



# IECRE OPERATIONAL DOCUMENT

**IEC System for Certification to Standards relating to Equipment for use in Renewable Energy applications (IECRE System)**

**Acceptance of RECB for project certification**



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## 1 Objectives

This Operational Document details the procedure for accepting new entrant RECBs into the IECRE system, and reassessment of RECBs previously approved as part of the WE (Wind Energy) Sector.

The basic acceptance procedure is given in the RoP applicable for the wind sector and this operational document gives the detailed procedure. The assessment is based on peer assessment in line with ISO/IEC 17040.

The IECRE scheme intends to promote high standards, transparency and fair competition in the industry and as such, the focus of the assessment will therefore be on the quality of work performed.

## 2 Definitions and acronyms

Definitions are given in RoP applicable for the wind sector and ISO/IEC 17040.

CB is used to cover both RECB and new entrant candidate RECB.

RoP: Rules of Procedure

## 3 Certification scheme

This document covers acceptance of RECBs for the following scheme:

- Project certification

These schemes are defined in RoP applicable for the wind sector and the related operational document OD-502 for project certification including the further details given in documents (sub-ODs) OD-502-1, OD-502-2, etc. if available, for specific topics.

## 4 Requirements

The RoP applicable for the wind sector gives the basic requirements and procedure for acceptance of an RECB. The basic requirements are listed and further detailed in this chapter.

### 4.1 The RECBs to be reassessed and the new entrant candidates must be accredited by an IAF/MLA accreditation body per ISO/IEC 17065.

The RECBs to be reassessed and the new entrant candidates must be accredited by an IAF/MLA accreditation body per ISO/IEC 17065 with the scope including the IECRE system scheme for Project certification or an equivalent scheme. Equivalent scheme shall be understood as a certification scheme for the wind energy sector having the following features:

- a) Covers project certification
- b) Organized in modules, with intermediate conformity statement for each module
- c) Has design evaluation, independent integrated load analysis, measurements, and manufacturing, installation and commissioning surveillance activities
- d) Has equivalent level of detail for the assessment activities as the applicable IECRE scheme

**4.2** Active participation in SG550 which apart from sharing the workload assigned to SG550 also implies participation and presence in more than half of its face to face meetings. The presence may be through web based participation but physical presence is required for minimum one meeting per year.

**4.3** Knowledge and understanding of IECRE system rules and the wind energy sector procedures and related technical codes and standards relevant for the scheme. The CB shall have implemented their own procedures and instructions to ensure compliance.

**4.4** State of the art knowledge (active participation in IEC TC88 WG or local mirror groups e.g. offshore support structure design to understand state of the art).

### 4.5 Human Resources:

- a) The CB shall limit subcontracting to cover maximum 1/3 of the technical certification work.

- b) The CB shall have a minimum of 2 experts available in each technical area
- c) The CB shall have implemented a system for qualification of its technical certification staff. The system shall include training programs (theoretical and practical) relevant to the type of certification work covered by the qualification. The system shall also address the maintenance and updating of qualifications.

#### **4.6 Experience:**

##### **4.6.1 Type and component certification:**

Both RECBs subject to reassessment and new entrant candidate RECBs shall be qualified RECB for type and component certification, ref. OD-550-1 or shall demonstrate that they have sufficient experience to evaluate the aspects related to the wind turbine / RNA. This includes but is not limited to the below topics:

- Interfaces: analytical, structural, mechanical, electrical and operational
- Dynamics for integrated load analysis
- Load simulations: set up of load cases including model for control system, verification of calculated loads, validity of testing
- Manuals and grid connection parameters relevant for manufacturing or transport and installation surveillance

An RECB not qualified for type and component certification will not be able to perform the following tasks:

- Perform certification of the mandatory modules for type certification as part of project certification, ref. OD-502, chapter 6.4, in case no type certificate(s) exist for the specific wind turbine / RNA type(s) to be used in the project certification,.
- Evaluate new and/or significantly modified/reinforced wind turbine / RNA components

##### **4.6.2 Project certification:**

Both RECBs subject to reassessment and new entrant candidate RECBs shall demonstrate that they have sufficient experience or that they have maintained the experience by issuing 3 project certificates according to IECRE or equivalent scheme during the last five years (for new entrant candidate RECB) or since the last peer assessment (for RECB). An equivalent scheme shall at least include sub structure design evaluation, independent integrated load analysis, measurements, and manufacturing, installation and commissioning surveillance. A project certificate may be replaced by multiple conformity statements such that the conformity statements make out the full scope of a project certificate. Two of the project certificates shall be for an offshore project with significant wave loading and with more than 5 wind turbines.

