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

Title of Modification Proposal:

Synchronous Condenser Units (SCUs) - Technical Parameters Revised

MPID (EirGrid Use Only): 352

Date:	07/07/2026
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:	SDC1 Appendix A; Definitions

Modification Proposal Justification:

The integration of synchronous condensers is a crucial step in enabling Ireland's transition towards achieving 80% renewable electricity (RES-E) and 95% System Non-Synchronous Penetration (SNSP) by 2030. The EirGrid Grid Code modification proposal recommendation paper *MPID319 Synchronous Condenser Unit (SCU) Incorporation*, and the associated SONI Grid Code Modification *SPID_07_2024 Incorporation of Synchronous Condenser Units*, were submitted to CRU and UR respectively in August 2025.

The Grid Code recommendation papers contained a placeholder for Technical Parameters for SCUs, requiring an additional modification proposal on the relevant parameters for SCUs and associated definitions once finalised under the TSOs' Scheduling & Dispatch Project Initiative 6 (SDP_06) for Synchronous Condenser Units.

The Trading & Settlement Code modification proposal for Synchronous Condenser Units SDP_06 (Mod_1_25 v3) was approved by SEMO on 27th May 2026, and CRU approval for MPID319 and UR approval for SPID_07_2024 was issued on 3rd June 2026. This presentation provides background, content, and an explanation for the proposed changes to the Trading & Settlement Code for the Scheduling & Dispatch Programme initiative 6 (SDP_06) .

This modification proposal seeks to address the Technical Parameters placeholder for SCUs in the Grid Codes and align with the Trading & Settlement Code modification requirements to support scheduling and dispatch of the technology. Some definitions and requirements for scheduling and dispatch of SCUs were already address under MPID319/ SPID_07_2024, and the remaining proposed changes are addressed below.

Version 1 of MPID 352 was presented to industry at the GCRP meeting on 25th June 2026, where it was agreed that a revised version of the modification proposal would be circulated to members along with the draft meeting minutes, and if no comments were received after the review period, the revised version of MPID 352 would be submitted to CRU for decision. Where comments are received that require further discussion or change to the modification proposal, an updated version of MPID 352 will be brought to the next GCRP in September. This revised proposal contains the following changes:

- Forecast Minimum Output Profile definition: Instead of removing reference to Pumped Storage Plant to allow other relevant user types to be captured under this definition, the reference to Pumped Storage Plant will remain, with the addition of reference to Energy Storage Power Stations and Synchronous Condenser Units.
- The inclusion of updated definitions for Synchronous Start-Up Time Cold, Synchronous Start-Up Time Warm and Synchronous Start-Up Time Hot which are also technical parameters to be submitted by SCUs to support scheduling and dispatch and were mistakenly omitted from version 1 of this modification proposal.

A Table Outlining the Proposed Changes:

SDC1 – APPENDIX A

Part 1. Technical Parameters

[Note: The factors applicable to CDGUs below 10 MW apply to the EirGrid Grid Code only.]

Technical Parameter	**CDGU**				**Control PPM**	**SCU**	**DSU**		**Agg. Gen**	***CDGU <10 MW***	**Pump Storage Demand**
	Thermal	**Hydr/ En Ltd**	**Disp. PPM**	**Pump S Gen**	**-**	**-**	**Indiv. Demand Site**	**Agg. Demand Sites**		**-**	**-**
Block Load Cold	✓	✓	✓	✓	✓					✓	
Block Load Hot	✓									✓	
Block Load Warm	✓									✓	
Storage Cycle Efficiency			✓	✓							
Demand Side Unit MW Availability							✓	✓			

	Demand Side Unit MW Response Time							✓	✓				
	Demand Side Unit Notice Time							✓	✓				
	Deload Break Point	✓	✓	✓	✓	✓					✓		
	De-Loading Rate 1	✓	✓	✓	✓	✓					✓		
	De-Loading Rate 2	✓	✓	✓	✓	✓					✓		
	Dwell Time Up 1	✓	✓	✓	✓	✓					✓		
	Dwell Time Up 2	✓	✓	✓	✓	✓					✓		
	Dwell Time Up 3	✓	✓	✓	✓	✓					✓		
	Dwell Time Down 1	✓	✓	✓	✓	✓					✓		
	Dwell Time Down 2	✓	✓	✓	✓	✓					✓		
	Dwell Time Down 3	✓	✓	✓	✓	✓					✓		
	Dwell Time Up Trigger Point 1	✓	✓	✓	✓	✓					✓		
	Dwell Time Up Trigger Point 2	✓	✓	✓	✓	✓					✓		
	Dwell Time Up Trigger Point 3	✓	✓	✓	✓	✓					✓		

