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Technische Hochschule Ingolstadt

With 6,500 students in more than 60 Bachelor's and Master's Programmes, Technische Hochschule Ingolstadt (THI) is taking a leading role in the education of the region's academic professionals and leaders. The focus of the academic qualification is on engineering, economics and computer science. Since its foundation in 1994, THI has progressed continuously. In addition to the undergraduate studies, both the areas of applied research and in-service training jointly form the core tasks of THI. Around 750 employees are committed to this mission.



Renewable Energies at THI

As research institution for applied energy research, the Institute of new Energy Systems (InES) forms part of the Technische Hochschule Ingolstadt. At InES, five professors and more than 40 scientific researchers are currently working on future-oriented technologies in the field of renewable energies and rational use of energy. The Faculty of Mechanical Engineering offers three study programmes dedicated to renewable energies, including an international Bachelor's and Master's Programme taught exclusively in English.

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Technische Hochschule
Ingolstadt
Institute of
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InES

Partner for
Research and
Development

Overview

The research at InES is conducted within the frame of the working areas Industrial Energy Systems, Energy Systems Technology, Domestic Energy Systems and Technology Transfer & International Projects. The applied research projects are typically implemented in cooperation with medium-sized industry partners as well as research institutions and partner universities.

Institute of new Energy Systems (InES)



Industrial Energy Systems

Demand-oriented energy supply
Intersectoral bioenergy use
Energy process optimisation



Energy System Technology

Flexibilisation of the energy system
Smart markets
Energy and system efficiency



Domestic Energy Systems

Intersectoral use of energy in districts and buildings
Solar energy systems
District heating systems



Technology Transfer & International Projects

Regional technology networks

International research cooperation

Technology transfer

Register for InES' public events

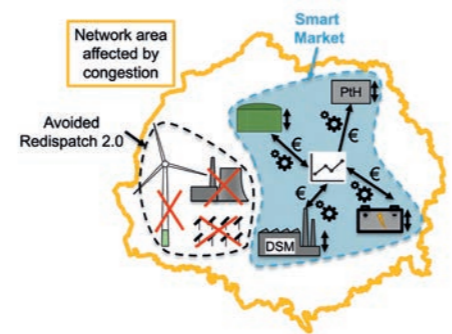
To be up to date with our public events focusing on these thematic areas, please feel free to register in our event mailing list. Register online at: www.thi.de/go/energy



Energy System Technology

The field of research of Energy System Technology is committed to research questions focusing on integrating fluctuating renewable energies at optimal costs into the overarching energy system.

In the framework of intersectoral, techno-economic system analyses, research activities focus on the interrelation between energy politics and economics, the regulatory frame as well as the design of energy markets.



- Exemplary research projects:**
- Analysis of the short- and medium-term effects of market-based congestion management instruments as a regional and temporary supplement to existing energy-only market design (EOM+)
 - Biogas plants as players in new intelligent, regional markets (SmartBio)
 - Cascaded and flexible usage of thermal energy in dairy processing with focus on increasing energy efficiency of cleaning systems (Blue Milk)



Industrial Energy Systems

The field of research of Industrial Energy Systems is dedicated to decentralised, renewable energy supply in industrial, commercial and agricultural environments.

The focus of this research is on the provision of electricity, heat and fuel for industrial facilities, systems and components for grid-connected (bio-)energy plants as well as local supply infrastructures for the (electric) mobility sector in a national and international context.



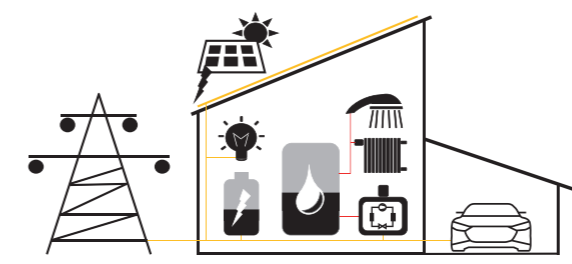
- Exemplary research projects:**
- Development of an innovative steam storage system for a flexible biomass heating plant to increase the system's stability (KomBio)
 - Development of a self-learning control system for biogas plants connected to grids with a high share of fluctuating electricity producers (NETFLEX)
 - Biogas in motion – Biogas as fuel for the agricultural sector (BiB)



Domestic Energy Systems

The field of research of Domestic Energy Systems is dedicated to intersectoral and decentralised energy supply based on renewable energies for buildings and districts.

The research focuses on a variety of aspects: component and system technology for energy integration in buildings and districts, solar energy systems, the integration of e-mobility into the local energy supply, district heating systems as well as decentralised, off-grid energy supply both in a national and international context.



- Exemplary research projects:**
- Optimised energy supply of single-family houses with solar thermal energy and photovoltaics (PVSol)
 - District heating systems with variable temperatures as provider of operating reserve (NATAR)
 - Integration of solar thermal energy into existing residential areas/buildings (smartSOLgrid)

Technology Transfer & International Projects

The field of research of Technology Transfer & International Projects is committed to connecting regional and international stakeholders in applied research for renewable energies.

Technology transfer projects are initiated in the spirit of a regional knowledge transfer between THI and mainly small and medium-sized companies. International activities strive to establish collaborative, interdisciplinary research projects, with special emphasis on fostering capacity building in both research and teaching.



- Exemplary research projects:**
- Innovation Hub "Biogas 4.0"
 - Sustainable energy supply in rural off-grid areas in Namibia (PROCEED)
 - Sustainable energy supply concepts for informal settlements in Kenya and Mozambique (SEED)

