POSITION PAPER

Brussels, October 2025

EHPA position on the Heating and Cooling Strategy

Executive summary

EHPA key recommendations

1. **Improve heat pump affordability** by addressing the electricity to gas price ratio and coordinating effective subsidy schemes.

2. **Apply the Energy Efficiency First principle** in the Heating and Cooling Strategy and align implementation with the 2020 Energy System Integration Strategy by making heat pumps 'first-choice' technology for decarbonising heating and cooling.

3. **Align heating and cooling policy** by bridging fragmented provisions across the revised EPBD, EED, and RED, using NECPs as the central coordination and monitoring tool. Require bottom-up national assessments, update reporting methods to reflect current heat pump technologies, and ensure timely implementation.

4. **Strengthen local planning and guidance** by mapping which heating and cooling options fit best in different areas and by backing this up with technical advice, financial support, and effective one-stop shops.

5. **Choose the most flexible options first** by prioritising the deployment of heat pumps that can interact with smart grids and distributed energy resources.

6. **Recognise cooling as an essential energy service** by promoting, among others, reversible heat pump solutions, integrating cooling into national policy frameworks, ensuring access for vulnerable households and promoting the capture and re-use of waste heat from cooling.

7. **Expand waste heat recovery** by revising definitions under the revised RED which currently excludes on-site waste heat recovery and buildings, and expanding mandatory recovery obligations set in the revised EED to additional sectors beyond data centres.

8. **Decarbonise district heating and cooling with large heat pumps** by promoting their integration into both existing and new DHC networks and enabling innovative approaches.

9. **Reduce regulatory burden on renewable-based and energy efficient heating and cooling** by harmonising technical, building and product requirements across Member States.

10. **Electrify EU industry with industrial heat pumps** by improving their business case and making them the default solution for industrial processes below 200 °C.

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Introduction

The heating and cooling sector still accounts for **over 50% of all energy consumption in the EU**[1]. Although renewable energy sources have gradually increased their contribution over the years, they only accounted for 26.2%[2] of final energy consumption in the heating and cooling sector in 2023, meaning that **around 70% still comes from fossil fuels**.

As indicated in a report by the European Commission (2023)[3], **the heating and cooling sector in Europe is very diverse,** mainly due to differences in climate and geographical conditions, historical energy supply, infrastructure, building traditions, and the condition of existing technical equipment.

To reduce the use of fossil fuel in the heating and cooling sector, **several alternatives exist.** However, these options come with specific limitations related to cost, scalability, geography, or environmental impact. **The role of heat pumps stands out in this context** as, unlike other alternatives, they represent a **mature technology** capable of providing both **heating and cooling** allowing for greater use of **renewable energy sources** and **waste heat,** doing so with significantly **higher efficiency** than conventional fossil-fuel-based systems. Recognised by the International Energy Agency (IEA)[4] as the **primary means of decarbonising space and water heating in buildings**, they contribute almost half of global reductions in fossil fuel use for heating in buildings in 2030 in the Announced Pledges Scenario. In addition, as they can provide cooling too, their use eliminates the need for a separate air conditioner for the 2.6 billion people who will live in regions requiring heating and cooling by 2050[5].

In addition to decarbonisation and efficiency gains, heat pumps play a **strategic role in strengthening Europe's energy security by directly reducing dependence on imported gas**. If just 7 % of EU homes switched from fossil boilers to heat pumps, Europe would cut around 13 billion cubic metres of gas, roughly the volume currently imported from Russia for space and water heating. Already, existing heat pump installations are estimated to have avoided 24 billion cubic metres of gas use in 2024 alone[6].

In 2016, as part of the sustainable energy security package, the European Commission issued an EU Strategy on Heating and Cooling, providing indications on how the heating and cooling sector should be adapted to improve energy efficiency, promote renewable energy sources and combat climate change. In 2025, the European Commission announced the publication of a new Heating and Cooling Strategy, presented alongside the Electrification Action Plan and the revised Energy Security Framework, together forming a broader energy security package.

Considering the central role of heat pumps in the decarbonisation of heating and cooling in Europe, this paper presents the European Heat Pump Association's position and recommendations on the forthcoming Heating and Cooling Strategy. These recommendations address energy efficiency and system integration, policy alignment and enforceability, local planning, system flexibility, waste heat recovery, cooling needs, and regulatory streamlining.

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[1] Eurostat, *Heating and cooling from renewables gradually increasing,* 2023. https://ec.europa.eu/eurostat/product?code=DDN-20230203-1

[2] Eurostat, *EU renewable energy for heating and cooling reaches 26%*, 2025. https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20250305-1

[3] European Commission: Directorate-General for Energy, Dröscher, T., Ladermann, A., Maurer, C., Tersteegen, B. et al., *Potentials and levels for the electrification of space heating in buildings – Final report*, Publications Office of the European Union, 2023. https://data.europa.eu/doi/10.2833/282341

[4] International Energy Agency, *The Future of Heat Pumps*, 2022. https://www.iea.org/reports/the-future-of-heat-pumps

[5] Ibid.

