



A guide to conformity assessment for renewable energy test labs in the marine energy sector

Certification under IECRE in a nutshell

IECRE is a third party Conformity Assessment System based on International Standards and technical specifications prepared by the IEC (International Electrotechnical Commission) for equipment used in renewable energy (RE) applications. Conformity assessment demonstrates that specified requirements of equipment or services are fulfilled.

The system aims to facilitate international trade in marine, solar photovoltaic and wind energy by verifying the safety, performance and reliability of equipment and services. IECRE members use the principle of reciprocal acceptance of test results and the resultant certifications to obtain certification or approval at national level.

Reciprocal acceptance explained

For example: A conformity statement is issued for a wave energy device on the design verification by a certification body in the UK. The test report was issued by a renewable energy test lab (RETL) in Japan. The client now wants to achieve full type certificate for a commercial project in Canada, and uses a local renewable energy certification body (RECB) for that work. The only requirement is that all RETLs and RECBs are members of IECRE and accredited under the system. The conformity statements and test reports issued by other participants can be used as part of the type certification.

The IECRE Marine Energy Operational Management Committee (IECRE ME OMC) covers tidal stream converters, wave energy devices, ocean thermal energy conversion (OTEC) and energy generation in river currents¹.

The scope of certification covers areas such as design verification, safety and survivability, loads measurement, performance and resource assessment, electrical power quality, acoustic measurements. These areas are explained in the Standards and technical specifications issued by IEC Technical Committee (TC) 114 or within other internationally recognized reference documents.

Figure 1 shows the typical steps taken to reach a type certificate. At the end of each step a conformity statement is issued. RETLs work closely with the RECBs when issuing their test reports. Some steps are optional to reach type certification and based on the client's wishes.

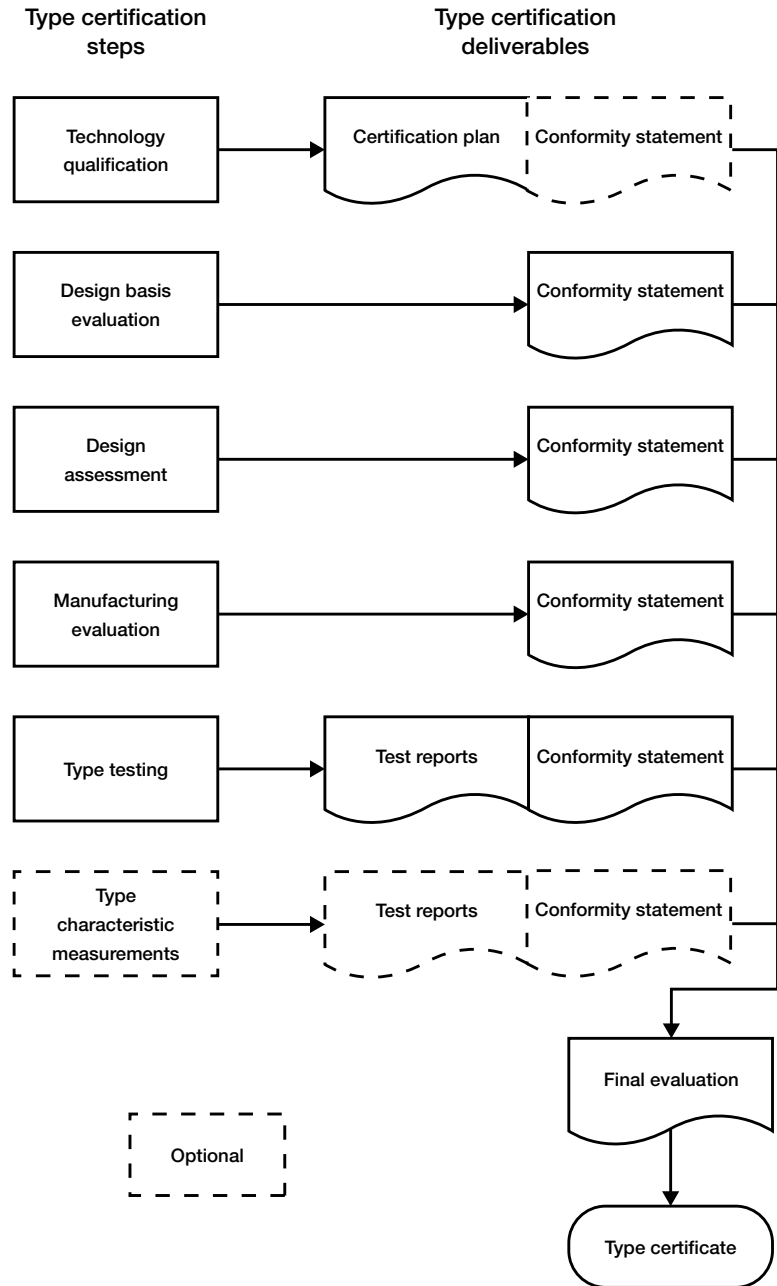


Figure 1 – Certification process

¹ Tidal barrage systems and conventional hydropower systems are not covered under IECRE ME OMC.

