EG HCF - Harmonization of Product Family Grouping and Acceptance of Equipment Certificates at European Level

30th GC ESC

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Action Item

From 29th GC ESC MoM

Draft of legal text proposal delivery:

- According to MoM of 29th GC ESC section 8 sub 3, the EG HCF had to align the text proposal and present to ACER by end of May
- Text proposal delivery was on 07/06/23, *however without acceptance by ENTSO-E due to general concerns* (comments from other stakeholders were implemented)

Objectives of EG HCF according to ToR (and where these are addressed in EG HCF report):

1. Provide a path for the creation of EU harmonized testing strategies and proof of compliance (see chapter 7 EG HCF)
2. Define an approach to accept certificates at EU level for all types (A, B, C and D) (see chapters 6 and 7 EG HCF)
3. Define a common product family definition and grouping criteria for an equipment certificate (see chapter 4 EG HCF)
4. Provide a path for a harmonized European approach to accept validated simulation models and define their recommended scope of use to substitute equipment testing (see chapter 5 EG HCF)

Action Item

Amendment Text Proposal Content

General points:

- All amendments refer to and are in most cases literally based on a section in the agreed EG HCF report and touch upon the ToR objectives
- Amendments provided are based on contributions proposed from individual stakeholders based on EG HCF content
- A reasoning and relation to other provisions is provided for each proposal
- Comments and acceptance from stakeholders (except ENTSO-E) are included in the final version
- The proposals remain open for further consultation with ENTSO-E (**approach tbd**)

Proposals for Title I GENERAL PROVISIONS

Article 2: new or modified concepts:

- To modify: Authorized certifier and equipment certificate - according to EG HCF report, chapter 7.8.1
- New: power generating unit (PGU), component and power generating unit family - according to EG HCF report, chapter 4, 7.3.1 and 7.3.2

Action Item

Amendment Proposal Content

Proposals for Tittle III OPERATIONAL NOTIFICATION PROCEDURE FOR CONNECTION – CHAPTER 1

- **Article 29** (general): new paragraph 3 to ensure that an acceptance of equipment certificates is facilitated by a clear specification by the RSO (this is tied to new articles 40 to 43) - according to EG HCF report, chapter 7.8.2

- **Article 32** (for Type B and C): formal adjustment taking into account the newly introduced PGU and component certification which cannot be referred to a PGM - in alignment with EG HCF report, chapter 7.3

- **Article 33** (for Type D): alignment needed with article 32(6) to introduce certifier involvement in document issuing - in fact no reference to EG report, but to take into account the common practice by some member states

Action Item

Amendment Proposal Content

Proposals for Tittle IV COMPLIANCE – NEW CHAPTER "Equipment Certificates and Prototype Confirmations"

- **Article 40**: Formal Requirements of equipment certificates with respect to certification scheme, the content and structure and the validity; also provides a classification of equipment certificates into PGU, components and PGM certificates - according to EG HCF report, chapter 7.4.1, 7.4.3, 7.4.7, 7.3.1-7.3.3, 7.4.5

- **Article 41**: Specified Requirements introduce the 4 options on which the conformity assessment of an equipment certificate might be based on, and which **may** hence be accepted by RSOs (according to amended articles 30, 31 and 35); It opens the option for RSOs to accept equipment certificates based on national grid code requirements other than their own; provides the option of selective certification on only distinguished electrical characteristics (FRT, LSFM, etc) - according to EG HCF report, chapter 7.6.1, 7.6.2, 7.8.2 and 7.4.6

- **Article 42**: introduces the concept of family grouping in order to facilitate the certification of non-tested PGUs (components) within a product series and used the new concept introduced in article 2 - according to EG HCF report, chapter 7.4.4

- **Article 43**: introduces the concept of Prototype Confirmation (also known as prototype declaration) - according to EG HCF report, chapter 7.7

Action Item

Amendment Proposal Content

PGU Family definition concept

- ‘power generating unit family’ or ‘PGU family’ means a group of PGU’s from the same manufacturer with similar characteristics which may differ in power and voltage, and which behave in an equivalent way as regards to the control of electrical quantities. Each family is identified by a representative unit which has undergone conformance tests (tested unit). The family may be subject to a joint PGU conformity assessment based on the testing results of this representative unit. PGUs belong to the same family as the tested unit when the PGU’s nominal active power is in the range of applicability defined by [the manufacturer in accordance with the compliance procedure based on the rated active power of the tested unit], the PGU uses the same technology as the tested unit with reference to the conversion or accumulation of the primary energy source and transformation into electrical energy, the PGU uses the same or equivalent control hardware and software as the tested unit and the design of the energy conversion system and the control system of the PGU are the same or equivalent as those of the tested unit. The structure of the simulation model, if applicable, will be the same for all PGUs belonging to the family.

