

The Institute for Power Supply Systems at Kassel University is headed by Prof. Dr.-Ing. habil. Peter Zacharias, who is also member of the board of Institute of Solar Energy Technology. Both institutes combined have more than 100 full time employees are dedicated to power conversion systems and systems technology for distributed and renewable power supply systems. Research activities cover power conversion for wind, solar, small hydro and bio mass, power electronic converters, grid integration of distributed sources, hybrid systems, storages, power management and energy economy.

Key Research Fields & Competence Areas:

- **Power Electronics**
DC/DC, DC/AC AC/AC Converters, Active Filters, FACTS for Distributed Power Systems
- **Conversion Systems and Control**
for Wind Energy, Photovoltaics (PV), Thermo Photovoltaics, Bio Gas, Marine Currents, Small Hydro
- **Storages**
Simulation of Batteries, Systems Technology and Modelling of Fuel Cell Systems
- **Energy Economy**
Monitoring Wind Energy Converters in Germany, Prediction of Wind Power Generation, Wind Farms as virtual Power Plants

Institute Highlights:

- Demonstration Centre for Modular Power Supply Systems Technology DeMoTeC up to 500kVA
- Accredited EMC Test Laboratory
- Virtual Battery with ISET-LAB to investigate Lead Acid Battery Performance in real Power Supply Systems
- Rapid Prototyping Tools, Hardware in the Loop Simulation
- Medium Voltage Line Simulator
- Battery Laboratory for Automatic Testing and Monitoring up to $\pm 2000\text{A}/60\text{V} \dots \pm 400\text{A}/400\text{V}$
- PV Test Labs $\sim 15\text{kWp}$ and Utilized Hybrid Systems
- Micro Turbine System for Bio Gas Utilization
- WPMS - Online Determination and Prediction Software for Wind Power Generation for Power Plant Control

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