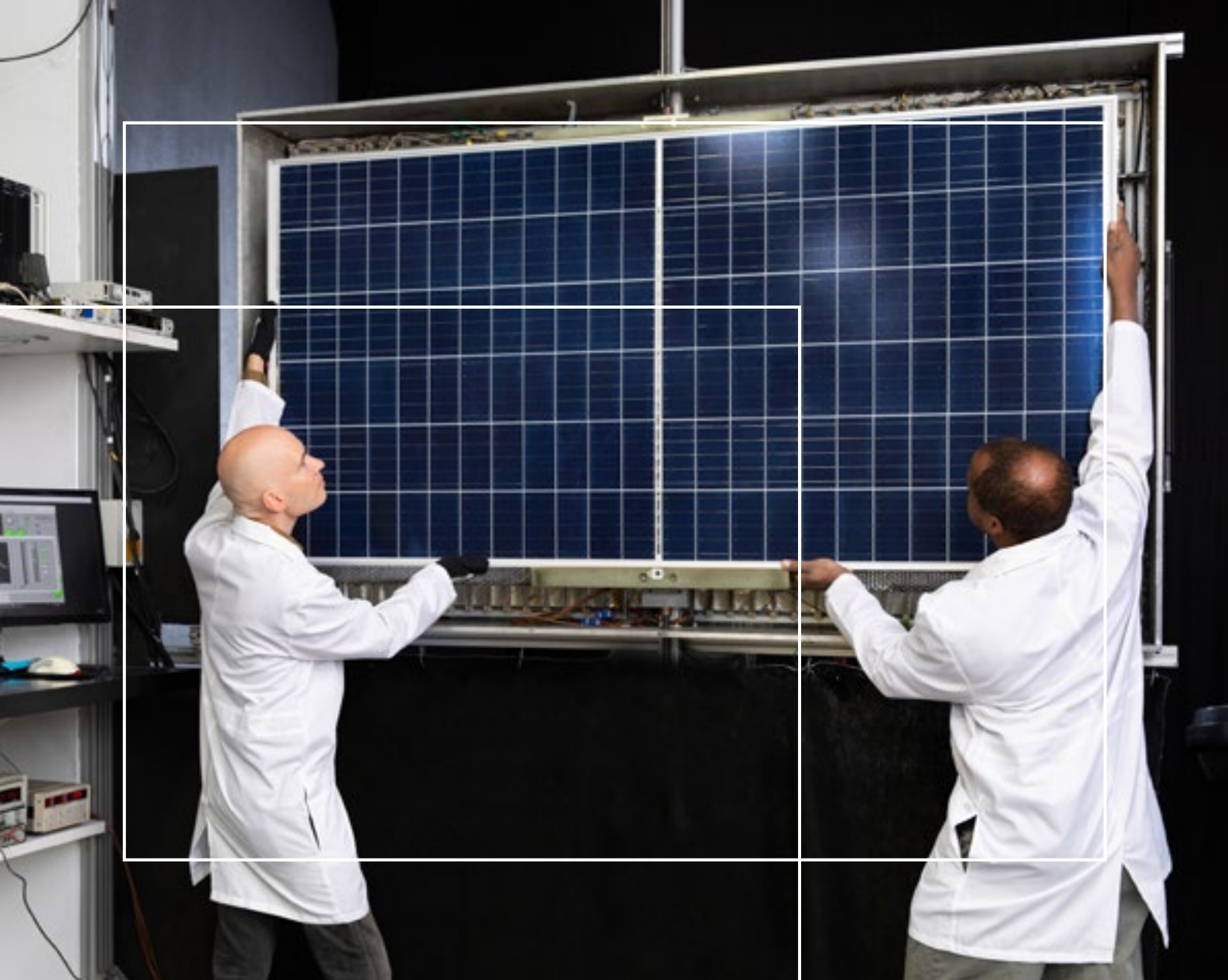




Solar Expertise

Solar services
for the **entire**
value chain



kiwa

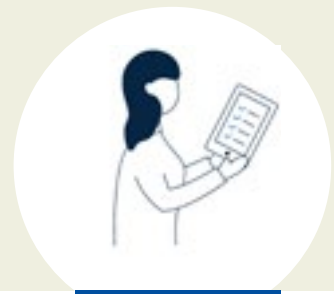
How we serve the *solar industry*



Quality assurance



Technical advisory



Bankability

The solar market

Solar is the fastest growing source of new energy capacity around the world.

As the market for solar technology grows and evolves, downstream buyers need to have trust in the performance, safety, and reliability of solar modules, inverters and other components for photovoltaic (PV) systems.



5000+

PV module model types tested



1000+

Factory audits conducted



300+ GW

of PV production capacity evaluated



20+ GW

of PV projects consulted or visited

What we do

The Kiwa Group offers a comprehensive portfolio of quality assurance, testing, inspection, and certification services for the solar industry. We support investors, developers, EPC contractors and asset managers, while also helping manufacturers demonstrate compliance to the requirements of numerous markets.

Empowering the **energy** *transition*

Quality Assurance

Companies investing in a solar project must take into consideration the quality of solar components as it directly impacts performance and safety over the project's lifetime. Existing design and safety standards are not intended to assure manufacturing quality or long-term reliability of PV module, inverter and battery components. An enhanced quality assurance program is needed to safeguard solar project return on investment.

As the industry's experts in procurement and manufacturing quality, the Kiwa Group offers:

- Procurement contract assistance
- Factory audits for PV modules, inverters and batteries

Certification

Compliance to relevant testing standards is an important step for manufacturers who want to bring their products to the global market, but understanding the requirements of various jurisdictions can be difficult. Procurement managers, grid operators and local authorities demand proof of conformity for component certification and compliance.

As the industry's experts in certification testing, the Kiwa Group offers:

- PV module certification to IEC 61730, 61215 and other standards
- PV inverter and grid connection device testing and certification
- Battery testing according to IEC 62133

PV technology has undergone significant changes in recent years impacting efficiency, demand and price. In this rapidly moving environment product uncertainty and quality issues can easily arise. We create trust to empower the energy transition via the following key service categories:

Technical Advisory

Third-party expertise is required during the development, construction and operational stages of a PV project's lifetime. We advise project developers, lenders, investors and asset managers to assess and manage the risks associated with their assets. Our consulting leverages our experience gained in the field around the world and backed by our knowledge from the factory and the lab.

As the industry's experts in advisory services, the Kiwa Group offers:

- Due diligence for the financing and acquisition of solar assets
- Review of PV plant designs, evaluation of procurement process and construction monitoring

Bankability

PV modules are a long-term investment; developers and financiers need to know whether the products they invest in will be reliable. One cannot assume that module reliability is consistent based on manufacturer size, location, or past performance. Qualification of the specific bill of materials combinations being procured is a necessary step in demonstrating reliability.

As the industry's experts in testing for PV modules, the Kiwa Group offers:

- Extended reliability and performance testing via PVEL's Product Qualification Program
- In-lab and in-field testing for solar components
- Customized data and reports from our global labs

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-  Kiwa Solar Serviced Countries
-  Kiwa Solar Offices
-  Kiwa PI Berlin
-  Kiwa PVEL



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