[6] EHPA (2025), Ditch Russian gas for heating: add fourteen million EU heat pumps. Available at https://ehpa.org/news-and-resources/press-releases/ditch-russian-gas-for-heating-add-fourteen-million-eu-heat-pumps/

1. Improve heat pump affordability

Even though heat pumps are more efficient than traditional fossil fuel-based systems, current energy prices, together with often favorable gas taxation, reduce their competitiveness. Today, the **electricity to gas price ratio** in many countries disincentivises consumers. To make a heat pump a good investment, the electricity price should be maximum twice the price of gas.

To address this, the components of the electricity bill should be revised, and the polluter pays principle should be implemented to have the true costs of fossil fuels reflected in the bills. In addition, the European Commission should make sure that Member States implement the **Emissions Trading System 2** (ETS2) and the **Social Climate Fund** (SCF) on time, as it will put a price on carbon from buildings and transport from 2027 and provide support to vulnerable citizens during the energy transition.

Furthermore, investment costs for low-carbon heating and cooling technologies, such as heat pumps, remain significantly higher than for fossil fuel-based systems. As a result, financial support schemes continue to play a crucial role in overcoming investment barriers. These incentives can take various forms, including lower VAT rates, low-interest loans, grant programs, and tax rebates. However, the quality and effectiveness of support schemes for heat pumps vary widely across Member States. There are large national differences in funding levels, duration, and overall impact, as can be seen in this overview of subsidy schemes across Member States.

To ensure the effectiveness of these support mechanisms, the European Commission should play a stronger coordinating role. This includes issuing clear recommendations, sharing best practices, and offering structured guidance to Member States. A useful model could be the **"auctions as a service"** framework currently offered by the European Commission. In that framework, a harmonised approach was established with a common set of terms and conditions applicable across all Member States, and the European Commission helps ensuring qualitative auctions designs.

Specific support should be directed towards small and medium enterprises that could benefit from energy-savings technologies such as heat pumps and waste heat recovery, but that, due to the high upfront costs and the limited technical knowledge, are often discouraged to implement.

In addition to effective subsidy schemes, the European Commission should promote and support Member States in implementing financing models such as social leasing for heat pumps. This would allow vulnerable households to access heat pumps by paying a monthly fee, overcoming not only the barrier of the initial cost but also alleviating the cognitive and logistic complexities involved in switching to clean heating and cooling. Member States can use the Social Climate Fund or the Clean Industrial Deal State Aid Framework to fund such models. Another solution is to enhance collaboration among government agencies, financial institutions, and industry stakeholders to offer subsidised, zero or low-interest loans to end consumers that are guaranteed by the government, potentially repayable through savings they make on the energy bill.

- **Coordinate qualitative support schemes for heat pumps at EU level, similar to the auctions as a service system.** By evaluating best practices and lessons learned from the different types of existing national subsidy schemes, the principles of a successful, well-functioning subsidy scheme for heat pumps should be identified. These should be used to coordinate and co-design national subsidy schemes from a central EU level in partnership with the national level.
- **Promote and support innovative models like social leasing or subsidised zero interest loans for heat pumps** with public guarantees.
- **Improve the electricity to gas price ratio** by reducing the components of the electricity bill and putting a carbon price on the fossil fuel used for heating buildings.
- **Ensure a timely implementation of the ETS2 and SCF** across Member States and incentivise them to accelerate the decarbonisation of heating and cooling using existing funds such as the Recovery and Resilience Facility and Modernisation Fund.

A more detailed overview of barriers and solutions can be found in this EHPA paper on financing heat pumps from May 2024. Also the heat pump accelerator platform, an EU initiative that EHPA executes together with Vito and Fraunhofer is developing a paper with recommendations to reduce heat pump costs.

2. Apply the energy efficiency first principle

The **Energy Efficiency First principle**[7] is a fundamental guiding concept in the EU's energy and climate policy framework. It aims to ensure that only the energy truly needed is produced, helping to avoid investments in stranded assets and reducing overall energy demand in a cost-effective way.

This principle is **embedded in EU legislation**, notably in Regulation (EU) 2018/1999 of the European Parliament and of the Council, and has been reinforced by the revised Energy Efficiency Directive (EU/2023/1791). In addition, the European Commission has supported the implementation of the principle through the Recommendation (EU) 2021/1749.

The principle also lies at the core of the **2020 EU Strategy for Energy System Integration,** which highlights **three complementary and mutually reinforcing concepts**. The first is creating a more **'circular' energy system**; the second focuses on greater **direct electrification** of end-use sectors; and the third one promotes the **use of renewable and low-carbon fuels** in applications **where direct electrification is not feasible** or efficient.

Heat pumps embody all three concepts. Being 3 to 5 times more efficient than fossil fuel boilers, they reduce energy demand, enable direct electrification, and utilise renewable and waste heat. They should therefore be **recognised in EU legislation as the 'first-choice' technology for decarbonising heating and cooling.**

The upcoming Heating and Cooling Strategy presents a key opportunity to do this, especially now that **the European Commission has renewed its commitment to mainstream energy efficiency across all energy policymaking,** as highlighted in the recently published Energy Efficiency Roadmap[8].

