

Solar Industry: New Research Project on Innovative PVT Collectors Launched

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A new research association is looking into the possibilities of standardizing multifunctional PVT solar collectors. These collectors combine photovoltaics (PV) and

solar thermal energy (T) with the aim of making even more efficient use of solar energy. In addition to the coordinators of the company Solarzentrum Allgäu and TÜV Rheinland, members of the German research association include the University of Applied Sciences Düsseldorf and the Fraunhofer Institute for Solar Energy Systems ISE. The primary aim of the project is to develop test methods for PVT collectors that have hardly become established on the market so far due, in part, to insufficient options for testing and certification.

“The initial stages of series production have begun. The problem is that without suitable standards to test safety in a reliable manner, the products will hardly be able to enjoy success,” says Willi Bihler, Managing Director of Solarzentrum Allgäu and responsible for the project at the company. Ulrich Fritzsche, Project Manager at TÜV Rheinland adds: “The current safety regulations for

photovoltaic modules are not sufficient for analyzing the interaction of both parts dealing with electricity and those dealing with water, as found in thermal collectors.” He explained that, while there are different design certification standards for both photovoltaic modules and solar collectors, precise checks must now be conducted to determine the modifications and changes necessary due to the interaction of both technologies. The results of the research project are then to be integrated in the work of national and international standardization committees.

PVT collectors constitute an innovative opportunity to increase the efficiency of conventional photovoltaic modules and take advantage of the previously unused thermal energy. The performance of photovoltaic modules declines as the temperature of the solar cells increases, and this thermal energy is actively extracted in PVT collectors, cooling the cells. In this way, performance can be increased and the thermal energy can be used to heat water or stored. Covered PVT collectors are also equipped with a glass pane to allow them to make even better use of the thermal energy. This results in a significant increase in temperatures, which, in turn, must have an impact on the used materials and components due to the increased stress. It is precisely issues such as these that the researchers will be looking into in the coming months. They want to define a test procedure and necessary characteristic values to enable them to describe the designs and performance of PVT collectors under different operating conditions. The plan is therefore to reliably ensure the quality and safety of the collectors, which will improve the general conditions for the introduction of new technologies.

Following a resolution of the German Federal Parliament (the Bundestag), the project to standardize multifunctional PVT solar collectors and create standards for them is being supported by the Federal Ministry of Economics and Technology in Germany. The project will run for 18 months,

was initiated by EurA Innovation and has its origins in the ZIM NEMO network “Thermie.” Partners of the project include Solarzentrum Allgäu, TÜV Rheinland, Fraunhofer ISE and the University of Applied Sciences Düsseldorf.

As an internationally leading testing service provider for the solar industry, TÜV Rheinland is active in numerous fields of innovation for the use of solar energy. The company first started laboratory-scale technical testing of solar components back in 1985. TÜV Rheinland’s network of experts for the solar industry now comprises almost 300 specialists in eight laboratories worldwide. As a global market leader for the testing and certification of solar systems, TÜV Rheinland operates test laboratories in Bangalore (India), Gyeongsan (Korea), Cologne (Germany), Osaka and Yokohama (Japan), Shanghai (China) and Taichung (Taiwan) as well as at TÜV Rheinland PTL in Tempe (USA). Across the world, well over 500 manufacturers of photovoltaic products are customers of the independent testing service provider, TÜV Rheinland. The specialists not only test modules and components but also develop new test methods, collaborate on R&D projects for the use of solar energy and assist customers worldwide with the construction of solar power plants.

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