Grid Code Modification Recommendation Form

Title of Recommended Proposal:

MPID 278 Correction of Reactive Power Capability Requirements under CC.7.3.6.1

MPID: MPID 278

Date:	10 August 2020
Recommended at GCRP Meeting No.:	02 July 2020
Grid Code Version:	8.0
Grid Code Section(s) Impacted by Recommended Proposal:	CC.7.3.6.1

The Reason for the Recommended Modification:

The Grid Code clause CC.7.3.6.1 details the Reactive Power capability for Generation Units as measured at their alternator terminals. The Transmission System Voltage ranges are defined in CC.8.3. The Voltage ranges in CC.7.3.6.1 do not align with the ranges defined in CC.8.3 and this misalignment is causing some confusion among Generators.

To give some background, the current Transmission System Voltage ranges in CC.8.3 were adopted in 1998 and incorporated into the first version of the Grid Code in 2000. The Voltage ranges in CC.7.3.6.1, listed for the Reactive Power requirements, were in use prior to the adoption of the current Transmission System Voltage ranges and were included in Grid Code as a transitional measure.

It is now proposed to align the Voltage ranges in CC.7.3.6.1 with the Transmission System Voltages in CC.8.3, as the existing voltage ranges in CC.7.3.6.1 are no longer relevant in this context.

By aligning the Voltage ranges with those in CC.8.3, it will provide Generators with the necessary clarity in relation to their Reactive Power capability requirements.

History of Progression through GCRPs, Working Group and/or Consultation:

On the 2 July 2020 this modification proposal was presented to the GCRP members.

A concern was raised by the Non-Synchronous Renewable Generator representative regarding a conflict with the proposed change to the voltage graphs in modification proposal MPID 279 – 0.9 per unit. EirGrid acknowledged this conflict but it was noted that the RfG does not distinguish between normal operation and post-fault operation. It was suggested that EirGrid bring this conflict as an amendment to the Network Code Amendment Team (CAT).

The DSO representative noted that a similar requirement to modify the Distribution Code is most likely needed and he would like to discuss off-line with the TSO.

It was recommended by the GCRP members that the TSO issue a modification recommendation paper to the CRU for their review and approval.

Summary Note of any Objections to the Recommended Change from GCRP Members or Consultation Responses: There were no objections to the recommended change from the GCRP members.
Outcome of any GCRP Meeting Actions Relating to the Recommended Modification: EirGrid will engage with the Network Code CAT to address the conflict with the proposed change to the voltage graphs in modification proposal MPID 279. Miriam Ryan (TSO member) and Tony Hearne (DSO member) will meet to discuss a similar modification that may be required to the Distribution Code.

Red-line Version of Impacted Grid Code Section(s) - show recommended changes to text:
Deleted text in ~~strike-through red font~~ and new text highlighted in blue font.

CC.7.3.6 **Reactive Power** capability

CC.7.3.6.1 Each **Generation Unit** shall have the following **Reactive Power** capability as measured at their alternator terminals:

Voltage Range	Connected at:	At **Registered Capacity** between:	At 35% **of Registered Capacity** between:
99kV ≤ **V** ≤ 123kV	110kV	0.93 power factor leading to 0.85 power factor lagging	0.7 power factor leading to 0.4 power factor lagging
~~85kV ≤ **V** < 99kV~~		~~Unity power factor to 0.85 power factor lagging~~	~~0.7 power factor leading to 0.4 power factor lagging~~
200kV ≤ **V** ≤ 245kV	220kV	0.93 power factor leading to 0.85 power factor lagging	0.7 power factor leading to 0.4 power factor lagging
~~190kV ≤ **V** < 200kV~~		~~Unity power factor to 0.85 power factor lagging~~	~~0.7 power factor leading to 0.4 power factor lagging~~
~~360kV~~ 350kV ≤ **V** ≤ 420kV	400kV	0.93 power factor leading to 0.85 power factor lagging	0.7 power factor leading to 0.4 power factor lagging
~~350kV ≤ **V** < 360kV~~		~~Unity power factor to 0.85 power factor lagging~~	~~0.7 power factor leading to 0.4 power factor lagging~~

Green-line Version of Impacted Grid Code Section(s) - show recommended final text:

CC.7.3.6 **Reactive Power** capability

CC.7.3.6.1 Each **Generation Unit** shall have the following **Reactive Power** capability as measured at their alternator terminals:

Voltage Range	Connected at:	At **Registered Capacity** between:	At 35% **of Registered Capacity** between:
99kV ≤ **V** ≤ 123kV	110kV	0.93 power factor leading to 0.85 power factor lagging	0.7 power factor leading to 0.4 power factor lagging
200kV ≤ **V** ≤ 245kV	220kV	0.93 power factor leading to 0.85 power factor lagging	0.7 power factor leading to 0.4 power factor lagging
350kV ≤ **V** ≤ 420kV	400kV	0.93 power factor leading to 0.85 power factor lagging	0.7 power factor leading to 0.4 power factor lagging