



Press release of the companies and research facilities participating in the research project Giga-PV

Research Project Giga-PV: Solar Power from the Earth's Sun Belt

Niestetal, December 6, 2012 – Inverter manufacturer and system specialist, SMA Solar Technology AG (SMA), the worldwide leader in test services in the solar sector, TÜV Rheinland, and the University of Kassel have joined forces on a research project for the optimization of large-scale PV plants for installation in the regions of the earth's sun belt. The goals of the Giga-PV research project are the optimal customization of individual components to extreme ambient conditions and the further reduction of costs for large-scale PV plants. SMA will manage the research project, which is set to last three years.

The earth's sun belt offers superb conditions for the harvesting of solar power. Large-scale PV plants with power in the gigawatt range spanning several square kilometers and providing electric current feed-in directly to the high-voltage grid are especially well-suited for this purpose.

However, the often extreme climate conditions on-site present a challenge to the plants and their components. These PV plants must be optimized to withstand extreme heat, monsoon rains and desert storms, and at the same time remaining economically viable. The results of the project should help to further the leadership in innovation and strength in exports of the German photovoltaics industry and to develop future growth markets.

Over the next three years SMA, TÜV Rheinland and the University of Kassel are, therefore, collaborating on the Giga-PV research project supported by the Federal Ministry of Education and Research in order to, apart from the optimization of system concepts, PV modules and inverters, achieve a significant reduction in costs for large-scale PV plants installed in the earth's sun belt. The solar module producer Hanwha Q.CELLS GmbH is an additional associated partner. The Giga-PV project is one of many collaborative research projects started up recently within the framework of the "Innovationsallianz Photovoltaik" (Alliance for Innovation in Photovoltaics) and supported by the Federal Ministry of Education and Research as well as the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

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Participating Partners

SMA Solar Technology AG

The SMA Group generated sales of €1.7 billion in 2011 and is the global market leader for solar inverters, a key component of all PV plants and, as an energy management group, offers innovative key technologies for future power supply structures. It is headquartered in Niestetal, near Kassel, Germany, and is represented internationally in 21 countries. The Group employs more than 5,500 people worldwide. SMA's broad product portfolio includes a compatible inverter for every type of module on the market and for all plant sizes. The product range includes both inverters for photovoltaic plants connected to the grid as well as inverters for off-grid systems. SMA is therefore able to provide ideal technical inverter solutions for all plant sizes and types. Since 2008, the Group's parent company, SMA Solar Technology AG, has been listed on the Prime Standard of the Frankfurt Stock Exchange (S92) and also in the TecDAX index. In recent years, SMA has received numerous awards for excellence as an employer and achieved first place in the nationwide "Great Place to Work®" competition in 2011 and 2012.

TÜV Rheinland

TÜV Rheinland is a worldwide leading independent provider of test services with a 140 year tradition. The group employs 16,000 people at 500 locations in 65 countries. They generate an annual turnover of € 1.4 billion. The company had begun work on the technical testing of PV components on a laboratory scale as early as 1985. Today TÜV Rheinland's network of experts in the solar sector encompasses around 300 specialists. As the global market leader in the testing and certification of PV plants, TÜV Rheinland operates eight laboratories in seven countries around the world. On an international scale, more than 500 manufacturers of PV products count as customers of the test services provider. Specialists not only test modules and components, but also develop new testing methods, collaborate on research and development projects for the harnessing of solar energy and supervise the construction of PV power plants on an international scale.

University of Kassel

The University of Kassel was founded in 1971. Currently 22,200 students are enrolled in 10 faculties. Its academic profile is characterized by a specific combination of competencies concentrated on topics in nature, technology, culture and society. The University of Kassel boasts a distinctive profile in the area of research and education in the environmental field.

The Center of Competence for Distributed Electric Power Technology (KDEE) of the University of Kassel, founded by Prof. Peter Zacharias in 2009, deals with the device-oriented energy system technology for the use of renewable

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energy, with a special focus on power electronics in hybrid systems, the distribution grid and decentralized energy conversion as well as in mobile energy supply systems. KDEE and EVS currently employ around 23 staff members and more than 15 student assistants.

The Center for Environmental Systems Research (CESR) was founded in 1994 and deals with topics relevant to the environment, specifically in relation to the group of themes on climate change. Theoretical approaches and model building and simulation methods build up the research focus at the center.

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