

Fraunhofer Institute for Wind Energy and Energy System Technology IWES

Description and scope

Fraunhofer IWES was founded at the start of 2009 from the merger of the former Fraunhofer Center for Wind Energy and Maritime Engineering CWMT in Bremerhaven and the Institute for Solar Energy Supply Technology ISET e.V. in Kassel.

The research activities of the Fraunhofer Institute for Wind Energy and Energy System Technology IWES cover wind energy and the integration of renewable energies into energy supply structures.



Main current Researches

- Technology and operational management of wind turbines and wind farms
- Dynamics of wind turbines and components
- Component development for rotors, drive trains, and foundations
- Test and evaluation methods for wind turbines and components
- Environmental analysis of wind, sea, and seabed for utilization of wind energy and marine energy
- Control and system integration of decentralized energy converters and storage systems
- Energy management and grid operation
- Energy supply structures and system analysis

Research Infrastructure Installation(s)

DER TEST FACILITY (DER-TF)

Decentralized electricity generators, storage systems, loads, and novel energy management systems are developed and tested here. The network integration of converters and the design of hybrid systems and island grids have special roles. The control technology for decentralized grid services can be tested here on a real scale in combination with decentralized generators. In particular, systems for electrification in rural areas remote from the grid and on islands are optimized here and are used for training purposes. A reproducible hardware simulation of a 90 kVA grid connection and an adjustable direct current source allow accredited testing of grid converters and the evaluation of photovoltaic converters for example with regard to MPP tracking behavior.



IWES – SYSTEC: TEST CENTER FOR SMART GRIDS AND ELECTROMOBILITY

A large open-air ground of approx. 80,000 m² offers sufficient space and very good conditions for solar and wind energy. Furthermore, the open-air ground provides configurable distribution grid sectors (low and medium voltage), as well as a route offering the possibility to test inductive charging systems for electric vehicles.



Offered Services

- Laboratory grid with distributed generators available for testing purposes
- Rotating and inverter based generators, power range 1-200 kW
- Generators can be easily configured to form local grids
- Medium-voltage network simulator
- DG grid and generators controllable via SCADA system
- Accredited Test Laboratories for Converters and EMC

Contact details

Address: Fraunhofer IWES, Königstor 59, 34119 Kassel, Germany

Website: www.iwes.fraunhofer.de

For Management/Organization/Technical Issues

Dr. Thomas Degner

Tel. +49 561 7294 232

Fax +49 561 7294 400

E-mail: thomas.degner@iwes.fraunhofer.de



Dr. Thomas Degner