



EUROPEAN SUPPLIERS  
OF WASTE-TO-ENERGY  
TECHNOLOGY

**ESWET REPLY TO THE  
EUROPEAN COMMISSION  
PUBLIC CONSULTATION ON  
HEAT PUMPS – ACTION PLAN  
TO ACCELERATE ROLL-OUT  
ACROSS THE EU**





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## ESWET REPLY TO THE EUROPEAN COMMISSION PUBLIC CONSULTATION ON HEAT PUMPS – ACTION PLAN TO ACCELERATE ROLL-OUT ACROSS THE EU

*August 2023*

**ESWET – the European Suppliers of Waste to Energy Technology** – represents companies that have built and supplied over 95% of the Waste-to-Energy plants in operation in Europe. It seeks to promote the technology that, within the frame of the Waste Hierarchy, recovers energy from waste that would otherwise end up in landfills.

ESWET greatly welcomes the opportunity to contribute to the European Commission’s public consultation on heat pumps in light of the adoption, by the end of the year, of an action plan to accelerate their roll-out across the EU.

### **BACKGROUND INFORMATION**

Heat pumps, like many other energy efficiency technologies, represent a key solution to decarbonising the European energy system. Rolling out heat pumps is therefore essential to accelerate the clean-energy transition and to achieve the EU climate goals of becoming carbon neutral. One of the main challenges to the achievement of the EU climate goals resides in its high dependence on fossil fuels.

As widely recognised by the Commission itself, about 50% of all the energy consumed in the EU today is used for heating and cooling. More than 70% of heating and cooling is still based on fossil fuels, mostly natural gas<sup>1</sup>. In this regard, the EU has already adopted many initiatives that aim at regulating the deployment of heat pumps, including the Renovation Wave, the Eco-design, and Energy Labelling framework, the ongoing legislative revision of the Energy Performance of Buildings Directive, as well as the Renewable Energy Directive (RED) and the Energy Efficiency Directive, which are part of the ‘Fit for 55’ package. The adoption of a new strategy to deploy the use of heat pumps perfectly fits not only the abovementioned existing framework but also the EU’s goal of reducing the use of fossil gas and oil.

As ESWET, **we strongly support and encourage the European Commission in this new initiative, however, unlocking the full potential of heat pumps requires a comprehensive mix of strategies and actions.** In fact, as highlighted by the Commission itself, in order to be comprehensive and fully consider all the hidden opportunities this technology has, the upcoming initiative must be built not only on a solid partnership between the Commission, the EU countries, and the sector, but it must also take into account the interests and the voices of all involved parties, without

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<sup>1</sup> Eurostat, [Energy consumption in households - Statistics Explained](#), 2022

leaving anyone behind. Only by doing so, the new initiative will fulfill its objective of:

- addressing the slow progress in energy-system decarbonisation;
- providing a robust and harmonised framework for shifting to renewable and efficient heating and cooling system; and
- supporting the competitiveness of the EU clean-energy industry.

We drafted below detailed recommendations to EU policymakers to support the development of a robust and consistent regulatory framework.

## ESWET POLICY RECOMMENDATIONS

### 1) To acknowledge the potential of integrating industrial heat pumps technology into the Waste-to-Energy sector.

It's estimated that, in Europe, the overall industry sector is currently accountable for 25%<sup>2</sup> of energy consumption and 20% of GHG emissions<sup>3</sup>. To address this, the EU has been putting in place a dual focus strategy that one side aims to diversify the energy consumption sources, pushing for the most renewable ones; on the other side, it looks into innovative solutions to abate emissions, especially for those sectors, including the Waste-to-Energy one, that are considered hard-to-abate.

Heat pumps, among their several applications, can also be coupled into Waste-to-Energy (WtE) plants, contributing to making them more energy efficient. The mechanism foresees that the heat pump recovers the heat that comes out of the steam turbine and upgrades it in a way that is then transferable to a district heating and cooling (DHC) network. Already more than 60% of the WtE plants in Europe are combined heat and power (CHP) plants and it's estimated that they provide around 10% of the energy provided to district heating in Europe<sup>4</sup>. Heat pumps, in the form of heat exchangers, can also be integrated into WtE plants to recover, particularly through the flue gas cleaning process, that fraction of heat whose production is unavoidable and that otherwise would be released in the atmosphere and lost. This specific application of heat pumps is not that common and despite the huge potential, its development is still in a primal phase. This delay can partially be attributed to the lack of consistency in how the EU legislative framework regulates the recovery of heat from WtE plants (i.e., waste incineration plants with energy recovery).

The proper recognition of the heat recovered from WtE would be as **partly renewable** (resulting from the biogenic fraction of the mixed waste treated in the plant), and **partly waste heat** (resulting from the fossil fraction of the residual waste, after all the source separation provisions have been complied with), as unavoidable, generated as part of the process of treating waste and not produced intentionally. Such development, if accompanied by an overall well-designed heat pump strategy, would greatly incentivise WtE operators to install more heat exchangers and seek better connectivity to DHC networks. Besides, acknowledging the full potential of heat recovered from WtE can help the EU to reduce its dependency on fossil fuels and on natural gas

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<sup>2</sup> Eurostat, [Energy Balances](#), 2019

<sup>3</sup> European Environment Agency, [Greenhouse gas emissions by aggregated sector](#), 2019

<sup>4</sup> CEWEP, [Waste-to-Energy Climate Roadmap](#), 2022

imports and strengthen its efforts towards carbon neutrality.

