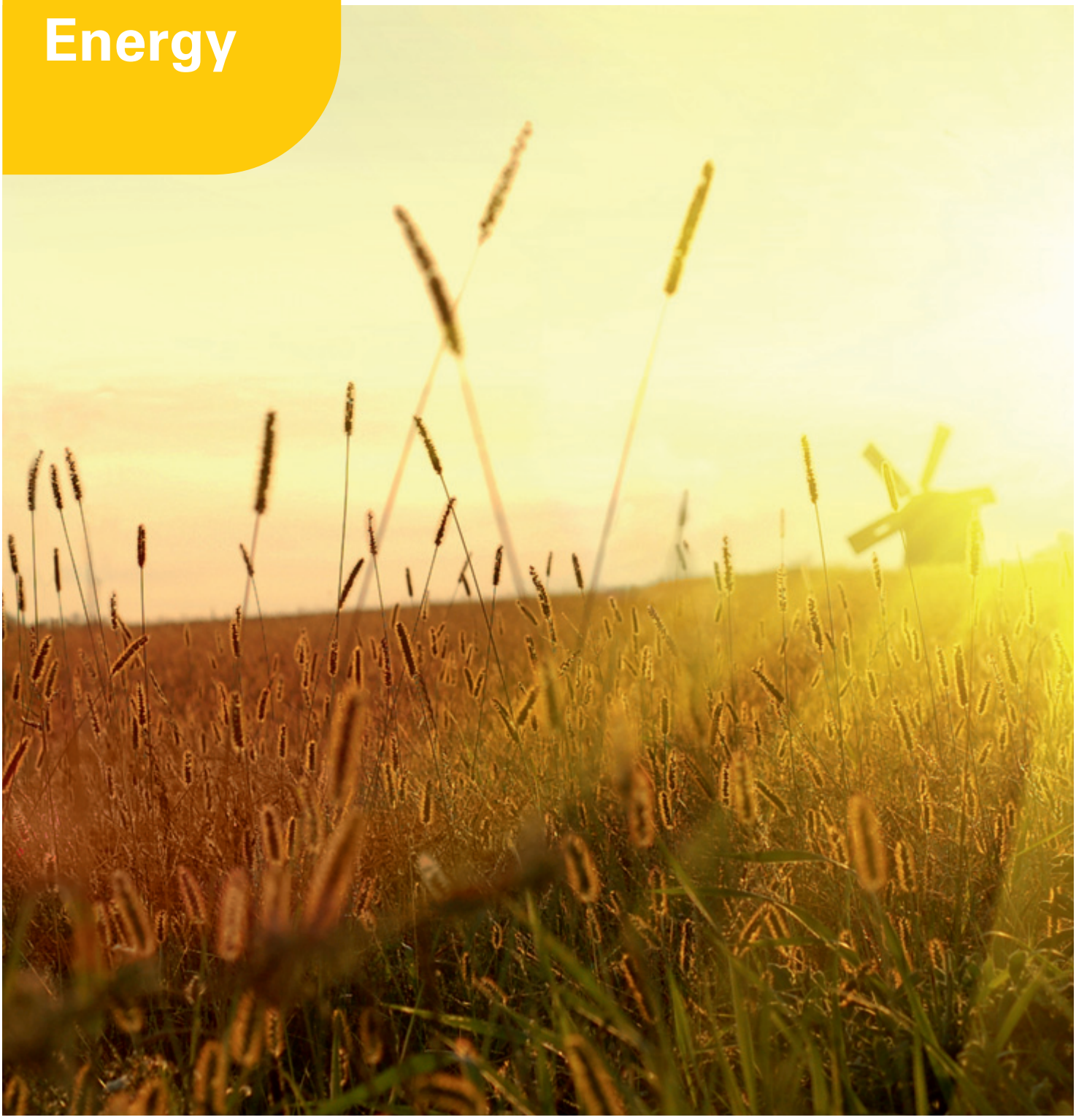
juwi

Solar Energy



Energy is here

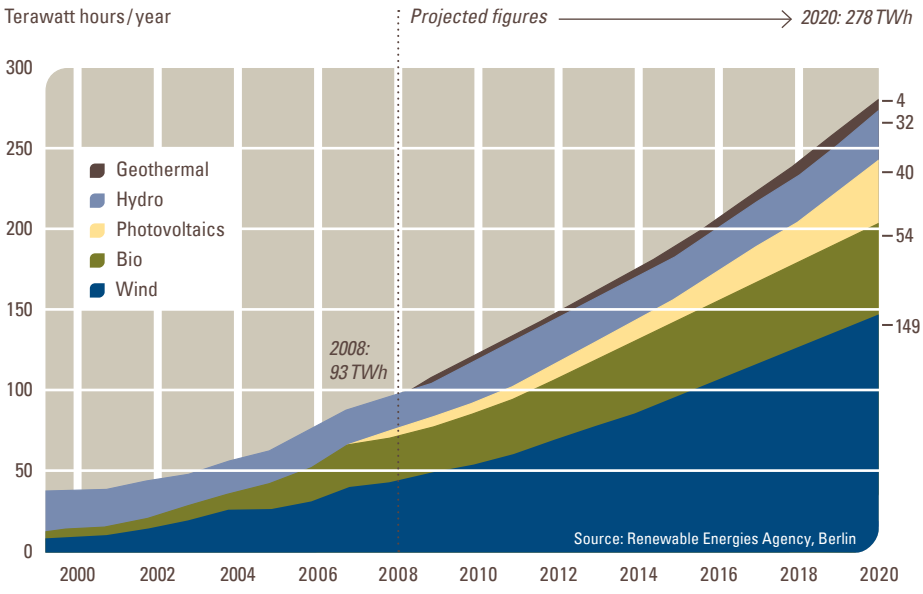
Take Advantage of the Sun's Potential

There is simply no better alternative for an environmentally-friendly power supply in the future than to take the path leading to a solar energy era. Every day, the sun provides the earth with more than ten thousand times the energy required by people around the world.

In comparison with wind power, the proportion of solar power in the mix of renewable energies is still remarkably low. However, solar power makes and important contribution in providing for power needs that have, up until now, been covered by gas or coal plants. In Germany, photovoltaic plants produced more than 17,000 Megawatt in 2010, covering the annual need of approx. four million three-person households. Take advantage of the numerous opportunities – small and middle-scale rooftop photovoltaic plants, solar carports, off-grid systems or large-scale rooftop or free-field solar power systems. We look forward to your interest that our experts can turn into clean energy with you.

Power generated by renewable energy sources

Germany by 2020



In Germany, basic political provisions, long-term support programmes and continuous educational work made renewable technologies successfully quickly, particularly in the power sector. In 2008, 93 billion kilowatt hours (kWh) of regenerative energy were produced.

