



Fraunhofer

IWES

**FRAUNHOFER INSTITUTE FOR WIND ENERGY
AND ENERGY SYSTEM TECHNOLOGY IWES**

**ENERGY SYSTEM
TECHNOLOGY &
ENERGY ECONOMICS**

SHORT PROFILE



WE EXPLORE AND DEVELOP SOLUTIONS ...

for sustainably transforming energy systems with a high share of renewable energy. Our service portfolio deals with current and future challenges faced by the energy industry and energy system technology issues.

We examine economic and technical problems in an interconnected manner. Thus we are able to actively and competently support our industrial and political clients and partners. The basis for this is provided by our business areas and areas of expertise.

Prof. Dr. Clemens Hoffmann

Director Fraunhofer IWES | Energy System Technology



BUSINESS AREA ENERGY SYSTEM TECHNOLOGY

Energy system technology delivers solutions for effectively using and expanding renewables, supply networks, storage systems and electromobility. A special role plays the re-design of the transmission and distribution grids. The coupling of electricity, heat, gas and transportation enables the necessary increased flexibility between energy generation and energy demand.

We develop the necessary structural and planning methods, operational strategies, equipment, system technology, control engineering and energy management systems. Our research facilities allow standardization and client-specific components and system tests.



BUSINESS AREA ENERGY ECONOMICS

The energy economics business area encompasses products and services supporting the planning and operating of power supply structures and their components.

We accompany the transformation process of energy supply systems by combining market and technology with software solutions, information and data services, concepts and business models as well as energy economics analyses and assessments.

AREAS OF EXPERTISE AND CENTRAL RESEARCH QUESTIONS



DEVICE AND SYSTEM TECHNOLOGY

How can the technical specifications of the energy system on devices and systems be efficiently and inexpensively implemented and verified?



ELECTRICAL GRIDS

How can we further develop electrical energy power supply systems to enable the integration of the greatest possible share of renewable energy?



ENERGY INFORMATICS

How can energy economics be supported to allow the energy system to run smoothly when a large amount of power is generated decentrally?



ENERGY PROCESS ENGINEERING

Which technology enables the efficient and economic coupling between thermal, electrical and biochemical conversion stages?



ENERGY ECONOMICS AND SYSTEM DESIGN

How do we move on from the technology for the energy transition to market integration and an economic system design?



ENERGY METEOROLOGY AND RENEWABLE RESOURCES

What potential do renewables have and how can their spatial and chronological behaviour be modeled and forecasted?

WE DESIGN ENERGY SYSTEM TRANSFORMATIONS



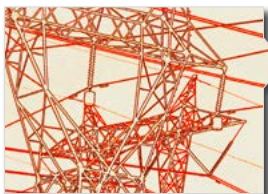
DESIGN OF THE ENERGIEWENDE

We support industry and politics in all systemic, technical and economical questions concerning the transformation of energy systems.



WIND, SOLAR, BIOENERGY OR WATER?

We work on the system integration of all renewables. Our specific focus being on security of supply and grid stability.



ELECTRICITY – HEAT – TRANSPORT

The climate protection aims can only be achieved when the transformation of the energy system is cross-sectorally designed and power supply structures are rethought.



TECHNOLOGY OR ECONOMY?

This is no question for us. We design solutions for technical and economical problems arising from the transformation of power supply systems.



PRODUCTS AND KNOW-HOW

With our products and expertise we support industrial and political, national and international customers and have been doing so for decades.



TESTING AND VALIDATING

We possess a wide range of test and experimental facilities, laboratories and technical equipment.

FRAUNHOFER INSTITUTE FOR WIND ENERGY AND ENERGY SYSTEM TECHNOLOGY

FRAUNHOFER IWES KASSEL

DIRECTOR

Prof. Dr. Clemens Hoffmann

BUSINESS AREAS

- Energy system technology
- Energy economics

FIELDS OF EXPERTISE

- Device and systems engineering
- Electrical grids
- Energy informatics
- Energy process engineering
- Energy economics and system design
- Energy meteorology and renewable resources

PERSONNEL AND REVENUE

- approx. 310 scientists, employees and students
- approx. 20 million euros p.a.

FRAUNHOFER IWES

Königstor 59 | 34119 Kassel, Germany

Phone: +49 561 7294-0

kassel@iwes.fraunhofer.de

www.energiesystemtechnik.iwes.fraunhofer.de

