

PRESS RELEASE

DATE: 20.02.2025



ZIMBA Kick-off Meeting | Chambéry, France | January 30-31, 2025

ZIMBA project launches: A groundbreaking step toward zero-carbon industrial heat production

The ZIMBA project (**Z**ero-carbon Industrial heat production by **aM**monia water **aB**sorption **hE**at transformer) has officially started on December 1, 2024. This groundbreaking initiative is funded by the European Climate, Infrastructure and Environment Executive Agency (CINEA) and aims to revolutionise industrial heat production by leveraging innovative technologies.

The industrial sector, which accounted for 25.1% of the EU's total energy consumption in 2022, remains one of the largest contributors to greenhouse gas emissions. A significant portion of the sector's energy consumption came from electricity (33.3%) and fossil fuels (50.4%), highlighting its heavy reliance on traditional energy sources. This growing dependence underscores the urgent need for improved energy efficiency and better utilisation of available resources, particularly as the EU works toward achieving climate neutrality by 2050.

One promising solution to this challenge is industrial waste heat recovery—a vast, yet largely untapped energy resource. Enhancing energy efficiency in industrial processes can generate substantial primary energy savings, accelerate the decarbonisation of the energy systems, and lead to a significant reduction in CO₂ emissions.

The ZIMBA project directly addresses this need by introducing an innovative heat pump system based on an **Absorption Heat Transformer (AHT)** using ammonia/water refrigerant. Designed to operate efficiently at a **15 kWth scale**, this innovative technology aims to provide industrial heat production, starting at **110°C** and later scaling up to 130°C. The heat pump system will be further enhanced with an **ejector** to ensure a wider range of operational capacities, making it an adaptable solution for diverse industrial needs.

Dr. Hai Trieu Phan, Project Coordinator from Commissariat à l'énergie atomique et aux énergies alternatives (CEA), emphasised the unique potential of the ZIMBA solution, stating: "One of the main advantages of the ZIMBA technology is that it is able to directly produce pressurised steam; there is no need for additional components (e.g., flash tanks) which reduces the system's complexity."

ZIMBA technology offers several key advantages, including excellent performance with very low electricity consumption and a strong environmental focus. It is highly reliable because it does not use a compressor, and its affordable, compact design makes it a great option for large-scale industrial use. The technology also promises a quick time-to-market, as it only uses widely available commercial components and depends very little on rare or hard-to-find materials.

ZIMBA project will span four years, with the primary focus on validating and scaling the technology. Its main goal is the deployment of its innovative heat pump system across various industries, providing a cleaner, more sustainable alternative to conventional heating methods and contributing to the EU's efforts to reduce its reliance on fossil fuels.

The ZIMBA consortium consists of five partners from four European countries, including researchers, industrial manufacturers, and technology experts, ensuring a comprehensive approach to the development and validation of the technology.

CEA and Politecnico di Milano (POLIMI) will lead the upscaling of the AHT system and the design of the ejector, drawing on their expertise in mechanical engineering, thermodynamics, and materials science. CEA, alongside the Eastern Switzerland University of Applied Sciences (OST), will contribute to the testing and validation of the ZIMBA AHT system.

CLAUGER will provide insights into end-user requirements, leveraging its extensive experience in industrial production and installation of heat pumps. Meanwhile, OST will collaborate with all partners to develop an exploitation plan, assessing the technology's market potential.

Lastly, AMIRES, a consultancy with over 10 years of experience with EU funded projects, will lead communication and dissemination activities, as well as provide support in project management.

The project comes at a pivotal time, as industrial energy efficiency is becoming increasingly important in the face of rising energy costs and the growing urgency to transition to a climate-neutral economy. By harnessing advanced technologies like the ammonia/water absorption heat transformer, ZIMBA will help industries across Europe cut carbon emissions and use energy more effectively, all while driving progress toward the EU's 2050 climate neutrality goal.

ZIMBA project has received €1.9 million from the European Union's Horizon Europe research and innovation programme and runs for four years. ZIMBA brings together the unique expertise of five partners from four different countries. The consortium consists of: Commissariat à l'énergie atomique et aux énergies alternatives, Politecnico di Milano, Clauger, AMIRES s.r.o, and Eastern Switzerland University of Applied Sciences.



This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101146932.



**Funded by
the European Union**

Press contacts

Dr. Hai Trieu Phan
Project Coordinator
Haitrieu.PHAN@cea.fr

Cristina Dinca
Project & Dissemination Manager
dinca@amires.eu

Follow us

LinkedIn: [ZIMBA Project](#)
Website: www.zimba-project.eu