Your challenges
The balance of system (BOS) covers all the electrical and mechanical components of a photovoltaic (PV) system other than the PV modules. BOS component quality is essential for the safety and performance reliability of PV systems throughout their lifetime. PV module power will degrade if the BOS components are not integrated within the entire installation. In addition, the BOS components must withstand harsh weather conditions. Manufacturers of BOS components often lack awareness of product-related design and safety requirements, which is needed to ensure that their products comply with national and international standards and codes.

Why is BOS component testing and certification important for your business?
Testing and certification of your BOS components helps you gain international recognition and market access for your products. It also identifies potential improvements in your manufacturing process, enabling you to increase production quality and product safety.

How can you prepare for BOS component testing and certification?
Prior to testing and certification, TÜV SÜD makes an initial technical assessment. This requires important technical details such as datasheets, installation manuals and instructions provided by the manufacturer.

What is BOS component testing and certification?
BOS encompasses the testing and certification of a wide range of components such as PV inverters, cables, connectors, junction boxes, switches, PV mounting systems, PV batteries, PV materials, PV trackers and storage systems.

How can we help you?
TÜV SÜD offers long-standing expertise and a strong background in PV BOS product safety and performance requirements. Our testing and certification service helps you to achieve compliance to related product safety and product performance requirements.
Our PV BOS component testing and certification services

- **Product development**
  TÜV SÜD provides support with BOS component testing during research and development (R&D). We offer PV laboratory qualification according to ISO/IEC 17025, which comprises verification of scope and accreditations, testing structure and laboratory layout, operations and maintenance requirements.

- **Product testing and certification**
  Our experts conduct rigorous testing and certification in accordance with national and international standards. We test PV inverters in accordance with IEC 62109 and country-specific grid connection requirements. Our PV electrical component testing covers junction box (EN 50548), cables (Draft DIN VDE AK 411.2.3) and connectors (EN 50521). We test PV mounting systems in accordance with PPP 59029. PV batteries and energy storage systems (ESS) are tested according to IEC 62619 and IEC 62620, as well as specific country safety requirements and standards. We offer PV material testing for backsheet (PPP 58066), EVA encapsulant (PPP 58065) and adhesive and potting compound (PPP 58064). We also test PV trackers and storage systems according to a combination of IEC standards. Our reliability testing for BOS components is conducted in addition to and above the standard test requirements.

- **Performance and safety-related environmental testing**
  TÜV SÜD provides fast-motion simulation of various environmental conditions (heat, cold, dry, wet, etc.) and testing for corrosion resistance and long-term durability performance (endurance testing with outdoor field conditions, temperature change examination and moisture-heat examination).

- **Product quality monitoring and inspections**
  Our experts conduct initial and follow-up surveillance for manufacturing facilities. We offer annual routine inspections comprising the predefined routine testing, special inspections and on-site assessments, pre-shipment inspection (PSI) and during-production audits (DuPro), as well as bankability audits.

Your business benefits

- **Benefit from our technical expertise** – to improve production quality and manufacturing efficiency.

- **Strengthen your asset value** – by choosing a globally renowned third-party service provider as your partner for quality and safety.

- **Receive global support** – through TÜV SÜD’s strong presence and high level of knowledge in global PV markets, backed up by our experts in local areas.

- **Gain international acceptance** – from our testing and certification according to national and international standards and codes.

**Why choose TÜV SÜD?**
As a widely known third-party solutions provider with a reputation for independence and impartiality, TÜV SÜD offers a comprehensive PV service portfolio to support your specific needs in all key markets. Our customers can display our unique PV certification marks on their PV BOS components after successful certification. This indicates their compliance with standards and codes, as well as specific conditions above the standard requirements.

We have interdisciplinary PV specialists who come from a wide array of disciplines, with decades of accumulated experience in real-world scenarios. Our PV teams are familiar with all relevant national and international directives. Through our extensive international network we can support your organisation’s testing and certification needs on a local, regional and global scale.

**Choose certainty. Add value.**
TÜV SÜD is a premium quality, safety and sustainability solutions provider that specialises in testing, inspection, auditing, certification, training and knowledge services. Represented in over 800 locations worldwide, we hold accreditations in Europe, the Americas, the Middle East, Asia and Africa. By delivering objective solutions to our customers, we add tangible value to businesses, consumers and the environment.

**Related services**
TÜV SÜD provides the following related services:

- PV module testing and certification
- PV plant certification
- Bankable photovoltaic power solutions
- In-service inspection for PV power plants
- Site assessment for solar power plants
- Performance ratio assessment