

Overview on Certification Principles within the RfG

Input to the European Stakeholder Committee on Grid Connection
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Intro – who is EFAC & VAZ

European Federation of Associations of Certification Bodies (EFAC)

- Member associations of UK, IT, IE, SK, BG, RO, DE
- Members' main focus is on system certification issues (QMS, EMS, health, ...)
- Seats in EA and IFA
(European Accreditation; International Federation)

German branch VAZ has set up an expert group on grid code compliance certification in 2016

- 10 certification bodies, active in unit (equipment) and plant certification according to the German regulations
- Some of the unit certifiers also already active in an international context
- Provides a stakeholder group for German ministries, VDE/FNN, DKE, DAkkS etc.

Agenda

- Scene Setting – RfG provisions on certification
- Some basic introduction
 - Link to IEC/ISO 17065
 - Definitions on equipment in terms of certification
 - Deployment of EqCs within the ON / CM processes
 - Evaluation processes
- The certification programme
- The question of acceptance
- Conclusions
- Backup: the German unit-plant-certification approach

Background – Scene Setting

RfG, Title III and IV introduce **equipment certificates (EqC)**

- issued by accredited certifiers, according to EC-reg. No. 765/2008
- giving (full or partial) compliance evidence
 - for facilities' initial commissioning / operational notification (title III)
 - for compliance monitoring during facilities' lifetime (title IV)

As well, **PGMDs** may be issued by accredited certifiers (on MS' option)

However, a clear picture on the **certification scheme** is missing

- **scope / restrictions**
- **definition** on evaluation (like **testing** and **model validation**), **transferability** and **conformity criteria**
- **responsibilities**

Further provisions have been developed within the
IGD Compliance Testing & Compliance Monitoring.

Amendments within the IGD CT/CM – General anchoring to accreditation standard

Link to **ISO/IEC 17065 accreditation standard** on conformity assessment on products, services and processes defining

- regulations on the certification body (CB)
- the basic conformity assessment process
(**application → evaluation → review → decision**)
- requirements on the **certification programme**, which shall define

