PHOTOVOLTAIC - ANALYSE, TEST, CERTIFY

TO ACCESS GLOBAL PV MARKETS
Our services are divided into eleven business lines. One of these is CTS - CONSUMER TESTING SERVICES (www.sgs.com/cts), which includes product testing and certification for automobile parts, hardware, toys, furniture, textiles, footwear, food, beverages and electrical & electronic equipment.

SGS ELECTRICAL & ELECTRONICS (www.sgs.com/ee) as part of CTS, offers you in addition to the solar business many more services. Please find them detailed below.

With 59’000 employees, SGS operates a network of over 1’000 offices and laboratories around the world.

As a result, our expertise provides a single consolidated source to reduce your risk, improve efficiency and quality, and ensure compliance.

SGS is the world’s leading INSPECTION, VERIFICATION, TESTING and CERTIFICATION company. SGS is recognised as the global benchmark for quality and integrity.

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We offer these services in the fields of:
- REACH
- RoHS & WEEE & EuP
- Product Safety & EMC
- Product Inspection
- Wireless Telecommunications
- Performance/Reliability
- Micro- & Nanotechnology

For the following Industries:
- Household Appliances
- Information Technology
- Machinery
- Telecommunications
- Automotive
- Chemicals
- Medical Devices and more
PHOTOVOLTAIC CERTIFICATION

- **ONE SIGN TO ACCESS GLOBAL MARKETS**

SGS ELECTRICAL & ELECTRONICS opened its solar doors in Germany. It is a world-wide, dynamic and innovative market. The leading supplier industry, the high concentration of importer, retailer and power plant companies are setting the trends.

SGS SOLAR is located in the middle of this future market to keep up with solar trends and development, and to offer its knowledge world-wide.

In addition to testing the modules, SGS Solar experts are also building a Solar Certification Programme and a Solar Performance Programme.

- **SGS SOLAR CERTIFICATION**

SGS Solar develops test methods, collaborates on research and development projects for the use of solar energy and monitors the construction of power plants for customers across the globe.

Output power certification is just one of our performance measurements of photovoltaic modules.

Other services rely on performance criteria based on customer requirements.

- **SGS SOLAR PERFORMANCE**
As global market leader, SGS Solar tests photovoltaic modules for performance, durability, safety and compliance with legal regulations in our German tailor-made PV test laboratory.

Most test houses just offer services for photovoltaic modules and systems, but SGS Solar Test House is able to serve the entire value chain of the photovoltaic industry.

THE SOLAR TEST HOUSE

A FULLY INTEGRATED SOLUTION

Most test houses just offer services for photovoltaic modules and systems, but SGS Solar Test House is able to serve the entire value chain of the photovoltaic industry.

SGS SOLAR TEST HOUSE SERVES THE ENTIRE VALUE CHAIN OF THE PHOTOVOLTAIC INDUSTRY

SI- FEEDSTOCK
- Impurities, elemental analysis (N,C,O, metals)
- Dopants (B and P)
- Contaminations, resistivity, carrier lifetime
- World wide preshipment inspection
- Particle sizes

INGOTS/WAFER
- Failure analysis (XRD, XPS, FTIR)
- Doping errors (SIMS)
- Bulk concentration and defects (O,C,N)
- Metal survey (GDMS)
- p/n junction depth cross section
- Profilometry, texturation, thickness, anti reflective coatings (SEM)
- Physical and chemical characterization of (multi-) layer thin films (CIGS, CdTe, a-Si, μ-Si)
- Mechanical tests

CELLS
- Characterization
- Spectral response
- Carrier lifetime
- I-V curves
- Electro-luminescence (micro cracks)
- Solder, stringer, surface control

MODULE
- Accredited lab test of PV modules
- Product development (R&D)
- Certification
- Retests
- Prequalifications
- Failure & damage clarification

SYSTEM
- PV testing (PV modules, controllers, inverters, batteries)
- Technical due diligence
- Project certification
- PV installation spot check
- PV visual inspection (array orientation, installation work, controller settings)
- PV field measurement (energy balance, power curve, temperatures, fault finding)
- Training and examination
PHOTOVOLTAIC MODULE-TESTING

SGS PV-LAB CAPABILITIES

Our modular lab layout shows you our approach to delivering faster turnaround times of less than four months:
- Light soaking
- Steady state sun simulation
- Sun flasher
- UV chamber
- Hail impact
- Mechanical load
- Push test
- Electrical safety
- Wet leakage
- Visual inspection
- Climatic chambers

PHOTOVOLTAIC MODULE TEST SEGMENTS

- Optical investigations
- Mechanical stress tests (wind, snow)
- Climate simulation (heat, humidity, frost)
- Hail impact
- Electrical properties (sun simulation)
- Safety

ALL TEST STAGES ARE READY FOR MODULE SIZE OF UP TO 2.60 x 2.20 M.
PHOTOVOLTAIC SYSTEM-SERVICES

■ SGS SOLAR SYSTEMS TESTING

SGS SOLAR TEST HOUSE TEAM coordinates also with the internal business segments within SGS. Acting as an interdisciplinary team SGS offers further solar energy services.
We test your PV systems and components (PV modules, controllers, inverters, batteries) for efficiency and durability.
And we are well known for our spot check of installations and/or field measurements.

■ TECHNICAL DUE DILIGENCE

The more emphasis on the economic profitability of the PV system, the more important it becomes that all details have been considered thoroughly during the planning stage, and that the components have proper quality, and that there will be careful follow-up on the operation. The target group includes investors, business developers, insurance companies, consultants, banks, architects, owners of PV systems and authorities.
SGS offers expertise within PV systems at a very high professional level.
Our Technical Due Diligence tests consist of an evaluation of new or existing off grid/on grid connected photovoltaic power plants containing:
- Design Basis – Review of Design Basis Documentation
- Evaluation of Performance and Physical Condition
- Site Inspection
The Technical Due Diligence will be concluded with a Technical Summary Report made by the independent assessor.
GET IN TOUCH

WITH OUR SOLAR EXPERTS WORLD-WIDE

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