If this requirement is not fulfilled, additional peer assessment will be required as outlined in chapter 5.5.

##### **4.6.3 Onshore Project design certification:**

Both RECBs subject to reassessment and new entrant candidate RECBs shall demonstrate that they have sufficient experience or that they have maintained the experience by issuing 3 project design certificates according to the IECRE scheme or 3 design evaluation conformity statements according to an equivalent scheme during the last five years (for new entrant candidate RECB) or since the last peer assessment (for RECB). An equivalent scheme shall at least include independent integrated load analysis and sub structure design evaluation. A project design certificate may be replaced by multiple conformity statements such that the conformity statements make out the full scope of a project design certificate.

If this requirement is not fulfilled, additional peer assessment will be required as outlined in chapter 5.5.

##### **4.6.4 Offshore Project design certification:**

Both RECBs subject to reassessment and new entrant candidate RECBs shall demonstrate that they have sufficient experience or that they have maintained the experience by issuing 3 project design certificates according to the IECRE scheme or 3 design evaluation conformity

statements according to an equivalent scheme during the last five years (for new entrant candidate RECB) or since the last peer assessment (for RECB). An equivalent scheme shall at least include independent integrated load analysis and sub structure design evaluation. A project design certificate may be replaced by multiple conformity statements such that the conformity statements make out the full scope of a project design certificate. Two of the project design certificates shall be for an offshore project with significant wave loading and with more than 5 wind turbines.

If this requirement is not fulfilled, additional peer assessment will be required as outlined in chapter 5.5.

#### **4.6.5 Site suitability evaluation:**

Both RECBs subject to reassessment and new entrant candidate RECBs shall demonstrate that they have sufficient experience or that they have maintained the experience by issuing 3 site suitability evaluation conformity statements according to IECRE or equivalent scheme during the last five years (for new entrant candidate RECB) or since the last peer assessment (for RECB).

If this requirement is not fulfilled, additional peer assessment will be required as outlined in chapter 5.5.

## **5 RECB Acceptance process**

### **5.1 RECB Application Form**

Each CB subject to assessment shall submit the completed form AD-001 to the IECRE Secretary. New entrant candidate RECBs shall submit AD-001 through the national Member Body for their endorsement.

The IECRE Secretary will review the received AD-001 for completeness before proceeding with the assessment planning.

### **5.2 Applicant**

Each applicant shall provide relevant documents together with the application form according to the requirements listed above in chapter 4, such as:

- a) Accreditation documents
- b) Process/Work instructions
- c) QM manual

### **5.3 Peer assessors**

Each peer assessor shall be approved according to the RoP applicable for the wind sector and shall as a minimum meet the following criteria:

- a) 5 years of experience in conformity assessment of which the last 2 years within wind industry.
- b) 5 years of experience in the wind industry including at least 2 years of experience from one relevant technical area.
- c) fluent in the English language.

Each RECB shall at least provide two peer assessors to the pool of approved peer assessors. The application form AD-002 shall be used for new peer assessors. The peer assessment planning should be such that all peer assessors are utilised at least once every three years.

The IECRE Secretary shall maintain the list of peer assessors meeting the qualification requirements and approved according to the RoP applicable for the wind sector. This list shall be made available to SG 550.

All qualified peer assessors shall receive training on the IECRE peer assessment rules and best practices once every three years. Details and further requirements related to training are given in a separate document.

#### **5.4 Assessment team**

The IECRE Secretary shall select the peer assessors from the above list of qualified peer assessors. The assessment team shall consist of two assessors from two different RECBs and they should have expertise in at least two different technical areas. The selection shall be based on the mandatory expertise and by maximizing other expertise areas for the whole assessment team by having as many expertise areas as possible covered, see Annex D. The IECRE secretary may consult with the SG 550 convener on the composition of the peer assessment team.