- certification's scope

- applicable product standards

- evaluation and assessment methodologies & criteria

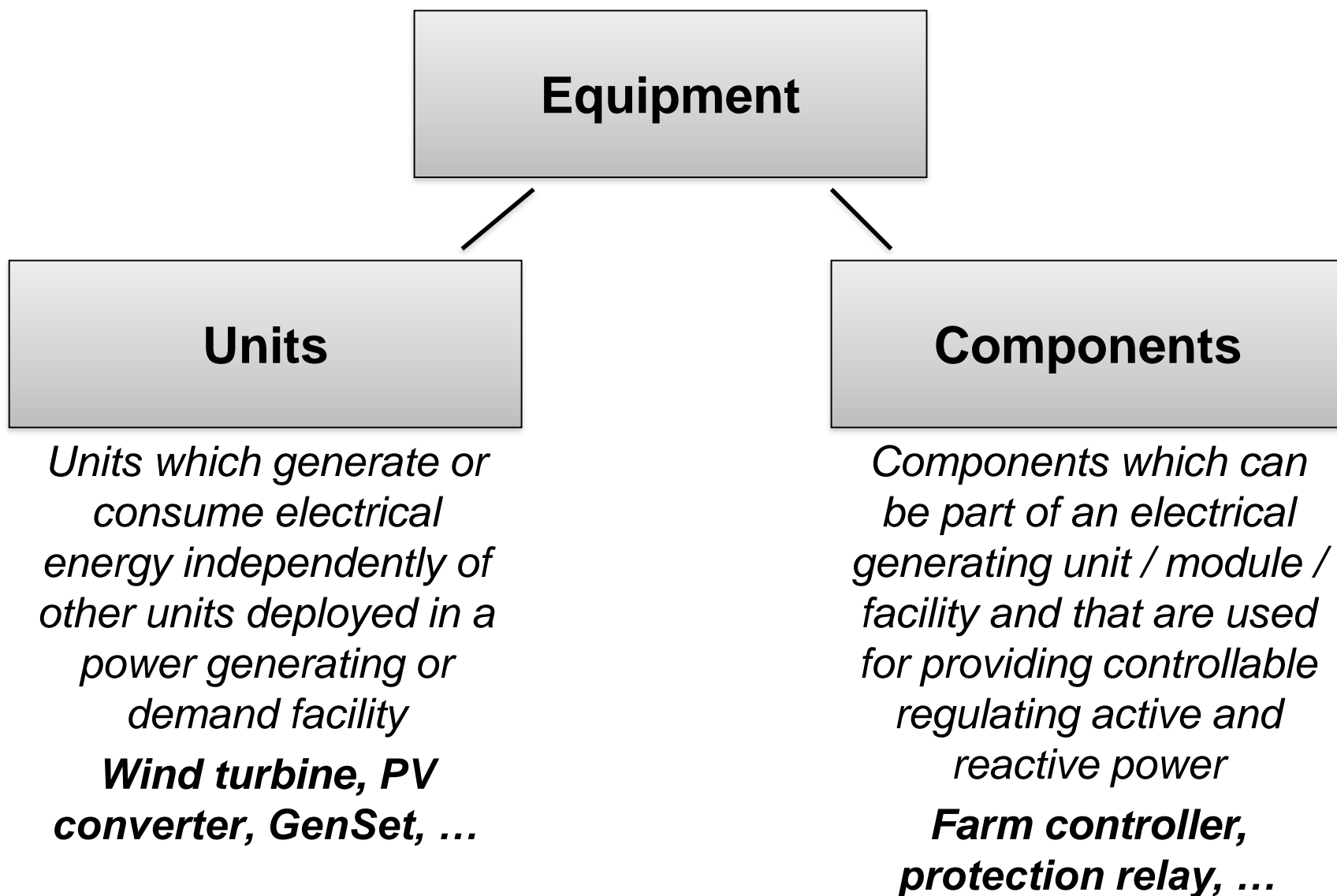
- monitoring the certificates' validity

Grid Codes
(RfG / MS' implementation)

