Current Projects

“OptOM” – Cost-optimized Operational Management of PV Systems throughout their Economic Lifetime
In the project “OptOM”, new methods for the intelligent monitoring of PV power plants are being developed. The aim of the project is the early detection of degradation effects in PV plants with the help of artificial intelligence. 200 solar power plants of Pohlen Solar GmbH will be connected to the Internet-of-Things platform of the Freiburg IT company Mondas GmbH and their operating states will be analyzed. In parallel, Fraunhofer ISE scientists are developing corresponding algorithms that evaluate correlations between unusual operating states and plant failures. This can help to minimize yield losses in PV plants and save maintenance costs through predictive maintenance.

“MonSolar” – Center for Performance Monitoring and Benchmarking of Solar Modules
“MonSolar” aims at an independent, comparative analysis of the performance of PV module designs in real-life operation. Monitoring is an indispensable part of product qualification, in addition to the relevant IEC type tests and the manufacturers’ internal quality management. The focus of “MonSolar” is on prototypes and commercial series products, whose yield potential over their lifetime is considered a decisive parameter for purchase decisions, in addition to the module price.

Further Information

Project website “OptOM”

Website “Solar TestField”

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PV Power Plants

Quality Assurance for PV Power Plants

9-291-21

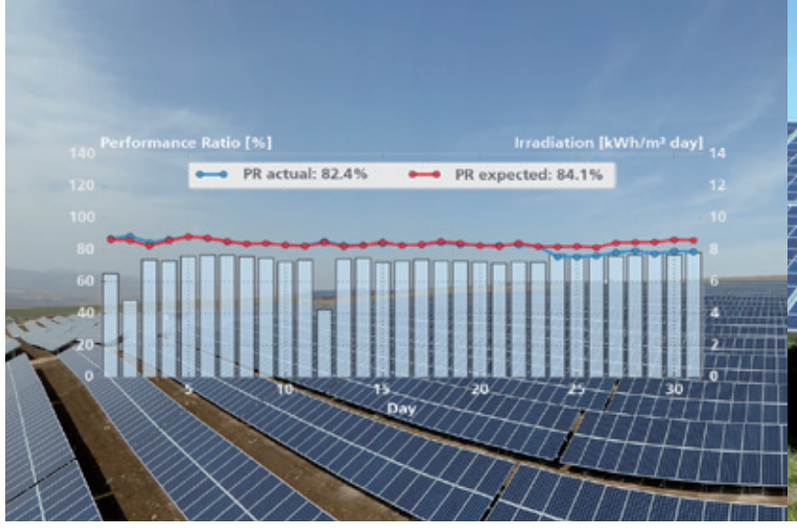
R&D for the Energy Transition

Strong Profitability of your PV Power Plant

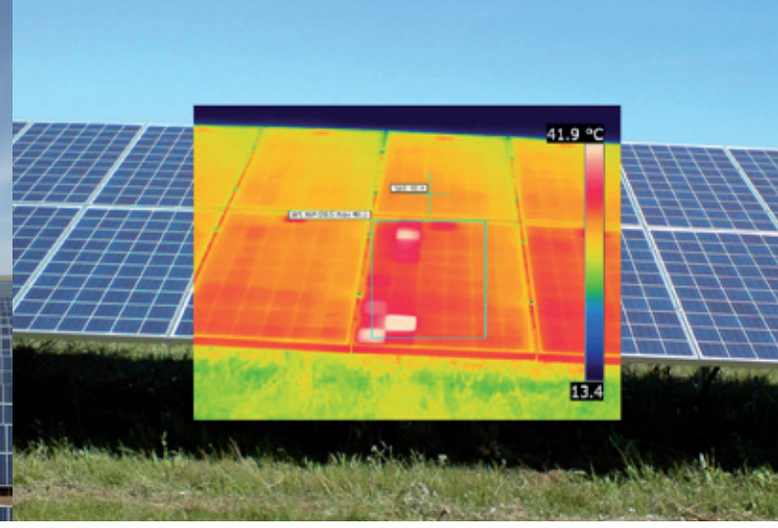
Our independant quality assurance services have been contributing to high performance and optimal yields of PV power plants for more than 30 years. Real world experience highlights the importance of system design, proper planning, engineering, component selection and construction work for successful PV systems. Thus, comprehensive quality assurance for PV power plants covers all phases of the completion process from the planning to system operation and maintenance.

Our Services for Manufacturers, EPCs, Plant Operators, Investors, Insurance Companies

- solar ressource assessment
- environmental stress assessment
- feasibility studies
- yield assessment
- solar glare assessment
- independent test report
- real-time monitoring of PV power plants
- soiling monitoring
- module monitoring
- checks before warranty expiration
- fault diagnosis
- performance evaluation , optimization and repowering
- independent performance monitoring
- power forecasting



Comparison of actual and expected performance ratio.



On-site thermographic investigation reveals individual solar cells with noticeably higher operating temperatures.

Our portfolio is constantly extended to provide you with the best services for novel technologies such as Floating PV, Urban PV and Agrivoltaics.

Our yield assessments provide the basis for a holistic evaluation of the planned PV power plant and precise statements about the expected yield at the respective site. For the simulation of the components, we rely on our expert knowledge from the field and our experience from the characterization of the components from our laboratories and from our outdoor solar test fields. On-site analysis with visual inspection, thermographic images, electroluminescence recordings and actual power determination provides information about the quality of the system and identifies deficiencies.

Keep Track of Your Power Plant's Performance

High performing PV power plants are key to your return on investment. After operational start-up, we determine the actual performance ratio of the power plant based on our precise environmental and irradiation monitoring, compare the results with the values of the yield assessment and detect possible deviations from optimal operation at an early stage. We develop special monitoring solutions and provide benchmarking of PV technologies in our new outdoor Solar Testfield. The group´s own PV simulation tool "Zenit" has been constantly improved by applying methods from KI and self-learning algorithms. The cutting-edge measurement equipment and sophisticated laboratory infrastructure of Fraunhofer ISE lead to highly precise results.

Accelerate your Project with Reliable Reports Compiled by Fraunhofer ISE

Quality is the key factor for technical bankability. This implies state-of-the-art system design and standardization. It provides a clearer picture of the financial returns and creates real added value to the system. As an independent non-profit institution, we provide objective and reliable analyses. Our widely accepted results and reports save costs and time.