



Baden-Württemberg

Photovoltaics/ Solar Energy

Photovoltaics/ Solar Energy – a Growth Cluster in Baden-Württemberg

- Photovoltaics is one of the world's fastest growing industries. The world market's annual growth rate is currently over 30%. After Japan, Germany is the second largest market for photovoltaics in the world.
- In the area of solar thermal energy, Germany is Europe's largest and most dynamic market. The sales of solar thermal installations have doubled over the last 10 years.
- The federal state of Baden-Württemberg is an important site for this industry:
 - Next to manufacturers of solar cells and photovoltaic modules, Baden-Württemberg is home to providers of complete photovoltaic installations.
- Baden-Württemberg offers photovoltaics and solar energy companies an excellent environment, boasting a variety of universities, many research and technology transfer centres (Steinbeis), as well as two regional networks.



Photovoltaics/ Solar Energy

Selected Companies



müller solar
Technologie GmbH



BOMIN SOLAR GmbH



centrotherm



BRUKER TECHNIK



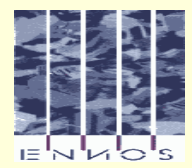
Baden-Württemberg

Photovoltaics/ Solar Energy

Selected Companies



Schaltanlagen • Automation • Solarstromanlagen



GP Solar GmbH



Baden-Württemberg

Photovoltaics/ Solar Energy

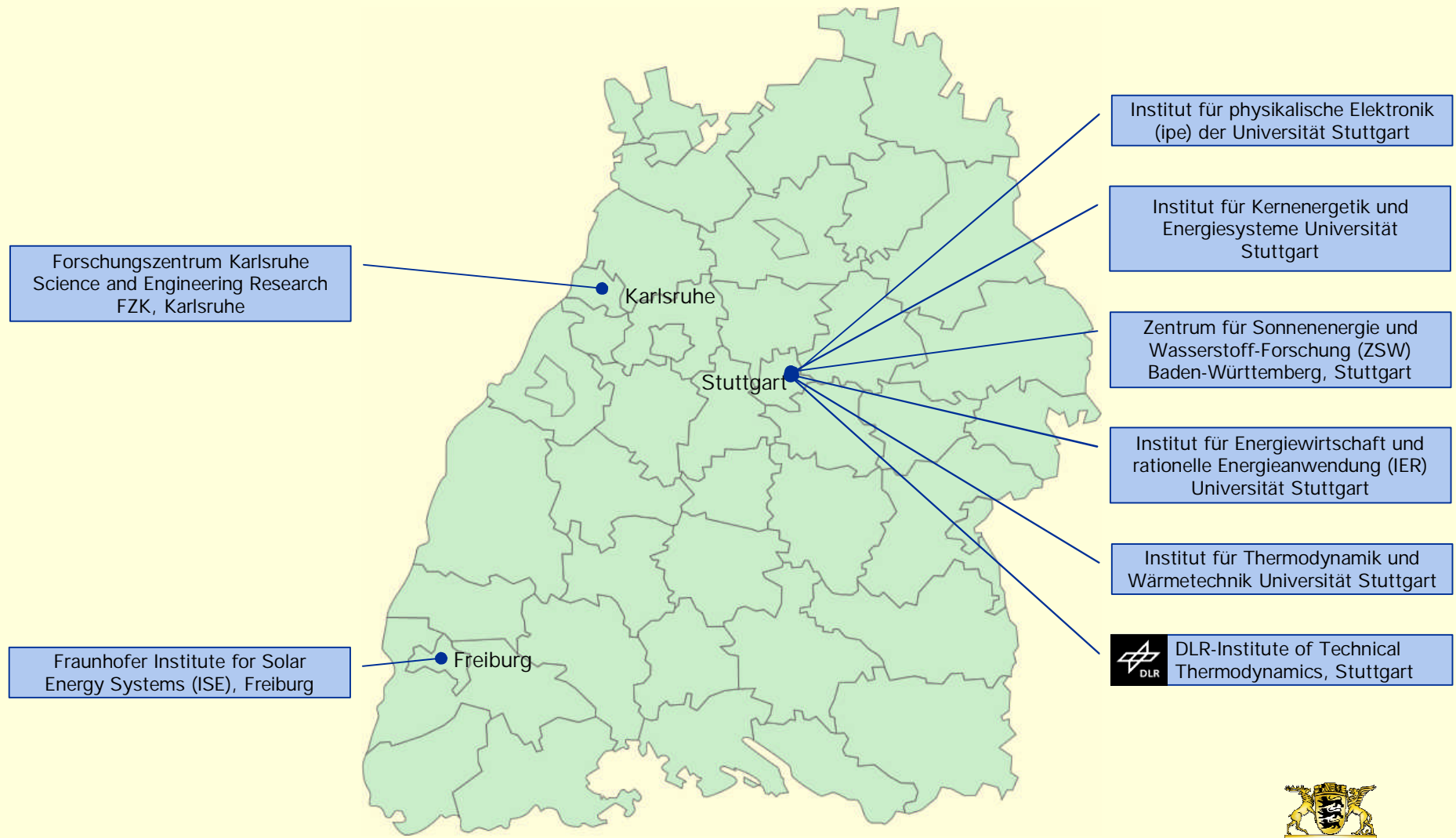
Selected Companies



Baden-Württemberg



Photovoltaics/ Solar Energy – Research Institutes



Photovoltaics/ Solar Energy – Universities offering Relevant Courses

Universität Karlsruhe (TH):