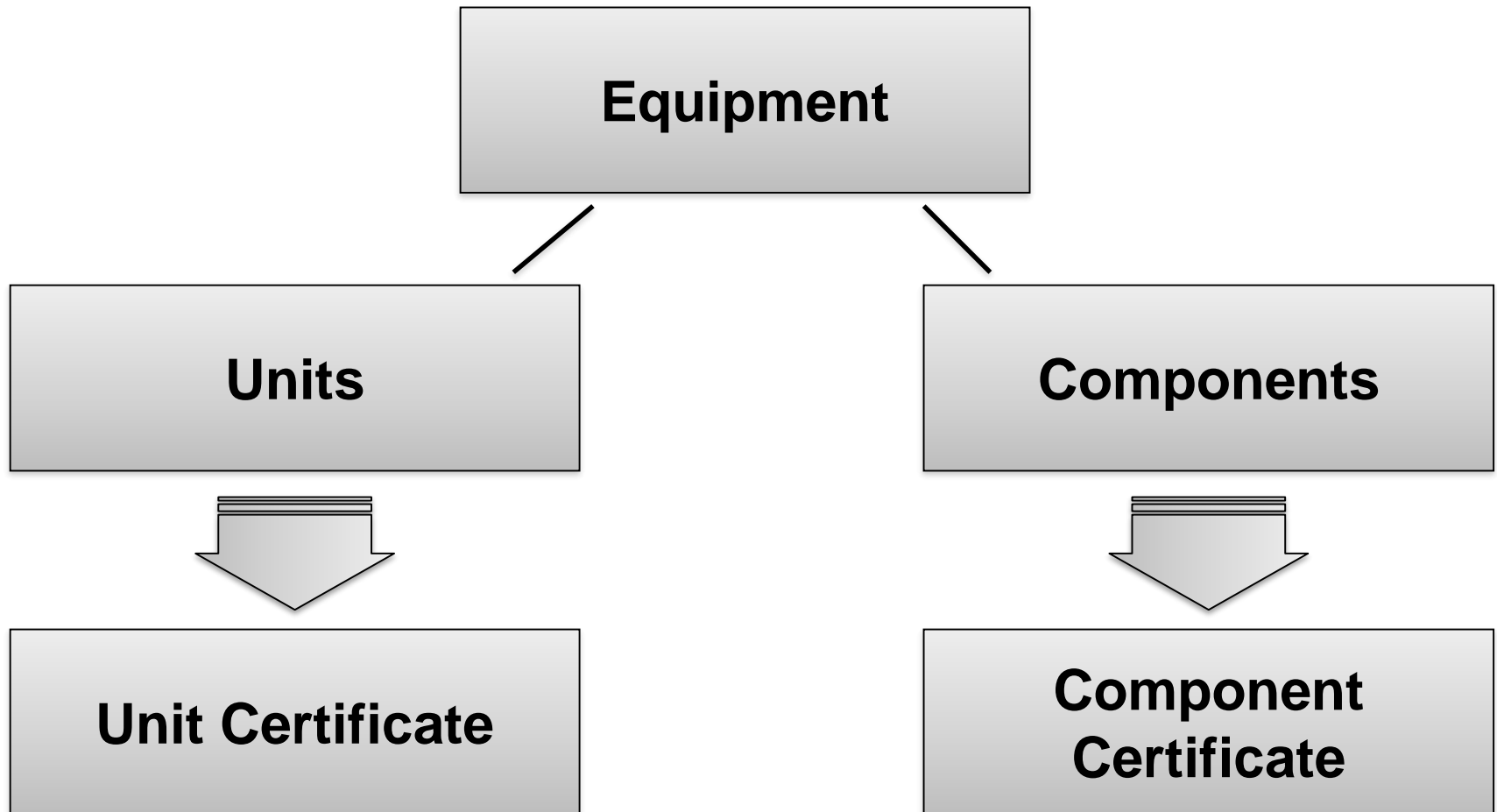
**Compliance
monitoring**

**Testing, modelling,
validation, simulation**

Amendments within the IGD CT/CM – EqC Definition



Amendments within the IGD CT/CM – EqC Definition



Amendments within the IGD CT/CM – EqC Definition

Equipment

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graph TD; Equipment[Equipment] --- GreenBox; GreenBox --- UnitCertificate[Unit Certificate]; GreenBox --- Certificate[Certificate];
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“The overall aim of certifying products, processes and services is to give confidence to all interested parties that a product, process or service fulfills specified requirements.”