The IECRE Secretary or an appointed qualified assessor will participate as lead assessor.

The IECRE Secretary shall inform the applicant RECB of the names of the assessors at least two months before the planned date of the peer assessment.

#### **5.5 Assessment preparation**

The preparation for the assessment consists of:

- For the lead assessor:
  - to define, in agreement with the applicant RECB and the two peer assessors, the dates for the peer assessment
  - to prepare, in coordination with the two selected peer assessors, the assessment plan (describing the content of the assessment and the sharing of works between the assessors); and to send it to the applicant RECB, at least two weeks before the beginning of the assessment
- For the applicant RECB: to prepare the assessment report OD-004 to the extent possible, and submit this to the lead assessor, at least two weeks in advance or as agreed with the lead assessor.

#### **5.6 Assessment**

##### **5.6.1 Duration and process**

The duration of the assessment shall be determined by the peer assessment team based on the experience of the entrant RECB and may be shortened or extended beyond the durations stated below based on the observations and findings made during the assessment. See Annex C for guidance on the duration of the assessment, as described below. During the planning it shall be considered that the peer assessors may work in parallel.

For an experienced CB a duration of 4 full consecutive working days will initially be planned to allow for around 25 hours of interviews and document review per peer assessor and provided the requested information is readily available in English language. The lead assessor will be planned to attend corresponding to two working days.

In case the requirement in chapter 4 related to experience is not fulfilled (new entrant candidate RECB or RECB with limited experience since the last peer assessment), the assessment will be extended by one working day, allowing for additional vertical assessment, i.e. a complementary technical assessment on at least two technical areas (one for each selected peer assessor).

To extend the scope for an RECB qualified for type and component certification to also include project certification, the following applies:

- a) **Site suitability evaluation:** No additional peer assessment required. Demonstration through correspondence of additional required competency in site assessments to be evaluated by the original peer assessment team if the same assessors are still available in the IECRE system.

**b) Onshore Project Design Certification (including site suitability evaluation):** No additional peer assessment required. Demonstration through correspondence of additional required competency in site assessments and structural engineering to be evaluated by the original peer assessment team if the same assessors are still available in the IECRE system.

**c) Offshore Project Design Certification:** The scope for offshore project design certification also covers onshore project design certification.

An additional assessment is required, and the assessment will initially be planned to last for two full consecutive working days allowing for around 8 hours of interviews and document review provided the requested information is readily available in English language. The lead assessor will attend corresponding to one working day as the review of the management system is already done for the RECB assessment for type and component certification.

In case the requirements above related to experience are not fulfilled, the assessment will initially be planned to last for three full consecutive working days, allowing one extra day for additional vertical assessment, i.e. a complementary technical assessment on at least two technical areas (one for each selected peer assessor).

**d) Onshore Project Certification:** The scope for onshore project certification also covers onshore project design certification (including site suitability evaluation).

An additional assessment is required, and the assessment will initially be planned to last for two full consecutive working days allowing for around 8 hours of interviews and document review provided the requested information is readily available in English language. The lead assessor will attend corresponding to one working day as the review of the management system is already done for the RECB assessment for type and component certification.

In case the requirements above related to experience are not fulfilled, the assessment will initially be planned to last for three full consecutive working days, allowing one extra day for additional vertical assessment, i.e. a complementary technical assessment on at least two technical areas (one for each selected peer assessor).

**e) Offshore Project Certification:** The scope for offshore project certification also covers onshore project certification and project design certification (including site suitability evaluation).

An additional assessment is required, and the assessment will initially be planned to last for two full consecutive working days allowing for around 8 hours of interviews and document review provided the requested information is readily available in English language. The lead assessor will attend corresponding to one working day as the review of the management system is already done for the RECB assessment for type and component certification.

In case the requirements above related to experience are not fulfilled, the assessment will initially be planned to last for three full consecutive working days, allowing one extra day for additional vertical assessment, i.e. a complementary technical assessment on at least two technical areas (one for each selected peer assessor).

