



EERA JOINT PROGRAMME on **ENERGY STORAGE**

WHAT is the EERA JP on Energy Storage

This JP is set up to increase the effectiveness of R&D on the large field of energy storage through alignment of its European member institutes. It is mainly aimed at *integrating* and complementing current national and European research programmes and projects in order to optimise resources and efforts. It will accelerate knowledge development and technology transfer and will be strictly system and product oriented by working 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. The JP will also establish general roadmaps for the research needs for the future EC FPs and create improved consortia to cooperate with industry in targeted and challenging projects. A thematic priority will be the development of hybrid energy storage systems. The vision of the JP is to establish a platform for Integrated Energy Storage Simulation (IEES) taking into account interfaces with e.g. smart grids and smart cities.

BACKGROUND

Stationary energy storage supports commercial breakthroughs of renewable energies by overcoming mismatches between energy output and demand and load leveling. Mobile energy storage enables electromobility and transportation and thermal energy storage is essential for heating, cooling and environmentally compatible industrial processing.

OVERALL OBJECTIVES

- Joining forces and projects: coordinated strategies
- Sharing knowledge, facilities, methods, data
- Working on interfaces within energy storage and integration with other technologies
- Establishing European scientific, technological and industrial *leadership* in *current* and *next* generation energy storage technolgies
- Giving significant support for SET-Plan goals

PARTICIPANTS

20 P and 6 A from 12 EC member states: 307 py/y committed

Finland: VTT (P), TUT (A)

Norway: SINTEF (P), IFE (A), NTNU (A)

Denmark: DTU (P) UKERC (P) France: CEA (P) Belgium: VITO (P), VUB (P)

Germany: KIT, (P) DLR (P), RWTH (P), FZJ (P), MEET (P) Poland: JU + AGH-UST (A)

Slovakia: IEE SAS (P) Czech Rep.: NRI Řež (A)

Italy: ENEA (P), RSE (P), CNR (P)

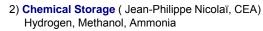
CIEMAT (P), IMDEA (P), ICMAB (P), ICMM (P), CNH2 (A)

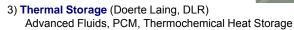
STRUCTURE AND ACTIVITIES

Five sub programmes (SP's) have been defined. Additionally, a sub programme on Techno-Economics is proposed in order to develop *a pan-European vision* and to assess the externalities of energy storage:



1) Electrochemical Storage (Mario Conte, ENEA) Lithium Ion Batteries, Super Capacitors



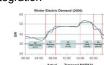






5) Superconducting Magnetic Energy Storage (Mathias Noe, KIT) Materials, System Technology and Cryogenics, Integration

6) Techno-Economics (Peter Hall, UKERC)



COMMON RESEARCH OBJECTIVES

- Improving energy density and storage efficiency
- Costs, safety, reliability, availability, cycle life, calendar life, sustainability, standardization and quality issues, social acceptance, economic and environmental impacts

CURRENT AND FUTURE ACTIVITIES

Due to the rather diverse research and technological requirements of the different energy storage technologies each SP has defined very individual work packages and milestones. However, in the first 12 months review of activities, state-of-the-art evaluation and defining next step requirements will be done in all SP's. Detailed roadmaps and research and engineering design concepts will be developed for short, medium and long term periods. Reports will be written and workshops organized to document results and decide on next steps. This JP is open for additional ES technologies.

COORDINATOR:

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