# IEC Standards and Certification Developments
## Accelerating Marine Energy Commercialization

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# Outline

* **Vision and Background**

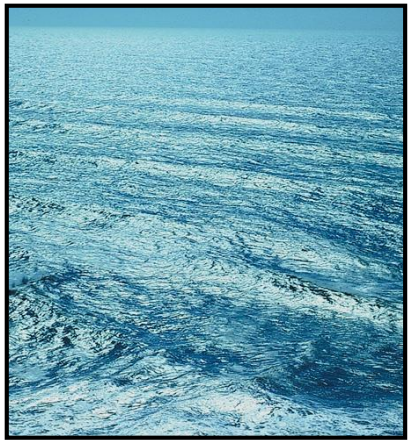
* **Standards (IEC TC 114)**

* **Certification (IECRE ME-OMC)**

***No shortage of terms:***

***"Marine Energy"***
*"Ocean Energy"*
*"Marine Renewable Energy"*
*"Marine Hydrokinetics"*
*"MHK"*
*"Kinetic Hydropower"*

**Tidal, River, Wave, Ocean Current, OTEC,** Salinity, etc.



# Today – Marine Energy Path to Commercialization

***1. Why Adhere to Standards?***

- Lower Cost, Increased Performance, Improved Reliability

***2. Certification (3rd party verification) to consensus-based International Standards can:***

- Reduce risk
- Increase confidence
- Open market access
- Improve financing availability and terms
- Enhance insurability
- **Support the commercialization of the Marine Energy industry**

# Today – Marine Energy Path to Commercialization (IEC TC 114)

**International Standards [IEC Technical Committee (TC) 114 – Marine Energy]**

- 14 P-Member National Committees (**P**articipating Countries)
- 13 O-Member National Committees (**O**bserving Countries)

**- 190 Subject Matter Experts**

**- 10 published 1st Edition Technical Specifications (TSs)**
**- 6 TSs (new) under development**
**- 7 TSs (1st Edition) in maintenance**

- 6 active Project Teams, 7 Maintenance Teams, 2 ad-Hoc Groups
- 1 New Work Item Proposal and 3 Draft TSs out for vote
**- Liaisons with IEA-OES, ISO, UNECE GERE**
- www.iec.ch/tc114/

# International Standards – IEC TC 114

* www.iec.ch/tc114/
* Marine energy - Wave, tidal and other water current converters
* Participating (P-Member) countries shown (14)

# International Standards – IEC TC 114

* [www.iec.ch/tc114/](www.iec.ch/tc114/)
* Marine energy - Wave, tidal and other water current converters
* Observer (O-Member) countries shown (13)

# IEC TC 114 – Published Technical Specifications (TSs)

| Number | Title | Status |
|---|---|---|
| 62600-1 | Terminology | Maintenance to Ed. 2 |
| 62600-2 | Marine Energy Converter Design | Maintenance to Ed. 2 |
| 62600-10 | Moorings | Maintenance to Ed. 2 |
| **62600-30** | **Power Quality** | **Published 2018** |
| 62600-100 | Wave Energy Converter (WEC) Power Performance | Maintenance to Ed. 2 |
| 62600-101 | Wave Energy Resource Assessment | Maintenance to Ed. 2 |
| 62600-102 | WEC Power Performance at a 2nd Location | Published |
| **62600-103** | **WEC Pre-prototype Device Testing** | **Published 2018** |
| 62600-200 | Tidal Energy Converter (TEC) Power Performance | Maintenance to Ed. 2 |
| 62600-201 | Tidal Energy Resource Assessment | Maintenance to Ed. 2 |

# IEC TC 114 – Active Project Teams (PTs)

| Number | Title | Status |
|---|---|---|
| 62600-3 | Measurement of Mechanical Loads | New Project Team |
| **62600-20** | **Ocean Thermal Energy Conversion (OTEC) Design** | **Ed. 1 Ballot Now** |
| 62600-40 | Acoustic Characterization | Near Ed. 1 |
| 62600-202 | TEC Device Scale-Testing | Near Ed. 1 |
| **62600-300** | **River Energy Converter (REC) Power Performance** | **Ed. 1 Ballot Now** |
| **62600-301** | **River Energy Resource Assessment** | **Ed. 1 Ballot Now** |
| | | |
| NWIP {62600-4} | Technology Qualification | Pending NC Approval |

# Today – Marine Energy Path to Commercialization (IECRE ME-OMC)

**Reduce Risk (Cost)**

**Certification (3rd party verification) to consensus-based International Standards can reduce risk, improve market access and support the commercialization of the Marine Energy industry**