- Ensure that heat pumps are explicitly prioritised as the **first-choice technology** since they embody the energy efficiency first principle and **integrating energy efficiency into the Heating and Cooling Strategy and other EU energy strategies**.
- As part of the Energy Efficiency Roadmap's plan to strengthen sector-specific policies and product standards, the European Commission should make sure that minimum **efficiency requirements favor heat pumps over fossil-based systems.**
- **Expand on-site waste heat recovery** by requiring industrial sites, commercial buildings, and data centres to deploy heat pumps to reduce overall energy demand and improving energy efficiency, as developed in Section 6.
- **Promote the use of thermal networks** as means for excess heat recovery, mainly from cooling.

[7] European Commission, *Energy efficiency first principle*. https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-first-principle_en

[8] European Commission, *New impetus for energy efficiency*. Available at https://energy.ec.europa.eu/topics/energy-efficiency/new-impetus-energy-efficiency_en

3. Align heating and cooling policy and make it enforceable

The current policy framework lacks a coherent approach to integrate heating, cooling, and electricity systems. These are often treated as separate sectors instead of an interconnected part of the whole energy system, resulting in missed opportunities in terms of flexibility, efficiency, and decarbonisation.

In addition, current provisions relevant to heating and cooling are spread across multiple legislative documents, namely the revised **Energy Performance of Buildings Directive** (EPBD), **Energy Efficiency Directive** (EED), and **Renewable Energy Directive** (RED).

As Member States are transposing the provisions of these directives, the Heating and Cooling Strategy presents an opportunity to compile a **unified and strategic vision for the sector.** Rather than developing entirely new policy initiatives, **priority should be given to ensuring full and timely implementation** of the already-adopted measures across EPBD, EED, and RED.

The **National Energy and Climate Plans** (NECPs) could serve as the **integration point** for the fragmented heating and cooling provisions across those files[9]. Embedding these obligations into a unified NECP framework would help **ensure consistency, reduce administrative duplication, and offer a more complete picture** of national strategies on heating and cooling. In doing so, it is crucial that the European Commission defines the minimum required content for each component of the NECPs and ensure timely submission.

To make this exercise more impactful, the NECP template should include a **mandatory national bottom-up heating and cooling assessments in the NECPs template,** similar to the National Heat Study developed by the Sustainable Energy Authority of Ireland. This report presents an assessment of the options available to decarbonise Ireland's energy used for heating and cooling homes, businesses and industry. Following this model, Member States should report their current heating and cooling status and projections, including national targets for the deployment of heat pumps and a heat mix pathway for 2030, 2040, and 2050, aligning with decarbonisation goals.

In parallel, ensuring **consistency in reporting methodologies** is equally important for achieving a coherent framework for heat pumps. Currently, Member States rely on the calculation methodology set out in Commission Decision 2013/114/EU (in application of RED II Article 7 and Annex VII) to determine the share of renewable energy attributable to heat pump technologies. However, this decision is outdated in light of current market, legal, and technical realities (seasonal performance factors, no consideration of industrial heat pump and hybrid heat pumps, etc.). This generates confusion at national level, and as a result, some Member States underreport the renewable energy contribution from heat pump technologies. Given the importance to strengthen the deployment of heat pump technologies, this obsolescence needs to be tackled.

In addition, heating and cooling policies must become more binding, data-driven, and enforceable. Where Member States fail to meet these obligations, the European Commission should be prepared to initiate **infringement procedures** to guarantee uniform implementation across the EU.

- Revise the **EU Governance Regulation** to ensure the **NECPs serve as a central integration tool,** bridging the gaps between existing legislative files; and to require **bottom-up heating and cooling assessments in the NECPs template** following best practice examples such as Ireland's National Heat Study.
- **Propose an updated version of Commission Decision 2013/114/EU** that better reflects the current market and the legal and technical realities of the heat pump market. In addition, an overview of reporting methods of the different Member States should be created.
- Make sure **infringement procedures** are pursued where necessary to uphold EU law and climate commitments and ensure a timely and effective transposition of the heating and cooling provisions.

[9] One example is the comprehensive assessment on efficient heating and cooling under the Article 25 of the revised EED that Member States are required to carry out every five years together with the NECPs, but as a separate annex.

4. Streghten local planning and guidance

Effective decarbonisation of the heating and cooling sector depends on robust, localised, and evidence-based planning. As highlighted by the Covenant of Mayors for Climate & Energy Europe[10], heating and cooling plans can provide a clear picture of energy demand and supply within a given territory and help identify where renewable energy, infrastructure upgrades, or building renovations are most suitable. When integrated with broader spatial and infrastructure planning, such as phasing out and decommissioning of gas grids, these plans can become powerful tools to guide a fair, well-informed, and cost-effective transition, supported by local communities and democratic decision-making processes.

