Grid Code
Modification Proposal Form

Email to gridcode@eirgrid.com

Title of Modification Proposal:

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

MPID (EirGrid Use Only): 278

Date:	05 July 2021
Company Name:	EirGrid
Applicant Name:	Miriam Ryan
Email Address:	**Miriam.Ryan@eirgrid.com**
Grid Code Version:	9
Grid Code Section(s) Impacted by Modification Proposal:	CC.7.3.6.1

Modification Proposal Justification:

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 as 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.

This proposed modification was originally presented to the GCRP members at the 2 July 2020 GCRP meeting. Following the 2 July 2020 GCRP meeting, the modification was recommended for approval to the CRU and was formally submitted to the CRU on 10 August.

However, post the submission, a GCRP member raised a concern regarding the implications of the proposed modification for the 400 kV voltage range. Considering these concerns an internal EirGrid review of the proposed modification was carried out. The decision was subsequently taken to withdraw the recommendation paper for MPID 278 and to revise the modification as outlined below.

The revised modification addresses the issues originally identified as well as the concerns raised by the GCRP member regarding the 400 kV voltage range requirements.

Red-line Version of Impacted Grid Code Section(s) - show proposed 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 ≤ **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 proposed 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
360kV ≤ **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