ISO/IEC 17065:2012; Introduction

Unit Certificate

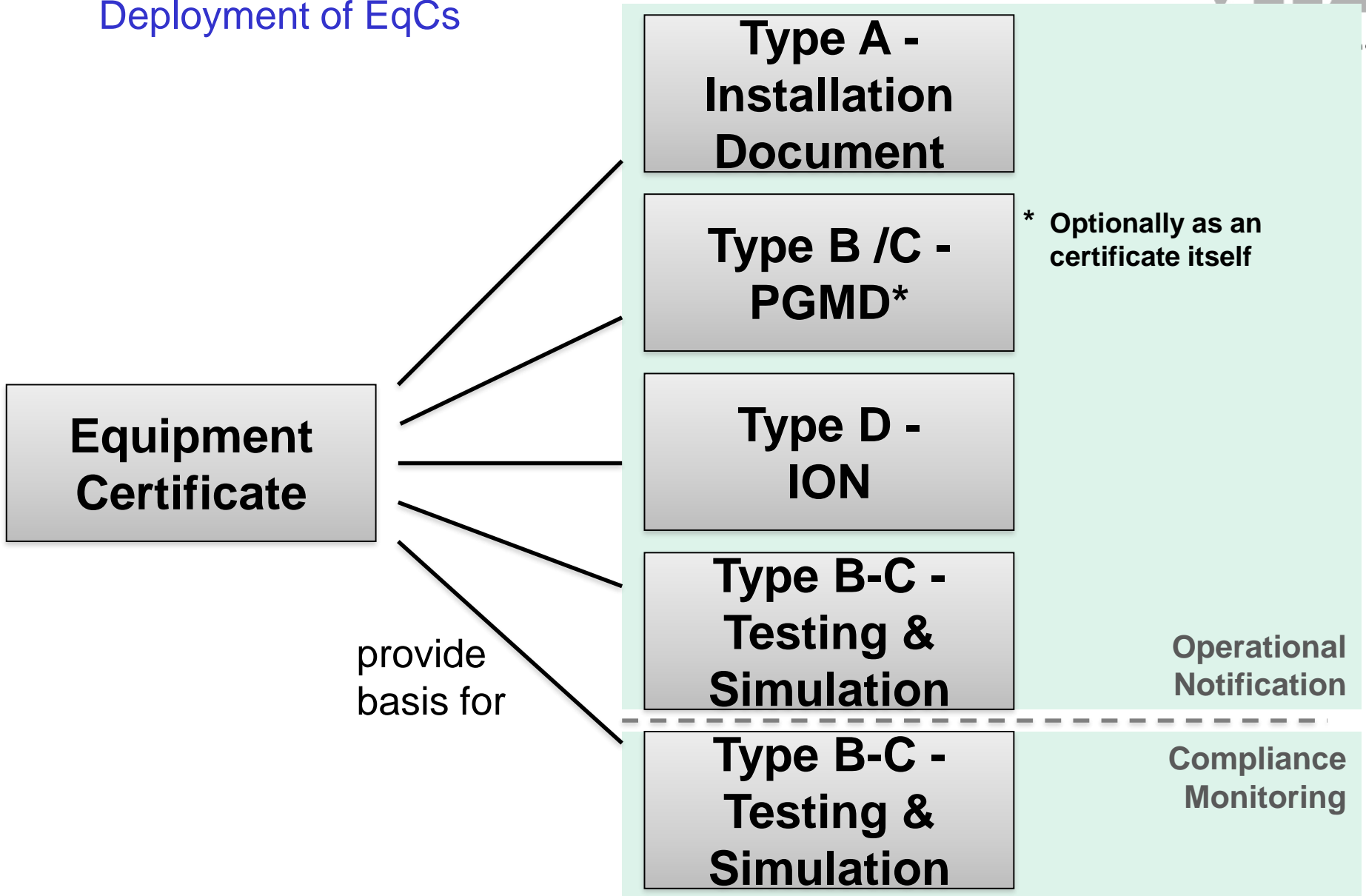
Certificate

Deployment of EqCs

1. Within the **operational notification procedures**,
acc. to RfG, title III, chapter 1
 - being part of the installation document (type A only)
 - being part and **providing the basis** of the PGMD (type B / C)
 - being part and **providing the basis** of the ION (type D)

2. Within the **compliance monitoring**,
acc. to RfG, title IV, chapter 1-3, 5, 6
 - of type A, providing relevant information to RSO; RSO may define conditions and procedures to register EqCs.
 - of type B, C & D, substituting tests and measurements
 - of type B, C & D, providing the model for required simulation

Deployment of EqCs



Type Testing

- Executed by accredited testing institutes, according to IEC ISO/EN 17025
- Field tests, test benches, HiL-tests, ...
- Conducted according to defined testing procedures
(may be defined in the grid code itself like RfG /title IV; international standards like IEC 61400-21 / CLC 50549-10; national standards like FGW-TR3, PVVC, ...)

Equipment's simulation model

- Modelling and model validation to be implemented / conducted according to defined procedures
(may be defined in the grid code itself like RfG /title IV; international standards like IEC61400-27 / national standards like FGW-TR4, ...)