### 5.6.2 Assessment scope

The assessment shall take place at the CB site where its most important certification activities are carried out.

The assessment starts with an initial meeting:

- gathering all 3 assessors, and the CB representatives
- where the assessment objectives, organisation, timing, participants are confirmed. The applicant RECB shall be evaluated against all requirements in chapter 4 of the present document.

The assessment activities consist of:



- Organisation documents (Organogram, Quality Manual) review with focus on impartiality.
- Accreditation documents (accreditation certificate, accreditation audit report) review
- Certification process documentation (procedures, templates) review with focus on the specifics for the IECRE system.
- Qualification files (internal resources and sub-contractors) review
- Project files review including below topics in order to confirm that relevant requirements in OD-502 (and OD-502-x as applicable) are appropriately managed and evaluated in the project. See Annex A of this document or OD-502, for overview of specific requirements in OD-502 depending on the scope, and Annex B of this document for a more detailed listing of the scope for review:
  - Records (contract review, evaluation review, certification decision, annual reporting ...)
  - Identification of the certified wind farm project
  - Standards considered (all relevant standards for project certification shall be mentioned)
  - Technical certification documents (evaluation plan, evaluation reports, independent calculation results, integration of type certificates into project certification and other relevant reports)
  - Final evaluation (review by someone not taking part of the review/evaluation work)
  - Deliverables (conformity statement, certificates)
  - Outstanding issues, conditions, limitations (project certificate must not have any outstanding issues)
  - Certification decision (background for decision documented)
  - Annual reporting for maintenance of certificate (at least demonstrate capability for implementation)
  - Operation and maintenance surveillance (demonstrate that this is implemented)
- It shall be assessed that the RECB has experience to evaluate all possible elements of the scope (see overview in Annex A of this document or OD-502), e.g. it shall be assured that the RECB has experience on evaluation of grid code compliance when applying for the scope of project design certification.

The applicant RECB shall ensure all necessary information and/or documentation is made available to the peer assessors. This will also include all documents referred in the technical certification documents.

### **5.6.3 Assessment report**

The reporting template OD-004 shall be used for the reporting from the peer assessment. Any non-resolved deviations shall be highlighted in the conclusion of this report. For further requirements to reporting and handling of non-conformities, see the Rules of Procedures applicable for the wind sector.

For new RECB assessment non-conformities shall be closed within 3 months. If non-conformities cannot be closed within the 3 months period, an exceptional extension for 1 month can only be granted at the discretion of the IECRE Secretariat based on progress evidence to resolve the outstanding non-conformities. If the deadline cannot be met a new application (incl. fees) will be required.

For RECB re-assessment non-conformities shall be closed within 3 months. If non-conformities cannot be closed within the 3 months period, an exceptional extension for 1 month can only be granted at the discretion of the IECRE Secretariat based on progress evidence to resolve the

outstanding non-conformities. If the deadline cannot be met, the acceptance will be suspended for 12 months, after which it will be withdrawn and then a new application (incl. fees) will be required.

The conclusions of the assessment report shall be agreed upon by the assessment team (lead assessors, and the two peer assessors), and by the CB representative.

The summary assessment report is established by the IECRE Secretary within 10 days from the assessment, and excludes all confidential information, such as the name of the staff interviewed and the sensitive identifying information (name of customer, project or wind turbine names ...). The summary report will be sent to REMC for final approval per the IECRE system rules.

## **6 Re-assessment**

The acceptance of the RECB is valid for a period defined in the Rules of Procedures applicable for the wind sector.

The IECRE Executive Secretary will notify RECBs early in the year as to when their reassessment is required for that year. The RECB shall then apply for re-assessment within one month of the notification. In case of unsuccessful re-assessment or refusal, the RECB will be suspended.

