

## Webinar Report

The EERA JP ES webinar on materials for hybrid energy storage took place on April 14th, 2021. The **main objective** of the workshop was to stimulate an in-depth discussion on status and challenges of energy storage in relation to research, industrial, and to policy initiatives at European level, particularly to the Clean Energy Transition Partnership. The discussion covered issues related to needs for new energy storage materials, how synchrotrons facilities can support material acceleration platforms, computational efforts to design and develop new functional materials by using artificial intelligence as well as the importance of materials science in the future energy research for achieving the Clean Energy Transition.

The webinar hosted four external speakers coming from research, industry and policy that shared their view and gave inside knowledge and their expertise to start up the discussion.

- Magdalena Graczyk-Zajac (EnBW, Germany) talked about hybrid energy storage systems and needs for new materials from an industrial perspective.
- Antje Vollmer (HZB, Germany) gave a deep insight into synchrotron facilities and how can they support the development of new materials.
- Süleyman Er (DIFFER, The Netherlands) showed thinkable pathways for bridging energy materials simulations to synchrotron experiments.
- Nikolas Reschen (Austrian Federal Ministry, Austria) explained the Clean Energy transition Partnership.

During the discussion many questions were addressed, for instance: Can the existing energy storage materials and systems already fulfil the energy storage requirements in the future? Can hybridisation of energy storage technologies be a key to low cost and sustainable energy storage? Can synchrotrons improve and support materials research? Can Material Acceleration Platforms (MAPs) supported artificial intelligence (AI) speed up energy innovations? How can the MS and EU facilitate and speed up the development and deployment of energy storage?

The webinar showed great resonance gathering closely **200 attendees** that reflects the great interest on the topic of hybridization of energy storage.

## Key Messages

- New technologies as well as innovative energy storage materials are needed to achieve the energy requirements in the near future.
- Energy storage at all timescales, and especially seasonal storage, plays an important role in enabling penetration of renewables sources in the energy grid.
- Systematically usage of analytical facilities (e.g. synchrotrons), AI and MAPs would dramatically accelerate materials research on hybrid energy storage.
- International cooperation and multidisciplinary approach are essential to speed up research on hybrid energy storage.

A proactive and highly engaged European eco-system of industry, research and policy representatives working on energy storage materials, technologies and systems is needed to effectively address the key messages.

## **What comes next?**

The EERA JP ES will provide more opportunities for members to strengthen the idea of hybrid energy storage systems in the future. Members' infrastructures and scientific focus will be highlighted on the website, and exchanges between different energy storage technologies will be encouraged through measures such as mobility programmes or infrastructure sharing.

Further webinars on materials with other EERA Joint Programmes are foreseen. For instance, by joining the initiative on Energy Materials for Innovation (EM4I) launched by the JP AMPEA, Nuclear Materials, and Digitalization which aims at identifying and promoting cross-cutting priorities concerning materials research.

In addition, to enable an effective and fast cooperation network with AI, MAPs and Synchrotrons, JP ES proposes a series of actions focused on technical issues and education events fostering the understanding between the communities and ongoing projects.

The JP ES will foster an eco-system to establish a network of industry, RTOs, and funding organizations to accelerate innovation in energy storage through higher performing and more cost-effective materials. A first attempt was made under the European Green Deal Call 2021 with the “Storage Research Infrastructure Eco-System” (StoRIES) proposal to provide industry and academia with access to state-of-the-art materials research facilities at the European and international levels.

More information regarding speakers, presentations as well as the recording of the webinar can be found at: <https://eera-energystorage.eu/events/>