34. Symposium Solarthermie und Innovative Wärmesysteme

Preface

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# Preface

## Solarthermie-Symposium 2024

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The heating transition, which involves shifting from a carbon-based energy supply to CO2-free and renewable energy sources, is both an economic and ecological necessity. Achieving this requires solutions that defossilize and largely decarbonize the heating sector in both the short and long term.

At the technological level, we can reach this goal through innovative heating systems. However, in addition to technical possibilities, market conditions must be adapted to facilitate the transformation of the energy supply. Heat transformation plans, the Building Energy Act in Germany, development plans, building regulations, subsidies, customs regulations, state support for coal, gas, and oil supplies, and numerous other economic policy measures define the speed and direction of this change. Transparency about performance, situational feasibility, and the interplay of these individual elements create a mosaic of potential solutions.

A methodical approach and fact-based discussions within the innovation system are essential for sustainable solutions. All relevant stakeholders must be involved—only by working together can we fully harness this opportunity for a stronger economic future. For 33 years, this symposium has made a significant contribution to this effort.

The use of solar energy for heat generation is an extremely efficient and environmentally friendly way to meet our heating demands. When combined with existing fossil-fired heating systems, it can immediately reduce greenhouse gas emissions significantly. When paired with heat pumps, it ensures a high level of local supply security, provides relief to the grids even after the fossil fade-out, and enables effective sector coupling.

Integrating solar thermal energy into heating networks, along with combining it with surplus electricity use and heat pumps for managing large thermal storage systems, offers complex but highly effective potential for CO2-free, grid-connected heat supply.

In areas where space is limited, the combination of photovoltaics and solar thermal energy in hybrid PVT collectors can be an efficient space-saving solution. When heat pumps are also combined with PVT collectors, additional local benefits arise, providing a viable option for the widespread distribution of innovative heating solutions.

Our symposium provides a unique opportunity to share advancements in solar thermal and renewable heating systems, learn from each other, and explore new avenues for the future. The diversity of experts, companies, and research institutions represented promises a broad range of perspectives and insights that will help us meet the challenges on the path to sustainable heating.

Developing innovative heating systems is crucial for expanding the role of solar thermal energy. This involves not only the efficient conversion of solar energy into heat but also the integration of these systems into existing infrastructures through digitalization, as well as the creation of intelligent storage and control systems. We need solutions that make both ecological and economic sense and meet the demands of modern society.

I am confident that this symposium will facilitate the exchange of ideas and the forging of new partnerships. It provides a platform to collaborate on solutions that will advance the energy transition and increase the market penetration of renewable heating systems. By leveraging new technologies, materials, concepts, and system intelligence, we can further enhance efficiency, reliability, and attractiveness.