## **7 Confidentiality**

Confidentiality in the RECB acceptance process is considered as essential, as peer assessors are originating from competitor RECBs, and certification information and documentation should be confidential within the RECBs. The protection of confidential information is managed as follow:

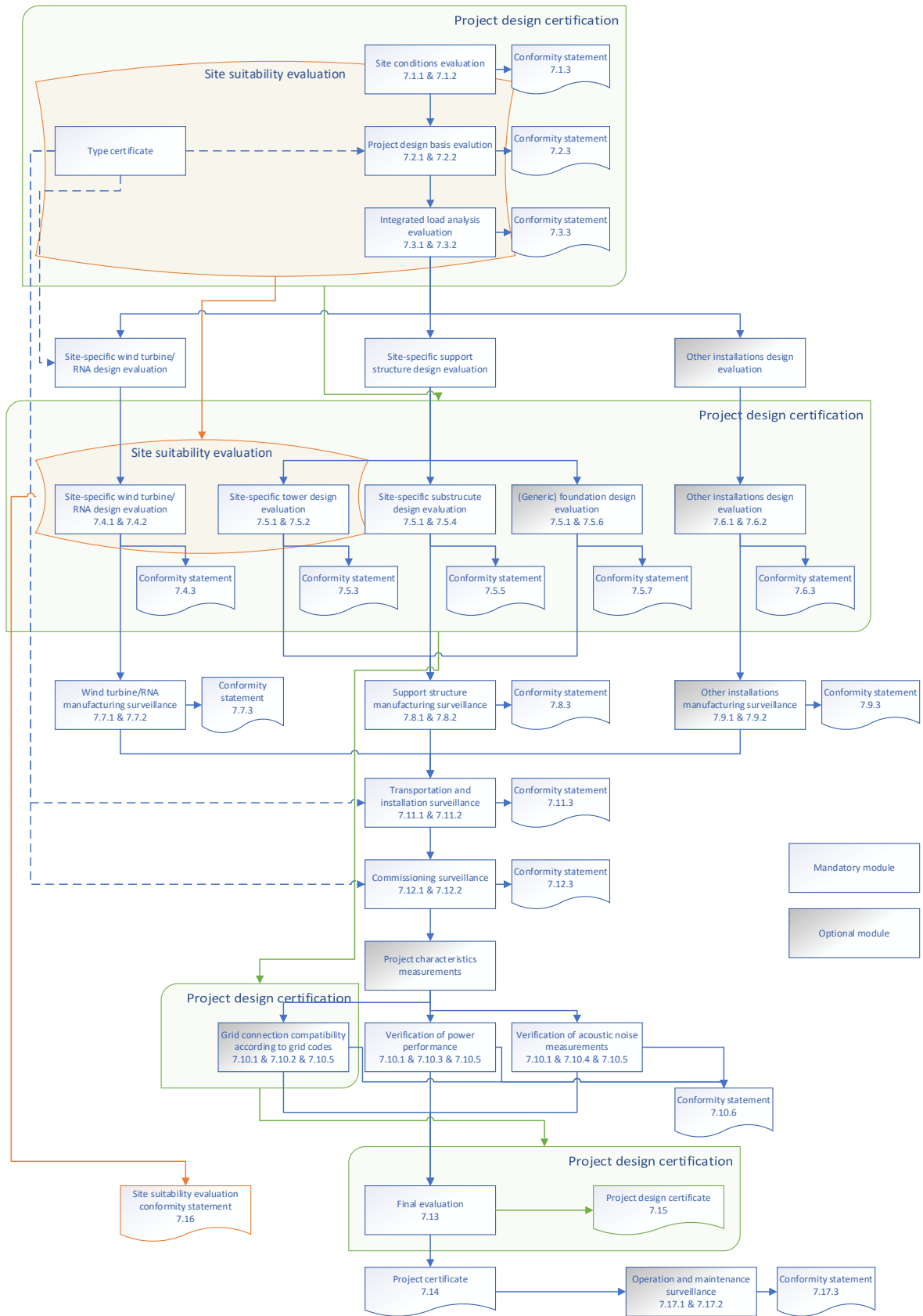
- Each person, when submitting their request to become a peer assessor to the IECRE Secretary, commits (to the IECRE and to the concerned applicant RECB) to keep confidential all information they will review and assess from the applicant RECB (and from its customers) during the complete acceptance process, for a duration not shorter than 10 years.
- Each (applicant and accepted) RECB will add in its contracts with its own customer a clause allowing the participation of third party observers (in line with §4.1.2.2.c.3 of ISO/IEC 17065)

## Annex A

The below flowchart provides an overview of the project file review content depending on the scope of the assessment.

