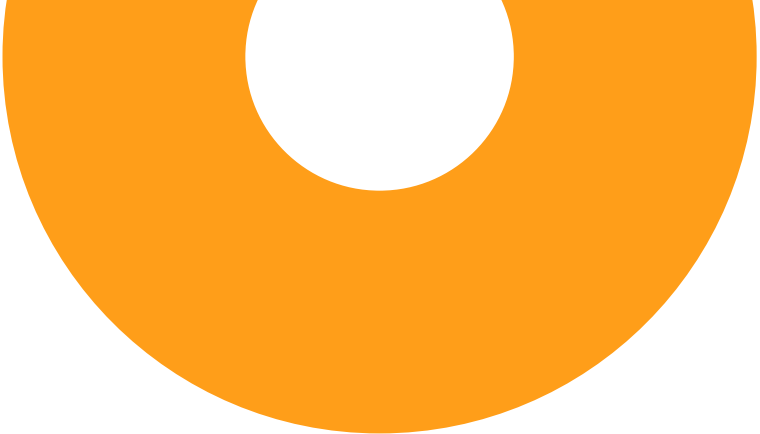






— CALEFA

TURNKEY HEAT PUMP SPECIALIST DRIVES DECARBONISATION



PRODUCTION:
David Hill

Calefa is growing from Finland, increasing its European ambitions, as the heat pump industry gathers pace with the loss of usable heat no longer an option. The company's product range captures and effectively reuses waste heat from industrial processes, owning the entire process. CEO Petri Vuori tells Energy Focus more about Calefa's expansion.





In the evolving landscape of Europe's energy transition, industrial heat pumps are no longer a niche solution. They are increasingly central to decarbonisation strategies, particularly as industries look to capture and reuse waste heat that would otherwise be lost. Against this backdrop, Finland's Calefa has carved out a distinctive position, not just through technology, but through an integrated approach that challenges the fragmented norms of the sector.

CEO Petri Vuori, one of the company's founding members, reflects on a journey that began with a simple observation about inefficiency. "We were a group within another company producing industrial heat pumps, but we did not work on the whole system. We saw the need for a player that can take responsibility for the entire package and help the customer to optimise a project. We started with nothing – we had no customers and no contracts."

From that starting point, Calefa has grown into a multi-million-euro business with a steadily expanding footprint. "We now have 45 people, and our revenue grew by 15% year-on-year in 2025. We are expecting further positive growth of around 10% this year," Vuori highlights. It is a trajectory that mirrors wider

market momentum. According to the European Heat Pump Association, industrial heat pumps are entering a period of accelerated adoption, driven by policy pressure, energy price volatility, and the urgent need to decarbonise heat, which still accounts for a significant share of industrial emissions.

INTEGRATED MODEL

Calefa's proposition is built on a clear divergence from conventional industry practice. Where many competitors specialise in individual components—design, manufacturing, or installation—the Finnish company has positioned itself as a full-service provider.

"We are not only a manufacturer of heat pumps. We build the whole system and take responsibility for the whole project – that is something that our competitors don't want to do and often cannot do," says Vuori.

This integrated model is more than a commercial differentiator; it addresses a structural challenge in the deployment of industrial heat pump systems. As highlighted in industry analysis from McKinsey, one of the key barriers to scaling industrial heat pumps is the complexity of integrating them into existing processes. Disjointed delivery models often lead to inefficiencies,



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PETRI VUORI, CEO

cost overruns, and suboptimal performance.

Calefa's approach seeks to eliminate those friction points. "We have our own production plant and we can use different technologies to make different solutions for our customers; this is also something that competitors cannot offer," Vuori reiterates. By retaining control across the value chain—from engineering through to installation and ongoing optimisation—the company is able to tailor each system to the specific thermal profile and operational requirements of its clients.

This flexibility is particularly important given the diversity of industrial heat sources. Waste heat streams vary widely in temperature, consistency, and accessibility, requiring bespoke solutions rather than off-the-shelf products.

"We started 12 years ago with a mission to utilise different kinds of industrial waste heat sources and environmental heat sources," Vuori recalls. "In order to utilise these often-low temperature heat sources, we need heat pumps to process the heat for district or industrial heating networks. We are focused on implementing complete systems and complete modular heat pump plants for our customers. We can take responsibility for the functionality of these systems

and plants as a turnkey solutions provider for industrial waste heat and ambient energy utilisation.”

That mission aligns closely with broader developments in Finland, where innovative approaches to energy reuse are gaining traction. Projects that capture excess heat from data centres and redirect it into district heating networks are becoming increasingly common, demonstrating how waste heat can be transformed into a valuable resource. Calefa's systems sit within this ecosystem, enabling industries to monetise heat that would otherwise dissipate into the environment.

PRODUCT FOCUS

At the heart of Calefa's offering are two flagship products: AmbiHeat and AmbiSteam. Together, they represent a comprehensive approach to industrial and district heating, addressing both low- and high-temperature applications.