The first certificates for solar photovoltaic and wind energy have been issued by accredited RETLs and RECBs across the world.

The marine energy sector, formed in 2014, has been operational since September 2017 following approval and publication of the rules of procedure, IECRE 03. RETLs are able to join the ME sector effective August 2018. This gives opportunities for RETLs to offer new certification services to the sector.

What are the benefits of IECRE for RETLs?

Open water test facilities for tidal and wave energy convertors and labs for controlled testing have a critical role to play in the implementation of the IECRE ME OMC system. Collectively referred to as RETLs, these facilities can perform accredited tests to assess the performance, power quality, acoustics and loads in marine energy convertors according to technical specifications published by IEC TC 114.

Becoming an accredited RETL will add value and generate new market opportunities. Gaining accreditation demonstrates the following to your clients:

- Assurance of technical competence
- Approved testing methods demonstrating procedures, data analyses and reporting which is aligned to international best practices
- Processes in place to ensure impartiality
- Test reports which are globally accepted, enhancing access to markets

Furthermore, gaining accreditation will have the following benefits for your organization:

- Independent assurance of technical competence demonstrating ISO/IEC 17025 criteria have been met for integrity, technical competence and quality
- Assurance that your methods are standardized, harmonized and transparent to ensure efficiency
- Increase awareness of your organization's capability, potential to identify opportunities to improve and expand

At present the system is operational for tidal stream energy convertors only. From 2019 the system should also be operational for wave, OTEC and river current turbines. Tests performed according to IECRE requirements will be issued as a test report in an IECRE format. This test report forms one of the components required for type certification. The other components include a conformity statement, the basis of further conformity assessments and the issuance of a certificate by a certification body.

Let's get started!

In order to participate, test labs need to be accredited under the IECRE System. The requirements for participation are described in the general rules of procedure applicable to all sectors, IECRE 01 and IECRE 02, and specific rules for the marine energy sector, IECRE 03.

The IECRE Secretariat in Geneva requires the following from test labs wishing to apply:

- Be endorsed by the member body in the IECRE participating country
- Pay annual membership fees to IECRE

- A review of a sample of historic test reports issued for the competence area. If this is not available, a representative test report which may contain fictitious data can be a substitute
- A review of results of a proficiency test for the competence area
- A review of the candidate RETL's own processes and procedures related to the specific competence area
- Accreditation against ISO/IEC 17025 for the specific competence area
- Reassessment every three years
- Pay fees of peer assessment and accreditation
- An on-site peer assessment of a test and the related documentation²

Cost summary for participating in the IECRE ME OMC system

- IECRE membership: CHF 2 000 (one-off)
- Application fee for ME sector: CHF 1 000 (one-off)
- Annual membership for ME sector: CHF 500 per annum
- Peer assessment cost: see IECRE OD 001
- Fee per test report issued under IECRE: under vote at time of publication

Note that (national) member bodies are subjected to annual dues of CHF 5 000 plus CHF 1 000 per declared sector, and CHF 500 per approved RECB or RETL. Member bodies may decide at national level to pass on some of these costs to the RECBs and RETLs.

For further information see IECRE OD 001

² Uniquely for the ME sector, over a period of three years a self-assessment scheme will be in place, provided the test lab is already accredited under ISO/IEC 17025. This will negate the need for on-site peer assessment. A self-assessment checklist is provided in IECRE operational document (OD) 300-200. This transition period is introduced to help the emerging market to adopt the system without too much administrative burden and cost.

Next steps

- Visit www.iecre.org/sectors/marineenergy and read some of the operational documents for further information
- Contact your national member body about joining the IECRE ME OMC. You are welcome to join any of the working groups (WGs) drafting the operational documents and thus be part of the process
- Contact other test labs to find out more about how the system can be implemented at your test facility

Advantages of IECRE

- Internationally recognized system
- Standardized, harmonized and transparent procedures for testing and reporting
- Use of international consensus based technical specifications
- Created by and for the sector
- Reciprocal acceptance between test labs and certification bodies
- Raises market exposure
- Opportunity for new market services
- First three years transitional self-assessment for test labs that are accredited under ISO
- Assurance of technical competence, integrity and quality



This IECRE publication was created with the support of the MET-CERTIFIED project.

MET-CERTIFIED aims to increase the adoption of insurable and therefore bankable marine energy projects in the 2 seas region through the advancement of internationally recognized Standards and certification schemes under the umbrella of IEC and IECRE.

MET-CERTIFIED is funded by the European Interreg 2 Seas programme and cofinanced by the European Fund for Regional Development (ERFD) under grant agreement No 2S01-020 for the period September 2016 – December 2019. Additionally, the Ministry of Economic Affairs in the Netherlands, Province of South-Holland and North-Holland and the Belgian Province of West Flanders offer financial support.

www.met-certified.eu
@METCertif

Peter Scheijgrond
+31 6 11 38 76 82
peter@dutchmarineenergy.com



IEC System for Certification to
Standards Relating to Equipment for
Use in Renewable Energy Applications



3 rue de Varembe
PO Box 131
CH-1211 Geneva 20
Switzerland

T +41 22 919 0211
secretariat@iecre.org
www.iecre.org