- Business Engineering
- Mechanical Engineering
- Mechatronics
- Electrical and Information Technology



Universität Stuttgart:

- Electrical Engineering
- Materials Science



Photovoltaics/ Solar Energy – Universities of Applied Sciences offering relevant Courses

Fachhochschule Mannheim-
University of Applied Sciences:

- Electrical Engineering/
• Elektrische Energietechnik
- Industrial Engineering

Fachhochschule Heilbronn –
University of Applied Sciences:

- Mechatronics
- Mechanical Engineering
- Electrical Engineering

Fachhochschule Karlsruhe – University of
Applied Sciences:

- Business Administration and Engineering
- Mechatronics
- Mechanical Engineering
- Electrical and Information Technology
- Sensor and Control Systems

Fachhochschule Aalen–
University of Applied Sciences:

- Business Engineering
- Mechatronics
- Mechanical Engineering
- Materials Science

Fachhochschule Pforzheim – University
of Applied Sciences:

- Business Engineering
- Electrical Engineering
- Mechanical Engineering

Fachhochschule Ulm– University
of Applied Sciences:

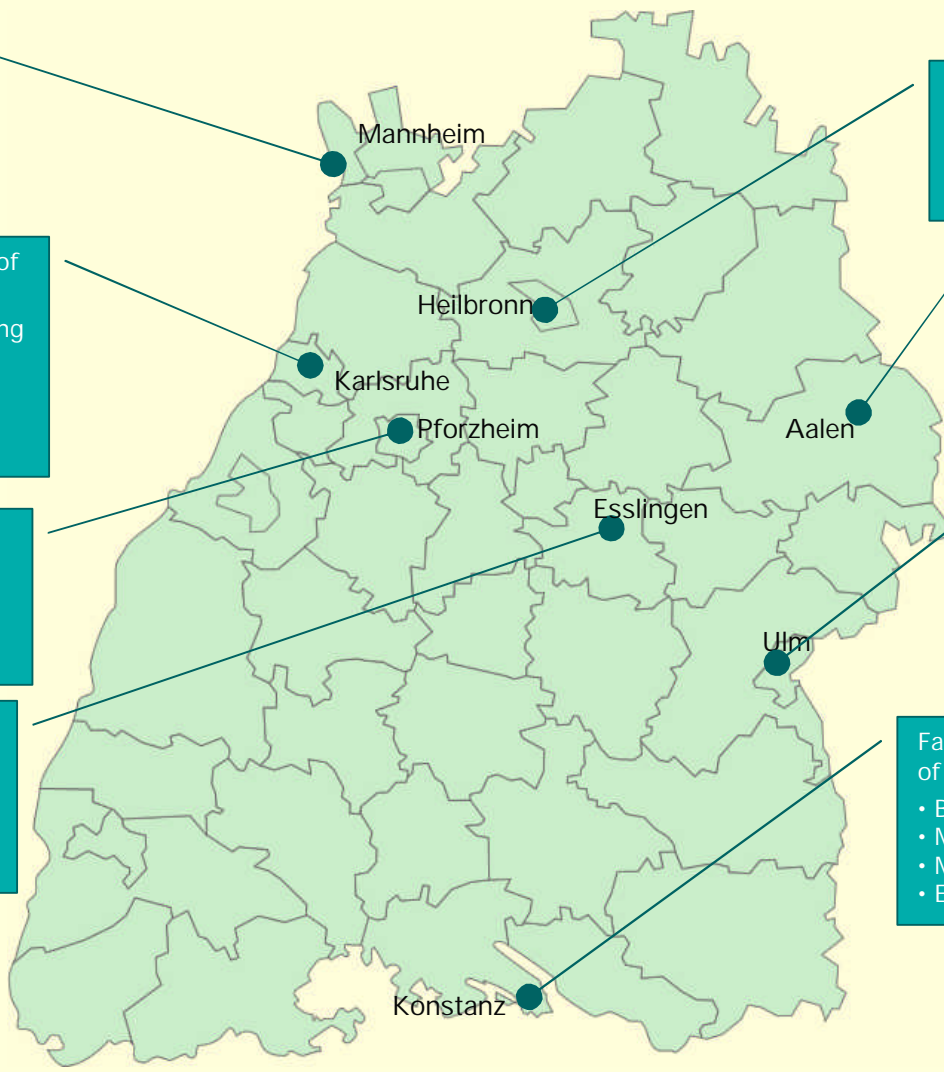
- Business Engineering
- Electrical Engineering
- Mechanical Engineering

