



The IECRE

Verifying the safety, performance and reliability of
renewable energy equipment and services



What is the IECRE

IECRE is a conformity assessment system based on International Standards prepared by the IEC (International Electrotechnical Commission) for equipment and services used in renewable energy (RE) applications. The system aims to facilitate the international trade of equipment and services in the marine (ME), solar photovoltaic (PV) and wind energy sectors, while maintaining the required level of safety. Each of these sectors will be able to operate IECRE schemes that cover products, services and personnel, to provide testing, inspection and certification.

IECRE was created in 2014 to address the specific requirements of this sector, but also in recognition that the ever-increasing demand for electricity, and the need to reduce the share of fossil fuels in power generation, have led to rapid development and growth of the RE sector.

How does it work

Standard-based assessment: IECRE uses international standards which are globally relevant in concept and in practice. This makes it possible to reduce barriers to trade caused by different certification criteria in different countries, and helps industry access new markets. By avoiding multiple and sometimes duplicative testing, manufacturers and users can save time and costs and receive confirmation that equipment and services are safe and reliable.

Mutual recognition and global acceptance

IECRE certification has worldwide acceptance. IECRE members use the principle of mutual recognition (reciprocal acceptance) of test results and the resultant certifications to obtain certification or approval at national level.

This means that all certification bodies throughout the world, which operate within IECRE, accept the IECRE test reports and certificates that are issued by an accepted IECRE testing laboratory or certification body, if applicable. These test reports and certificates can be used in national certifications, without the need to repeat the tests themselves.

Qualified assessors

IECRE test reports and certificates instill confidence that the testing laboratory or certification body has the competency to carry out tests or certifications, and is using procedures which comply with IEC International Standards and the rules and procedures of the IECRE Conformity Assessment System.

All IECRE testing laboratories and certification bodies go through a rigorous process of peer assessment of their capabilities in different and clearly defined areas of competency, in order to obtain IECRE qualification and acceptance, and to then be able to provide an IECRE test report or certificate. These test reports or certificates then form the basis for the issuance of a national certificate by an accepted IECRE certification body which has also undergone peer assessment.



Transparency

IECRE keeps and maintains records of all test reports conducted by accepted IECRE testing laboratories and the resultant certificates of conformity issued by the accepted IECRE certification bodies. The online database allows immediate validation of the test report and the verification of the certificate of conformity which has been issued, and by whom.

Who benefits

IECRE conformity assessment activities provide a meaningful, transparent, effective and independent third party review and evaluation of wind, solar PV and marine energy projects. This helps to ensure investment in more reliable, consistent and cost-effective equipment in the RE.

- Industry saves time and reduces cost by eliminating unnecessary tests and approvals. Certification can be carried out by one certification body and is accepted in many countries worldwide

- For governments, it contributes towards reducing trade barriers caused by different certification criteria in various countries, and helps countries meet their obligations of the World Trade Organization Agreement on Technical Barriers to Trade
- Manufacturers and suppliers can provide the assurance that their products are compliant with relevant safety standards, are of the required quality and are interoperable with other products, services and installations
- End users are assured that they are getting quality, safe, reliable RE equipment and services

End user stakeholder group - the importance of participation

The IECRE System is consensus based, and industry developed. This means that there are opportunities for RE companies, and other establishments that support the industry to get involved.

The end user stakeholder groups include: RE equipment owners, manufacturers, operators, developers, insurers, financiers, regulators, service providers and academia.

Participation will allow stakeholders to:

- understand new requirements and expectations resulting from evolving rules in advance of implementation, providing a tangible competitive advantage
- have a voice in the development of future requirements for RE systems using IECRE-approved technologies
- exchange with other industry experts who deal with similar challenges
- leverage the system to improve project ROI
- promote the deployment of these standards while having a stronger voice in setting certification standards

Contact your member body to find out more about participating in the IECRE end users stakeholder and technical advisory groups.