Good Reasons

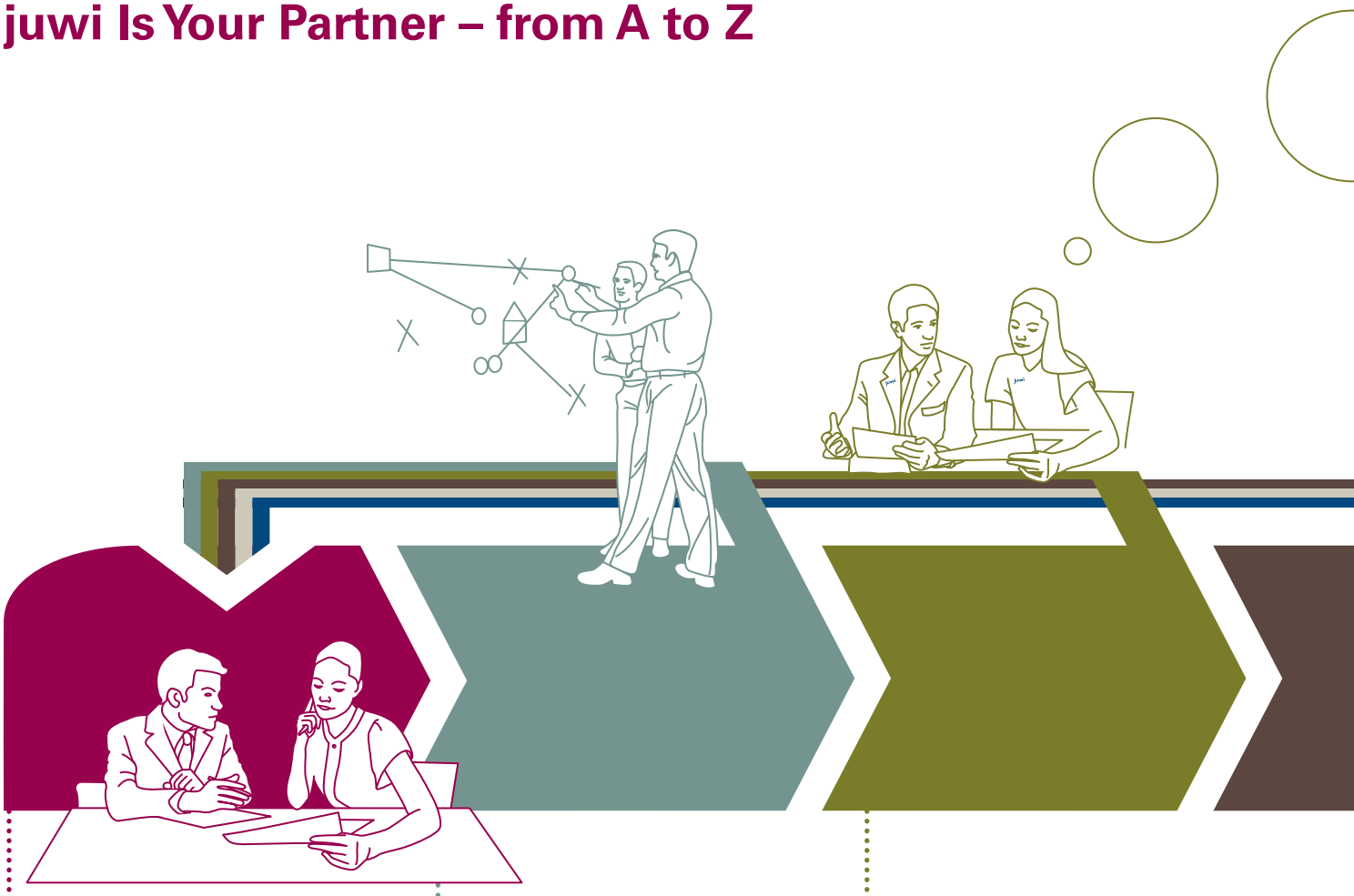
juwi's professional management team concentrates on ensuring profit for all project partners involved in the construction of a photovoltaic plant or system. Roof owners and landowners earn revenue from leases, local authorities earn revenue from business tax. Investors are provided with a lucrative and low risk investment because the sun provides a free raw material regardless of economic instability or change. Furthermore, many countries have fixed feed-in tariffs that guarantee secure returns for the entire lifetime of a plant or system. PV systems are environmentally-friendly and work quietly with little to no wear. Solar energy is the power technology of the future – invest in the positive image of a clean, environmentally-friendly power generation with juwi.

Clean solar power on a large scale is produced on the roof of Goodyear Dunlop's logistics center in Philippsburg (Baden-Württemberg).

juwi's Strengths

- Years of experience in planning photovoltaic projects of different sizes
- Wide range of competencies across all service sectors, all services from a single source
- Sophisticated systems for engineering, procurement and construction (EPC)
- Good price conditions thanks to long-term cooperations and agreements with module manufacturers and component suppliers
- Trusted business relationships with banks and investors
- High customer satisfaction based on technical and business management