Notes on family definition:

- Its important for the creation of family certificates (covering multiple similar PGUs based on the test of a member)
- Individual technology specific definitions are NOT proposed, rather a general definition with the base blocks was proposed (specific information of EG HCF chapter 4 can be included in an IGD)
- No power range is included (see RED text), but a fixed range is **STRONGLY RECOMMENDED** to avoid multiple different definitions throughout the EU

Concerns on current EU approach

General points:

- No EU level (nor international) certification scheme exists, nor the framework for RSOs to create or accept them. There is also a massive difference in the interpretation of equipment certificates throughout Europe (correct formal alignment; how to define and apply them).

- No harmonized approach nor framework for the acceptance of certificates from other RSOs exist (however, some member states have defined methodologies to allow total or partial acceptance of certificates created for other member states)

- Individual certification approaches are becoming a barrier for trade, as selling and installing PGUs/PGMs in certain markets becomes too difficult (affecting small to medium scale generation)

- An IGD may not be helpful as it is just a recommendation and applies at PGM level. In the past, it has not always been possible to accommodate all concerns of stakeholders in the final IGD version.

- The inclusion of the PGU family definition is a MUST, otherwise unrealistic processes may be enforced where EACH PGU will need a certificate (considerable difficulty and cost for each project)

Next steps and Discussion

Next steps identified:

- Discussion with ACER and ENTSO-E on feedback
- Additional EG meeting to align feedback
- Active EG contribution to the further consultation process

For discussion in GC ESC:

- Feedback from ACER
- Feedback from ENTSO-E
- Feedback from ESC

BACKUP

Takeaways From EG HCF work (from 29th GC ESC)

Main Takeaways

From executive summary

I.- PGU vs PGM

- PGU certificates can be harmonized at EU level
- These PGU certificates may cover specific (national) grid codes, more generic grid connection requirements (NC RfG, EN standards) or simply the PGU's outmost capability PGU certificates can be used within the process specified in the NC RfG to demonstrate compliance at the PoC
- TSO/DSOs will keep the right to require additional compliance simulations or on-site compliance testing

II.- EG HCF didn't identify a standardized approach for PGM compliance

- this could be achieved either through a certification process at PGM level using the PGU certificates, or by accepting a PGMD (or similar document) coming from a PGF owner based on the content of the PGU certificate and additional site-specific testing and simulations

III.- The implementation of PGMDs (or similar documents) can be the key link between PGU compliance assessment at PGU terminals (PGU certification) and the PGM compliance in regard to the PoC

- PGMD definition in the NC RfG is restricted to type B and C. It is recommended to create new expert groups and extend the PGMD concepts to type A and type D. The complexity of PGMDs is based on national definition and PGM size.

Main Takeaways

From executive summary

IV.- Family definition applies to a group of related products that share common characteristics or features coming from a same manufacturer

- Includes common points that define the Family and MUST be included
- Transferability of test results can be done within the family
- EG HCF suggests having a family definition per design technology which is manufacturer based, regardless of power range and voltage level

V.- Simulation model is a KEY tool to evaluate PGU and PGM performance

- Reduce amount of test permission applications to relevant SO and reduce test disturbance to the grid
- A validated model using existing quantitative methodologies (very stringent) provide high level of fidelity and allow better understanding of the FRT performance of the unit.
- The model shall correctly represent the structure of the unit and shall be validated against testing results
- This model shall be used within the overall facility simulation model which shall correctly represent the structure of the system/module/unit including the system parameters

Main Takeaways

From executive summary

VI.- Formal requirements on PGU certification

- Unambiguous reference to certification programmes that are accepted by the RSO
- Clear definition of specified requirements that are accepted by the RSO

VII.- Umbrella certification is the most promising approach for harmonization of PGU certificates

- certification on EU level may be provided by a “capability certificate” that can easily be enhanced by grid code specific conformity statements