Paris and Université Paris-Diderot.



Why Airthium?

Industrial heat is the biggest energy problem nobody talks about.

TL;DR

- **What we build:** Containerized hybrid high-temp heat pump for industrial process heat
- **Why it wins:** Higher temperature capability, flexible operation, hybrid-mode with the gas boiler
- **Where we are:** 1kW prototype at 145°C; scaling to 10kW and then pilot-ready unit
- **Business model:** Heat-as-a-Service (pay per quantity of heat consumed, recurring revenue)
- **This raise funds:** Build the first pilot-ready containerized unit + IP + key hires



Factories burn natural gas to produce heat. That heat is used to make nearly everything: paper, food, chemicals, plastics, pharmaceuticals, and the beans roasted for your morning coffee. Industrial process heat is one of the largest sources of CO₂ emissions on earth, and one of the largest line items on a factory's operating budget.

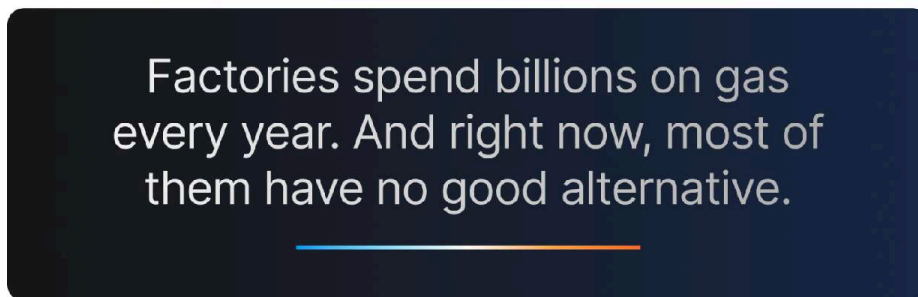
Airthium builds high-temperature heat pumps that turn electricity into industrial heat. Our system fits inside a shipping container and connects to a factory's existing gas boiler.

When electricity is cheap, our system produces heat. When gas is cheaper, the boiler takes over. Factories pay less and emissions drop as a consequence of better economics, not in spite of them.



We are backed by Y Combinator and leading European climate investors, and were recently awarded a \$4.4M grant from ADEME, the French Agency for Ecological Transition, through the France 2030 program.

This round takes us from a working 1kW prototype to a pilot with a major French chemical manufacturer – and from there, to fully commercialize our invention and revolutionize industrial heat across the globe.



The vast majority of industrial heat worldwide comes from burning natural gas in large boiler systems. Once a factory installs one of these systems, it is locked into that single energy source for roughly 20 years.





Industrial process heat in the 150 to 550°C range accounts for roughly **3% of worldwide annual CO₂ emissions.**

As gas prices spike, factories pay more. When carbon taxes go up, they pay more. If electricity prices drop, they can't reap the savings.

The problem with industrial heat:

- 🔥 ~\$1-2 trillion per year in energy costs
- 🌍 Emits large quantities of CO₂
- ⚡ Subject to price volatility & geopolitical risk
- 🔒 Buying a boiler locks you in for 20 years

Electricity prices are becoming more volatile as solar and wind generation scales up. In addition, the EU Emissions Trading System is pushing carbon costs steadily higher, and similar mechanisms are expanding globally. A factory that cannot reduce its gas consumption has no hedge against those trends.

Factories are making 20-year energy bets with only one option on the table. The economic case for a better solution is clear.

We don't ask factories to bet against gas. We give them the option to use both.



**AI generated graphics to represent existing boilers and the Airthium heat pump.*

Most cleantech pitches to factories start with “rip out your boiler.” Plant managers hear that and walk away - even if it costs more. Their priority is keeping production running, uninterrupted, 24 hours a day. We took a different approach.

Our system is a containerized heat pump that can be flexibly installed outside the factory where it can connect to the steam network. We offer a ‘plug-and-play’ solution that works with decades-old technology, requiring no modifications to the factory floor and no interruptions during installation.

Once connected, the factory has two heat sources feeding the same system: their

Once connected, the factory has two heat sources feeding the same system: their existing gas boiler, and our heat pump. Our software monitors energy markets in real time and makes a cost calculation every 15 minutes, unlocking the cheapest option at every moment.



