



Twenty-first European Photovoltaic Solar Energy Conference and Exhibition

PRESS RELEASE

21st European Photovoltaic Solar Energy Conference and Exhibition
Dresden, 4th - 8th September 2006

European Solar Energy Conference brings researchers and industry together

John Bonda Award presented to the German MP, Hans-Josef Fell

Dresden, 08.09.2006 – Researchers, industry representatives and politicians met in Dresden last Wednesday for the 3rd PV Industry Forum which took place as part of the European Solar Energy Conference, EU PVSEC. Worldwide, by the end of 2005, solar power stations with a total capacity of 5 gigawatts had been installed. In 2005 alone, 1.4 gigawatts were installed. At present the industry is growing at a rate of 40% per annum. This year's Industry Forum covered themes such as the political framework conditions, the networking of research and development at a European level, as well as ways of achieving cost reductions and global market developments. In Germany alone, 30,000 people are employed in the photovoltaic industry. The sector is heavily investing into research and development, as well as the expansion of production capacities in order to further reduce the costs of solar power by benefiting from economies of scale. Export opportunities are excellent, for example in the area of rural electrification. The initiator of the PV Industry Forum, which was attended by around 900 participants, is the European Photovoltaic Industry Association (EPIA).

In his opening speech, Dr. Winfried Hoffmann, President of the EPIA and general manager of SCHOTT Solar GmbH, sketched out the latest developments in the industry. Of the 1.4 gigawatts of solar energy capacity newly installed last year, 600 megawatts were in Germany, where the industry generated sales of around €3 billion and has created 30,000 jobs. Thanks to this growth, the cost per kilowatt hour of generated electricity has been more than halved since 1990. Nevertheless, solar-generated electricity remains more

**Dynamic market
development**

expensive than electricity generated from conventional sources such as oil, gas and uranium.

“In five to ten years, solar-generated electricity for peak power will have become economically viable in the liberalized energy markets of Southern countries,” explained Dr. Hoffmann. “In the North, it will take an additional ten years to reach that point.” Against the backdrop of a sharp rise in electricity consumption worldwide – with experts forecasting an doubling of today’s 17,000 terawatt hours by 2040 – Dr. Hoffmann believes that solar-generated electricity is the only real option. Solar energy is determined by solar irradiation, which means that solar generation and solar consumption largely match. The curves of the two values are almost identical. “In liberalized energy markets, where the prices are particularly high between 10a.m. and 5p.m. – especially in the summer – due to the high peak load, solar power is particularly valuable,” Dr. Hoffmann continued.

The EPIA expects that in 2040, 25% of electricity consumed worldwide will be solar-generated. Promotion programmes, such as those which were created in Germany under the Renewable Energies Act, and have been implemented in a further 19 European countries, are of great importance if this goal is to be achieved.

Developing countries have a high and increasing share in the growth of the world's consumption of electricity. In rural areas, however, the development of electricity networks as they exist in the western industrialised countries, is neither technically nor economically possible. According to a survey carried out by the International Energy Agency, IEA, in 2004 the level of electrification worldwide was 52.4%, but in Africa it was only 19%. Electricity is an essential infrastructure element for the economic development of these countries. The advantage of solar energy is that it can be developed in a decentralised way. According to Ernesto Macias, General Manager of the Spanish manufacturer Isofotón, and Board Member of the EPIA, “in the last ten years the industry has made great progress, for example with the development of weatherproof inverters, high-performance battery systems and photovoltaic hybrid systems.” In order to promote rural electrification in the developing countries, the EPIA initiated the Alliance for Rural Electrification, which was joined by the world's leading industry associations.

