



# IECEE PV industry

**Providing quality assurance for industry and governments**

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# Strong potential for solar energy worldwide

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The market for photovoltaic (PV) power applications is expanding rapidly in developed and developing countries alike. Solar PV leads the way in the growth of renewables capacity. The International Energy Agency (IEA) expects the renewable electricity forecast to expand exponentially over the next five years, with solar PV representing the largest contribution.

As its uses and applications have multiplied and the industry has grown, PV has proved to be one of the most viable sources of electricity. PV technology is made even more attractive through long-term warranties offered by manufacturers. However, the ongoing downward price pressure which the industry has witnessed over the past few years has raised concerns about the sustainable quality of PV components, systems, installations and after-sales maintenance among customers.

IEC International Standards for PV and IECCE, the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components provide both benchmarks and proofs of quality for industry and government worldwide.



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# International standards by the world's leading experts

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PV systems convert solar energy into electrical energy. IEC Technical Committee (TC) 82 prepares international standards for all elements of those systems – everything from the light inputs to a PV cell to the interface with the systems to which the electrical energy is supplied.

Comprised of leading industrial and governmental experts from 40 countries, IEC TC 82 International Standards cover terms and symbols, PV module testing, design qualification and type approval of crystalline silicon, compound semiconductors and thin-film modules and characteristic parameters of grid-connected systems and stand-alone systems, among other elements.

IEC TC 82 current work includes:

- System commissioning, maintenance and disposal
- Characterization and measurement of such new thin-film photovoltaic module technologies

- Thin-film silicon and emerging materials such as organic and perovskite materials, such as CdTe, CuInSe<sub>2</sub>, etc.
- New technology storage systems
- Applications with special site conditions, such as tropical zone, northern latitudes and marine areas
- Recommendations for small renewable energy and hybrid systems for rural electrification, including PV systems

Additionally, IEC TC 82 addresses the safety of grid-connected systems on buildings and utility-connected inverters, as well as the stability and quality of the grid, protection of people and the environment from, for example, radiofrequency and electromagnetic pollution and the toxic materials that need to be disposed of during PV manufacturing processes.

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# Conformity assessment to serve industry and government

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The IECEE provides testing and certification to show proof of compliance with IEC International Standards for photovoltaics. Industry and governments use the voluntary, globally-recognized certification to help assure quality and improve safety.

The IECEE PV CB test certificates are granted to PV components that have been designed, manufactured and tested according to IEC International Standards, and may cover the conformity of the PV systems as a whole.

The worldwide PV community, including national and regional PV industry associations, with the support of international organizations such as the

World Bank and the United Nations Development Programme (UNDP), support the use of IEC PV standards and IECEE certification as a truly global quality assurance solution.

The IECEE international CB test certificate/report, is the worldwide reference for manufacturers and suppliers of crystalline silicon and thin-film terrestrial photovoltaic modules, as well as PV components used in PV systems to show compliance with safety and performance standards.

For further information on IECEE PV certification, please contact: IECEE secretariat [secretariat@iecee.org](mailto:secretariat@iecee.org), [www.iecee.org](http://www.iecee.org)





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# About the IECEE

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IECEE operates the successful CB scheme. The scheme offers the potential of one test (based on IEC International Standards) and one certification (to show the conformity), to obtain one or more national certification marks as appropriate (the visual symbol for proof of conformity) or simply for third party documentation of product conformity. IEC Conformity Assessment Systems cover all scenarios: an internationally recognized one-stop shop.

## **IECEE sees four main underlying reasons for carrying out conformity assessment**

**The first is safety:** manufacturers/suppliers need to assure that their marketed products are compliant with relevant safety standards, while governments establish regulations generally intended to protect the population against potential risks associated with the products.

**The second is quality:** buyers/wholesalers want to ensure the quality of purchased products and unhindered market access.

**The third is interoperability:** product manufacturers and end users want assurance that their products are fit for purpose and can interact in harmony with other products, services and installations comprising an overall operational environment.

**The fourth is consistency:** manufacturers/suppliers want to ensure that their marketed products are compliant with the sample assessed.

## **Conformity assessment provides tangible benefits for the different stakeholders**

**For governments,** it helps reduce trade barriers caused by different certification criteria in various countries, and helps countries meet their obligations as stipulated in the World Trade Organization Technical Barriers to Trade (WTO TBT) Agreement. It is important to understand that conformity assessment covers regulated and non-regulated areas.

**For industry,** it reduces delays and costs of multiple testing and approvals since a product can be certified once by a single certification body and that certification can then be accepted by others all over the world, normally without the need to assess the product or system again. This means that products can get to market more quickly and with less expense (that is, fewer tests), and that products can have access to a larger market (potentially the entire world).

Conformity assessment also provides assurance that the goods being purchased will perform to expectations and are reasonably safe when used as intended.

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# Further information

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Please visit the IEC website at [www.iec.ch](http://www.iec.ch) for further information. In the "About the IEC" section, you can contact your local IEC national committee directly. Alternatively, please contact the IEC Central Office in Geneva, Switzerland or the nearest IEC Regional Centre.

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#### IEC Conformity Assessment Systems

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IEC System of Conformity  
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