Manufacturer's declaration

- Further functional and design description of the equipment, technical data and/or characteristics, that can/will not be tested nor simulated

The crucial role of the Certification Programme I/II

- **Good news** (to OFGEM et al....): **They do exist !!**
 - e.g. FGH Z411 (since 2004!)
 - DNVGL-ST-0125
 - FGW-TR8 (national and acknowledged programme, Germany)
 - PVVC (national elaborated and acknowledged programme, Spain)
- **Bad news:** there is no European-wide co-ordinated programme *(so far)*
 - CLC 50549-10 will be solely addressing type testing which is not sufficient for a product certification scheme while the conformity assessment should include a validated model as well as (non-measured) functional and design characteristics
 - FGW-TR8 is seeking for international (EU-wide) applicability
 - IEC-RE certification scheme has been focussing on wind turbine type certification (constructional, design issues etc.) and more on generic electrical characteristics. WG009 on grid code compliance about to start.

The crucial role of the Certification Programme II/II

More general remarks

- required by IEC ISO/EN 17065
- programme owners
 - single CB -> “house schemes” (e.g. FGH; DNVGL; ATA ...)
 - Programmes won't provide a consistent scheme
 - third parties, like associations -> superior schemes
 - in general, nation-wide consistent schemes
 - in general, elaborated by all stakeholders
 - however, today only available on national level in two countries (DE: FGW-TR8; ES: PVVC)
 - EFAC is willing to promote a EU-wide process (so far only German CBs active)
 - ***Who will be the owner ?***
- to be assessed on accreditability by (national/EA) accreditation body
 - EA / European Co-Operation for Accreditation enables a central EA-assessment of programmes to accelerate national accreditation of CBs

The question of acceptance ...

General

- Any CB accredited by an European accreditation body shall be accepted under the regime of EA (internationally via IAF)
- Any CB must hold a valid accreditation with respect to the **product specification** (i.e. grid code), **certification programme** and **evaluation scheme** (testing / validation / simulation procedure) under consideration
 - RfG itself (to be discussed; missing criteria with non-exhaustive requirements; missing certification programme; missing detailed testing / validation / simulation procedure)
 - MS's national implementation (and respective referred procedures)
 - e.g. VDE-AR-N 4120 -> FGW-TR3/4/8
- Hence, for example, any EqC on the VDE-AR-N 4120 issued by an CB inside or outside Germany, that is accredited for this grid code plus FGW-TR3/4/8 shall be accepted by German system operators

The question of acceptance ...

What happens with grid codes where there is no reference to a certification programme nor an evaluation scheme ?

(as long as there is no harmonized programme...)

