

# Why clean and efficient process heat is essential to boost industry competitiveness

- How to reduce energy bills and boost productivity?
- How to move away from fossil fuels?
- How to deliver low-CO<sub>2</sub> products?

European companies are reflecting on these questions right now, as they move towards climate neutrality.

At the centre of these challenges is process heat, which is responsible for 2/3 of the total energy demand of industrial production and is still largely dependent on fossil fuels. More and more, addressing the high energy and CO<sub>2</sub> intensity of process heat will become an existential issue for the competitiveness of EU industry.

## Halving energy demand and cutting the energy bill by 21 bn euros every year – the case for German companies

Half of the energy required to produce process heat can be saved economically according to the “[Short Study: Energy-Efficient and CO<sub>2</sub>-Free Process Heat](#)” by Meyer et al. (2024) from the University of Applied Sciences, Hochschule Niederrhein.

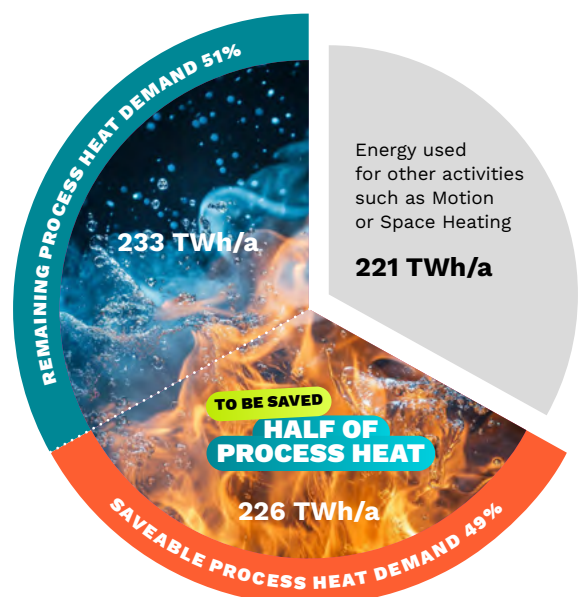
This means lower greenhouse gas emissions and bringing down the industry’s energy bill by about 21 bn euros every year. It would also ease the transition away from fossil fuels and Russian gas. In the case of Germany, it could remove four big coal-fired plants and two LNG terminals.

### What is process heat?

The energy used in the industrial production processes, ranging from pasteurising milk, steam to produce chemicals or a burner to melt glass.



### Final energy demand of industry, in Germany, TWh

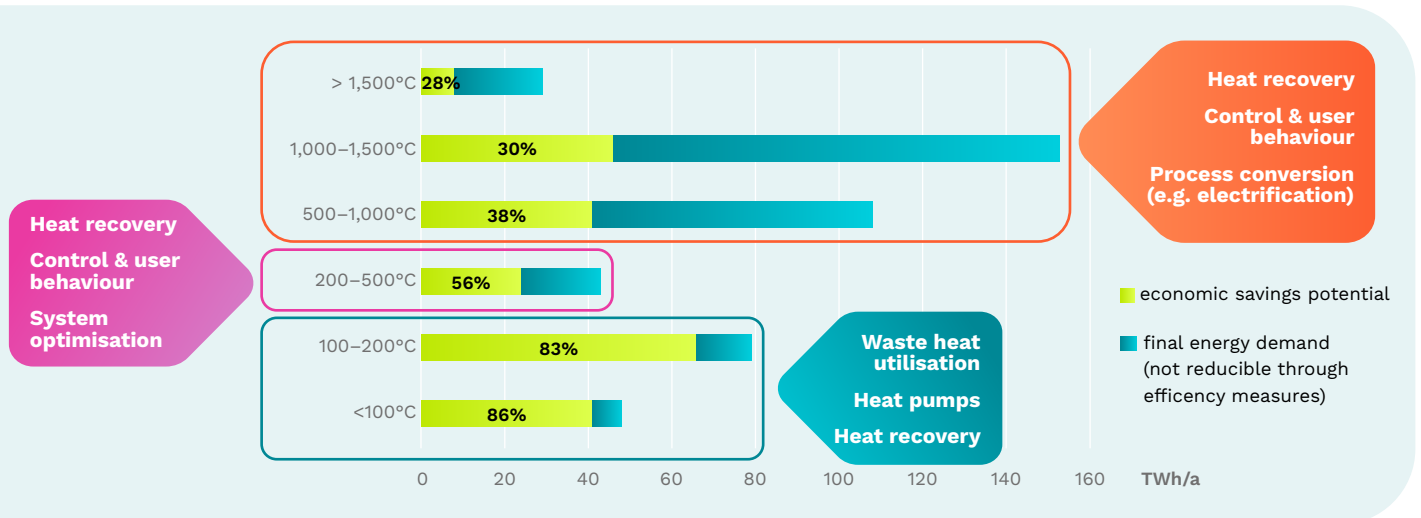


In Germany, **49% of process heat demand can be saved**, representing **33% of total industrial energy use**.  
 Source: “[Short Study: Energy-Efficient and CO<sub>2</sub>-Free Process Heat](#)” by Meyer et al. (2024)

## Getting there through efficiency measures

This big productivity potential can be unlocked through measures that improve the energy efficiency of process heat. The combination of measures depends on the temperature range required for each industrial activity, but there are solutions for every type of company – small and medium sized and large industries alike.

Efficiency measures range from reducing heat losses, to recovering and reusing waste heat, and replacing fuel burners with electrical heat production. Many of these efficiency solutions and technologies are made in Europe and EU manufacturers have a competitive edge. Investing in measures to make process heat more efficient also means investing in EU value creation and supporting our industry to scale up in global markets.



## The EU needs to provide guidance and direction

European companies are deciding right now where and how to invest in upgrading their production facilities to prepare for climate neutrality.

EU action on process heat can help to:

- Make the transition for European companies even more attractive and affordable;
- Ensure companies are resilient: capable of handling energy price shocks;
- Inform companies about available energy efficient solutions for process heat;
- Offer financial support to help companies implement the best energy efficient solutions; and
- Provide guidance and support to national governments and authorities on planning, infrastructure and investment.

The chart illustrates that substantial energy savings can be realised across all temperature ranges with an integrative approach to heating and cooling needs, through waste heat utilisation, heat recovery and system optimisation, and the adoption of innovative technologies, like high-temperature heat pumps. Source: “Short Study: Energy-Efficient and CO<sub>2</sub>-Free Process Heat” by Meyer et al. (2024)

To achieve this, the EU should develop a **strategy for process heat** which includes:

- ✓ **Guidance** for European companies and Member States
- ✓ Measures to **remove market barriers**
- ✓ **Support** to enable companies to adopt the best energy efficiency solutions

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