Every site is different. Local gas and electricity prices, temperature requirements, operating hours, and available subsidies all affect the math. These examples are illustrative, not guaranteed. They show why the economics are strong enough that industrial buyers are willing to sign agreements before we have shipped a commercial unit.

There are 20 to 30 companies
working on industrial heat pumps.
Here is where we sit.

“We go after much higher efficiency so that by the time others have evangelized the market, we come in with a solution that’s strictly better on the metrics that matter.” - Andrei Klochko, Co-Founder & CSO

The industrial heat pump space is active and growing. Every company that is bringing electrified heat products to market helps advance conversations with factory operators and build the case for alternative heat sources.

Rather than adapting conventional heat pump designs to work at higher temperatures, we rethought the system from first principles.

By redesigning heat transfer, fluid dynamics, and mechanical architecture, we enabled a Stirling-based system to operate at industrial temperatures with unprecedented efficiency and cost performance. That decision meant a longer development timeline, but it also means we can target higher temperatures, maintain strong efficiency across a wider operating range, and deliver a large temperature increase in a single machine so that factories do not need to chain multiple units together.

Our system is also designed for fast cycling (starting and stopping on short notice), which is critical for the real-time energy switching that makes the hybrid model work.

When industrial buyers start moving from early adoption to comparative evaluation, choosing systems on performance and total cost of ownership, we intend to be ready to meet the demand.

Built by a team of expert

Built by a team of expert
engineers and PhDs.

14

Employees

3

Departments

7

PhDs

10k

Sq. ft. facility



Airthium is led by two co-founders who have been at this together from day one. Franck Lahaye, a Y Combinator S17 alumnus, runs strategy and operations from the US. He has extensive experience selling satellite capacity to telecom and media companies: deals where the technology is complex, the sales cycles stretch for months, and the buyer will not sign unless they trust you completely. Andreï Klochko leads technical architecture from France. He designed the proprietary compression cycle at the core of our system.

Our expert team of fourteen engineers and scientists across three departments (mechanical engineering, numerical simulation, and physics), all work out of a 10,000-square-foot facility packed with a CNC machine, a water jet cutter, soldering stations and more. We design, fabricate, and test in house to accelerate our development cycles.

Our investors are backing us because the physics checks out and our team never stops.

Industrial heat is a
\$1.2 trillion
cost and
\$75.5B market
that runs almost
entirely on gas.



Industrial heat is a gigantic untapped decarbonization and cost optimization opportunities.

Within the 150–550°C temperature range, the vast majority of heat is produced by burning fossil fuels – costing billions annually and accounting for as much greenhouse gas emissions as the entire aviation industry.

The global industrial heating equipment market was valued at \$75.5B in 2025 and continues to grow at ~5.3% annually.

As renewable electricity prices fall and carbon costs rise, the economics of electrified heat will keep getting more attractive. We estimate our total addressable market to be \$75.5B.

Today we're building the machine.
The long-term model is selling heat,
not hardware, turning every factory
into recurring revenue.

The U.S. market represents a major part of Airthium's long-term commercial strategy. While our technology is being developed in France, we expect a significant portion of future sales to come from the United States.

American manufacturers face the same challenge seen around the world: industrial heat remains heavily dependent on fossil fuels, yet companies are increasingly under pressure to reduce emissions while remaining cost competitive. The U.S. Department of Energy has identified industrial heat decarbonization as a national priority, creating a favorable environment for solutions like Airthium.

We intend to commercialize directly in the United States, build partnerships with American industrial customers, and establish Airthium as a transatlantic industrial technology company serving both North American and European markets.

We plan to deploy primarily through a Heat-as-a-Service model rather than selling equipment outright.

This model removes the upfront costs to factories. For each customer site, Airthium creates a dedicated project company that finances, owns, and operates the heat pump system. The factory signs a long-term heat supply agreement and pays for the heat we deliver, but only when our price is competitive with gas. If gas is cheaper at any given moment, we step aside.

HaaS



Airthium owns and operates heat pumps

Customers pay per MWh, generating recurring revenue

Eliminates upfront costs and reduces operational risks

Factories benefit from zero upfront cost and zero performance risk. Airthium benefits from long-term, recurring revenue from every deployed site. The model is designed to scale with deployment. Every additional factory would make the revenue base more predictable.

The site-level economics work, and our model is viable at scale, because of the coefficient of performance where every unit of electricity consumed produces two to three units of thermal energy.

