

## Press Release

### **PSE AG Constructs Combined Sun Simulator for TÜV Rheinland**

#### **Solar laboratory in Cologne with new steady state solar simulator for testing photovoltaic modules, thermal collectors and solar combinations**

*Cologne/Freiburg, 30 May 2011.* TÜV Rheinland has commissioned a new steady state solar simulator provided by PSE AG in the Cologne Solar Testing Centre. The test bench is to be used for measuring photovoltaic modules, thermal solar collectors and combinations of both technologies – known as PVT modules – for the first time in a sun simulator. "The combined simulator will allow us not only to save time and set-up costs but also to attain maximum reproducibility of the measured results. This is impressively confirmed by the first measurements", commented Ulrich Fritzsche, Specialist Coordinator for Solar Thermal Collectors at TÜV Rheinland.

Under laboratory conditions, a sun simulator provides photovoltaic modules or solar collectors with light from a sun-like spectrum. This means that measurements can be performed and reproduced under precisely defined conditions which are independent of climate. The measured results help us to find answers to the question of whether solar modules and sun collectors actually deliver on their promises and meet the service guarantees made by manufacturers.

For the new TÜV Rheinland test bench, the Freiburg-based company PSE AG constructed the lamp holder, the lamp area with artificial sky and the mobile collector platform. Another supplier built the module test table, while Atlas MTT GmbH provided the high-performance lamps.

In addition to combined utilisation for solar thermal and photovoltaic modules, another special feature of the modern test bench is the automatic shade facility. This facility means that TÜV Rheinland's experts can expose the photovoltaic modules to radiation for a specific period of time and determine the time constants of thermal collectors. Frank Luginsland, Head of Technology at PSE, is more than satisfied: "The shutter, without which it would not be possible to combine the two test benches, darkens the test surface within only a few seconds. This is something we are especially proud of".

The 12 MHG lamps provided by Atlas MTT GmbH have a controllable radiation power of up to 1,200 watts/sqm. An "artificial sky" simulates natural long-wave radiation exchange so that the heat of the lamps does not affect the measured results.

The high-performance radiation devices are integrated in a lamp holder, with an automatic positioning in height and angle. In conjunction with the mobile test table, this allows the TÜV Rheinland inspectors to implement various test designs using angles between 0° and 45°. As the photovoltaic module and thermal collector test surfaces require different alignments for the measurements, two independent test tables are needed. The test surface for the collectors is 2,500 mm x 2,500 mm, while photovoltaic modules can be measured on a horizontal surface of 3,500 mm x 2,500 mm. This means it was possible to implement the lamp area and test table requirements resulting from the different standards for collectors and modules in a single test bench.

#### **About PSE AG**

PSE AG provides solar test equipment and consulting services to international customers. PSE test benches are used by institutes and manufacturers for performance and quality testing as well as certification measures in accordance with international standards. PSE Solar Consulting offers consulting services for rural electrification, coordinates international research projects and organises important scientific solar conferences. The company, which is based in Freiburg, was founded in 1999 as a spin-off from the Fraunhofer Institute for Solar Energy Systems ISE and currently has 65 employees.

#### **About TÜV Rheinland**

TÜV Rheinland is a leading global independent test provider with a history stretching back 140 years. The Group maintains a presence at 500 locations in 61 countries with 14,500 employees. Annual turnover is EUR 1.3 billion. The independent experts stand for quality and safety for people, the environment, and technology in nearly all aspects of life. TÜV Rheinland's network of experts for the solar industry comprises nearly 200 specialists in six laboratories worldwide – in Bangalore (India), Cologne (Germany), Shanghai (China), Taichung (Taiwan), Tempe, Arizona (USA) and in Yokohama (Japan). Worldwide, around 500 manufacturers of photovoltaic modules are customers of the testing service provider. Online: [www.tuv.com](http://www.tuv.com).

You can download press information and photos online at [www.pse.de](http://www.pse.de) and [www.tuv.com/presse](http://www.tuv.com/presse).

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