



Expert Group Criteria for significant modernisation

Finalisation of work

EG CSM successfully finished its journey



Setup

General agreement on incremental vs. threshold approach, “maintenance is no modification”

Discussion and Agreement

Basic principle derived and agreed

Drafting

Building blocks collected and put together

Public consultation via European Stakeholder Committee

Consolidation and finalisation
Discussion and consolidation of comments, report finalised.

Existing practices across member states

- The Expert Group collected existing practices across member states both by an inquiry distributed to participating organisations as well as analysing ACER's 2020 Implementation Monitoring Report
- Criteria to define a significant modification of a PGM can be subdivided into qualitative criteria as opposed to quantitative criteria
- All NRAs reporting the use of quantitative criteria have based them on the changes of technical capabilities of power generating modules.

General approach and Principles

EG's agreed high-level principle:

If a subject of the connection network codes is modified such that

- (a) this is a clear investment by the owner in the capabilities of the subject and
 - (b) this has a material effect on its electrical and grid-dynamic characteristics,
- then the investment should include bringing the subject up to CNC standards.

Any new parts or components should, as far as possible, comply with the requirements of the CNC even if the subject as a whole cannot do so, such that if compliance is required in the future, these replacement parts will not be a block on such compliance. This does not apply to recognized spare parts or maintenance activities.

Quantitative thresholds to be defined on national level

European level

Definition of key electrical characteristics

- For each Connection Network Codes
- Given as exhaustive list

National level

Thresholds for each key electrical characteristic

- To mirror regional specificities
- To be notified to the relevant national regulatory authority



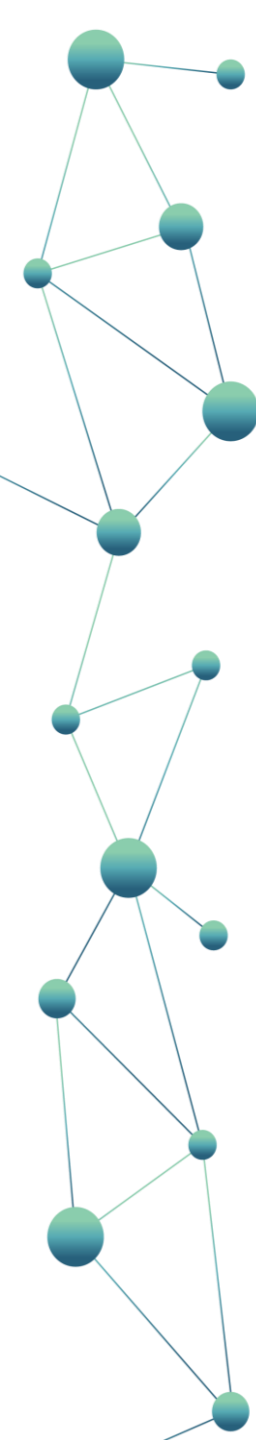
Key electrical characteristics of power generating modules

- The maximum capacity of the module,
- Its reactive power capability, if the relevant system operator is formally relying on particular reactive power requirements,
- Its inertia, or other appropriate intrinsic characteristic which affects its stability.

Pro-rata requirements are applied to new generators or inverters (units)

If only a part of units in an existing PGM is exchanged and thresholds defined by the relevant TSO are not reached, requirements should be applied to the whole PGM on a pro rata basis in the ratio of MW of new units to MW of total units.

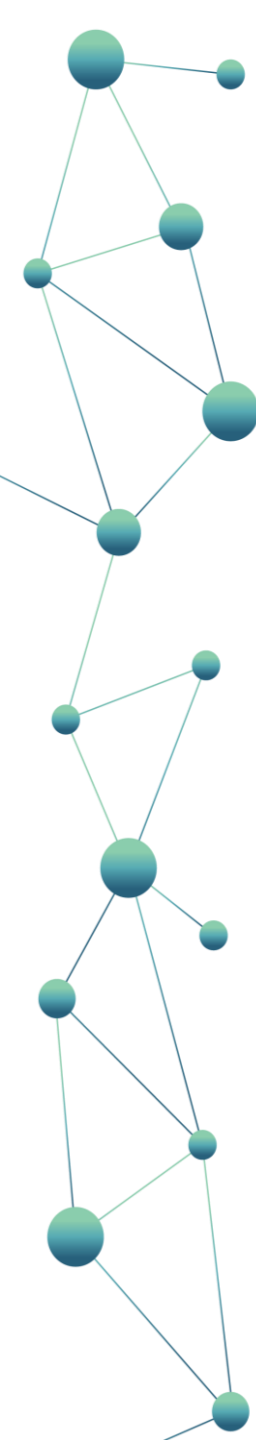
The EG gives guidance on how partial compliance can be assessed regarding reactive power in an annex to the report.



Key electrical characteristics of Transmission Connected Distribution or Demand Facility

- Significant increase of the main demand equipment capacity connecting the facility to the transmission system
- The fault level contribution from the facility
- Increased power factor capability (i. e. an increase in the capacity to generate or absorb reactive power)

and it has a material effect on its electrical and grid-dynamic characteristics.



Key electrical characteristics of distribution systems, including closed distribution systems

- Article 12 & 13 DCC define requirements on general voltage and frequency withstand capability.
- The Expert Group finds it impossible to conceive any new requirements regarding voltage or frequency triggering the compliance of a whole distribution system.
- Hence, triggering the compliance of a whole distribution system, given how extensive they are, should not be contemplated except in the most exceptional circumstances.
- Of course, the obligation that new components of a distribution system should meet the DCC requirement in isolation means that progressively non-compliant parts of distribution systems will be replaced naturally.



Key electrical characteristics of HVDC installations

- Maximum power transmission capability of HVDC installation
- Increase in converters' maximum current
- Change in overall reactive power capability
- Change of the technological concept (line-commutated converter vs. voltage-sourced converter)



Maintenance

- The EG quickly came to a unanimous view that activities that would generally be classed as maintenance could never trigger retrospective compliance.
- Maintenance does not modify an installation but aims at restoring its original functionalities which have decreased or even been lost by tear and wear.
- The report gives more details and definitions on maintenance in one of its annexes.