There are, however, some good examples of such applications that can serve the cause of showing the benefits of integrating heat pumps into WtE. A Germany-headquartered company decided to install four ammonia heat pumps next to a sewage treatment plant and waste incinerator in the harbour area of the city of Malmö<sup>5</sup>. As explained above, the heat pump has been integrated with the district heating network to work in conjunction with the nearby waste incinerator plant to provide heating to approximately 100,000 homes in the municipality. Another example of such technology installation, in Sweden as well, is represented by the Waste-to-Energy Plant Sysav Malmö. The process of incinerating waste needs a careful and effective cleaning process of the flue gases, in order to do that, in this specific plant, a system that expands the steam generated by incineration energy in the turbines has been installed. The system works in a way to enhance the overall efficiency of the entire waste-to-energy plant on one side while providing 40% of the heating requirements of Malmö and its Burlöv suburb<sup>6</sup>.

The two examples above show that industrial heat pumps have great potential not only in reducing the emissions of Waste-to-Energy plants but also in ensuring that the EU can rely on an alternative and renewable source of energy, that contrary to wind and solar energies, is not subject to any fluctuations. By 2035 European WtE plants could produce 189 TWh of useful energy per year from residual waste, which is equivalent to 19,4 billion m<sup>3</sup> of natural gas in terms of primary energy and 12,5% of gas imported from Russia<sup>7</sup>. Furthermore, the generation of reliable and renewable energy is crucial to achieving both the energy transition and energy security, reducing the dependence of the EU on third countries. As confirmed by the IPCC, “When a WtE technology is equipped with proper air pollution reduction facilities they can contribute to clean electricity production and reduction of GHG emissions”<sup>8</sup>.

**ESWET calls on the European Commission to adopt a regulatory framework that, on one side, facilitates the recognition of industrial heat pumps in order to fully unlock the potential of this technology. On the other side, the upcoming strategy must carefully take into account all the possible applications that this technology can be applied to, in order to accelerate the energy transition and achieve the EU climate goals.**

## **2) To adopt a strategy and allow easier access to European and national, as well as public and private financial opportunities.**

Most of the challenges to the deployment of some innovative technologies, including heat pumps, are economic. The deployment of heat pumps requires of course an initial investment, that sometimes is quite expensive and not always affordable. Furthermore, while the benefits, as listed above, are pretty much visible and foreseeable, the level of profitability is not always predictable, as it depends on many technical factors. Additionally, heat pumps have specific needs according to the

<sup>5</sup> Accelerate Europe // Autumn 2018, [Sweden gets the ammonia treatment](#), 2018

<sup>6</sup> Friothers AG, [Waste-to-Energy Plant Sysav Malmö, enhancing the overall](#), 2019

<sup>7</sup> Cewep, [Energy and Climate - Fact Sheet](#), 2022

<sup>8</sup> IPCC, [Climate Change 2022: Mitigation of Climate Change](#), 2022

sectors they are coupled. The acceleration of a European strategy to roll up heat pumps must, therefore, overcome, first of all, the initial barriers to the deployment of such technologies via a well-established financial system that support the heat pump manufacturing industry. In addition to that and as previously mentioned, the implementation and integration costs, especially into some sectors, are considered still prohibitive. In this regard, setting national heat pump deployment targets and ensuring that Member States are provided with the necessary financial instruments to reach such targets is mandatory. Projects that present innovative solutions to the existing energy problems must rely on easy access to all relevant EU funding programmes. The EU must take all the necessary actions to map any financial possibilities for the roll-out of heat pumps and to prioritise investments in key emerging sectors.

**ESWET calls on the European Commission to adopt the right support and investment to make the industrial heat-pump market attractive and to accelerate its integration into the necessary sectors, including the Waste-to-Energy one.**

## **CONCLUSIONS**

Waste incineration with energy recovery is already a reliable and technologically mature process, with proven effectiveness in waste management and energy generation and security. When a WtE plant is equipped with innovative technologies such as heat pumps, its potential becomes even more valuable, especially for local communities.

ESWET greatly welcomes the European Commission's initiative on heat pumps and calls on it to fully recognise the potential of this technology in all the usable sectors, such as the waste one. To do this, the EU must ensure the set-up of a European database for the collection of information regarding heat pump technologies, as well as integration, installation, and maintenance processes. Such a database should also serve as a platform for the exchange of best practices between Member States to further foster knowledge about these technologies.

On top of that, concerning the waste sector, the missing acknowledgment of the heat recovered from WtE plants, as explained above in the text, represents an additional constraint to the deployment of innovative projects and technology, such as heat exchangers. We, thus, call on the EU legislator to close this loop and acknowledge the full potential of heat recovered from WtE.



As mentioned at the beginning of this paper, the EU framework is already variegated when it comes to regulations and initiatives that address the heat pump sector. While it's important to give a strong policy signal for the heat pump market, it's also necessary to ensure consistency between the different pieces of regulations, including the Net Zero Industry Act and the Critical Raw Materials Act, as well as the Renewable Energy Directive and the Energy Efficiency Directive.



**For further information:**

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ESWET is a European association representing the European suppliers of Waste-to-Energy technologies, committed to fostering the development and dissemination of Waste-to-Energy at the European level. ESWET also seeks to raise awareness of the positive implications of the technology in terms of better waste management, energy, and the environment.

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