The revised EED introduces a requirement for **municipalities with more than 45,000 inhabitants to develop local heating and cooling plans**[11]. To be impactful, **these plans should be more than compliance exercises**: they should be practical, zoning-based, and data-driven instruments that guide investment and infrastructure choices based on local needs. This includes applying the principles of granular heat mapping seen in national-level exercises such as Ireland's National Heat Study. In addition, best practice examples should be made available for all to avoid double work and unnecessary admistrative burden, as done in Germany through the heat planning center of the German Government, *Zentrum Kommuniale Wärmewende*.

These plans should assess the zones where individual heating and cooling systems are needed, where **district heating and cooling systems (DHC) combined with large heat pumps** would be an efficient solution and where **mini-low temperature thermal grids** serving smaller clusters of buildings or just a few houses could be an alternative to large-scale DHC systems.

In parallel, the revised **EPBD requires Member States to ensure the establishment of one-stop shops** for the provision of technical, administrative and financial advice and assistance[12]. These services, when well-resourced and locally embedded, play a crucial role in enabling the implementation of decarbonisation strategies on the ground by connecting citizens with technologies, incentives, and tailored guidance.

- **Reinforce the local planning obligation under the EED** by **promoting mandatory, zoning-based heat planning that is evidence-based and net-zero aligned**, clearly mapping out which heating solutions should be deployed in different urban and rural areas.
- Ensure these **local plans are integrated into national frameworks**, **including the NECPs, and incorporated into the EU Governance Regulation's** reporting and monitoring structures.
- **Provide dedicated EU financial and technical support to local authorities,** complementing **national support,** through existing facilities like ELENA or by redefining the scope of existing programmes (e.g. Modernisation Fund) to conduct heating and cooling assessments and convert them into actionable, well-resourced implementation plans.
- **Implement a monitoring system at EU and national level** to ensure compliance and consistency in the heating and cooling assessments.
- **Ensure that the data gathered during the development of the heating and cooling plans is made open source** and available for the future use of local authorities and the scientific community.
- **Promote the deployment of thermal networks** for the transport and recovery of energy.
- Ensure the **effective rollout of one-stop shops**, **as mandated by the revised EPBD,** by supporting Member States in establishing accessible, locally relevant services that provide tailored guidance on heating system upgrades and building renovations.
- Develop a central support **platform providing tools and best practices** to facilitate **gas grid decommissioning.**

[10] Covenant of Mayors Europe for Climate & Energy Europe. *How can cities decarbonise heating and cooling: Useful Resources. Heating and Cooling Structured Summary,* February 2024. https://eu-mayors.ec.europa.eu/sites/default/files/2024-04/Heating%20and%20Cooling%20Structured%20Summary%20Final.pdf

[11] Article 25, Energy Efficiency Directive (EU/2023/1791)

[12] Article 18, Energy Performance of Buildings Directive (EU/2024/1275)

5. Choose the most flexible options first

As the global energy system transitions toward cleaner and more renewable energy sources, ensuring a stable and reliable electricity supply is becoming increasingly complex. **Flexibility plays a key role**, and **heat pump based solutions** provide this service.

Heat pumps simultaneously improve energy efficiency, support direct electrification of heat demand, and offer valuable system flexibility. When integrated into smart energy systems, heat pumps can shift consumption away from peak periods, respond to dynamic electricity prices, and take advantage of low-cost, renewable electricity. This flexibility **reduces stress on the grid, avoids unnecessary infrastructure investments, and lowers costs for both consumers and the wider energy system[13].** Importantly, these benefits rely on the use of an existing stock of thermal storage such as the thermal storage capacity of homes and water tanks, at no additional financial or carbon cost, reducing the need for additional electric batteries.

To fully unlock the potential of heat pumps, it is essential to introduce **incentives that encourage shifting or lowering their electricity use during peak grid demand periods.** Additionally, improving **building insulation and adjusting indoor temperatures based on room usage** can further reduce electricity consumption. Grid operators should also recognise the flexibility that heat pumps can offer and factor this into future **grid planning and development**.

- **Reward flexibility,** for example through dynamic electricity tariffs that incentivise shifting demand away from peak periods, ensuring price transparency and the roll-out of smart meters.
- **Ensure heat pump flexibility is recognised in grid planning**, with Distribution System Operators accounting for demand-side resources in their investment strategies.
- **Support integration with other distributed energy resources,** such as solar PV, electric vehicles, storage, and Energy Management Systems (EMS).
- **Establish EU harmonised digital requirements** in product regulations.
- **Promote flexible ready heat pumps** through the **European Product Registry for Energy Labelling (EPREL)**

[13] C. Goodall, *Renewables do unambiguously reduce wholesale power prices*, August 2025. Available at: https://www.carboncommentary.com/blog/2025/8/18/renewables-do-unambiguously-reduce-wholesale-power-prices

6. Recognise cooling as an essential energy service

As climate change drives up temperatures and increases the frequency of heatwaves, the demand for **affordable and accessible cooling**, especially **for vulnerable households** living in poorly insulated buildings, has become increasingly urgent[14]. Adding to the problem, as indicated in a recent report by the European Commission on summer energy poverty[15], **75% of European buildings remain energy-inefficient**, and may, therefore, quickly overheat.