Fachhochschule Esslingen – University
of Applied Sciences:

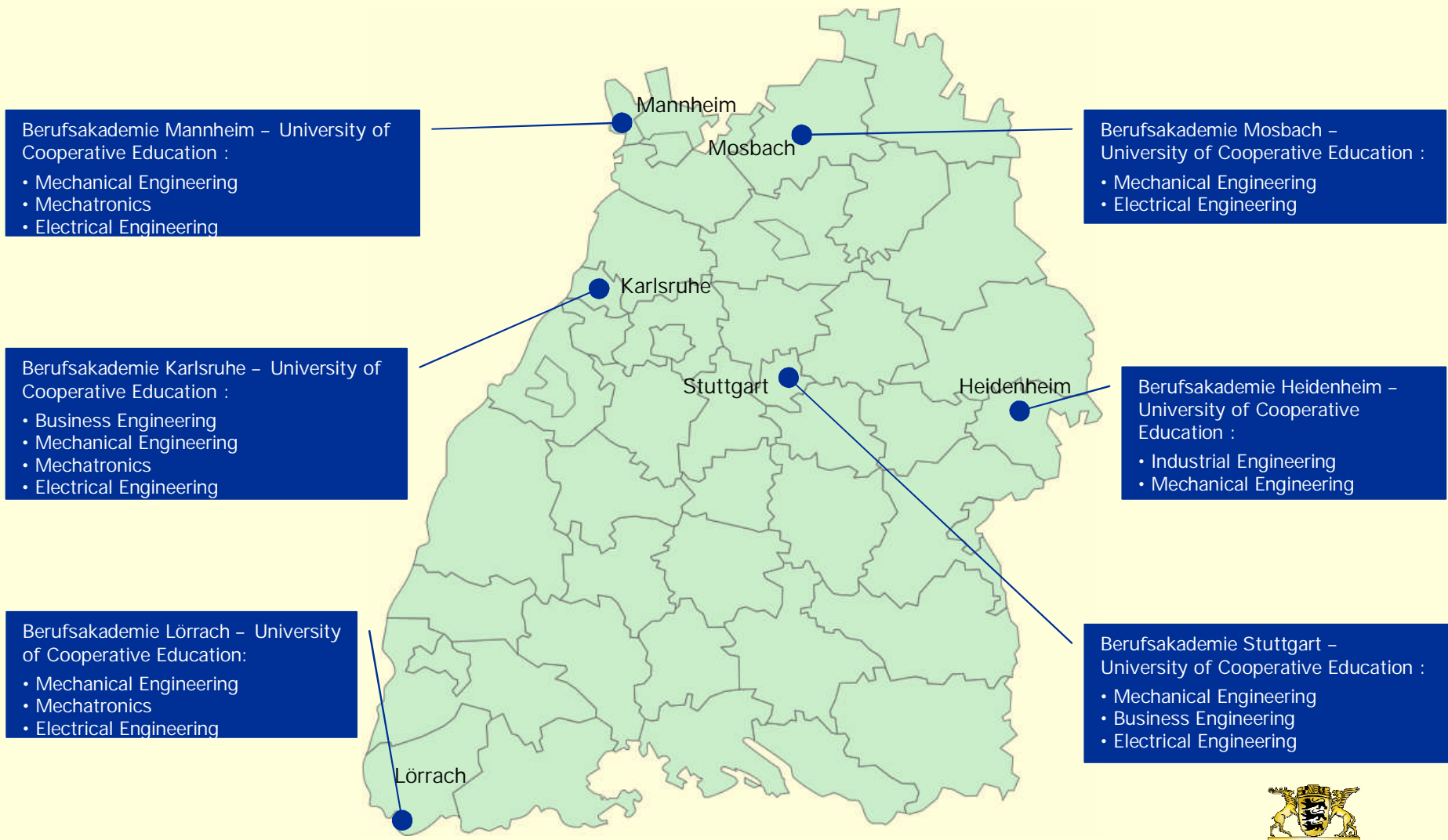
- Business Engineering
- Mechanical Engineering
- Electrical Engineering
- Mechatronics

Fachhochschule Konstanz – University
of Applied Sciences:

- Business Engineering
- Mechatronics
- Mechanical Engineering
- Electrical Engineering



Photovoltaics/ Solar Energy – Berufsakademien offering relevant Courses



Photovoltaics/ Solar Energy – Technology Transfer Centres (Steinbeis)



Photovoltaics / Solar Energy – Research



Fraunhofer Institute for Solar Energy Systems (ISE), Freiburg

<http://www.ise.fhg.de>

With its 400 staff, the Fraunhofer ISE is Europe's largest solar research institute, with work ranging from research into the scientific-technical basis of the utilization of solar energy to the development of prototypes and the implementation of demonstration installations. The institute offers planning and consulting services, provides technical know-how and equipment for services.