Rural electrification in developing countries

The need to achieve a significant reduction in the cost of solar-generated electricity was one of the main focal points of this year's PV Industry Forum. Industry representatives see growth and effects of scale as the key to such a reduction. Boris Klebensberger, of SolarWorld AG, forecasts that with regard to solar cells, an annual production capacity of 250 megawatts will be standard in 2010. Only ten years ago, the figure stood at 5 megawatts. Today, a typical production facility for the manufacture of solar cells has a capacity of 100 megawatts per annum. With regard to the solar

technology industry overall, Klebensberger believes that, compared with 2005, a further reduction of costs by one third in 2010 is realistic.

Anton Milner, Chairman of the German company Q.Cells AG and a member of the EPIA Board, sees a window of 4-10 years for the industry, during which significant cost reductions must be achieved for solar energy to become competitive. The technological improvements known today already make for a cost saving potential of 40-50% over the coming five to six years, estimates Milner. He explains that today, the generating costs of solar electricity of 22-35 EuroCents per kilowatt hour in countries with high levels of sunshine are below the prices charged from consumers.

Dr. Karin Freier from the German Ministry for the Environment, Nature Conservation and Nuclear Safety, explained at the Industry Forum what political framework conditions are to be expected in Germany for the future. It is intended that renewable energy sources will provide 12.5% of electricity generated by 2010, with this figure rising to 20% by 2020. According to the Ministry, in 2005 sales of €9 billion were generated by the construction of plants and manufacturing sites for the use of renewable energy sources alone. In 2004, around 157,000 people were employed in the German renewable energies sector. At present, a Ministry working group is preparing a long-term energy strategy, which will be presented next year. During the same period the Ministry will be publishing a report on the degree to which the Renewable Energies Act has been able to achieve its goals. In his speech, another Ministry representative, Joachim Nick-Leptin, discussed the Ministry's aims for solar-generated electricity. He said that system costs should be reduced from €4.50-€5.50 per watt in 2005, and to €1.50 in 2020. The Ministry wants to see the cost of solar-generated electricity cut to 10 EuroCent per kilowatt hour in 2020. In order to achieve these goals, the use of silicon should be reduced from 10 tons per megawatt in 2005 to 5 tons per megawatt in 2020, with a simultaneous increase in the efficiency of cells by an average 20% over the same period.

Another focus of the PV Industry Forum was the development of the photovoltaics sector, which has been largely determined by China's entry as a provider. In his speech, Frank Haugwitz of the German Agency for Technical Cooperation (GTZ), gave detailed background information on the subject. China places great emphasis on rural electrification. Following a pilot project which ran from 1999-2002, local electricity supplies for 400,000 people in 721 villages were set up between 2002 and 2004 with an investment of €200 million, as part of a "Township-Programme". During the present plan period, 2006-2010, an allocation of €3.2 billion has already been made for investment in rural electrification. Up to the end of 2005, solar energy installations with a capacity of around 70 megawatts were installed in China. By comparison, Germany's installation capacity was 1,508 megawatts at the end of last year. These figures clearly

Political framework conditions in Germany

Development of the global photovoltaics market

show that China is primarily interested in export and is investing heavily in research, development and quality assurance.

Endo Eiichi of the Japanese National Institute of Advanced Industrial Science and Technology (AIST) reported on developments and experiences with photovoltaic promotion programmes in Japan. Japan was the first industrial country to start promoting solar-generated electricity. According to the Japanese Photovoltaic Energy Association (JPEA), current planning foresees an increase of the existing solar energy capacity to 5 gigawatts (GW) in 2010, 30GW in 2020 and more than 80GW in 2030. Japan has recently introduced market incentive programmes to reach this goal.

Unlike China, Japan intends to primarily use solar energy to cover domestic demand. Despite the large domestic market, the majority of Japan's production volume is exported. At the end of 2004, production capacity for photovoltaic systems in Japan amounted to 800 Megawatt Peak (MWp). As Dr. Hoffmann of SCHOTT Solar explained in another speech, around 450 MWp of this was exported. These figures clearly demonstrate the importance of both synchronising research and development at European level, and of stable political framework conditions.