Although primarily addressing winter heating, the **EED includes provisions that recognise cooling as an essential energy service**. In parallel, the **EPBD addresses summer challenges through specific standards** aimed at **improving energy efficiency in buildings**, including provisions for cooling needs[16]. Lastly, the latest revision of the RED specified the rules to account for the renewable energy used for cooling, including via heat pumps (Annex VII). Yet, **more attention needs to be put on implementing the EU policy framework and building comprehensive solutions** to address both immediate risks and build yearlong resilience[17] and helping to reduce heat islands in cities.

Adding to this context, many households across Europe still **perceive cooling as a luxury** or are unaware that mature and existing technologies like heat pumps can provide both heating and cooling efficiently.

Heat pumps for heating and cooling

Air to air heat pumps

These systems extract heat from the outdoor air and deliver it indoors via air units. In cooling mode, they function like conventional air conditioners, removing heat from the indoor air and releasing it outdoors.

Air to water heat pumps with fan coils and drains or with underfloor cooling

These systems transfer heat from the air to water, which is then circulated through fan coil units or underfloor pipes inside the building. When used for cooling, they require the fan coils equipped with condensate drains to manage moisture removal effectively. When the underfloor pipes are used for cooling they typically cool to around 16°C to 20°C, to avoid condensation if the floor would get too cold.

Passive cooling with ground source heat pumps

Ground source heat pump systems can use the constant, low temperature of the ground to extract heat from a home without using the heat pump compressor. The ground acts as a seasonal storage system: cooling demand in summer deposits heat underground, which can then be reused to improve heat pump efficiency in winter.

This lack of information needs to be remedied by embracing existing **technologies that address both heating and cooling needs** like heat pumps. Their deployment reduces material use and cost while increasing system efficiency. Promoting heat pumps instead of separate appliances (e.g. a fossil fuel boiler for heating and standalone air conditioning units for cooling), can support the **simultaneous decarbonisation of both services** but also offers a more **cost-effective and space-efficient** solution for households and buildings across Europe.

When it comes to **heating and cooling in commercial and industrial settings**, these processes have also been looked at and designed as two stand-alone processes: a boiler or heat pump to ensure heating or hot water, and a chiller to generate cooling.

Modern equipment based on heat-pump technology can provide heating and cooling from the same unit, and even deliver both simultaneously, by recovering the waste heat generated during

[14] European Parliamentary Research Service, *Energy poverty in the EU,* September 2023. https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733583/EPRS_BRI(2022)733583_EN.pdf
[15] Ibid.
[16] Ibid.
[17] Ibid.
* Ibid.

the cooling phase and re-using it to meet heating needs. This means less electricity or fuel is required because heat is already present on-site. Such integrated systems can be used in almost **any commercial building** (hotels, hospitals, supermarkets, shopping malls, data centres, etc.) or **industrial process with both heating and cooling needs**.

Changing the paradigm and looking at heating and cooling in an integrated way brings additional benefits beyond decarbonisation and higher energy efficiency: it saves money for end users through **lower energy use and shorter payback times**, **reduces the space needed** in technical rooms, and **cuts maintenance costs** by servicing one piece of equipment instead of two.

To realise these benefits, **heating and cooling must no longer be treated as separate items but acknowledged in their combined, integrated form**. This approach should be reflected in the Heating and Cooling Strategy and in related legislative initiatives to help the EU achieve its decarbonisation and energy-efficiency objectives.

- **Promote the deployment of integrated heat-pump systems as the standard solution** for homes, commercial buildings, and industrial sites so that one piece of equipment provides both heating and cooling and recovers waste heat where possible.
- **Incentivise integrated solutions** over standalone appliances through subsidies, building codes, and renovation guidelines.
- **Pair energy-efficient cooling technologies with flexible electricity tariffs**, as done in Greece*, to encourage cooling during periods of high renewable generation and reduce grid pressure and energy bills.

7. Expand waste heat recovery to include on-site waste heat recovery

Waste heat, the thermal energy generated as a by-product in industrial, commercial, and tertiary sector processes, remains one of the EU's most **underutilised energy sources**. With the right technologies and policy frameworks, this abundant but often ignored resource could play a vital role in decarbonising heating and cooling.

I**ndustrial and large-scale heat pumps can turn waste heat into a high-value energy source**[18], as they can recover low-temperature heat from diverse sources, such as industrial processes, refrigeration, data centres, and wastewater, and upgrade it for use in space heating, hot water, or low-temperature industrial applications. Industrial heat pumps are commercially available, scalable, and cost-effective when deployed in the right settings.