juwi Is Your Partner – from A to Z



Consulting

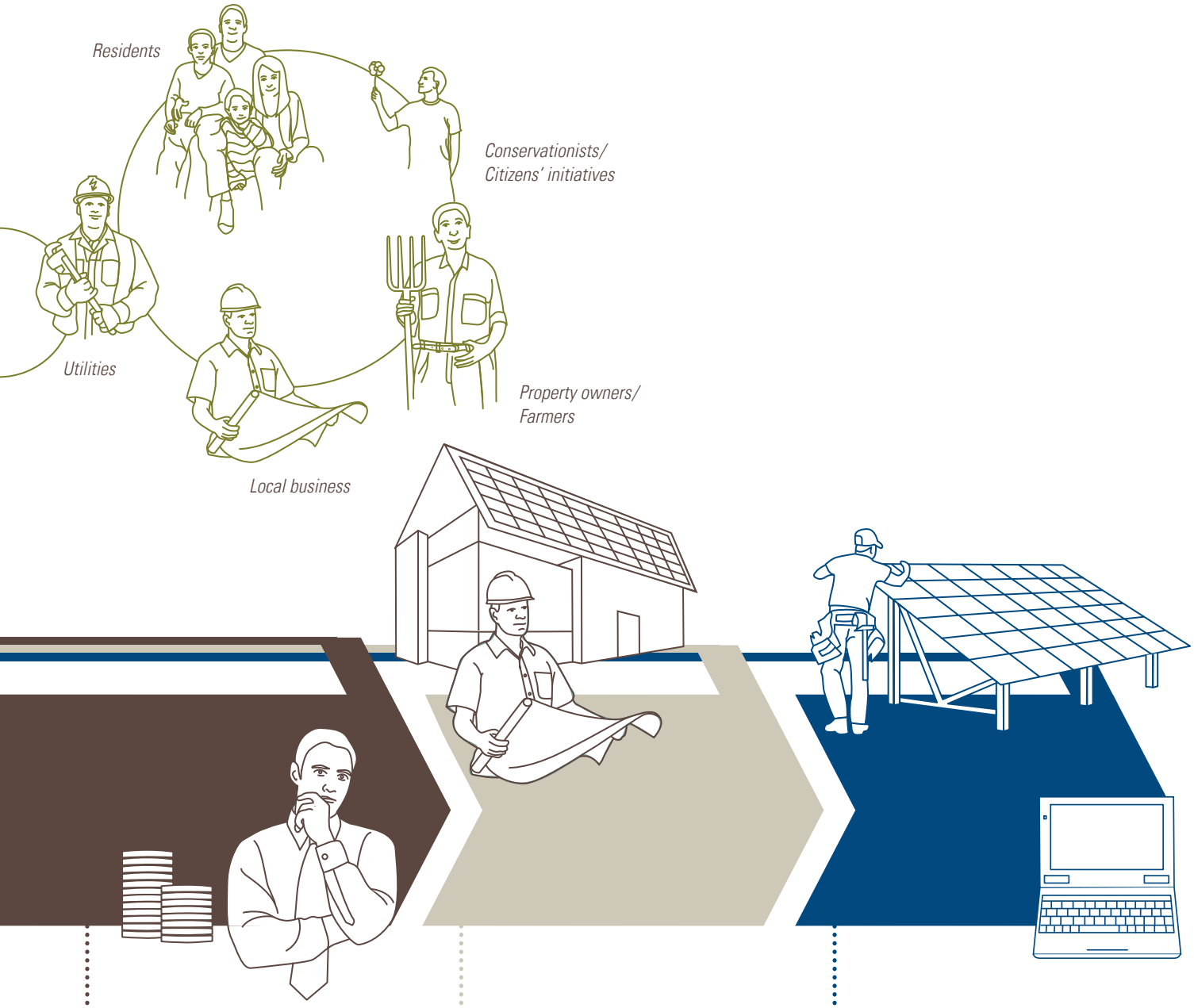
Diversity is one of juwi's strength and this is a very attractive quality, especially in the photovoltaic sector. Our employees do their very best to address your specific ideas: whether you lease your roof or open space for a photovoltaic system, whether you would like to build a PV system yourself or are an investor looking for an attractive project. We offer a broad spectrum of opportunities and a range of diverse services. And no two projects are alike. Which contracts should you sign and with whom? How can you integrate solar energy into a local authority's energy concept? We offer comprehensive consultation and guide you through every step of the process – from A to Z.

Planning

The photovoltaic project begins with the search for an appropriate surface. Does the roof face south? Will it bear the weight of the module? Will it be renovated in the near future? Even with open spaces, the selection of location plays an important role in the project. The best spaces are sealed surfaces, military conversion areas or unused farming areas. juwi collects yield appraisals, investigates plans for the region and looks into options for connecting the system to the power grid. We also resolve any questions related to property law. We always keep the big picture in mind and select projects that offer the greatest benefit to all of our partners.

