POSITION PAPER

October 2026

Heat pumps in the future European Partnership portfolio under Horizon Europe

This paper presents the position of the European Heat Pump Association (EHPA) on the place of heat pumps in the future European Partnership portfolio.

EHPA calls on the European Commission to establish a **dedicated European Partnership on Heat Pumps** under Horizon Europe 2028-2034, recognising heat pumps as a dedicated thematic priority and covering the full technology and application spectrum.

The Partnership should:

- structure its Research and Innovation (R&I) priorities around four pillars: cost competitiveness, environmental contribution, energy system integration and market uptake;
- form part of a comprehensive EU approach, alongside a SET Plan Implementation Working Group on Heat Pumps, a strong focus on heat pumps within the IWG on buildings and industry, a continued Heat Pump Accelerator Platform and a Net-Zero Industry Academy for Heat Pumps;
- give heat pumps a visible, long-term and technology-specific place in European R&I and industrial policy, with strong links to the European Competitiveness Fund as well as funding instruments targeting deployment, such as the Industrial Decarbonisation Bank

Why a dedicated European Partnership on heat pumps

Heat pumps are a strategic European clean technology with a strong European industrial and research base and applications across buildings, district heating and industry. Their continued development is essential not only for the decarbonisation and electrification of heating, cooling and industrial processes, but also for Europe's industrial competitiveness, energy security and technological leadership.

Heat pumps are also recognised as a strategic net-zero technology under the Net Zero Industry Act. For this reason, simply including heat pumps within a broad clean-technology portfolio without dedicated programming would risk diluting a strategic European technology area with a distinct industrial ecosystem and innovation pathway. A dedicated Partnership would instead provide a single, long-term framework to align industry, research organisations and public funding behind a common R&I roadmap.

Scope and R&I priorities

The Partnership should cover the full technology and application spectrum:

- residential and commercial heat pumps;
- large-scale and district heating applications;
- industrial and high-temperature heat pumps;
- components and manufacturing;
- refrigerants;
- system integration, flexibility and digitalisation;
- thermal storage.

European Heat Pump Association (EHPA)
Avenue de Cortenbergh 120, 1000 Brussels – Belgium
+32 2 400 10 17
info@ehpa.org
www.ehpa.org

Within this scope, the priorities below follow the four pillars identified in Fraunhofer's joint R&I&D roadmap, developed under the Support Action on Heat Pumps: improving cost competitiveness, optimising environmental contribution, integrating heat pumps into the energy system, and supporting market uptake.

1. Improve cost competitiveness

Cost competitiveness remains a challenge across heat-pump applications, although the barriers differ. Priorities span the full chain from production and installation to operation and financing. They include:

- scaling and standardising production through modular and prefabricated systems, common interfaces and interoperable components;
- for retrofit and network applications: integrated packages, simpler ground-source installation, affordable district-network components and the transition of existing high-temperature networks towards lower-temperature operation;
- improving part-load efficiency, enabling flexible operation in response to prices and grid conditions, and validating reliability under real-world conditions;
- Heat-as-a-Service, leasing, collective ownership and risk-sharing models to help address high upfront costs.

2. Optimise environmental contribution

The environmental pillar covers refrigerants, circularity, lifecycle impacts and technology development. Priority areas include:

- low-GWP and natural refrigerants, supported by safety standards, certification and robust supply chains;
- more durable and circular heat pumps, through recyclable components, material efficiency and easier disassembly, alongside lifecycle assessment that considers a wider range of environmental impacts;
- for industrial applications, high-temperature heat-pump solutions and advanced components, including hybrid compression–absorption systems;
- noise reduction, particularly relevant in buildings and urban settings;
- non-compression technologies, such as magnetocaloric, elastocaloric, thermoelectric and thermoacoustic systems, which offer further avenues for research, although many applications remain at an earlier stage of development.

3. Integration into the energy system

Heat pumps need to operate efficiently as demand, renewable generation and energy prices change. Key needs include:

- predictive and adaptive controls, including AI-based approaches, interoperable coordination of multiple units, diagnostics and performance monitoring;
- open field data to help validate performance and support further development;
- dynamic network optimisation for larger systems and district heating and cooling;
- integrating heat pumps with sources such as geothermal, sewage and river heat;
- improving hybrid systems and thermal or seasonal storage, and scaling up from pilots to full-size demonstrators;
- enabling flexibility services and participation in electricity markets, while addressing data privacy and cybersecurity for connected systems.

4. Market uptake

Wider deployment depends on clear rules, qualified workers and confidence among users and investors. Priorities include:

- appropriate regulatory frameworks, product certification and safety standards, including for natural refrigerants;
- workforce development covering sizing, refrigerant handling and commissioning, as well as the skills needed for digital, hybrid and multi-source systems;
- market confidence through field validation, long-term reliability testing, decision-support tools and bankable investment cases;
- user acceptance, including occupant comfort and interaction with automated controls.

A comprehensive EU approach

R&I alone will not bring heat pumps to scale: research results also need to translate into skills, industrial capacity and deployment across Member States. The Partnership should therefore form part of a broader and coherent European approach to heat pumps, including:

- **A SET Plan Implementation Working Group on heat pumps** to coordinate European and national R&I priorities and support implementation of the heat-pump R&I roadmap.
- **A continuation of the Heat Pump Accelerator Platform (HPAP),** focusing on deployment barriers, financing, data, skills and implementation across Member States.
- **A dedicated Net-Zero Industry Academy for heat pumps**, supporting skills development across the heat-pump value chain, from manufacturing and system design to installation, commissioning, servicing and advanced industrial applications.

Conclusion

Together, the European Partnership, a SET Plan Implementation Working Group on heat pumps the Heat Pump Accelerator Platform and a Net-Zero Industry Academy for heat pumps would provide a coherent pathway from R&I coordination and demonstration to skills, industrial scale-up and market deployment.

The future partnership architecture should ensure a visible, long-term and technology-specific place for heat pumps in European R&I and industrial policy, with strong links to the European Competitiveness Fund and other instruments supporting demonstration and scale-up.