Currently, waste heat and cold can only be accounted for under the RED when it is recovered by district heating and cooling (industrial waste heat and cold). Under the revised **RED**[19], **waste heat is defined** as "unavoidable heat or cold generated as by-product in industrial or power generation installations, or in the tertiary sector, which would be dissipated unused in air or water without access to a district heating or cooling system." To qualify as waste heat under the RED, four cumulative conditions must be met: the heat must be unavoidable, a by-product, originate in an industrial or tertiary process, and not be reused internally or used on-site outside of a district heating and cooling network**. However, the energy efficiency potential of using waste heat and cold is much larger.** The current definition excludes, for example, heat generated by residential cooling and cases where heat is reused on-site or in a single building without a district system (for example, heat recovery from sewage water in residential applications or the use of waste heat and cold from supermarkets), unnecessarily limiting recovery potential. The use of waste heat from cooling on the building level would allow for significant efficiency increase. Shared ambient temperature energy networks are an important tool to recover and distribute this energy. The recovery of waste heat from all heating and cooling systems should be fully unlocked.

Additionally, the **EED** requires **data centres with a total rated energy input exceeding 1 MW** utilise waste heat or other waste heat recovery applications unless not technically or economically feasible[20], setting an important precedent which should be extended to other relevant sectors.

- **Broaden the definition of waste heat in the RED** explicitly include on-site waste heat recovery from building cooling systems, and from tertiary and industrial sources.
- **Mandate low-temperature district heating and cooling networks**, ideally operating at ambient temperatures, to maximise waste heat recovery and efficiency.
- **Encourage the retrofitting of cooling systems** with **heat exchangers and heat pumps** to recover and utilise waste heat that would otherwise be lost.
- **Remove unnecessary exclusions** in the RED definition, particularly the limit recovery potential in individual or complex building systems (e.g. ambient loops in multi-apartment buildings).
- **Replicate the EED's waste heat obligation for data centres to all potential waste heat sources,** by demanding an analysis to determine whether this energy can be used on-site or nearby and including specific sector targets. Only if found not possible by this analysis, then the thermal energy can be discharged**.**

More information and policy recommendations on waste heat recovery with heat pumps can be found on this EHPA paper.

[18] European Heat Pump Association, *Waste into wealth: how heat pumps can recycle heat to save energy - and the EU policy that matters,* December 2024. https://www.ehpa.org/news-and-resources/position-papers/waste-into-wealth-how-heat-pumps-can-recycle-heat-to-save-energy/
[19] Article 2, Renewable Energy Directive (EU/2023/2413)
[20] Article 26, Energy Efficiency Directive (EU/2023/1791)

8. Decarbonise districts with large heat pumps in DHC and thermal grids

District heating and cooling (DHC) systems, especially when combined with large heat pumps, offer a scalable and efficient solution to decarbonise heating and cooling in urban environments. According to the IEA's Technology Collaboration Programme on Heat Pumping Technologies (HPT) report[21], in the Net Zero by 2050 scenario, DHC is projected to supply up to **20% of global space heating demand by 2030**. In Europe specifically, district heating could potentially meet **up to 50% of total heating demand**, with heat pumps contributing as much as **20% of the energy** fed into these networks.

District heating and cooling is currently defined in the **RED[22]** as "*district heating' or 'district cooling' means the distribution of thermal energy in the form of steam, hot water or chilled liquids, from central or decentralised sources of production through a network to multiple buildings or sites, for the use of space or process heating or cooling"*. From the definition it is clear that this does not only apply to an entire district but could also connect only a few buildings with so called mini thermal grids. In practice, however, the application of these more innovative thermal grid approaches is still quite limited and there are still a number of legislative barriers to be removed to unlock their full potential.

- Implement **targeted measures and incentives** at the EU, national, and regional levels**,** both to **reduce deployment costs and to support the expansion and modernisation of infrastructure**.
- Support **emerging innovative concepts on DHC like mini-low temperature thermal grids**, which serve smaller clusters of buildings or just a few houses. These networks can accelerate the deployment of renewable heating and cooling solutions in areas where traditional large-scale DHC systems may not be viable.
- Ensure legal frameworks **allow the exchange of thermal energy across property boundaries**.
- **Promote the integration of DHC networks and thermal grids into urban infrastructure planning**, in particular considering opportunities arising from heat mapping, treating them as essential infrastructure alongside electricity, data, water, and wastewater. These sources should be required to be DHC-ready.

[21] IEA's Technology Collaboration Programme on Heat Pumping Technologies (HPT), *Annex 57 Flexibility by Implementation of Heat Pump in Multi-Vector Energy Systems Final Report*, November 2024. https://heatpumpingtechnologies.org/publications/annex-57-flexibility-by-implementation-of-heat-pump-in-multi-vector-energy-systems-and-thermal-networks-final-report/

[22] Article 2 (19), Renewable Energy Directive (EU/2023/2413)

9. Reduce regulatory burden on renewable-based and energy efficient heating and cooling

As the EU accelerates the decarbonisation of heating and cooling, and in particlar in the context of the Heating and Cooling Strategy, it is crucial to ensure that **renewable and energy-efficient technologies** such as **heat pumps** are not subject to **greater regulatory burdens than fossil fuel systems**.

