



Industrial Heat Pumps in Energy Systems – Current Situation, Potentials and Outlook

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Message from the Guest Editors

Dear colleagues,

Industrial processes account for more than 30% of worldwide energy consumption, with two-thirds attributed to the provision of heat. Addressing the challenge of decarbonizing the industrial sector and integrating renewable energy in industry, heat pumps are an efficient and practical option for providing process heat but have not penetrated the market to a meaningful extent, despite their numerous benefits. In academic literature, valorisation of industrial waste heat is typically dominated by research on organic Rankine cycles and thermoelectric devices. With recent developments in worldwide renewable electricity generation and the drive toward industrial electrification, research and application of heat pumps have a critical role for future energy systems, requiring additional exploration and implementation in industry.

This special issue brings together novel research and successful implementation cases, demonstrating best practices found in industry, with methods for exploring potentials for heat pump integration and consequent impacts in industrial settings, and more broadly for energy systems as a whole.





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