Development

We select appropriate surfaces with the potential for profitable yields. Our project managers take care of all leasing contracts and building licenses. If there are conflicting interests and viewpoints, we organise compromises that suit all parties, for example between economic developers and conservationists. We size the systems and select the types of modules and module systems needed to suit the specific land area. In this phase of the project, we also make detailed plans for coordinating the system's construction. And throughout the entire project, we will stand by as your contact partner – until your system is up, running and producing clean, reliable energy.



Financing

We optimise the efficiency of a project at all levels: Framework agreements with renowned manufacturers, such as First Solar, SMA or Schletter guarantee cutting-edge technology at affordable prices. Our professionals also help you to finance your solar power systems. We negotiate ideal credit conditions with banks. As a project owner, you benefit from contracting juwi to construct a system for you. Upon request, we can also take over the financing of the project and the search for private or institutional investors.

Construction

juwi has experience with over 1,500 planned photovoltaic systems. For the large majority of projects, juwi coordinates all activities during the construction phase. Solar modules, installation systems, inverters and transformers are delivered, assembled and connected. juwi connects the system to the power grid and commissions the system. First kilowatt hours are fed into the grid. By contracting regional construction and transportation companies, we make a regular contribution to value creation in the area. We also offer high-quality components.

Management

Upon request, we can take over the technical management for you. This includes daily inspection with remote monitoring, and if necessary, our service technicians can carry out maintenance. This is important, because the efficiency of a PV project is dependent upon smooth operation over a period of 20 years or more. If desired, our business management professionals will handle your accounting. We create invoices and annual reports, monitor payments and conclude agreements with property owners, banks and insurance agents – and we do all this while minimising costs and maximising yields.

Utility-Scale Photovoltaics

With high-capacity solar power plants juwi pushes the development of a renewable energy supply. We plan, construct and operate utility-scale free-field and rooftop solar power plants. The produced power can cover the annual need of villages and provincial towns.

Photovoltaics on a grand scale: the solar power plant "Mehringer Höhe".

High-Quality Project Development

Using large areas is especially advantageous for municipalities, businesses and farmers.

We are constantly on the look-out for suitable surfaces. We lease free-fields from 35, 000 m² and larger and large roofs of 3,000 m² and larger. Former airfields, military and industrial conversion areas, landfills and areas along highways or tracks are particularly suited. juwi takes on the complete project management – from location and land acquisition to business management. Moreover, don't forget: juwi makes sure that the numbers line up. Banks and investors earn high yields with solar power. Technology continues to improve, module efficiency rises.

And juwi is a partner to trust. With more than 1,500 PV systems worldwide, juwi has plenty of experience in the area of project development – excellent conditions for your project and investment.

Solar Power Systems for Small and Middle-Scale Roofs

In addition to utility-scale solar power systems, juwi design and constructs small and middle-scale systems for the roofs of one- or multi-family houses, agricultural and public buildings and industrial halls.

Good Times for Solar Power

Solar power is cheaper than ever before. Photovoltaic systems with a nominal capacity of around 20,000 MW were installed all over the world by the end of 2009. For example in Germany the reason for the boom in this sector is the Renewable Energy Law (EEG), which guarantees fixed fees for solar energy supplied. Technological advancement helps the sector move forward. New products, such as thin-film modules, are taking the market by storm. Efficiency continues to increase while prices drop. New application opportunities make solar energy an all-around winner. From a single module on a building exterior all the way to large solar power plants capable of producing megawatts of energy – nothing is impossible with the next generation of PV modules. The major advantage of solar power generation is that it is safe and environmentally-friendly. The energy of the sun is directly transformed into electrical power, which is used to operate our machines and household devices.

