

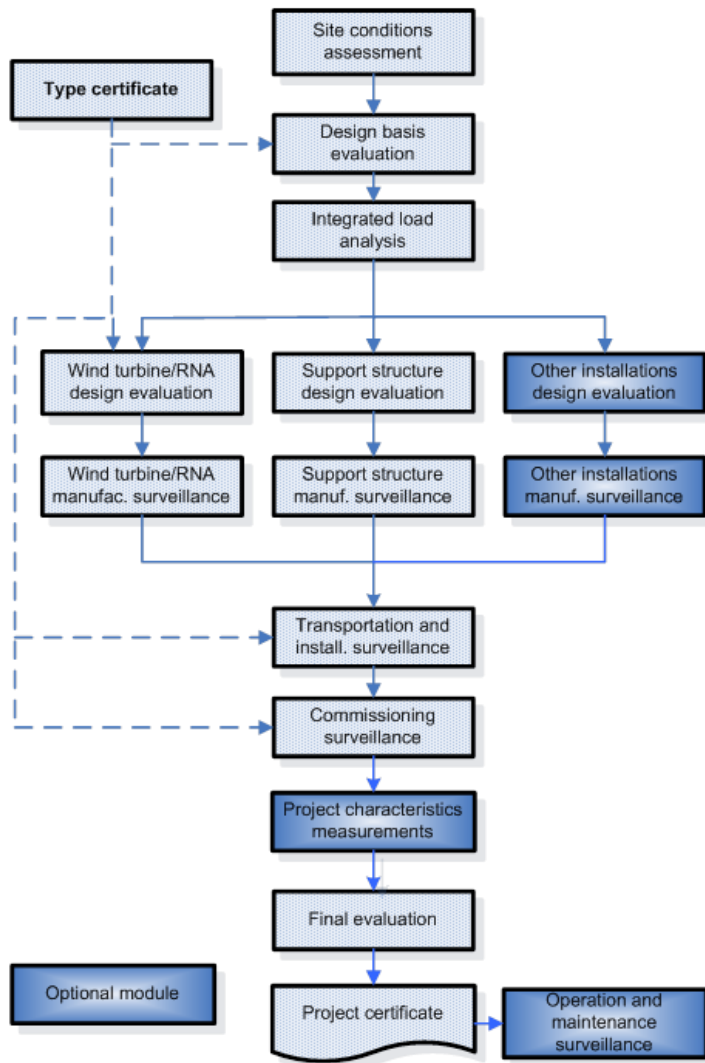


Industrie Service

**Mehr Sicherheit.
Mehr Wert.**

Offshore Zertifizierung im Umbruch

Was ist Offshore Zertifizierung und wie ist die bisherige Praxis



Verwendung von nationalen und/oder privatrechtlichen Standards, wie z.B.

- BSH Standard
- Danish Executive Order No. 25
- IEC 61400-22
- DNVGL Service Specifications

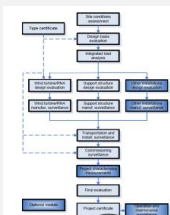
Ausstellung von Projektzertifikaten:

- Überwiegend nur in Deutschland und Dänemark aufgrund des BSH's bzw. der Danish Executive Order
- Die bisherige Internationale Bedeutung beschränkt sich überwiegend auf ausgewählte Module der Projektzertifizierung

Standard Hierarchie – IEC 61400 Serie

Scheme for conformity testing and certification

IEC 61400-22



- Project Certification
- Type Certification
- Component Certification
- Prototype Certification

Design requirements

- IEC 61400-1 Design requirements
- IEC 61400-2 Small wind turbines
- IEC 61400-3 Design requirements offshore
- IEC 61400-4 Design requirements gearboxes
- IEC 61400-24 Lightning protection
- IEC 61400-25 Communications monitoring & control

Testing & measurement

- IEC 61400-11 Acoustic noise measurement
- IEC 61400-12 Power performance measurements
- IEC 61400-13 Measurement of mechanical loads
- IEC 61400-14 Sound power level & tonality values
- IEC 61400-21 Power quality characteristics
- IEC 61400-23 Structural testing of rotor blades
- IEC 61400-26 Availability wind turbines
- IEC 61400-27-1 Electrical simulation models - Wind turbines

Other related IEC/ISO standards

- IEC 60034 Rotating electrical machines
- ISO/IEC 17020 General criteria for Inspection bodies
- ISO/IEC 17025 General criteria for Testing laboratories
- ISO/IEC 17065 General requirements for Certification bodies
- ...



IECRE - RENEWABLE ENERGY

IEC SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN RENEWABLE ENERGY APPLICATIONS

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What is IECRE

The IEC System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications (IECRE System) aims to facilitate international trade in equipment and services for use in Renewable Energy Sectors while maintaining the required level of safety.