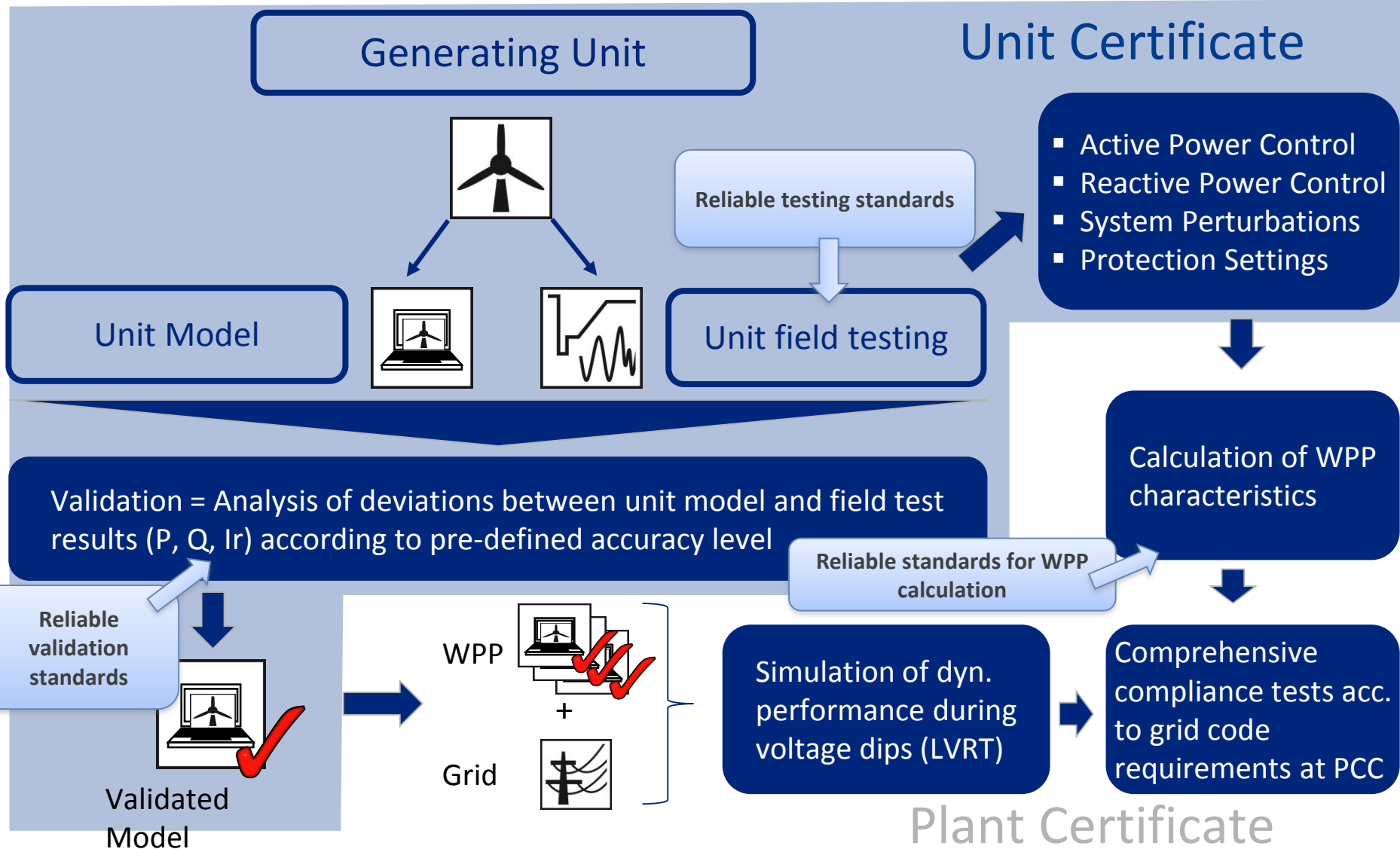
- CB may rely on existing programmes (house or superior schemes)
 - E.g. FGH's certification acc. to Italian CEI-016 based on the internal house scheme FGH Z411, also taking into account provisions of FGW-TR3/8 in addition to the testing scheme of CEI-016/Annex N; same with DNV GL ST-0125
- Finally, EqC is based on the CB's (accredited) best engineering practise;
 - See IEC 17065: "***The overall aim of certifying products, ... is to give confidence to all interested parties that a product, ... fulfills specified requirements.***"
 - ! All steps of the evaluation, conformity assessment and decision should be well documented ! Don't trust a single stamp and signature !!
- However, of course, such EqC based on different house / superior schemes will differ in assessment schemes and evaluation procedures
- **The confidence is up to the user, i.e. system operator !**

Conclusions

- EqC provide an appropriate measure to ensure grid code compliance
- A few MS do have long-term experience with PGU certification
- Certification is always conducted with respect to a defined product specification, e.g. grid code
- As well, certification needs a well defined and accredited certification programme and underlying evaluation schemes.
 - These are defined only in a few MS
 - House or other superior schemes are applicable; but will lead to inconsistencies
 - **Several accredited CBs across Europe could start asap, but non-harmonized** (given the final MS RfG-implementation)
- Possible roadmaps to harmonized programmes
 - FGW strategy to open FGW-TR8 to an EU-wide programme; should be embedded into an EU-wide stakeholder process
 - Enhance CLC 50549-scope
 - Link RfG-requirements to IEC-RE process
- EFAC is willing to promote all harmonisation processes, **but needs active input from other MS**
- Finally, it's a matter of acceptance and confidence

Backup

The German scheme of unit and plant certification



Unit certificate as basis for plant assessments – Applied methodologies