<b>Scope of assessment</b>	<b>Content of project file review</b>
Project certification	All
Project design certification	Green boxes
Site suitability evaluation	Orange boxes

This overview is in line with the requirements as specified in OD-502 ed. 1 and will be superseded by the corresponding annex in OD-502 ed. 2 as soon as this is published.



## **Annex B**

### **Scope for review during peer assessment**

The detailed scope for review for a specific assessment depends on the scope of the applicant and shall be developed for the assessment by the peer assessors as part of the preparation.

The following topics shall be considered as a guidance during the peer assessment:

#### **Final Deliverables**

- Availability of certificates
- Availability of conformity statements for each module
- Content: Period of validity, listing of outstanding matters (if applicable), content according OD-501-T0x

#### **Site conditions**

- Evaluation against IEC 61400-1 or IEC 61400-3 of
  - Wind conditions
  - Earthquake and other environmental conditions
  - Electrical power network conditions
  - Geotechnical conditions
  - Marine conditions
  - Electrical power network conditions
- Measurements carried out by an RETL or Verification of measurements by an RECB according OD-502 7.1.2 b) c).

#### **Project design basis**

- Used codes and standards
- Methods and procedures deviating from OD-502 7.2 or IEC 61400 series
- Completeness of design aspects and parameter as given in OD-502 7.2.2

#### **Integrated load analysis**

- Evaluation of combinations of external conditions and design situations
- Evaluation of site-specific load assumptions including load safety factors, structural parameter (e.g. damping), clustering, DLCs, control concepts and choice of independent load simulations (design driving load cases)
- Evaluation of load comparison between site-specific loads and certified design loads

#### **Site-specific wind turbine / RNA design**

- Embedding of RNA Type Certificate
- Evaluation suitability of the type certified RNA for use in the offshore wind farm
- Evaluation of applicability of carried out measurements within the type certification phase

#### **Support structure design evaluation**

- Evaluation of tower
- Evaluation of sub-structure
- Evaluation of foundation
- Evaluation of interfaces between:
  - wind turbine / RNA and tower
  - tower and substructure

- substructure and foundation

**Wind turbine / RNA and support structure manufacturing surveillance**

- Review of documentation
- Performance of inspections and/or audits (components, scope and minimum amount of inspections per component)

**Transportation and installation surveillance**

- Evaluation of the applied quality management system for T&I
- Embedding of reports from external provider like MWS
- Inspections of damages that may have occurred during transport and installation
- Definition of a representative number of wind farm components and its installations Surveillance activities

**Commissioning surveillance**

- Evaluation if the commissioning is in conformance with the instructions and manuals
- Commissioning witness of at least one wind turbine and additionally at least one wind turbine per every 50 turbines in the project by the RECB
- Evaluation of commissioning reports

**Final evaluation**

- Evaluation of completeness of the modules for Project Certification, Project Design Certification or Site Suitability Evaluation
- Evaluation of interfaces between the modules
- Evaluation of the final version of the following processes
  - Manufacturing processes
  - Transportation processes
  - Installation processes
  - Operation and Maintenance processes

**Project certification**

Completeness check of the following modules:

- Site conditions evaluation
- Project design basis evaluation
- Integrated load analysis evaluation
- Site-specific wind turbine RNA design evaluation
- Site-specific support structure design evaluation
- Other installations design evaluation
- Wind turbine / RNA manufacturing surveillance
- Support structure manufacturing surveillance
- Other installations manufacturing surveillance
- Transportation and installation surveillance
- Commissioning surveillance
- Project characteristics measurements
- Final evaluation
- Operation and maintenance surveillance

### Project design certification

Completeness check of the following modules:

- Site conditions evaluation
- Project design basis evaluation
- Integrated load analysis evaluation
- Site-specific wind turbine / RNA design evaluation
- Site-specific tower design evaluation
- Site-specific substructure design evaluation
- (Generic) foundation design evaluation
- Other installations design evaluation
- Grid code compliance evaluation

