

Accelerating Electrification through Heat Pumps: A Speedway for Europe's Energy Transition

A Eurelectric response paper

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Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:

- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

Accelerating Electrification through Heat Pumps: A Speedway for Europe's Energy Transition

In the European Commission consultation for a Heat Pump Action Plan, Eurelectric underscores the pivotal role of heat pumps as strategic enablers in propelling forward Europe's energy transition. Amidst worrying indications of stagnant electrification rates (Eurostat data 2020) and lack of a crucially needed comprehensive electrification strategy, heat pumps emerge as instrumental drivers of both industrial and residential electrification solutions – drastically increasing energy efficiency and cutting carbon emissions. Furthermore, the faster deployment of heat pumps sheds light on the intricately linked tenets of grid expansion and modernisation, electrification, and clean power generation in pursuit of a resilient and climate-neutral energy system of the future.

Heat pumps – Prompting a new momentum for electrification

- **Electrification of heat catalyst:** Heat pumps assume a pivotal role, injecting a renewed drive for cleaner heating strategies. By effectively integrating carbon-free energy, heat pumps amplify electrification rates, bringing better energy efficiency and resilience, alongside accelerated decarbonisation.
- **Emissions reduction allies:** In an era defined by carbon reduction requirements, heat pumps emerge as the inherent energy efficiency solution with lower energy consumption and consequential emissions. The integration of heat pumps, therefore, represents a strategic tool for combating climate change and delivering a necessary alternative to fossil-based heating.
- **A new electrified world:** Beyond their efficiency dimensions, heat pumps expedite the pace of electrification's global transformative potential. The seamless assimilation of electricity-centric heating catalyses a sharp pivot from fossil fuel-based solutions. Eurelectric advocates for a comprehensive European electrification trajectory, steering the continent towards energy independence.
- **Eurelectric's key insights from the 2023 Decarbonisation Speedways Study:** Buildings see the largest absolute electricity demand by 2050, with the most reliable path for their decarbonisation being driven by electrification.
 - The buildings sector accounts for 36% of greenhouse gas (GHG) emissions in Europe, with heating being the largest contributor, followed by cooking and water heating. Currently, buildings are primarily heated using fossil energy sources.
 - The energy demand in buildings declines as we electrify them by utilising heat pumps and increasing energy efficiency through smart implementation of technology and insulation of buildings.

- Heat pumps achieve an efficiency of about 2.9 times the efficiency of a traditional boiler, yet financial incentives for the installation of fossil-fuelled boilers still remain, serving as a key barrier to the roll-out of heat pumps in the EU.
- Electrification of buildings via heat pumps, combined with district heating networks account for a large share of fossil-fuel reductions by 2050, with district heating and/or cooling playing an increasing role for buildings.

Facilitating heat pump adoption – Pathways to comprehensive integration

- **Strategic regulatory frameworks and public outreach:** The wider penetration of heat pumps depends on a strategic and well-designed regulatory framework. Effective public engagement and targeted financial incentives advance heat pump adoption by demystifying the technology and targeting high upfront costs. A comprehensive framework also requires addressing the shortage of skilled and certified installers to match the growing demand for the installation of heat pumps in buildings.
- **Strengthening grid resilience:** Grid modernisation and expansion is pivotal. Only robust investments can deliver better grid capacity, accommodating surges from electric heating systems. This systematic approach to grid optimisation fortifies Europe's energy infrastructure and prepares it for an electrified future.
- **Digital integration and flexibility enhancement:** In the digital age, optimising the uptake of heat pumps necessitates standard safety and smart grid functionalities that increase the stability, resilience, and efficiency of electrical grids. Furthermore, heat pumps require synchronised interfaces so that coordinated digital platforms can harmonise their operations with grid dynamics, elevating energy efficiency and bringing more flexibility solutions.

Energy landscape

- **Redrawing energy dependence:** Heat pumps' essential role in advancing electrification guarantees Europe's success in its strive towards energy autonomy. By reducing energy imports and emissions, heat pumps help chart a course towards self-reliance. Together with the ramping up of building renovations, the effective deployment of heat pumps in both industrial and residential settings, reduces emissions and fosters energy resilience.
- **European and national-level cooperation:** The backbone of the European Commission's Heat Pump Action Plan must ensure that any regulatory frameworks implemented on a European level should be further followed through by Member States on the national and regional levels. Expanding and modernising the continent's grids to accommodate heat pumps, ensuring effective district heating solutions, removing barriers in public acceptance and scaling up the deployment of heat pumps for industry and residential uses, as well as guaranteeing the skills development for the future of our energy system, requires synergy between regional, national and EU regulators.

A comprehensive and exhaustive approach is desperately needed to make heat pumps a success case for the accelerated electrification and decarbonisation of the European continent. Consistent regulatory frameworks are pivotal – on national, regional, and European levels – to reduce barriers for heat pump penetration, enhance the electricity grid and prepare it for an increasing amount of heat pump connections, foster better public acceptance, guarantee the uptake in skills and provide a better investment environment and opportunities.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



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