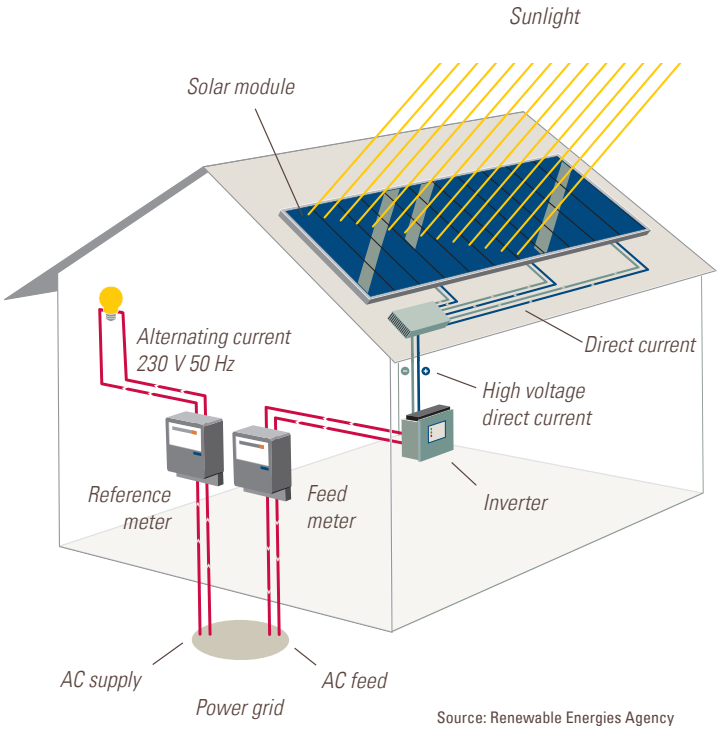
Sale of Components

If you are a distributor for photovoltaic systems or a developer/ installer of middle and large-scale photovoltaic plants you can profit from our extensive professional know-how and international project experience.

Components at competitive conditions

We offer solar modules, inverters and other components at competitive conditions. juwi is a reliable and established partner and offers:

- quality tested components
- worldwide delivery
- independent logistics for projects and construction sites
- supply on schedule
- competitive conditions



Source: Renewable Energies Agency

Module surface

Stadion Bentegodi Verona | Italy

Installed capacity 999 kW_{peak}, annual yield approx. 930.000 kWh, module surface area approx. 9.600 m², modules 13.300 pc. (First Solar), inverter 141 x SMC 7000 HV (SMA Solar Technology AG)

Football and energy- could there be a better combination? juwi installed a solar power system on the roof of the soccer stadium in Stadion Bentegodi in November 2009. The company had already equipped the soccer stadium in Mainz with a photovoltaic system in 2004. Verona's wholesale market Veronamercato is also equipped with a 1.7 MW roof top system – one of the largest photovoltaic plants in Italy.

El Cura solar park in Andalusia | Spain

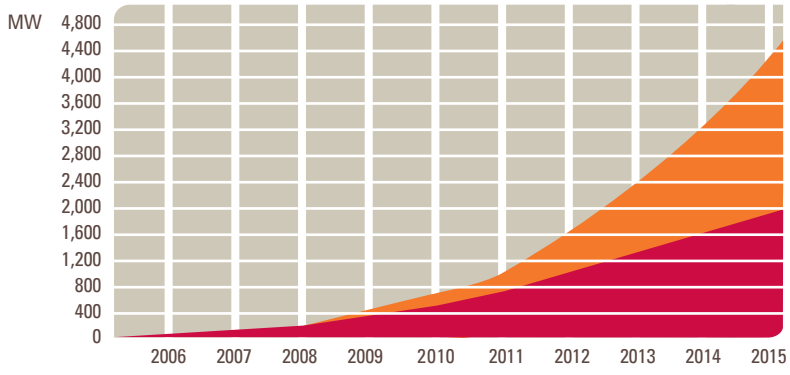
Installed capacity 2,000 kW_{peak}, annual yield approx. 3.1 million kWh Module surface area approx. 20,000 m^2, module 27,000 pc. (First Solar) Inverter 282 x SMC 7000HV (SMA Solar Technology AG)

In Summer 2008, juwi, together with a Spanish project partner, commissioned its first solar power plant on the Iberian peninsula. Since then, the modules installed in the Andalusian province of Malaga have been operating under optimal climatic conditions. The system, which covers a total surface area of 60,000 square metres, saves 2,000 tonnes of carbon dioxide every year, thereby making a significant contribution to protecting the environment.

Solar energy projects

juwi group worldwide

All signs point to growth: By 2015, juwi will increase its total solar power capacity to more than 4,500 MW worldwide.