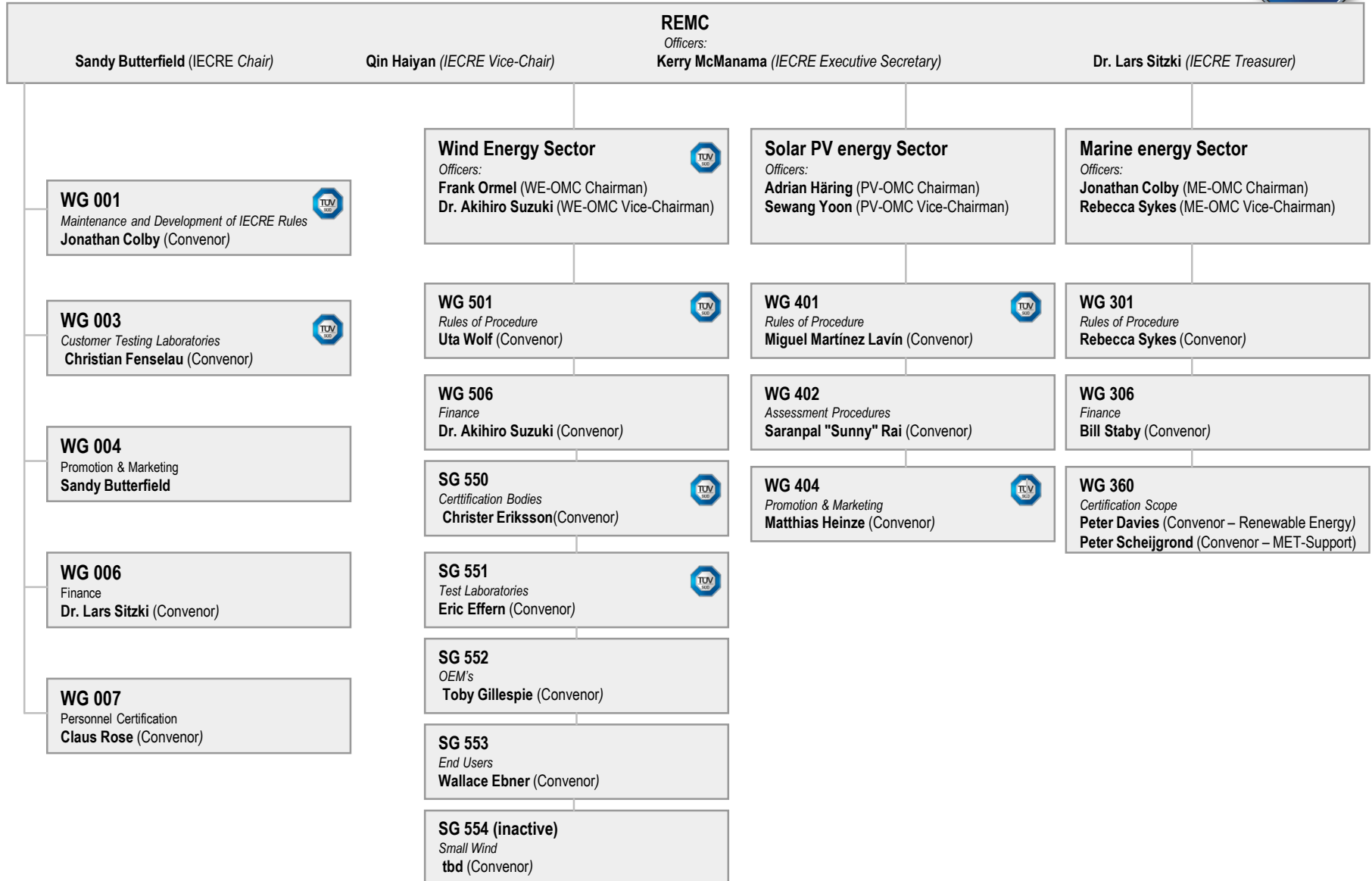
In order to achieve this it:

- operates a single, global certification system
- aims for acceptance by local/national authorities or other bodies requiring and benefiting from certification
- will make use of high quality International Standards and allow for continuous improvement



To be effective and avoid double work of what information must be given when and to whom, the System will include a mechanism to solve disagreements between stakeholders both on the content and its correct application.

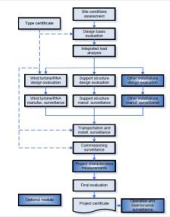
Its goal is to offer a harmonized application around the globe, which ensures a uniform:



Standard Hierarchie – IEC 61400 Serie

Scheme for conformity testing and certification

IEC 61400-22



- Project Certification
- Type Certification
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→ Replaced by:

IECRE Operational Document
OD 501 – Type Certification Scheme

→ In addition with:

OD 501-1 Rotor Blades

OD 501-2 Gearbox

OD 501-3 Tower

OD 501-4 Loads

OD 501-5 Control and Protection System

OD 501-6 Personnel Safety

Design requirements

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- IEC 61400-25 Communications monitoring & control

