

INFORMATIVE DOCUMENT

English version

Rationale for the content and structure of

EN 50549-1: Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV distribution network – Generating plants up to and including Type B

and

EN 50549-2: Requirements for generating plants to be connected in parallel with distribution networks - Part 2: Connection to a MV distribution network – Generating plants up to and including Type B

1 Forword

This Informative Document explains the rationale behind the content and structure of EN 50549-1 and EN 50549-2. Due to the unique relationship between COMMISSION REGULATION 2016/631 (RfG) and the EN 50549 Series, and based on the comments received to preEN 50549-1 and preEN 50549-2 TC8X WG03 decided to draft this document in order to provide national committees and the wider public with an understanding of these rationale.

2 Increased Scope of EN 50549 in relation to RfG

In the traditions of EN 50438, EN 50549 intends to include all capabilities of generating plants necessary to operate generating plants in parallel to distribution grids. This includes issues necessary for a stable distribution grid management as well as the management of the interconnected system. As RfG is focused on the interconnected system, it is natural, that taking into account further needs for distribution system managing, further aspects are included.

3 Introduction of “Responsible party”

In each member country, the national Regulatory Authority approves the rules to be applied for the implementation of COMMISSION REGULATION (EU) 2016/631. These rules may take the form of national laws, decrees or regulations, technical specifications, or requirements of Transmission and Distribution System Operators. So they may come from various sources. However when a generating plant is built and connected to the Distribution System, the contact of the plant developer is the Distribution System Operator which usually provides for all the technical requirements to be fulfilled. So EN 50549-1 and EN 50549-2 refer to the “DSO” or the “responsible party” as the entities responsible for the definition of technical requirements.

4 Use of terms

Terms and definitions are selected to achieve consistency with EN 60050, IECV (cf. www.electropedia.org) and CENELEC terminology, recognizing that terms in COMMISSION REGULATION (EU) 2016/631 may deviate.

5 Additional requirements for distribution system management

The following requirements are stated in EN 50549 for distribution system management reasons, which might not be required in RfG or if required in RfG, are not required for Type A. As Directive 714/2009 8(7) limits the scope of RfG to issues effecting the cross border trade of electricity, requirements included solely for the need of distribution grid management are considered beyond the scope of RfG.

- Connection scheme and Coordination of switch gear,
- Voltage operating range,
- Reactive power capability and control modes,
- Voltage related active power reduction,
- Interface protection and anti islanding function,
- Connection and reconnection to the grid,
- Generation curtailment,
- Remote information exchange,

6 Additional requirements for stability of the interconnected system

Additional requirements relevant for the stability of the interconnected systems are included in case of over voltage ride through (OVRT) as this is not covered in RfG. Due to the long duration of RfG development and the fast development of decentralised generation in Europe robustness to voltage swells is considered to be of high importance, but apparently could not be included into RfG.

As electrical energy storage system (EESS), are excluded from the scope of RfG, but are included in the scope of the EN 50549 Series, EN 50549 also includes the further requirement of active power frequency response to under frequency (LFSM-U) to electrical energy storage. This requirement is considered of great importance during the expected fast increase of electrical energy storage for the next years and is not considered cost effective if considered during the design of such systems.

7 Implementation of UVRT and LFSM-U to avoid legal conflict with RfG

Under Voltage Ride Through (UVRT) requirements are defined in RfG for modules type B, type C and type D. There is no mentioning of these topic for type A modules.

Nevertheless UVRT is seen as an important requirement in some member states even for small generation modules like Type A.

From a legal point of view there are two contradicting opinions on whether it is allowed or forbidden to require UVRT for type A modules.

- Opinion 1: It can be required because the topic is not dealt with for type A modules.
- Option 2: It cannot be required because the topic UVRT is dealt within the RfG. Not mentioning UVRT for type A in RfG therefore means that it cannot be required for type A modules.

As long as there is no clarification on this legal issue Cenelec does not have the possibility to require UVRT for type A modules. This is the reason why in EN 50549-1 and 50549-2 the UVRT functionalities for type A generating plants are not defined as requirements (shall) but as a recommendation (should).

Limited Frequency Sensitive Mode - Underfrequency (LFSM-U) requirements are defined in RfG for Type C and Type D modules.

For generating modules (except EESS) type A and type B in EN50549 LFSM-U is defined as a recommendation (should) with the same explanation as for UVRT above.

8 Annex H - Relationship between this European standard and the COMMISSION REGULATION (EU) 2016/631.

Manufacturers of generating units and plants shall comply with all relevant EU Directives and Regulations. For the specific function of connecting the generating plant with the electric grid the reference regulation is COMMISSION REGULATION (EU) 2016/631 (NC RfG).

Since the EN 50549-1 and -2 are covering all technical requirements for type A and type B generating units, modules and plants, it is considered helpful to provide the information which clause of the standard supports which article of the RfG in a structured informative annex within the standard.

For other EU Directives and Regulations (e.g. LVD, MD or GAR) it is a formal task given to CCMC to include such an informative annex ZZ based on a standardization request from the EU. It is finally reviewed by the new approach consultant (NAC) for the relevant Directive or Regulation, prior to the listing of the standard in the official journal of the EU (OJEU) providing then “presumption of conformity”. This means that if a product is compliant with the standard, the Directive or Regulations is fulfilled too.

CLC TC 8X is fully aware, that this official procedure is not included in the RfG. Therefore CLC TC 8X WG3 drafted annex H. In annex H the relationship between the clauses and the articles is shown. It is considered, that generating plants compliant with the clauses of the standards are also compliant with the articles in the RfG. Of course, this does not provide “presumption of conformity” as a listed standard in the OJEU would provide. Nevertheless it will be helpful for the industry when performing the conformity assessment against RfG.