Germany

International

Reference Projects

Logistics Center Philippsburg | Germany

Installed capacity approx. 7,400 kW_{peak}, annual yield approx. 7.3 Mio. kWh
Module surface area approx. 87,000 m^2, module 95, 500 pc. (First Solar)
Inverter 10 x SMA

juwi has installed its so far largest rooftop solar power system on the roof of Goodyear Dunlop's logistics center in Philippsburg. The installed thin-film modules produce enough power to cover the supply of 1,800 households.

juwi has installed additional utility-scale solar power systems on the roofs of production facilities in Muggensturm and Gundelfingen.

Lieberose solar park | Germany

Installed capacity approx. 52,800 kW_{peak}, annual yield approx. 53 million kWh
Module surface area approx. 500,000 m^2, module 700,000 pc. (First Solar)
Inverter 38 x SMA large-scale inverter

In 2009, juwi built the world's second-largest photovoltaic power plant on a former military training area north of Cottbus. With a capacity of 53 MW and a surface area of 162 hectares (210 football fields), Lieberose is the largest solar installation in Germany. It is also an important model project for the renaturation of military areas that have been heavily damaged by military equipment and munitions.

juwi invests in ambitious growth. With over 500 solar employees, we are active in Germany and abroad – for example in Spain, Italy, France, Greece, the Czech Republic and the USA. We already have projected over 1,500 photovoltaic systems worldwide with a total yield of around 700 MW and an investment volume of over EUR 2 billion. By 2015, we plan to increase our capacity by over 4,500 MW. Large lighthouse projects, such as the solar park in Lieberose, represent important milestones and carry international clout. But smaller systems on rooftops and in open spaces are important parts of the renewable energy mix. juwi plans to continue to develop offers for standalone systems that produce solar power independently of the public power grid. Successful applications include carports with roofs equipped with thin-film modules for an attractive look. Together with charging stations for electric cars, these carports can become central elements of an innovative transportation concept.

Our Company

juwi was founded in 1996 by Fred Jung and Matthias Willenbacher. Together, they developed the company, headquartered in Wörrstadt, in the state of Rhineland-Palatinate, Germany, from a two-person operation for planning wind farms into a globally operating group with more than 1,200 employees and an annual turnover of approx. EUR 800 million. juwi offers its clients service expertise in all areas of renewable energy all the way down the value creation chain – from planning and acquisition of specially chosen areas and locations to financing and management of the systems.

In July 2008, juwi moved its headquarters to the most energy-efficient office building of the world in Wörrstadt. The building offers over 17,000 square metres of area for work and communication as well as spaces designed to an accommodate creativity and relaxation. Photovoltaic modules on rooftops and building facades generate clean solar power over a surface area of 3,400 square metres. juwi has been awarded a number of times for its company philosophy and the building concept, amongst others with the German Climate Protection Prize 2008 and the Clean Tech Media Award 2009. The headquarters was extended twice – now offering workplace for 700 employees.

