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Buildings relieve power grids

Grid-supportive buildings increase the energy efficiency

A key approach for ensuring a successful energy transition is sector coupling. Here separate areas of the energy system are linked and coordinated. Buildings and districts offer many opportunities for greater collaboration with the electricity grid. The new BINE-Themeninfo brochure entitled “Grid-supportive buildings and districts” (I/2018) presents concepts for grid-responsive buildings as well as control and operational management strategies that meet the necessary flexibility and user requirements. The Themeninfo brochure also provides an insight into current debates and research.

The building sector can adapt its electricity supply for heating and cooling as well as its ability to generate local energy to the needs of the electricity networks. Buildings and districts serve as controllable loads, energy storage systems and decentralised producers. By converting surplus electricity from wind farms and solar farms into heat, the existing heating and cooling storage systems and the building mass can temporarily absorb energy. In the medium term, these concepts will help to achieve a climate-neutral building stock. In future, grid-supportiveness will constitute another design requirement along with energy and cost efficiency and ecology.

The Themeninfo brochure summarises the key findings of the joint Grid-responsive Buildings project, which is funded by the EnOB – Research for Energy-Optimized Building and Eneff:Stadt – Research for the Energy Efficient City research initiatives. The authors form part of a team led by Professor Doreen Kalz (Beuth University of Applied Sciences), who formerly worked for the Fraunhofer Institute for Solar Energy Systems (ISE). The co-authors are from Fraunhofer ISE, the Fraunhofer Institute for Energy Economics and Energy Systems (IEE) and the E.ON Research Center at RWTH Aachen University.

The BINE-Themeninfo brochure has been produced by a team of authors from the Institut für Energietechnik at the University of Kassel and the Institute for Solar Energy Research in Hamelin (ISFH). The free BINE-Themeninfo brochure “Solar process heat” (II/2017) is available from the BINE information service at FIZ Karlsruhe by downloading it online at www.bine.info or by calling +49-228 92379-0.

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