Based on current modeling, we target a 4 to 7 year payback for most customer sites, depending on local gas and electricity prices. The economics improve as renewables get cheaper and carbon pricing increases.

We're building a machine that'll power factories for decades with a patented engineering breakthrough.

Building industrial heat pumps takes time, expertise, and R&D. We've tested, prototyped, and pivoted on our ideas to ensure we're truly building something that meets industrial plants where they are.

Our next major milestone is to develop our 1kW prototype into a 10kW heat pump, which we then will scale to 100kW, the same system that will ship to the customer site for the pilot.

1kW **>>** 10kW **>>** 100kW

(Done)

Paid pilot **>>** **Commercialization**

(Early 2028)

(2028-2029)

That pilot is expected to serve as the catalyst for our first commercial deployments.

- 2026-2027 target: 10kW heat pump testing, then scale toward a 100kW demonstrator for high-temperature heat generation. Timing will depend on test results, engineering validation, and supplier lead times.
- 2028 target: Begin paid pilot installations with industry partners, starting with applications in food processing and chemicals
- 2029 target: First commercial deployments, following successful pilot performance and customer validation.

Your capital funds the build-out of the first pilot-ready containerized unit, IP expansion, and the world-class engineering talent required to ensure our system performs reliably under industrial conditions.

Commercial deployment

Commercial deployment unlocks real exit opportunities.

The industrial decarbonization space has attracted significant investment in recent years. A few reference points from companies working on adjacent problems:



Builds linear generators for distributed power. Founded 2010, commercial shipments starting around 2020 (roughly ten years from founding to first sale). \$800M+ in total financing. Valuation estimated in the \$450M–\$660M range as of late 2024.



Thermal energy storage for industrial heat and power. \$300M+ in total financing. Valuation estimated around \$500M as of 2024. Still largely in the pilot phase, showing that industrial heat companies can attract large valuations before large-scale revenue.

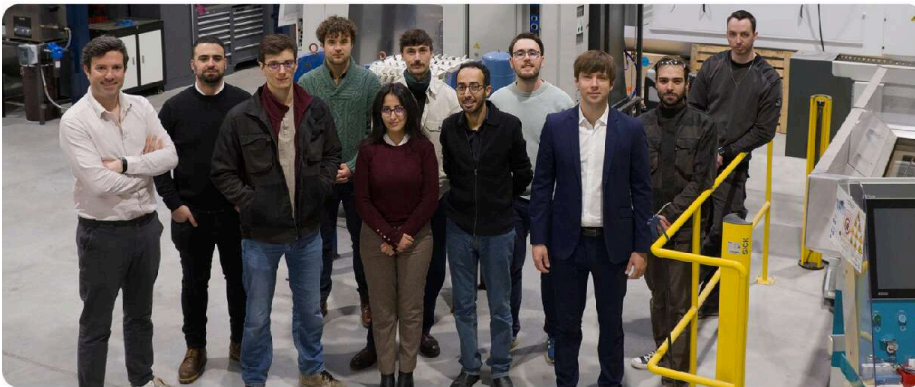


Heat batteries for industrial decarbonization. \$195M+ in total financing. Investors include Breakthrough Energy Ventures and Goldman Sachs. First commercial system deployed at an ethanol plant.

Potential acquirers in this space include industrial conglomerates (Siemens, Schneider Electric, Bosch, Atlas Copco), energy companies expanding into electrification, and infrastructure funds that specialize in long-duration contracted revenue.

Our current valuation reflects that we are earlier in our development than these companies. This is the kind of early-stage entry point.

Invest in Airthium today.



We are a team of relentless engineers and scientists looking to build a sustainable and efficient industrial future.

Our systems are built on a patented technology based on an engineering breakthrough that took years of theoretical and experimental work to develop.

A working 1kW prototype that has already reached state-of-the-art performance at

1450C. This breakthrough was achieved with a \$1.1M investment from investors.

145°C. The French government has awarded us a \$4.4M grant after a rigorous technical audit. We have secured a Letter of Intent from an industrial customer for a paid pilot.

We are building hard tech. The timeline to first commercial deployment is 2028 to 2029. This is not a quick return. This is an early-stage bet on a team, a technology, and a market moving in the same direction. We are on a mission to decarbonize industries.

Join us to make industrial decarbonization economically inevitable. Invest in Airthium!