### Site suitability evaluation

Completeness check of the following modules:

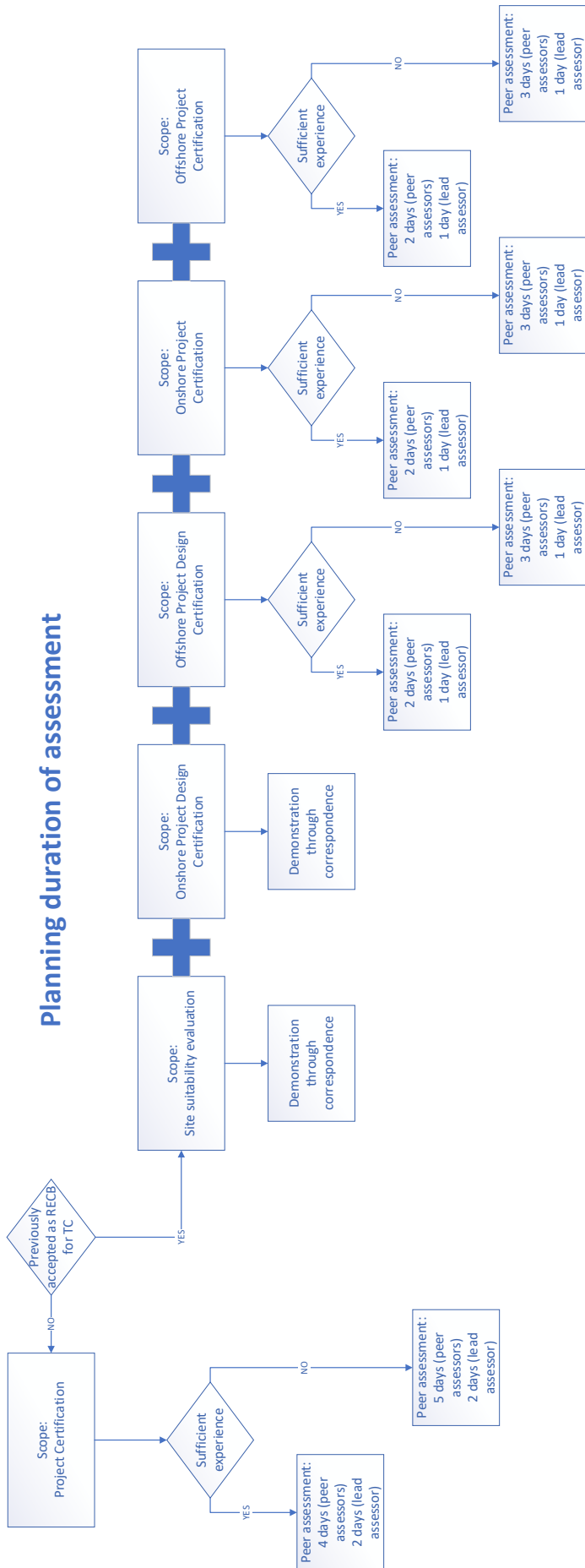
- Site conditions evaluation
- Project design basis evaluation
- Integrated load analysis evaluation
- Site-specific wind turbine / RNA design evaluation
- Site-specific tower design evaluation

## **Annex C**

(Informative)

**Flowchart: Guidance for planning the duration of the peer assessment**





## **Annex D**

### **Experience matrix for peer assessors**

In order to be able to establish peer assessment teams with maximum technical knowledge, the experiences of peer assessors shall be registered using the following 'experience' areas.

For each peer assessor, the experience shall be marked using the categories:

- Expert
- Generalist

Experience areas for project certification are listed below. When a peer assessment team is established, at least one assessor with the mandatory experience area marked with \* in below list shall be part of the team:

- Integrated load analysis including wind / wave loads \*
- Geotechnical
- RNA evaluation
- Offshore support structures, steel & concrete
- Electrical incl. substation equipment & safety
- Manufacturing surveillance
- Transport & Installation surveillance
- Commissioning surveillance

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