



# SOLAR ENERGY SERVICES

## QUALITY ASSURED | RISKS CONTROLLED

Environmental concerns over use of conventional modes of energy and added concerns of supply security and price volatility have led Governments and industries worldwide towards harnessing, generating, distributing and shifting to renewable energy sources.

The range of services offered by SGS throughout the project life cycle minimise the total risk of your photovoltaic (PV) project. Subscribing to the logic that the earlier risks are detected, the earlier effective countermeasures can be implemented, SGS engages in PV projects starting at the **Conceptual Phase**. During this stage, services such as Technical Due Diligence, Feasibility Studies, Tender Support and Design Verification help minimise both cost and time related risks during project development and ensure optimum power performance.

Specifically, the Site Assessment and Technical Due Diligence activities comprise an estimate of the expected annual energy production by computer simulation.

In parallel, SGS verifies the combined environmental cases relevant for the PV systems, which include the impact of variables such as temperature, rain, hail, snow, corrosion, dust, lightning, horizon and near-shadow effects.

Site assessment and design verification also includes the following activities –

- Assessment of layout and design for construction and electrical installation
- Assessment of quality of system components and installation
- Assessment of quality of documentation, operation and maintenance instruction

The **Manufacturing Phase** is an equally critical stage of project realisation. At this time, regular inspection visits of the different manufacturers are performed to assure quality during production of components.

An inspection can include assembly checks, material testing supervision and Non Destructive Testing (NDT). This begins with a pre-production meeting to establish the inspection and test plan as well as supervision of test runs of electrical and mechanical components.

For PV modules, SGS offers complete certification and testing according to IEC 61215, IEC 61646 & IEC 61730-1/-2, executed by the accredited SGS Solar Test House. SGS offers also testing of PV components like inverters, cables, connectors, J-Boxes, etc.

If requested, quality management and/or ability audits can also be performed in the earliest stages to select the most qualified suppliers.

To ensure the appropriateness and security of **Transportation and Installation**, the following inspections are essential

- Pre-Shipment Inspection
- Dimensional Control
- Visual Control
- Damage Control

In addition to the inspections, as-built documentation should be reviewed for the following

- Material Certificates
- IEC/UL/CE Certificates
- Flash Test Protocols

The subsequent **Commissioning Phase** of the PV system is critical and will be witnessed by SGS experts to confirm that work has been performed according to approved procedures and to ensure a safe start-up.

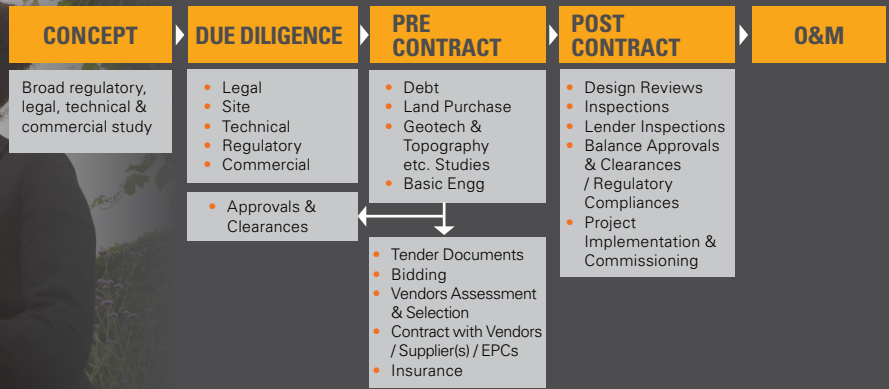
In addition to the above-mentioned phases, SGS performs periodic **In-Service Inspections** to guarantee optimum operation of the PV system during its entire lifetime.

The above range of services is tailored on a project-by-project basis to suit the actual verification needs of the undertaking.

**SGS**



## PROJECT DEVELOPMENT STAGES

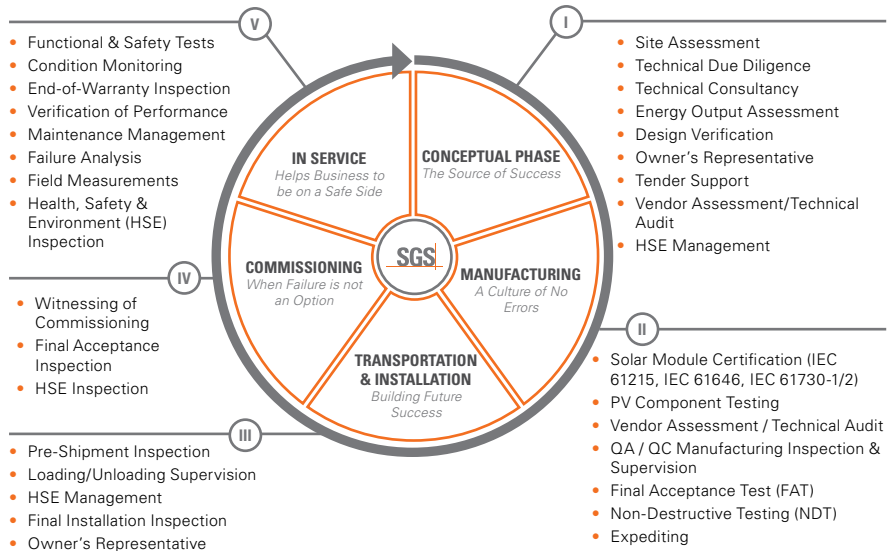


## PV COMPONENT TESTING

SGS offers highly specialized services towards testing, inspection & certification. To minimize risks & ensure quality adherence, project developers generally undertake lab testing on various key PV components.

Our laboratories in China provide high-end testing services for solar PV Raw Materials, PV Modules, Inverters, Controllers, Storage Batteries, Holders, etc. We undertake tests on photovoltaic modules for performance, durability, safety and compliance with legal regulations in our tailor-made laboratories. Apart from laboratories testing, we extend our testing services to the field during before and after installation and commissioning.

## SERVICES FOR SOLAR POWER PROJECTS THROUGHOUT VALUE CHAIN



## SERVICE PORTFOLIO:

- Technical Due Diligence
- Design Review
- Inspections / Testing
- Supervision
- Owners' Engineer
- Project Management
- Project Monitoring
- In-Services Inspections

## WHY SGS?

SGS is the world's leading inspection, verification, testing and certification company. SGS is recognised as the global benchmark for quality and integrity. With more than 97,000 employees, SGS operates a network of over 2,600 offices and laboratories around the world.

We provide competitive advantage, drive sustainability and deliver trust. At SGS, we are continually pushing ourselves to deliver innovative services and solutions that help our customers move their businesses forward.

Efficiency and cost-optimization are no longer the sole drivers in business development strategies. Successful businesses recognize the importance of offering their workforce continuous development and training. Motivated and effective teams create industry leaders.

## WHY CHOOSE SGS SOLAR ENERGY SERVICES?

SGS Solar Services provides you a one-stop solution while meeting the quality compliance requirements of your entire value chain. We provide you with a unique global reach (incl. a strong presence in India and China), highly skilled personnel and unrivaled experience in the renewable energy sector. We offer efficient turnaround times, based on the lean management practice. Plus, our robust information security management ensures that your intellectual property is protected. As a result, we are the preferred choice for clients that require trusted quality inspections for their solar projects across the world.

## CONTACT US



# SGS

WHEN YOU NEED TO BE SURE