Forschungszentrum Karlsruhe

<http://www.fzk.de>

The research and development programmes of Forschungszentrum Karlsruhe (Karlsruhe Research Centre) benefit the public and serve exclusively peaceful means. They concentrate on the area of industrial preparatory research, product and process development, preventative research and scientific basic research. The research centre cooperates with partners from both science and industry. Another task is the operation of large equipment which are also available to extreme users. The research and development programme covers the areas of industrial preparatory research, product and process development and scientific basic research.



DLR Institute of Technical Thermodynamics, Stuttgart

<http://www.dlr.de/tt>

The Institute of Technical Thermodynamics at the German Aerospace Centre in Stuttgart has additional sites in Köln-Porz and Almeria/Spain. The institute works on the exploitation of highly efficient energy conversion technologies and on the accelerated introduction of renewable energy sources. The work ranges from theoretical studies and basic laboratory work to the operation of pilot plants.



Baden-Württemberg

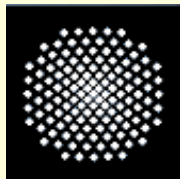
Photovoltaics / Solar Energy – Research



Institut für Physikalische Elektronik (ipe) at Stuttgart University

<http://www.ipe.uni-stuttgart.de>

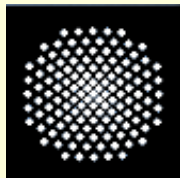
The Institute of Physical Electronics (ipe) works and teaches in the areas of micro electronics and optoelectronics, thin film technology and semiconductor physics. Current research activities include new concepts and applications for photovoltaics and large surface electronics (macro electronics).



Institut für Energiewirtschaft und rationelle Energieanwendungen (IER) at Stuttgart University

<http://www.ier.uni-stuttgart.de>

The Institute for Energy Management and Rational Energy Applications (IER) focuses on research into: (1) the analysis and assessment of new energy technologies and energy systems, (2) technology assessment and environmental analysis, (3) development of models and decision support systems for energy economics and energy policy, (4) energy system analysis, (5) rational use of energy.



Institut für Kernenergetik und Energiesysteme at Stuttgart University

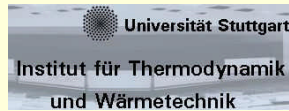
<http://www.ike.uni-stuttgart.de>

The Institute for Nuclear Energetics and Energy Systems (IKE), one of Stuttgart University's largest institutes, is integrated into the department of energy technology. Over the years, IKE's research activities have evolved beyond the sphere of nuclear technology and today focus on system and plant technology and thermofluid dynamics, reactor physics and applied radiation physics, nuclear installations and environmental protection technology, heating and air conditioning technology, solar thermal installations and hydrogen technology. The institute carries out both basic research and application research.



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Photovoltaics / Solar Energy – Research



Institut für Thermodynamik und Wärmetechnik at Stuttgart University

<http://www.itw.uni-stuttgart.de>

The research of the Institute of Thermodynamics and Heat Technology focuses on the areas of heat transmission during changes of the state of aggregation, the determination of material characteristics and the development of integrated energy concepts with a special focus on solar heat supply and storage



Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW), Stuttgart

<http://www.zsw-bw.de>

The Centre for Solar Energy and Hydrogen Research works on the research and development of technologies for the environmentally friendly provision of power, heat and fuel, their realization in marketable products together with industry partners, as well as consulting for producers, users, political decision-makers and associations. Research focus is photovoltaic materials, batteries and fuel cells.



Baden-Württemberg

Photovoltaics/ Solar Energy – Networks



[www.solarregion
.freiburg.de](http://www.solarregion.freiburg.de)

SolarRegio Freiburg

Over the last few years, a centre and network for solar energy has evolved in Freiburg which has gained world-wide interest and recognition. No other German city boasts such a density of research institutions and practical applications in the field of solar energy as Freiburg. Among the most important institutions are the head office of the International Solar Energy Society, the Fraunhofer Institute for Solar Energy Systems and the Kiepenheuer Institut für Sonnenphysik.

Important solar companies such as S.A.G. Solarstrom AG, Optosolar Ges. für opto- elektronische und solare Lösungen mbH, Vordermayer Bauelemente GmbH and Solar Fabrik AG are located in the region.

The region is part of the solar region of the Upper Rhine valley, which is characterized by cross-border cooperation between Switzerland, France and Germany.



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