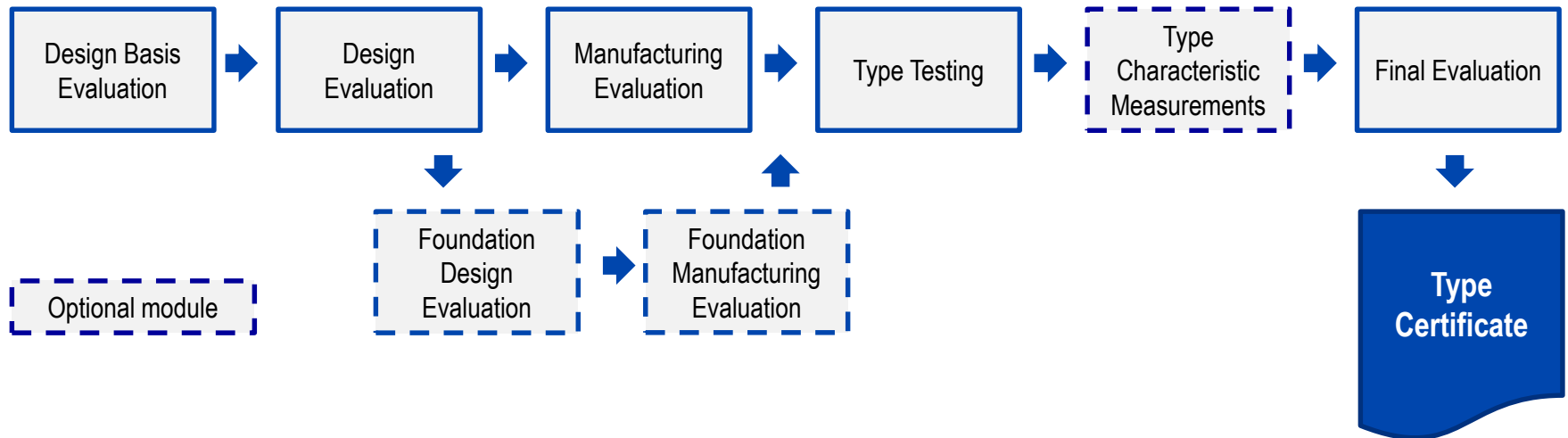
Testing & measurement

- IEC 61400-11 Acoustic noise measurement
- IEC 61400-12 Power performance measurements
- IEC 61400-13 Measurement of mechanical loads
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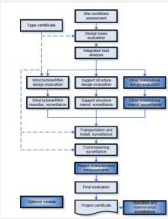
Extent of Type Certification – IEC 61400-22/OD501



Standard Hierarchie – IEC 61400 Serie

~~Scheme for conformity testing and certification~~

~~IEC 61400-22~~



- Project Certification
- Type Certification
- Component Certification
- Prototype Certification

→ Replaced by:

IECRE Operational Document
OD 502 – Project Certification Scheme

→ In addition with:

OD 502-x to be prepared

Design requirements

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IECRE OD-502

- ➔ *Berücksichtigung eines projektspezifischen Anforderungsprofils, hinsichtlich z.B.*
 - Lokaler gesetzlicher Anforderungen
 - Beteiligter Projektpartner und deren Qualitäts-/Sicherheitsanforderungen
 - Jeweiligen Projektphase
 - Zertifizierungsstatus der Windturbine

- ➔ *Einführung unterschiedlicher Zertifikatstypen*
 - Project Certificate
 - Project Design Certificate
 - Provisional Project Design Certificate
 - Site Suitability Evaluation Conformity Statement
 - Provisional Site Suitability Evaluation Conformity Statement

IECRE OD-502

Project Design Certificate:

- Fokussierung auf die Design Phase eines Windparks
- Kann in den vollständigen Projektzertifizierungsplan integriert werden
- Typenzertifikat gemäß OD-501 ist eine Voraussetzung
- Sofern kein Typenzertifikat vorliegt, kann (bei mindestens vorliegendem Design Evaluation Conformity Statement gemäß OD-501) ein „Provisional Project Design Certificate“ ausgestellt werden

Site Suitability:

- Vereinfachte „Eignungsprüfung, z.B. für kleinere Onshore Windparks oder in einer sehr frühen Phase eines Projektes
- Es werden keine Conformity Statements bis auf das „Site Suitability Conformity Statement“ ausgestellt.
- Kann daher **nicht** in den vollständigen Projektzertifizierungsplan / Projekt Design Zertifizierungsplan integriert werden
- Typenzertifikat gemäß OD-501 ist eine Voraussetzung
- Sofern kein Typenzertifikat vorliegt, kann (bei mindestens vorliegendem Design Evaluation Conformity Statement gemäß OD-501) ein „Provisional Site Suitability Conformity Statement“ ausgestellt werden



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**Vielen Dank für Ihre
Aufmerksamkeit**



**Choose certainty.
Add value.**