AmbiHeat has already established itself as a proven solution for district heating networks, converting low-grade waste heat into usable energy at scale. Its success is exemplified by installations such as the Joensuu power plant, where the system has been recognised internationally for its efficiency and innovation. By capturing and upgrading waste heat, AmbiHeat not only reduces reliance on fossil fuels but also enhances the resilience of local energy systems.

Building on this foundation, the company has recently introduced AmbiSteam, a product that extends its capabilities into the realm of industrial steam production. “We have a new product, AmbiSteam, which is a steam heat pump and we produce 5 BAR pressure with steam. It was launched in December, and it is focused on the industrial field (forestry, food, chemical etc) where there is already steam being produced as part of existing processes and where there is an opportunity to cut fossil fuel usage,” Vuori details.

NEW MOMENTUM

The launch of AmbiSteam comes at a time when industries are under increasing pressure to decarbonise high-temperature processes, traditionally one of the most challenging areas to address. Steam production, in particular, has long been dominated by fossil fuel-based boilers, making it a significant source of emissions.

By enabling the use of low-temperature waste heat to generate steam, AmbiSteam opens up new pathways for emissions reduction. It also reflects a broader shift in the heat pump market, where technological advancements are pushing the boundaries of what these systems can achieve.

“Industry is constantly striving for lower emission targets. Achieving these targets means that the CO₂ emissions from steam production play a significant role,” says Calefa Technical Sales Specialist, Lari Heinonen.



Early indications suggest strong interest in the solution, driven by its ability to integrate seamlessly into existing industrial processes. Unlike conventional approaches that require extensive retrofitting, AmbiSteam is designed to complement and enhance current systems, reducing both costs and disruption.

This aligns with one of the key insights from industry research: that the scalability of industrial heat pumps will depend not only on technological performance but also on ease of integration. Solutions that can deliver measurable benefits without requiring wholesale changes to infrastructure are more likely to gain traction.

For Calefa, AmbiSteam represents both a product innovation and a strategic expansion into new market segments. It builds on the company's core expertise while addressing a critical gap in the market, reinforcing its position as a provider of end-to-end heat solutions.

SUPPLY STRENGTH

Behind the integrated model lies a carefully managed supply chain, designed to balance in-house expertise with strategic partnerships. "We try not to outsource, and we have a broad range of skills. We only partner with the very best when outsourcing any work. We can build a whole plant in our factory, and we find that easier when it comes to managing the whole project."

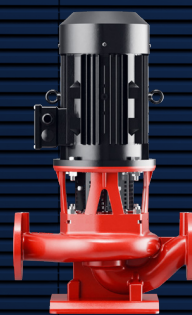
This emphasis on control is complemented by a global sourcing strategy for components. "We work with

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component suppliers from all over Europe and all over the world. We engineer our heat pumps and our plants, and make everything together, but the components come from quality suppliers who are really important for our delivery."

The result is a hybrid model that supports both reliability and innovation. Access to a diverse pool of suppliers allows Calefa to incorporate advanced materials and technologies into its systems, particularly in applications requiring high temperatures. "Using different technologies and working with different materials is vital for ongoing innovation so that we can deliver the absolute best possible solution for customers," says Vuori.

This capability is critical in sectors where process heat and steam requirements often exceed the capabilities of standard heat pump solutions. "We are always looking for long-term suppliers on which we can rely, with good technologies that can improve our systems," he adds. "We want to make the very best possible systems for our customers and in various cases we need very high temperatures because our customers require process heat or process steam, and you cannot get that with regular tech."

LOOKING OUTWARD

While Finland and the broader Nordic region have provided a strong foundation, Calefa is now looking beyond its home markets. "Most of our projects have been in Finland but we have some in the Baltic region. We definitely want to grow, and we want the company to become more international in the coming years."

The rationale for expansion is closely tied to energy economics. "We are completing market research right now and we are looking at Poland, Sweden, Norway

which all look very good from our perspective. Heat pumps need electricity and when you have cheap electricity, that makes the whole process so much easier. We have cheap electricity in the Nordics and that has been a basis on which we have grown."

As more countries invest in renewable electricity and seek to electrify their heating systems, the conditions that have supported Calefa's growth in the Nordics are beginning to emerge elsewhere. This creates a significant opportunity for the company to replicate its model in new markets, particularly in regions with strong industrial bases and access to low-cost power.

At the same time, the global push for decarbonisation is accelerating demand for technologies that can deliver immediate and scalable emissions reductions. Industrial heat pumps, once considered a niche solution, are now recognised as a key component of the energy transition.

For Calefa, the challenge will be to maintain its integrated approach while scaling operations across multiple geographies. Yet the fundamentals appear strong. A clear value proposition, proven technology, and a growing product portfolio position the company well to capture a share of this expanding market.

"We are a climate caring, energy solutions company for industrial sector customers – that is our mission and that is what our products are focused around," Vuori concludes.

In a sector often characterised by complexity and fragmentation, that clarity of purpose will prove to be one of Calefa's greatest strengths.

EF FOCUS



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