Grid Code Modification Proposal Form Email to gridcode@eirgrid.com	

Title of Modification Proposal: Synchronous Condenser Unit (SCU) RoCoF & Protection Requirements

MPID (EirGrid Use Only): 340

Date:	10/09/2025
Company Name:	EirGrid
Applicant Name:	Melissa Dunne
Email Address:	GridCode@EirGrid.com
Grid Code Version:	14.2, as an addition to MPID319 SCU Incorporation
Grid Code Section(s) Impacted by Modification Proposal:	MPID319 SCU Incorporation clauses SCU1.4.1, SCU1.6.1 and SCU1.6.3

Modification Proposal Justification:

At the June 2025 GCRP meeting, MPID319 SCU Incorporation was recommended for submission to the Regulators for decision. As part of that modification proposal, a clause relating to Rate of Change of Frequency (RoCoF) requirements for SCUs was mistakenly omitted, and references to Generator-specific protection clauses were mistakenly added to the SCU protection section.

The aim of this modification proposal is to include a clause relating to Rate of Change of Frequency (RoCoF) requirements for SCUs (where a similar requirement applies to both Generators and Interconnectors under the Grid Code) and to correct the protection references so they refer to SCU-specific protection requirements rather than Generator requirements.

Below are the changes proposed to MPID319 SCU Incorporation. The black text is text already present in the MPID319 modification proposal, the red text is text to be removed from MPID319, and the blue text is new text proposed in addition to MPID319.

A Table Outlining the Proposed Changes:

<table>
<tr><th>Clause</th><th>Red Line Version Text
Deleted text in ~~strike-through red font~~ and new text highlighted in blue font</th><th>Green Line Version Text</th></tr>
<tr><td>SCU1.4.1</td><td>Each Synchronous Condenser Unit shall, as a minimum, have the following capabilities: […]

(d)

(i) Remain ~~synchronised~~ Synchronised to the Transmission System and operate within the ~~frequency~~ Frequency ranges and time periods specified in Table SCU1.4.1.

Table SCU1.4.1: Minimum Time Periods for Synchronous Condenser Units to Remain Operational without Disconnecting

<table><tr><th>Frequency Range</th><th>Time Period</th></tr><tr><td>47 – 47.5 Hz</td><td>20 seconds</td></tr><tr><td>47.5 – 48.5 Hz</td><td>90 minutes</td></tr><tr><td>48.5 – 49 Hz</td><td>90 minutes</td></tr><tr><td>49 – 51 Hz</td><td>Unlimited</td></tr><tr><td>51 – 51.5 Hz</td><td>90 minutes</td></tr><tr><td>51.5 – 52 Hz</td><td>60 minutes</td></tr></table>
(ii) Remain Synchronised to the Transmission System for a Rate of Change of Frequency up to and including 1 Hz per second as measured over a rolling 500 milliseconds period. Voltage dips may cause localised Rate of Change of Frequency values in excess of 1 Hz per second for short periods, and in these cases, the Fault-Ride Through clause SCU1.4.1(g) supersedes this clause (SCU1.4.1 (d) (ii)). For the avoidance of doubt, this requirement relates to the capabilities of Synchronous Condenser Units only and does not impose the need for Rate of Change of Frequency protection nor does it impose a specific setting for anti-islanding or loss-of-mains protection relays;</td><td>Each Synchronous Condenser Unit shall, as a minimum, have the following capabilities: […]

(d)

(i) Remain Synchronised to the Transmission System and operate within the Frequency ranges and time periods specified in Table SCU1.4.1.

Table SCU1.4.1: Minimum Time Periods for Synchronous Condenser Units to Remain Operational without Disconnecting

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SCU1.6.1	Every **Synchronous Condenser Unit Operator** shall, acting in accordance with **Good Industry Practice**, be responsible, insofar as is reasonably practicable, for ensuring that faults on **Plant** and **Apparatus** cause minimal disturbance to the **Power System**. Faults on **Plant** and/or **Apparatus** connected to the **Transmission System** should be cleared as soon as possible with no deliberate time delay introduced and, in any event, should be cleared within a maximum time of: (a) 120 milliseconds for the 110 kV system; (b) 100 milliseconds for the 220 kV system; and (c) 80 milliseconds for the 400 kV system. These clearance times are from primary protection systems only. Without limiting this obligation, a **Synchronous Condenser Unit Operator** shall as a minimum prior to connection of the **User's System** to the **Transmission System** install and maintain, in accordance with **Good Industry Practice**, the protection equipment specified ~~in **Error! Reference source not found.** and **Error! Reference source not found.**~~ in this section SCU1.6.	Every **Synchronous Condenser Unit Operator** shall, acting in accordance with **Good Industry Practice**, be responsible, insofar as is reasonably practicable, for ensuring that faults on **Plant** and **Apparatus** cause minimal disturbance to the **Power System**. Faults on **Plant** and/or **Apparatus** connected to the **Transmission System** should be cleared as soon as possible with no deliberate time delay introduced and, in any event, should be cleared within a maximum time of: (a) 120 milliseconds for the 110 kV system; (b) 100 milliseconds for the 220 kV system; and (c) 80 milliseconds for the 400 kV system. These clearance times are from primary protection systems only. Without limiting this obligation, a **Synchronous Condenser Unit Operator** shall as a minimum prior to connection of the **User's System** to the **Transmission System** install and maintain, in accordance with **Good Industry Practice**, the protection equipment specified in this section SCU1.6.
SCU1.6.3	For the purpose of ~~**Error! Reference source not found.**~~ SCU1.6.1, the minimum protection requirements for a **Synchronous Condenser Unit Operator** ~~facility~~ **Facility** connecting to the **Transmission System** will vary according to type, size, **Earthing** and method of connection. **User** protection required by the **TSO** should always be in service when associated ~~plant~~ **Plant** is in service.	For the purpose of SCU1.6.1, the minimum protection requirements for a **Synchronous Condenser Unit Operator Facility** connecting to the **Transmission System** will vary according to type, size, **Earthing** and method of connection. **User** protection required by the **TSO** should always be in service when associated **Plant** is in service.