

Fraunhofer ISE: Center for Electrical Energy Storage - R&D along the entire value chain

Electrical storage systems are a key component of the energy system. The “Center for Electrical Energy Storage” at Fraunhofer ISE with its advanced equipment and industry-oriented pilot systems offers a unique infrastructure for a broad-range of R&D Services along the entire battery value chain. We are driving forward the development of sustainable, safe and high-performance energy storage systems. Making use of the wide range of specialized equipment available in our labs, the Fraunhofer researchers apply their extensive expertise in simulation, technology assessment and data management.



Image: Laboratory facilities at the Center for Electrical Energy Storage. Our R&D services range from materials and production technology through battery testing up to systems research, design and operation.

- **Lab Battery Materials and Cell Production:** For industrial customers, we develop processes first on a laboratory scale, then assist in bringing them up to the pilot scale and further optimizing them. Our focus is on sustainable processes such as dry coatings or rather the development and use of mini environments with the aim of reducing the production costs of battery cells.
- **Lab Characterization and Post-Mortem Analysis:** We carry out detailed material and post-mortem analyses, identifying, for example, the causes of performance problems or failures. This allows us to significantly increase the safety of battery cells. Our available equipment enables us to perform our tests under inert conditions starting with opening of the cell through to the final analysis.
- **Lab Battery Engineering, Production and Testing:** In this lab we deal with optimizing cell formation processes, customized electrical and thermal characterization, modeling of battery aging, temperature control, prototype construction, second life storage, innovative fast-charging techniques, destructive and non-destructive safety tests and the development of innovative test environments.
- **Lab Energy Storage Application and Innovation:** With the available equipment in our laboratories, we can simulate energy systems with storage components and control them using energy management systems. Thus, we offer our partners an optimal environment for the development and qualification of operating and control strategies for storage systems.

Our services

- Development of New Battery (Active) Materials and Production Processes
- Electrochemical and Microstructural Characterizations
- Battery Production Technology: New Production Processes, Sample Battery Cells
- Development, Production and Characterization of Battery Systems
- Battery Testing and Optimization: Battery Safety, Aging Models, Battery Management Systems
- Integration Of Battery and Battery-Coupled
- Systems: Simulation, Design and Evaluation
- Design Of Battery Systems: Impacts of Aging, Cost Developments, And Regulation On Operational Strategies And Business Models

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Kindly get in touch with us if you are interested in this technology or require further information.

Thanks and Regards,

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