Today, heat pump manufacturers face an increasingly complex regulatory environment, including:

- **Scattered and uncoordinated requirements across different EU regulations and national rules**. Product requirements are not limited to Ecodesign or Energy Labelling but extend to other domains such as grid connection and building codes, making it difficult for manufacturers to navigate the full set of obligations.
- **Diverging implementation timelines**, **leading to repeated redesigns and multiple recertifications.** As many requirements are published at different times and come with different implementation timelines, manufacturers have to carry out redesigns on short iterations, leading to multiple recertifications and incurring additional costs.
- **Unpredictable compliance costs, adding burden to a sector expected to deliver affordable, scalable solutions.** The uncertainty surrounding future product regulations and standards forces manufacturers to permanent review, adjust and delay investments in new product lines and technologies, while also incurring additional costs to prepare for multiple potential scenarios. The EU F-Gas Regulation 2024/573, and potentially the PFAS restriction, will increasingly limit the choice of refrigerants which adds additional pressure on the redesign of products to comply with other product requirements. Today, the sector is facing a significant uncertainty in view of available alternative refrigerants securing safety, energy efficiency and affordability.
- **National deviations from EU requirements**, **which fragment the single market** and create further legal uncertainty. An example is the Grid Connection Code and Network Code Demand Connection requirement for heat pumps to react to different frequency ranges depending on the place where the heat pump is installed. This is highly problematic for manufacturers, as they do not always know where the equipment will be installed. Another example of this burdensome fragmentation is the additional testing points required by some Member States to qualify for national building regulations calculation or subsidies schemes. Other examples include National additional packaging requirements and the different national Environmental Product Declaration (EPDs), and "*ecopassports*" developed at national level.

- **Ensure that renewable and energy-efficient technologies are not subject to more regulatory burdens than fossil fuel-based alternatives**.
- **Coordinate timely, realistic implementation timelines across regulations** to avoid repeated redesigns, short iteration cycles, and multiple recertifications, which disproportionately impact small and medium enterprises.
- **Safeguard the EU single market** by preventing national-level deviations in technical requirements which fragment the market and make it harder for manufacturers to sell a product compliant EU-wide and weaken competitiveness of the sector.
- Establish **harmonised standards, ratings and permitting** among Member States to facilitate the heating and cooling transition, in particular for heat pumps and waste heat recovery.

10. Electrify EU industry with industrial heat pumps and waste heat recovery

In industry, process heating consumes more energy than any other activity, accounting for nearly half of all industrial energy use and responsible for three quarters of the CO2 emissions generated by industry[23]. Today, about **three quarters of the energy used for process heating comes from fossil fuels**, with electricity only accounting for 4%[24].

Industrial heat pumps can reach **temperatures up to 200°C** and are suitable for many energy-intensive industries including dairy, paper, beverages and food, as well as nearly any drying process. Electrifying these processes with industrial heat pumps can not only reduce greenhouse gas emissions but also improve efficiency in production sites, valorise local waste heat, leading to lower production costs and increased competitiveness[25].

To accelerate the roll out of industrial heat pumps, their business case must be improved by improving the **electricity to gas price ratio** and putting in place **financial support** at national level through grants, low interest loans, tax rebates or deductions, among others[26]. These measures should be implemented alongside raising awareness of their potential so that industries have clear information on the benefits and integration options. One way of doing so is through **EU guidelines** on industrial heat pump deployment and waste heat recovery, showcasing best practices across the value chain.

The policy and regulatory framework are also crucial. Industrial heat pumps should be a key piece of the **NECPs**, making it mandatory to Member States to explicitly include the deployment of industrial heat pumps and waste heat recovery in their plans.

