

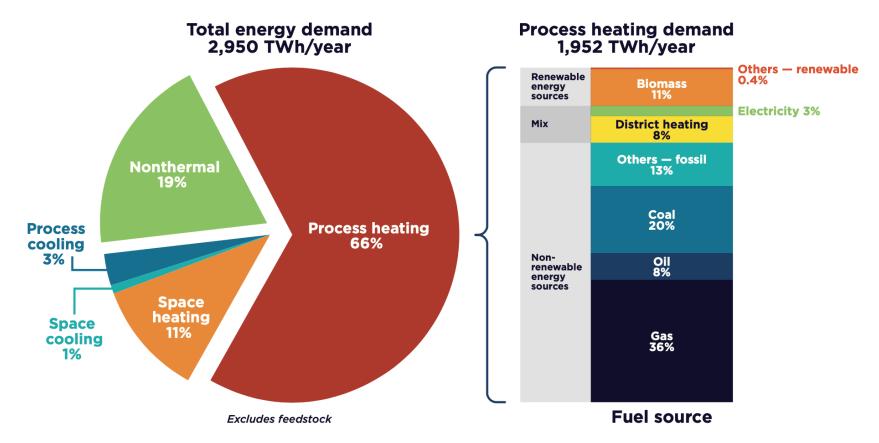
11 December 2024

Some like it hot: moving from industrial electrification potential to practice

Agora/RAP industrial electrification

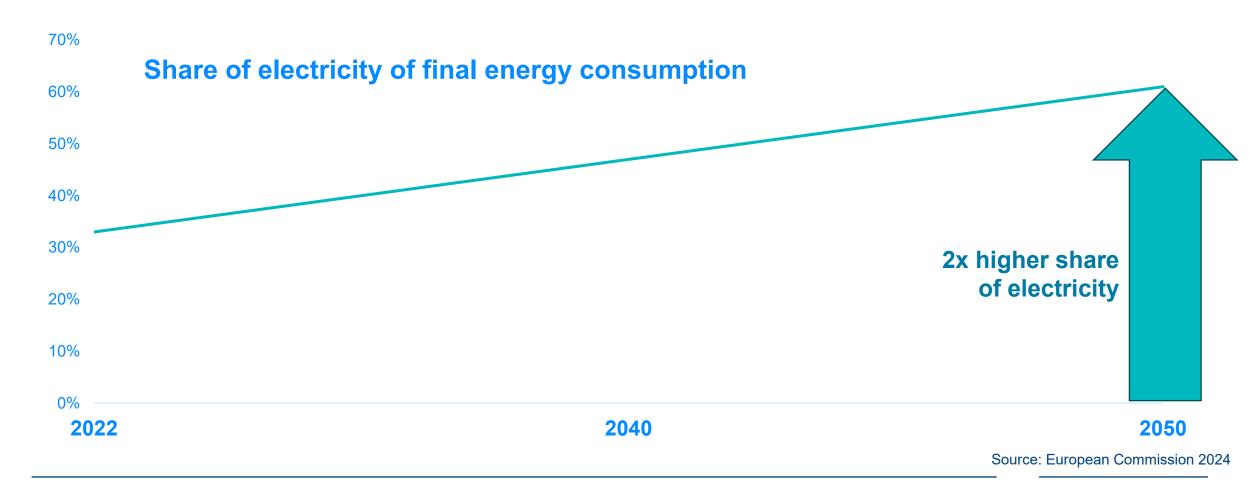
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78% of Europe's industrial process heat is fossil with only 3% from electricity



Source: de Boer et al. 2020

EU industry electrification under 90% GHG reduction target by 2040 and climate neutrality by 2050



