

# Heat storage



Efficient energy storage facilitates the integration of renewable energy sources into energy systems. Because of chronological variability in the availability of solar and industrial process heat, thermal storage systems are key components for the effective utilisation of this heat in solar thermal power stations, heat recovery processes, solar local heat projects, air-conditioning systems in buildings, and service water systems.

With large seasonal heat storage facilities, around half of the total heat requirements of large building complexes in Germany can be covered by solar energy.

The reduction of energy consumption in modern buildings and the development of new storage materials based on phase-change and sorption materials have in principle opened up completely new approaches to heat storage without storage loss. These approaches support the use of decentralised heat supply systems.

Storage for small combined heat and power (CHP) systems is of interest in this connection, as these components enable power-driven operation, and the heat that occurs can be stored for as long as several days.

In solar thermal power stations, the availability and the electricity generation costs can be significantly improved by installing heat stores.

## R&D requirements

Considerable research work is still required in the field of storage development, in respect of cost reduction, cycle reliability and capacity provision at the desired temperature levels.



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