



## The EERA Joint Programme on Energy Storage

---

Author 1: Prof. Dr. Hans Jürgen Seifert, Karlsruhe Institute for Technology, IAM-AWP

Author 2: Dr. Carlos Ziebert, Karlsruhe Institute for Technology, IAM-AWP

Keywords: Energy Storage; Energy-saving; Energy Technology Transfer

---

### ABSTRACT

*Stationary energy storage* supports commercial breakthroughs of renewable energies e.g. by overcoming mismatch between energy output and demand, smoothing out fluctuations and load leveling. *Mobile energy storage* technologies enable electromobility and thereby foster the development of environmental friendly transportation systems. Additionally, *thermal energy storage* is essential for efficient heating and cooling of residential and commercial buildings and also energy-saving industrial processing. Therefore, advanced energy storage technologies are essential for enabling a worldwide transition to low carbon economy by 2050.

Having such aspects in mind an EERA joint programme on Energy Storage was recently launched. This joint programme is based on the European Strategic Energy Technology Plan for a low-carbon future. It is set up to increase the effectiveness of research and development on the large field of energy storage through alignment and joint programming of its European member institutes. It is mainly aimed at integrating and complementing current national and European research programmes and projects in the field in order to optimise resources and efforts. It will accelerate knowledge development as well as technology transfer and up-take and will be strictly system and product oriented. The joint programme will work on all levels of the value chain: (1) materials, (2) process line, (3) component and system design, (4) system integration to specific application and (5) overall system integration (e.g. grid integration, vehicle integration). The JP will be also used to establish general roadmaps for the research needs for the future EC FPs and work programmes and to create better organized consortia to cooperate with industry in targeted and challenging projects. To consider all main technologies the following sub programmes have been defined: (1) Electrochemical Energy Storage, (2) Chemical Energy Storage, (3) Thermal Energy Storage, (4) Mechanical Energy Storage, and (5) Superconducting Magnetic Energy Storage. Additionally, a sub programme (6) Energy Storage Techno-Economics was established in order to develop a pan-European vision of energy storage and to assess the externalities of energy storage. A thematic priority will also be the development of hybrid energy storage systems. The programme is also characterized by the vision of establishing a platform for Integrated Energy Storage Simulation (IEES) taking into account the connection with e.g. smart grid and smart city technologies, respectively. By now 26 participants and associates from 12 European member states are devoted to this joint programme.

An overview on the research and development activities of each sub programme will be given and the planned short, middle and long term activities and outcomes will be described.

---