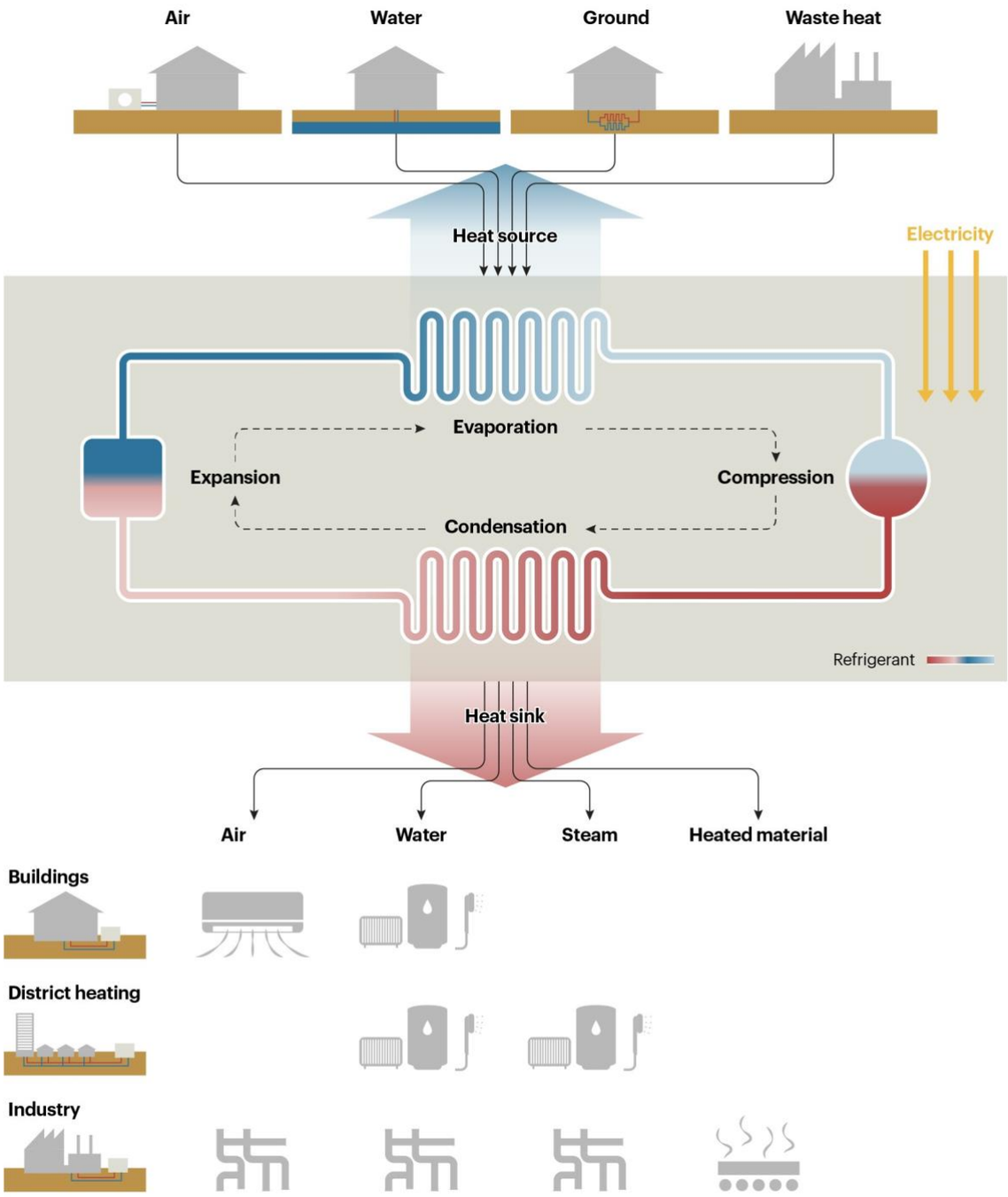
The RED III currently includes that Member States should aim to increase the **share of renewable sources in industry** among others with renewable based electrification of industrial process below 200°C[27]. This provision should be strengthened by making heat pumps the default option for processes under this temperature threshold, including as a requirement in permitting and licensing of all new and renovated industrial facilities. In addition, it encourages Member States to increase renewables in industry by indicative minimum percentage points. However, as it is not mandatory, it reduces enforceability and risks uneven implementation across countries.

- **Improve the business case for industrial heat pumps** by addressing the electricity-to-gas price ratio and encouraging Members States to provide financial support.
- **Increase awareness on industrial heat pumps and waste heat recovery** by developing **EU-wide guidelines** with best practices.
- **Strengthen the RED III** by setting **a clear target** for renewables in industry and **making heat pumps default for industrial heat up to 200°C.**
- Ensure Member States are required to explicitly **include industrial heat pumps and waste heat recovery in their NECPs.**

A detailed paper and set of policy recommendations on industrial heat pumps can be found here.

[23] Fraunhofer ISI, *Direct electrification of industrial process heat. An assessment of technologies, potentials and future prospects for the EU*. Study on behalf of Agora Industry. 2024. Available at https://www.agora-industry.org/publications/direct-electrification-of-industrial-process-heat#downloads
[24] Ibid.
[25] European Commission, Joint Research Centre, *Heat Pumps in the European Union: Status report on technology development, trends, value chains and markets,* 2024. Available at https://publications.jrc.ec.europa.eu/repository/handle/JRC139377
[26] An overview of the subsidies for industrial heat pumps available in Europe was produced by EHPA in 2024 and can be found here: https://www.ehpa.org/news-and-resources/publications/subsidies-for-industrial-heat-pumps-in-europe/
[27] Article 22, Renewable Energy Directive (EU/2023/2413)

Annex – visualisation of how a heat pump works and its various applications



Source: International Energy Agency (IEA). Available at https://www.iea.org/reports/the-future-of-heat-pumps/how-a-heat-pump-works

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The European Heat Pump Association (EHPA) represents the European heat pump sector. Our over 170 members include heat pump and component manufacturers, research institutes, universities, testing labs and energy agencies.

EHPA advocates, communicates and provides policy, technical and economic expertise to European, national and local authorities, and to our members.

We organise high level events and manage or partner in multiple projects.

We work to shape EU policy that allows the heat pump sector to flourish, and to become the number one heating and cooling choice by 2030. Heat pumps will be a central part of a renewable, sustainable and smart energy system in a future decarbonised Europe.