Find out more: www.iecre.org/members/member-bodies



IECRE value proposition

Renewable energy stakeholders

	Manufacturers	CBs / Test labs	Developers / owners / operators	Financing / insurance
Designed to IEC International Standards	Users can demonstrate that designing to IEC International Standards provides market differentiation and products/services are globally accepted	Provides the basis for conformity assessment, testing and certification	IECRE documents are designed to IEC requirements and provide transparency and instill confidence	Reduces overall transaction cost by lowering expenses for design and due diligence and provides integrated system assessment
Manufacturing is assessed	IECRE records and specifies the quality management system, offering a basis for market differentiation	Standardizes conformity assessment and provides mutual recognition, resulting in efficiency and increased opportunities	IECRE records the quality and performance of equipment in a consistent manner providing purchasing confidence	Internally consistent manufacturing quality assessment reduces transaction costs and risk
Certification bodies (CBs), inspection bodies (IBs) and test labs (TLs) peer assessment	IECRE reports are mutually accepted. Reduces redundant review, harmonizes interpretation of standards and provides a pool of CBs, IBs and TLs, resulting in market differentiation and global acceptance	IECRE improves processes with potential efficiency gain. Increases work opportunities. Mutual recognition of test reports increases market opportunities	IECRE provides harmonized, qualified vendors for assessment and testing. Reduces vendor qualification costs. Mutual recognition lowers redundant work	Reduces risk and cost. The result: greater confidence in transparent assessment



International standards used

Several IEC technical committees (TCs) produce the international standards which are used by IECRE and form a basis for design, quality assurance and technical aspects for certification. These include:

IEC TC 82: Solar photovoltaic energy systems

Standards cover all the elements in the entire photovoltaic energy conversion system. This includes the interface with the electrical system(s) to which energy is supplied. For example, terminology and symbols; testing; design qualification; methods to evaluate PV module performance in different weather conditions; new technology storage systems; system commissioning; maintenance and disposal; system and component safety criteria including for grid-connected systems on buildings and utility-connected inverters; aspects of environmental protection.



IEC TC 88: Wind energy generation systems

Standards cover safety, measurement techniques and test procedures for wind turbine generator systems; design and performance requirements; acoustic noise measurement techniques; measurement of mechanical loads; communications for monitoring and control of wind power plants. They also provide design requirements for offshore wind turbines, gearboxes and wind farm power performance testing.



IEC TC 114: Marine energy – Wave, tidal and other water current converters

Standards cover system definitions; measurements of mechanical loads; guidance for design and analysis of an ocean thermal energy conversion (OTEC) plant; design and safety, including reliability and survivability; electrical power quality requirements; power performance assessment, for wave, tidal and other water current converters; resource assessment requirements.



About the IEC

Key figures

>170

members and affiliates

>200

technical committees

20 000

experts from industry, test and research labs, government, academia and consumer groups

>10 000

international standards published

4

global conformity assessment systems

>1 million

conformity assessment certificates issued

>100

years of expertise

The IEC, headquartered in Geneva, Switzerland, is the world's leading publisher of international standards for electrical and electronic technologies. It is a global, independent, not-for-profit, membership organization (funded by membership fees and sales). The IEC includes more than 170 countries that represent 99% of world population and energy generation.

The IEC provides a worldwide, neutral and independent platform where 20 000 experts from the private and public sectors cooperate to develop state-of-the-art, globally relevant IEC International Standards. These form the basis for testing and certification, and support economic development, protecting people and the environment.

IEC work impacts around 20% of global trade (in value) and looks at aspects such as safety, interoperability, performance and other essential requirements for a vast range of technology areas, including energy, manufacturing, transportation, healthcare, homes, buildings or cities.

The IEC administers four conformity assessment systems and provides a standardized approach to the testing and certification of components, products, systems, as well as the competence of persons.

IEC work is essential for safety, quality and risk management. It helps make cities smarter, supports universal energy access and improves energy efficiency of devices and systems. It allows industry to consistently build better products, helps governments ensure long-term viability of infrastructure investments and reassures investors and insurers.



A global network of more than 170 countries that covers 99% of world population and electricity generation



Offers an affiliate country programme to encourage developing countries to get involved in the IEC free of charge



Develops international standards and runs four conformity assessment systems to verify that electronic and electrical products work safely and as they are intended to



IEC International Standards represent a global consensus of state-of-the-art know-how and expertise



A not-for-profit organization enabling global trade and universal electricity access

Further information

For further information, please visit the IEC website at www.iec.ch. In the “Who we are” section, you can contact your local IEC National Committee directly. Alternatively, please contact the IEC Secretariat in Geneva, Switzerland or the nearest IEC Regional Centre.

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