Barriers to industrial electrification



Economic

High capital cost

Internal and external capital acquisition

High costs of finance

Existence of low- or no-cost by-product fuels

Process modification costs

Expectation of short payback periods

High electricity to fossil fuel price ratio

Uncertain boundary conditions



Knowledge

Limited number of examples

Lack of skills in the supply chain

Need for combined knowledge of both process and electrical technology

Lack of awareness of heating and cooling consumption in companies

Insufficient knowledge regarding available technologies and their capabilities





Infrastructure

Potential requirement for upgraded grid connection

(Perceived) limits on electricity supply

Long wait times for connections

Increased vulnerability to power outages



Technological

Perception of negative impacts to product quality

Limited industrial

electrification

Expectation of downtimes

Heterogeneity of industrial sectors

Limited number of manufacturers

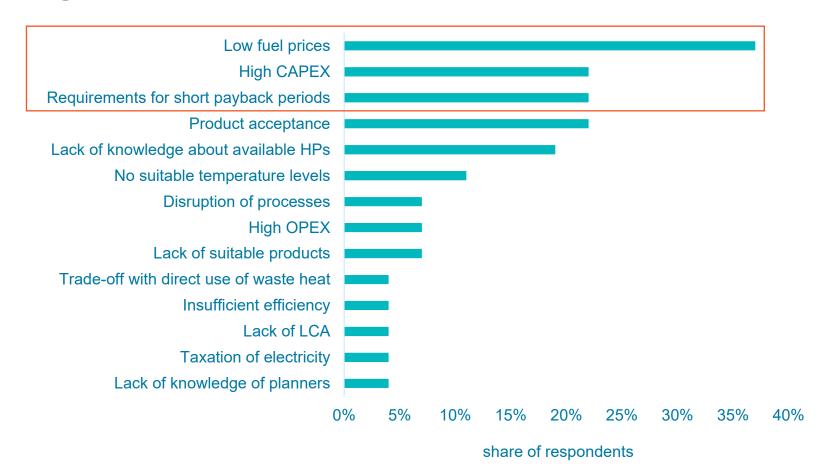
Long lifespan of existing equipment

Lack of compressors for high temperatures

Lack of refrigerants with low global warming potential

Bespoke designs instead of standardisation and replication

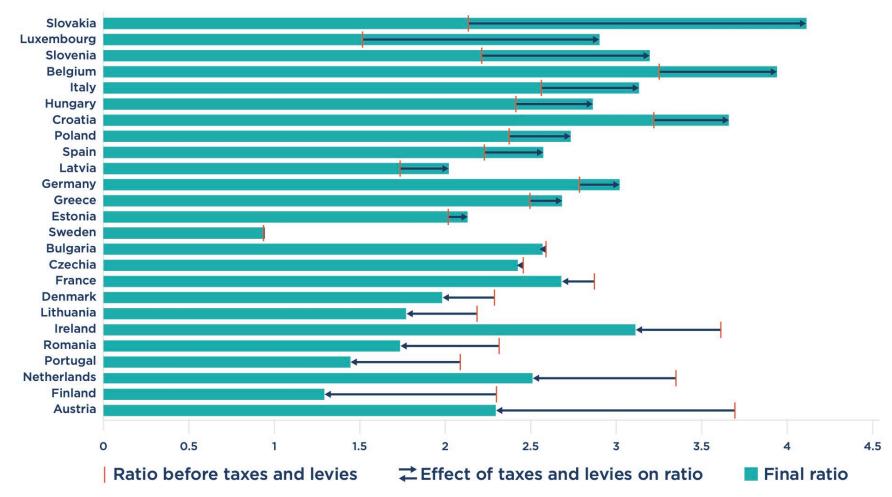
Challenging economics identified as key barrier to deployment of industrial heat pumps



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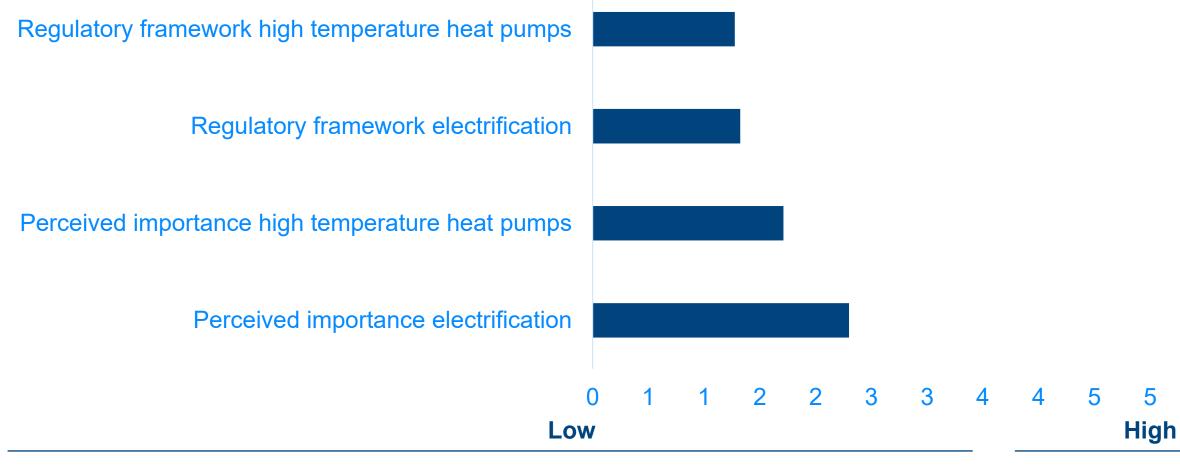
Source: Wolf et al. 2017

Aligning tariffs, taxes and levies with electrification



Data source: Eurostat. (2024). Energy Statistics — Prices of Natural Gas and Electricity

Expert survey scores show poor policy support for industrial electrification



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10-point action plan for industrial electrification

- 1. Include a clear focus on industrial electrification with help of a high-profile **task force**. The task force would develop ideas for advancing industrial electrification in Europe.
- 2. Set industry **electrification targets** in line with achieving 60% industrial electrification by 2050 complemented with clear roadmaps for industrial subsectors.
- 3. Set tighter **standards** on new industrial installations through Industrial Emissions Directive.
- 4. Support Member States in creating a favourable climate for investments in industrial electrification. Provide guidance on rebalancing taxes and levies on electricity and fossil fuels and how Member States could provide financial support to industry.
- 5. Ensure **state-aid guidelines** do not pose a barrier to industrial electrification, by allowing operational support for direct electrification and by highlighting options in the guidance given to Member States.

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10-point action plan for industrial electrification

- Fully consider industrial electrification in the implementation of the Action Plan for Grids.
- 7. Support improved access for industry to demand-side flexibility markets.
- 8. Launch a study on how electrification can drive industrial competitiveness in the EU.
- 9. Ensure EU **funding programmes** support industrial electrification, including through earmarked funds and improved fund accessibility.
- 10. Ensure adequate **support for small and medium-sized enterprises** through intermediaries and the sharing of good practices. Improve funding accessibility through project bundling, standardisation or reduced administrative requirements.

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Some like it hot: Moving industrial electrification from potential to practice

Jan Rosenow, Sem Oxenaar and Elian Pusceddu





About RAP

Regulatory Assistance Project (RAP)[®] is an independent, global NGO advancing policy innovation and thought leadership within the energy community.

Learn more about our work at raponline.org

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