"renewables made in Germany" NEWSLETTER

16.09.2005

Recently you were in contact with an employee from the Deutsche Energie-Agentur GmbH (dena) - German Energy Agency. Due to the interest you expressed in renewable energy technologies, we have included you on our "renewables made in Germany" newsletter mailing list. Today we are pleased to introduce our inaugural issue, which features articles on the following topics:

- Current developments in renewable energy around the world
- interesting projects and applications in renewable energy
- state-of-the-art German technologies and services for using renewable energy sources
- opportunities and events that let you find out more and get in touch with German companies - maybe in your area soon.

We hope you enjoy reading this issue! - The Renewable Energy Division of dena.

Content

1. The success story continues - renewable energy increases its share in electricity production in Germany to 11%

According to information from the German Electricity Industry Association (Verband der Elektrizitätswirtschaft, VDEW), the proportion of electricity generated in Germany using renewable energy sources increased to 11% in the first half-year of 2005. In 1998, renewable energy sources generated only around 5%.

Overall electricity generated from renewable energy sources rose to 13% to 31 billion kilowatt-hours compared to the first half of 2004. This figure equals the amount of electricity consumed by around 18 million four-person households in the same period. At 48.7%, wind energy accounted for just under half of the electricity produced using renewable energies, while hydropower and biomass including biogenic waste accounted for 37% and 13.2% respectively. Photovoltaics made up 1% of the electricity produced. This 50% increase compared to the previous year marks the greatest relative development in all renewable energy technologies.

The use of renewable energy to generate electricity has expanded faster in Germany than in other countries thanks to Germany s feed payment system. The system guarantees producers a fixed price for electricity generated from renewables and fed into the grid. The price depends on the technology used and is reduced from year to year. As a result, competition is encouraged, and the industry has an incentive to continue to develop the technologies.

2. Quota or tariff - two models for promoting renewable energy

Governments use feed-in tariff and quota models in particular to promote the use of renewable energy to produce electricity.

Feed-in tariff models (also called fixed price and minimum price systems) require energy supply companies to give priority to electricity generated using renewable energy sources, feed it into the grid, and pay producers a fixed price. The amount and period of compensation and grid access issues are regulated by law.

Under the quota system, the government specifies that a fixed proportion of electricity on the national electricity market must be produced by renewable energy sources. Producers, distributors, and grid operators must produce, sell, or distribute this amount within a specified period. Quotas are set to ensure that this agreement is fulfilled, and parties that do not meet the requirements face penalties. Quotas and surcharges are regulated by a law.

Opinions differ as to which model is appropriate for encouraging the generation of electricity from renewable energy sources. Sixteen EU member states currently promote renewable energy using a feed-in tariff model, while five use a quota model.

A comparison of the wind power industry in Germany (feed-in tariff model) and Great Britain (quota model) conducted by the Cambridge-MIT Institute in the UK came to the conclusion that the German feed-in tariff model is a successful instrument for promoting renewable energy and encourages competition.

(Download Cambridge MIT study)

3. Wind energy - a short introduction

Today, wind turbines are modern high-tech power plants. To produce electricity, rotor blades take up the kinetic energy of wind, convert it into mechanical power, and then into electricity in a generator. The three-blade horizontal rotor is used in most applications and has proven to be mechanically reliable, attractive, and quiet. It is generally designed to provide optimum generator output at wind speeds between 11-15 m/s, although it also runs efficiently at lower speeds. The output of a wind turbine increases with the swept area of the rotor blades and by the power of three with wind speeds. Thus, a 10% increase in wind speed increases output by a third.

The average wind speed on site is a crucial parameter for the energy yield of a wind turbine. Depending on the location, a single 1.5 MW turbine produces 2.5 to 5 million kWh of electricity per year. It thus provides enough power for 800 to 1600 four-person households in Germany.

Modern control technology is used when wind turbines are connected to the grid to ensure a smooth, gradual transition that prevents fluctuations in the grid. Predictions of wind power production have become so reliable that 24-hour forecasts are accurate to within 10%. Today, wind turbines set up in groups called wind farms make up most of the new installations, and stand-alone systems are set up in areas where the public grid is too far away or connections would be too expensive. Here, the goal is not to install the greatest possible wind capacity, but rather capacity that suits local conditions and needs.

For information on German wind energy industries please visit www.renewables-made-in-germany.com.