In the USA too, we see a change in attitude. At the opening session of the European Photovoltaic Conference and Exhibition, under whose auspices the PV Industry Forum took place, the President of the American Council on Renewable Energy, ACORE, Michael Eckhart, had given an impressive speech on latest developments in the USA. It is not merely the cost of petrol – which has recently doubled for US consumers – which has brought about this paradigm shift. Broad sections of the population are now aware of the dangers of climate change and politicians have recognised the risk of increasing dependency on oil imports. In the USA the call for renewable energies is coming from the Federal States. One major breakthrough was achieved by the Governor of California, Arnold Schwarzenegger, with his Million Solar Roofs Initiative, which foresees an investment of \$3.2 billion for the construction of solar power plants with a capacity of around 3 gigawatts.

Richard King, from the US Department of Energy, presented the USA's current promotion policy to the PV Industry Forum. The budget for measures in the areas of energy efficiency and renewable energy sources amounts to \$771 million. A further \$539 million is earmarked for research in the areas of nuclear fusion, solar energy, biomass and hydrogen. Funds for the "Solar Energies Technologies Program" will rise from around \$85 million in 2005 and 2006 to an estimated \$148 million in 2007. It is hoped that by promoting the industry in this way, the original goal of reducing solar energy costs from 5-10 US Cents per kilowatt hour by 2020 can be achieved as early as 2015 instead.

Developments in Japan

Reorientation in the USA towards renewable energies

As part of the PV Industry Forum, the John C. Bonda Award was presented for the 6th time. With this prize, the European Photovoltaic Industry Association (EPIA) annually recognises individuals and institutions who have made a major contribution to increasing the use of photovoltaics.

This year's winner is Hans-Josef Fell, a member of the German Parliament, who has dedicated himself to the promotion of renewable energies, in particular solar energy, for many years. Hans-Josef Fell is the author of the draft of the German Renewable Energies Act. In recognition of his efforts, Hans-Josef Fell already received an Energy Globe Award in 2000 and the Nuclear-Free Future Award in 2001. The latest prize is named after John C. Bonda, the EPIA's first General Secretary. Bonda built up and led the industry association over a period of 15 years.

John C. Bonda Award goes to German MP Hans-Josef Fell

The European Solar Energy Conference, EU PVSEC, which ends today, is supported by various bodies including the European Commission, the German Ministry for the Environment, Nature Conservation and Nuclear Safety, and UNESCO.

Institutional support

The European Photovoltaic Solar Energy Conference and Exhibition, EU PVSEC, which was opened in Dresden on Monday by the Minister President of Saxony, Prof. Georg Milbradt, will close today. It is the world's leading specialist conference on solar energy generation. The parallel trade fair, with around 400 exhibitors in a show space of 16,000sqm, is the world's biggest photovoltaics exhibition. Over 2,700 researchers, industry representatives and politicians from 94 countries are attending this year's EU PVSEC.

World's leading specialist conference and industry fair

Characters (incl. spaces): 12,461

About WIP-Renewable Energies:

WIP plans, develops and manages the construction and operation of systems and plants in the area of energy technology. This includes photovoltaics, bio-energy, wind energy, hybrid energy systems, buildings-integrated energy systems, municipal energy and environmental planning, energy saving and water supply and desalination using renewable energies.

WIP-Renewable Energies' services to industry, utilities and energy consumers range from plant development through operational monitoring to the development of strategies for the full integration of renewable energies in the power industry.

WIP-Renewable Energies is a member of the European Photovoltaics, Biomass and Wind Energy Associations (EPIA, EUBIA and EWEA), a founding member of EUREC, the European Renewable Energy Research Centres Agency, and a member of the German Solar Industry Association.

The company, whose head office is in Munich, was established in 1968. The use of renewable energies has been one of WIP's strategic business areas since 1982.

Further Information about the 21st EU PVSEC:

www.photovoltaic-conference.com

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