Standards (IEC TC114 – Marine Energy)

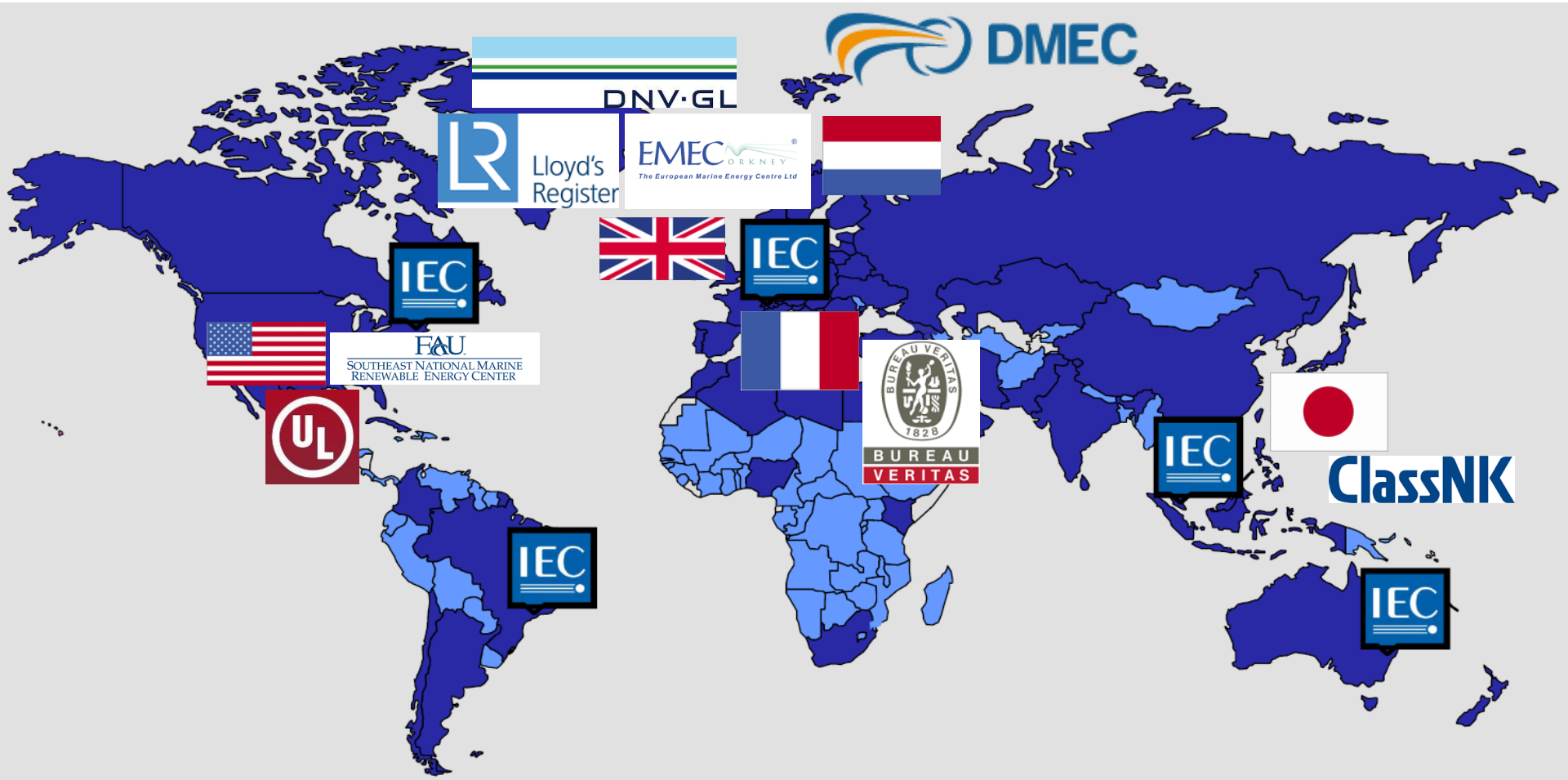
- 14 P-Member National Committees (Participating countries)
- 13 O-Member National Committees (Observing countries)
- 10 published Technical Specifications
- 6 under development, 7 in maintenance
- Liaisons with international agencies