4. First steps in the emissions trading - the 18.4 MW Pakri wind farm in Estonia

In early 2005, German wind turbine manufacturer Nordex AG connected the Pakri wind farm in Estonia to the grid. The project was initiated in 2004 by Danish developer Global Green Energy. Estonian project development company Pakri Tuulepark, a 100% subsidiary of Norwegian energy supplier Vardar, awarded Nordex the job of constructing the wind turbines.

The eight type-N90 wind turbines (rated power 2.3 MW) on the Paldiski peninsula in the Gulf of Finland are expected to produce approximately 56,000 MWh of electricity annually, or one percent of the country‘s electricity consumption. This forecast is based on wind measurements taken over a 42-month period, which returned an average wind speed of 8.0 m/s at a hub height of 80 meters.

The Pakri wind farm is a joint implementation project under the Kyoto Protocol and provides for the sale of certificates equaling 500,000 metric tons of CO2 emissions to Finland. Wind farm operator

Vardar will receive 2.9 million for the sale from Finland. The farm is one of the first projects to be financed in part by emissions trading. The project will result in the avoidance of a total of 1,300,000 metric tons of CO2.

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5. renewables made in Germany - products and services

INDUSTRY: PHOTOVOLTAICS

- Provider: Q-Cells AG
- Product: Q6L multicrystalline silicon solar cell

Description: The extended 6-inch plus format solar cells with an edge length of 156 mm are 50% more powerful than conventional standard 5-inch cells, leading to huge cost and capacity advantages for the customer.

INDUSTRY: SOLAR THERMAL

- Provider: Schott AG
- Product: ETC 16 evacuated tube collector

Description: The collector tube and innovative connection to the collector system enable high performance on a small scale. The collector can be adapted easily to roof space.

INDUSTRY: BIOENERGY/BIOGAS

- Provider: Hese Umwelt GmbH
- Product: Biogas plants

Description: Hese Umwelt uses three different anaerobic waste treatment procedures, which enable safe operation throughout the year. Methane yield depends on the composition of the waste. Materials include organic waste, food waste, manure, and other agricultural residues. Biogas can be used in combined heat and power plants to generate heat and electricity.

INDUSTRY: HYDROPOWER

- Provider: Ossberger GmbH&Co KG
- Product: Turbine

Description: Ossberger builds customized hydroelectric power plants. Ossberger offers other products in addition to turbines in a wide range of sizes. Trash rack cleaners prevent foreign objects from entering your power plant. Regulator: Hydroelectric power plants must be maintenance-free and reliable. Ossberger water turbine regulators regulate and control the turbine and automatic connection and disconnection processes.

6. Get in touch - "renewables made in Germany" business trips

Are you looking to get in touch with experienced German companies and find out more about renewable energy technologies from Germany? The "renewables made in Germany" program sends delegations of German businessmen and women in the renewable energy industry to all parts of the world to present their expertise and products and to discuss cooperation opportunities.

Each event includes a one-day seminar where you can find out about current developments in renewable energy technologies and products from the visiting German businessmen and women. Below is a schedule of events and countries. If you are interested, please send an e-mail to the relevant chamber of commerce. We re looking forward to meeting you at one of our events!

Date	Location	Topics	Contact
September 26 - 30, 2005	CHILE, SANTIAGO DE CHILE	Bioenergy (biomass), hydropower, wind energy	medioambiente@camchal.com
September 26 - 30, 2005	HUNGARY, DEBRECEN	Bioenergy (biomass/biogas)	szinte@ahkungarn.hu
October 12 - 14, 2005	THE NETHERLANDS, THE HAGUE	Wind energy	a.loehr@dnhk.org
October 11 - 14, 2005	AUSTRIA, VIENNA	Bioenergy/biomass/biogas, solar energy	sybilla.einem@dhk.at
October 17 - 21, 2005	TAIWAN, TAIPEI	Geothermal energy, solar energy	a.loehr@dnhk.org
October 17 - 21, 2005	PORTUGAL, LISBON	Solar energy	marketing@ccila-portugal.com
October 19 - 21, 2005	FRANCE, PARIS	Wind energy	wlindermeir@francoallemand.com
October 24 - 27, 2005	SLOVENIA, LJUBLJANA	Bioenergy/biomass/biogas, solar energy, wind energy	gertrud.rantzen@dihk.si
October 24 - 28, 2005	SINGAPORE, SINGAPORE	Solar energy	muna.karatschai@sgc.org.sg
October 31 - November 04, 2005	NEW ZEALAND, WELLINGTON	All renewable energy sources	admin@germantrade.co.nz
October 31 - November 04, 2005	SOUTH KOREA, SEOUL	Bioenergy (biomass), geothermal energy, hydropower	dstroehmann@kgcci.com)
November 07 - 11, 2005	USA, SAN FRANCISCO	Solar energy	rgurka@gaccny.com
November 07 - 11, 2005	GREAT BRITAIN, LONDON	Wind energy	green.dot@ahk-london.co.uk
November 07 - 11, 2005	SLOVAKIA, BRATISLAVA	Bioenergy/biomass/biogas	uam@dtihk.czu
November 14 - 18, 2005	RUSSIA, MOSCOW	Bioenergy/biomass	spaak@izdw.ru
November 14 - 18, 2005	THAILAND, BANGKOK	Bioenergy/biomass	narin@gtcc.org
November 21 - 25, 2005	CHINA, BEIJING	Wind energy, solar energy	badelt.georgia@bj.china.ahk.de
November 21 - 25, 2005	SPAIN, MADRID	Solar energy	iab@ccape.es
November 21 - 24,	POLAND, WARSAW	Bioenergy, wind energy	mkaiser@ihk.pl

