

Response of ENTSO-E to Public Consultation on NC RfG and NC DC

Executive Summary

The review of the European Network codes is an important step towards the decarbonisation targets set by the European Union. ENTSO-E actively supports this process with our expertise. We already provided important contributions during the drafting phase under grid connection European stakeholder committee and during the consultation period in the past year.

Hereby, we submit ENTSO-E's comments on ACER amendments proposals to the Network Codes Requirements for Generators (NC RfG) and Demand Connection (DC NC), as made on 19th of July.

With regard to NC RfG, we would like to highlight in particular the following points:

- Concerning the aggregation of power generating modules behind a connection point, ENTSO-E view is that the aggregation of the Pmax of all power generating units (PGM) that share a connection point (CP) is essential for the sizing of a PGM, given also that NC RfG requirements apply at the connection point. Therefore, ENTSO-E proposal to ACER aims to clarify and ensure consistency between the legal provisions and the whereas sections of the NC RfG. Additionally, ENTSO-E would like to kindly request from ACER to define the criteria needed to differentiate between an energy storage module (ESM) that is installed within a PGM to provide storage capability compared to an energy storage module that is used solely for the purpose of meeting the requirements of RfG NC.
- With regard to the A/B threshold, ENTSO-E would like to highlight that the reduction of upper limit for type A/B from 1 MW to 0,5 MW will have huge impact on retrieving high quality forecast data from Significant Grid Users (SGUs) because article 2 of System Operational Guidelines (SO GL) defines SGUs as existing and new PGMs classified as type B, C and D in accordance with NC RfG. This would result in significant increase in resources from TSO, DSOs and the connected parties foreseen to perform the data exchange.
- With regard to electromobility, ENTSO-E support the proposed technical requirements which are important to support the stability of a future power system with high penetration of electrical vehicles. ENTSO-E would like to suggest some improvements:
 - o The maximum capacity for V2G should be defined at V2G electrical charging park level and it should be identified as an ESM in order to ensure they comply with the same requirements than PGMs;
 - o Moreover, any charging unit or any electrical charging park with a total capacity behind a single connection point that is higher than the A/B threshold should be treated as charging park and apply the ESM requirements. ENTSO-E sees benefits to extend SO GL data exchange requirements applicable to significant grid users to the charging parks above this type A/B threshold;
- With regard to the requirements on voltage ranges, ENTSO-E considers that ACER proposal neglects the possibility of having type A power generating modules above 1kV, below 110kV and above 110 kV. Therefore, we have proposed an alternative approach which addresses this gap.
- With regard to the RoCoF requirements, ENTSO-E does not support the exclusion of type D SPGMs based on the 400 MW capacity threshold. The source of this value seems to be based on past experience of existing units installed in one single country that reflects neither other countries' experience nor modern design of such installations. The RoCoF withstand capability is a major design parameter for power systems affecting frequency defence mechanisms and system resilience. Therefore, ENTSO-E has submitted with this consultation an alternative approach which enables

exemption for new synchronous PGMs from the 2 Hz/s based on project specific basis and if it is technically justified by the facility owner.

- With regard to the grid forming requirement, ENTSO-E would like to acknowledge the importance of this capability for the stability of the future power system. Hence, we fully support the inclusion in NC RfG as well as the legal text content concerning the technical requirements. ENTSO-E would like to suggest the following improvements:
 - o Unlike the reactive power modes of the power park module, ENTSO-E acknowledges that any grid forming power park module with an imposed activation and deactivation option would affect the design and compliance process of power park modules, increasing costs and potentially making it uneconomical. ENTSO-E therefore recommends the following points:
 - No activation or deactivation option;
 - Member State or the entity designated by the Member State shall provide the formal and substantive conditions under which the relevant system operator may conduct grid forming specification for type A power park modules;
 - Grid forming requirement shall be mandatory for all type C and D PPMs, for type B power park modules connected at and above 110 kV, and for type B power park modules connected below 110 kV if the power park module is connected to a feeder dedicated to one or more power park modules connected to substation with transformation to 110 kV or above;
 - The Member State or the entity designated by the Member State shall set out a formal process to determine under which conditions type B power park modules connected below 110 kV other than cases above shall fulfil the requirements laid down in Article Y(6) and Y(8) ;
 - o ENTSO-E does not support the deletion of the fast fault current requirement already stated for type B PPMs when they are in Grid following mode.
- With regard to forced oscillation requirement for PPMs, ENTSO-E and WindEurope have agreed to have a common proposal introducing a range of limits of forced oscillations and a default value. This enables national or project specific adaptation of these oscillations limits. A common position paper with legal text proposal will be shared directly with ACER.

With regard the NC DC, ENTSO-E would like to stress the following points:

- The legal text proposal on demand units shall avoid any legal ambiguity and misinterpretation regarding the applicability of the technical requirements. ENTSO-E proposes some improvements in this regard;
- ENTSO-E has introduced a new definition for data centre demand unit and considers important for system security that these apply the same requirements than power to gas demand (PtG) units considering the expected increase of the installed capacity of data centres in several countries;
- Regarding LFSM-UC requirement applicable to Power to gas demand units and data centre demand units, ENTSO-E recommends a default droop with a range as for power generating modules (see the relevant article of RfG). Since those are not movable installations, it is possible and important to have a general specific droop setting.
- With regard to LFDD requirement, It is important for ENTSO-E to cascade the LFDD requirements towards distribution connected facilities. ENTSO-E would like ACER to consider a way to enable this possibility at least at national level.
- In ENTSO-E's view, the FRT profile of PtG demand unit shall be reset a given range, as for power park modules, following the generic FRT profile in the existing version of RfG NC (figure 3 and table

7.2). The recovery of active power after fault should be left for national decision in agreement between TSO and PtG facility owner.