juwi's Energy Mix

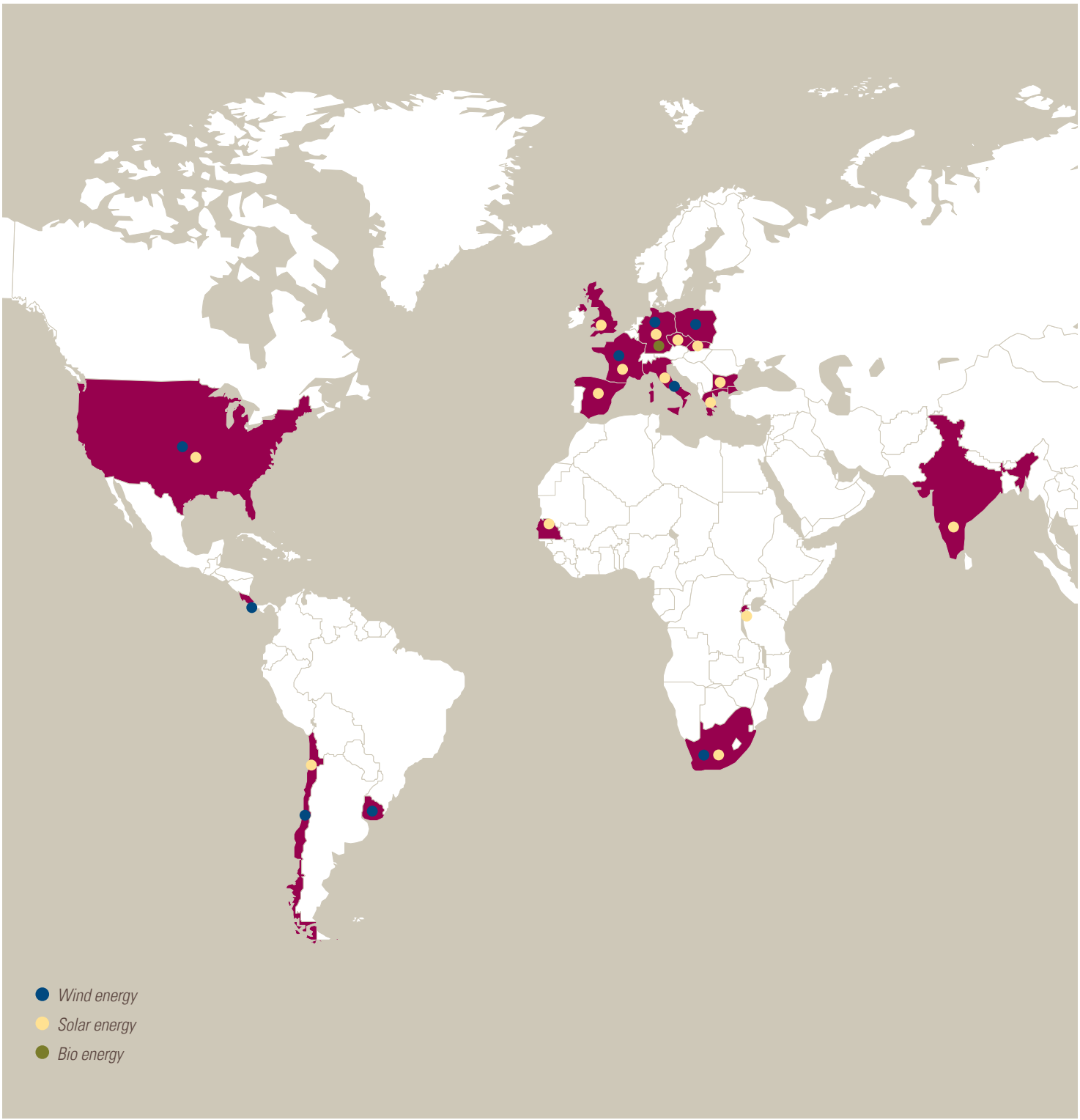
juwi is currently active in all fields of renewable energy. In the wind sector, juwi has already built more than 440 wind turbines with a total capacity of over 700 MW. These include wind farms in Germany, France, Poland, Costa Rica and the USA. Another one of our activities is bio energy. In this field, juwi experts are planning biogas power plants, heating plants and wood pellet factories.

Combining different types of energy enables us to make a complete transition to using renewable energy sources, step by step. This 100% vision forms the basis of our company philosophy. We are trying to achieve this vision as part of the "100% campaign", which has recently been turned into a charitable trust. We engage in studies, develop energy concepts for communities and municipalities and share our message at trade shows and other events.

In addition to our activities in the three established sectors – wind, solar and bio energy – the juwi-Group also helps to create new fields of business. juwi Research & Development is currently planning its first hydropower project on the Main. In addition, we have performed our first tests along the Upper Rhine Rift with the goal of finding promising bore sites able to generate enough geothermal energy to establish a power plant. Another one of our goals is to connect renewable power generation with the needs of today's transportation and mobility sectors. juwi develops innovative mobility concepts and presents these in the Clean Energy & Mobility Centre based in Wörrstadt.

From July 2010, juwi is also active in the area of sustainable re-/construction, further completing its services for an energy supply covered 100 percent from renewable sources.

juwi Group Activities Worldwide



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juwi Solar GmbH

Energie-Allee 1
55286 Wörrstadt, Germany

Tel. +49. (0)6732. 96 57-0
Fax. +49. (0)6732. 96 57-7001

solar@juwi.com
www.juwi.com