2005			
November 28 - December 02, 2005	USA, DETROIT	Bioenergy (biofuels)	hess@gaccom.org
November 30 - December 02, 2005	NORWAY, OSLO	Wind energy	rassmann@handelskammer.no
November 30 - December 02, 2005	SWEDEN, STOCKHOLM	Wind energy	Micke.Bayart@handelskammer.se
December 05 - 09, 2005	MALAYSIA, KUALA LUMPUR	Bioenergy/biodiesel	brandt@mgcc.com.my
December 05 - 07, 2005	LUXEMBOURG/BELGIUM, LUXEMBOURG CITY	Solarenergie, Geothermie	popp@debelux.org
December 05 - 09, 2005	CENTRAL AMERICA, SAN SALVADOR	Solarenergie, Bioenergie	ahkregion@ahkzakk.com

7. German quality - the dena Solar Roof Program

The Deutsche Energie-Agentur GmbH (dena) - German Energy Agency is making German solar technology available abroad. Photovoltaic power plants installed on the roofs of 4 German schools abroad are a visible example of the expertise and quality of German solar power generation technology. An additional 10 flagship projects are being planned. Below is the contact information for the projects that have already been implemented:

Country	Company	Contact
GREECE, ATHENS	Solar-Fabrik AG / RWE SCHOTT Solar GmbH	a.ocker@solar-fabrik.de
EL SALVADOR, San Salvador	Phönix Sonnenstrom AG / SMA Technologie AG	castillo@SonnenStromAG.de
PORTUGAL, LISBON	IBC Solar AG	martina.polke@ibc-solar.de
NAMIBIA, WINDHOEK	Sunset Energietechnik GmbH	theo.strecker@sunset-solar.com

8. Become a partner of the "renewables made in Germany" technology exhibit

The Deutsche Energie-Agentur GmbH (dena) - German Energy Agency is organizing the "renewables made in Germany" technology exhibit to support the spread of renewable energy technologies around the world. The exhibit uses 24 illustrative display boards to provide an introduction to the various forms of renewable energy technologies answering questions such as:

- What advantages do the different sources of energy and types of technology offer?
- How do they work?
- Where are they used?
- What expertise do German companies possess in this sector?

The exhibit has already been part of more than 70 events in over 50 countries. You can rent it for your event for up to three weeks at no cost except shipping and handling.

Samples of the exhibit can be viewed at:
English (10 MB): www.exportinitiative.de/exhibit/english

French (10 MB): www.exportinitiative.de/exhibit/french
Spanish (10 MB): www.exportinitative.de/exhibit/spanish

For further information, please contact Corinna Klessmann, klessmann@dena.de

9. NEW - Forum Renewables online

Discuss about renewable energies and post your questions and answers at www.renewables-forum.com. This forum is a meeting place for business people from all over the world and German manufacturers and institutions working in the field of renewable energy technologies (RET). Simply post your questions and answers about RET applications, project ideas, cooperation opportunities and markets online and get in contact to professionals from Germany. We re looking forward to your visit!

Service and editorial information

For more information about German technologies and manufacturers in the renewable energy industry, see our website renewables-made-in-germany. Our online forum is available for project ideas, cooperation opportunities, and general inquiries to German manufacturers and institutions at www.renewables-forum.com. We 're looking forward to your visit.

The next issue of the newsletter "renewables made in Germany" will appear in November 2005.

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