PHOTOVOLTAICS
ANALYSE, TEST, CERTIFY
TO ACCESS GLOBAL PV MARKETS
ENSURING COMPLIANCE, QUALITY & RELIABILITY

SGS is the world’s leading inspection, verification, testing and certification company. SGS is recognised as the global benchmark for quality and integrity.

With 75,000 employees, SGS operates a network of over 1,500 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.

OUR WORLDWIDE EXPERTISE

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, cosmetics, house ware, 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.

SGS ELECTRICAL & ELECTRONICS

We offer solutions in the fields of:
- Hazardous substances
- Product safety
- EMC (Electromagnetic Compatibility compliance)
- Audit & certification
- Performance & reliability
- Product inspection
- Sustainability like Erp (Energy related products), Ecodesign, Energy efficiency, PEP (Product Environmental Profile), etc.
- Specific solutions as retail programs and technical assistance

For the following Industries:
- Household Appliances
- Luminaries
- Batteries
- IT&T
- Audio/Video equipment
- Medical Devices
- Machinery
- Photovoltaics
- Microelectronics

To your advantage we identify the applicable regulations and standards for each of your specific products and target markets.

SGS can help you reduce risk, improve efficiency and ensure compliance to contractual or regulatory requirements in all your manufacturing, sourcing, distribution and retailing operations.

THINKING SUSTAINABLY

Across our global network of sustainability experts we can support your company in its strategy by offering a range of services covering the environmental, safety and social aspects of sustainability:
- Restricted substances management
- Social responsibility solutions
- Ecodesign services
ONE SIGN TO ACCESS GLOBAL MARKETS

SGS 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.

The SGS Solar Test House 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 offer beside a Solar Performance Scheme also a Solar Certification Programme.

SGS SOLAR PERFORMANCE SCHEME

SGS develops test methods and collaborates on research and development projects for the use of solar energy.

From its inception in 2009, the SGS Solar Performance Scheme has been helping manufacturers determine the behaviour of their Solar products under comprehensive environmental conditions and operation modes.

SGS Solar Performance Scheme includes options for corrosive gas (e.g. NH₃, H₂S or 4C noxious gas), salt mist, sand, fire, long term durability and potential induced degradation (PID) resistance among others. These testing results also have significant financial implications, affects investment decisions and gives answers to the issues of eligibility and bankability.

SGS SOLAR CERTIFICATIONS

PHOTOVOLTAIC CERTIFICATIONS
THE SOLAR TESTHOUSE

A FULLY INTEGRATED SOLUTION

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 testing companies just offer services for photovoltaic modules and systems, but SGS Solar Testhouse is able to serve the entire value chain of the photovoltaic industry.

SGS SOLAR TESTHOUSE SERVES THE ENTIRE VALUE CHAIN OF THE PHOTOVOLTAIC INDUSTRY

- Impurities elemental analysis (N,C,O, metals)
- Dopants (B and P)
- Contaminations, resistivity, carrier lifetime
- World-wide preshipment inspection
- Particle sizes
- Failure analysis (XRD, XPS, FTIR)
- Doping errors (SIMS)
- Bulk concentration and defects (O,C,N)
- Metal survey (GDMS)
- p/n junction depth / cross section
- Profiometry, texturation, thickness, anti reflective coatings (SEM)
- Physical & chemical characterization of (multi-) layer thin films (CIGS, CdTe, a-Si, µ-Si)
- Mechanical tests
- Characterization
- Spectral response
- Carrier lifetime
- I-V curves
- Electro-luminescence (micro cracks)
- solder, stringer, surface control
- Accredited lab test of PV modules (CBTL)
- Product development (R&D)
- Certification
- Retests
- Prequalifications
- Failure & damage clarification
- Performance testing
- Bankability services
- 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 TEST SEGMENTS
- Optical investigations
- Mechanical stress tests (wind, snow)
- Climate simulation (heat, humidity, frost)
- Salt mist
- Fire behaviour
- Corrosive gas testing
- Hail impact, transport impact
- Electrical Safety (isolation, overload)
- Electrical properties (sun simulation, light soaking, UV)
- Weathering

SGS PV LAB CAPABILITIES
OUR MODULAR LAB LAYOUT SHOWS YOU OUR APPROACH DELIVERING FASTER TURNAROUND TIMES OF LESS THAN FOUR MONTHS.
PHOTOVOLTAIC SYSTEM-SERVICES

GS SOLAR SYSTEM TESTING

GS SOLAR TESTHOUSE 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.
SGS is your global partner to provide you with tailored services and consulting solutions that meet your needs, objectives and budget. For more information on how our Photovoltaics services can help you, visit us on www.sgs.com/solar or contact us via solar@sgs.com.