**Certification (IECRE: Marine + Solar + Wind)**

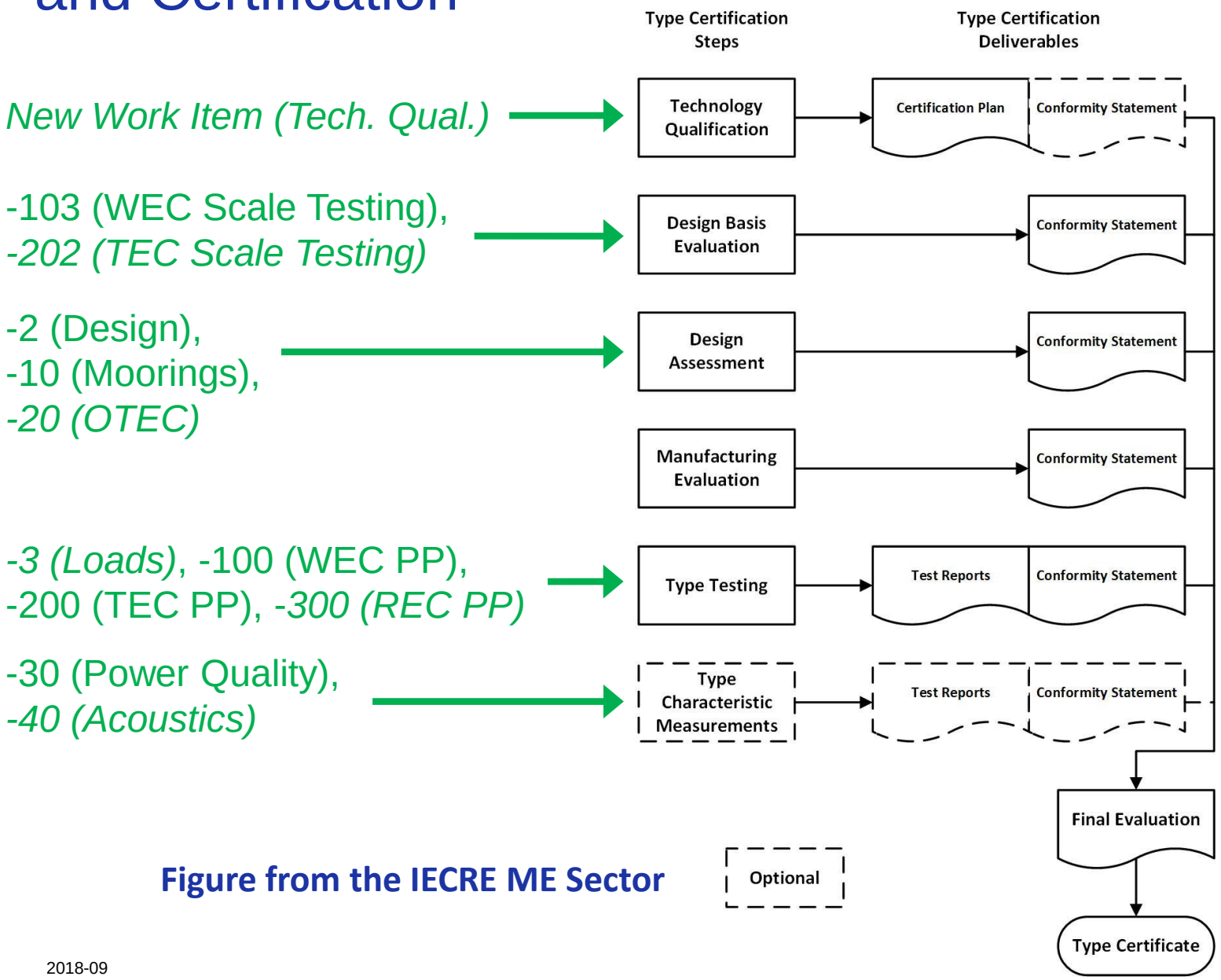
- **5 Member Bodies (countries) in Marine Sector**
- **Test Reports, Conformity Statements**
- **Component, Prototype, Type, Project Certificates**
- **Renewable Energy Certification Bodies (RECBs)**
- **Renewable Energy Test Laboratories (RETLs)**
- **Liaison with MET-Certified**
- **www.iecre.org**

# Conformity Assessment – ME-OMC

* www.iecre.org
* IEC Conformity Assessment System for Renewable Energy (IECRE)
* Member Bodies of the IECRE Marine Energy Sector shown



# Marine Energy Standards (62600-XXX) and Certification




**IEC TC 114 Standards:**

Published

*In Progress*

**PP is Power Performance**

**Figure from the IECRE ME Sector**

# ME-OMC – RETL Guidance


LINKS:

IEC Conformity Assessment Brochures

Marine Energy RETL Brochure

IECRE Marine Energy Sector

# Thank You

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