

Press Release

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Energy Rating of Photovoltaic Modules Improves Certainty for Investors

Fraunhofer ISE leads in measurement accuracy worldwide

With its new measurement procedures, the Fraunhofer Institute for Solar Energy Systems in Freiburg can offer more certainty to photovoltaic project developers and investors. The energy rating enables a precise yield prognosis for each location worldwide, therefore improving the bankability. Real environmental effects are taken into account in the testing laboratories and flow into the energy yield assessment. Experts from Fraunhofer ISE's own calibration laboratory "CalLab PV Modules" are present at the Intersolar Europe held from 19-21 June in Munich. They can be found at Booth B2.320 and are happy to provide qualified information.

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"Up to now the data sheet and the manufacturer's specifications have served as the basis for the energy yield assessment when planning photovoltaic systems," explains Boris Farnung, head of the calibration team at Fraunhofer ISE. "In the practice, however, there is often a discrepancy between the manufacturer's specifications and the laboratory measurements. Only with uniform power rating measurements, is it possible to determine benchmarks for different module types at a given location. When the solar irradiation over a day sinks to one fifth the standard value of 1000 W/m², the efficiency decreases two to five percent. In addition, losses due to higher operating temperatures are measurable at Central European locations and become more evident in southern locations."

For the energy rating, the dependence on irradiation and the temperature behavior are measured for a relevant number of modules, chosen randomly. With these measurements, the

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energy yield of a module can be determined for any given location using the meteorological data at the site. The measurements require highly complex and cost intensive equipment that few laboratories worldwide can afford. After undergoing a complete modernization of its measurement technology, Fraunhofer ISE fulfills the requirements over and above those set down in the international standard IEC61853 Part 1. For example, the radiation incident on the test module is extremely homogeneous, while in the climate chamber the preset module temperature remains stable. With a measurement uncertainty of 1.8 percent for crystalline silicon photovoltaic modules, Fraunhofer ISE offers the highest precision worldwide.

At Fraunhofer ISE, the importance lies not only in the electrical measurements. For projects in which thousands of modules are to be installed, clever statistical methods to check the nominal power are needed. Also, special analysis procedures such as electroluminescence are applied to locate hidden faults, like micro cracks. At the Intersolar Europe in Munich, 19-21 June 2013, Fraunhofer ISE can be found at Booth B2.320.

Text of the PR and photos can be downloaded from our web page: www.ise.fraunhofer.de

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Flasher at the Fraunhofer ISE Callab PV Modules. ©Fraunhofer ISE

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