	Dwell Time Down Trigger Point 1	✓	✓	✓	✓	✓					✓	
	Dwell Time Down Trigger Point 2	✓	✓	✓	✓	✓					✓	
	Dwell Time Down Trigger Point 3	✓	✓	✓	✓	✓					✓	
	End Point of Start Up Period	✓	✓	✓	✓	✓					✓	
	Energy Limit		✓									
	Forecast Minimum Output Profile			✓	✓	✓	✓					✓
	Forecast Minimum Generation Profile	✓	✓	✓	✓		✓				✓	
	Demand Side Unit MW Response Time							✓	✓			
	Load Up Break Point Cold (1)	✓	✓	✓	✓	✓					✓	
	Load Up Break Point Cold (2)	✓	✓	✓	✓	✓					✓	

	Load Up Break Point Hot (1)	✓									✓		
	Load Up Break Point Hot (2)	✓									✓		
	Load Up Break Point Warm (1)	✓									✓		
	Load Up Break Point Warm (2)	✓									✓		
	Loading Rate Cold (1)	✓	✓	✓	✓	✓					✓		
	Loading Rate Cold (2)	✓	✓	✓	✓	✓					✓		
	Loading Rate Cold (3)	✓	✓	✓	✓	✓					✓		
	Loading Rate Hot (1)	✓									✓		
	Loading Rate Hot (2)	✓									✓		
	Loading Rate Hot (3)	✓									✓		
	Loading Rate Warm (1)	✓									✓		
	Loading Rate Warm (2)	✓									✓		
	Loading Rate Warm (3)	✓									✓		

	Max Ramp Down Rate (shall be a number greater than zero)							✓	✓				
	Max Ramp Up Rate (shall be a number greater than zero)							✓	✓				
	Maximum Down Time							✓	✓				
	Maximum Generation / Registered Capacity	✓	✓	✓	✓	✓					✓		
	Maximum On Time	✓	✓	✓	✓	✓	✓				✓		
	Maximum Storage Quantity				✓								
	Minimum Down Time							✓	✓				
	Minimum Generation	✓	✓	✓	✓	✓	✓				✓		
	Minimum off time	✓	✓	✓	✓	✓	✓				✓		
	Minimum on time	✓	✓	✓	✓	✓	✓				✓		

	Minimum Storage Quantity				✓							✓✓	
	Off to Generating Time				✓								
	Off to Spin Pump Time											✓	
	(Other relevant technical parameters)	✓	✓	✓	✓	✓				✓	✓		
	Pumping capacity				✓							✓	
	Ramp Down Break Point 1	✓	✓	✓	✓	✓				✓	✓		
	Ramp Down Break Point 2	✓	✓	✓	✓	✓				✓	✓		
	Ramp Down Break Point 3	✓	✓	✓	✓	✓				✓	✓		
	Ramp Down Break Point 4	✓	✓	✓	✓	✓				✓	✓		
	Ramp Down Rate 1	✓	✓	✓	✓	✓	✓			✓	✓		
	Ramp Down Rate 2	✓	✓	✓	✓	✓				✓	✓		
	Ramp Down Rate 3		✓	✓	✓	✓				✓			

	Ramp Down Rate 4	✓	✓	✓	✓	✓				✓	✓		
	Ramp Down Rate 5	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Break Point 1	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Break Point 2	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Break Point 3	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Break Point 4	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Rate 1	✓	✓	✓	✓	✓	✓			✓	✓		
	Ramp Up Rate 2	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Rate 3	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Rate 4	✓	✓	✓	✓	✓				✓	✓		
	Ramp Up Rate 5	✓	✓	✓	✓	✓				✓	✓		
	Registered Minimum Output			✓	✓		✓						
	Short Term Maximisation Capability	✓	✓	✓	✓	✓					✓		
	Short Term Maximisation Time	✓	✓	✓	✓	✓					✓		

	Soak Time Cold (1)	✓	✓	✓	✓	✓					✓		
	Soak Time Cold (2)	✓	✓	✓	✓	✓					✓		
	Soak Time Hot (1)	✓									✓		
	Soak Time Hot (2)	✓									✓		
	Soak Time Trigger Point Cold (1)	✓	✓	✓	✓	✓					✓		
	Soak Time Trigger Point Cold (2)	✓	✓	✓	✓	✓					✓		
	Soak Time Trigger Point Hot (1)	✓									✓		
	Soak Time Trigger Point Hot (2)	✓									✓		
	Soak Time Trigger Point Warm (1)	✓									✓		
	Soak Time Trigger Point Warm (2)	✓									✓		
	Soak Time Warm (1)	✓									✓		
	Soak Time Warm (2)	✓									✓		
	Spin Pump to Pumping Energy Time											✓	

Synchronous Start-Up Time Cold	✓	✓	✓	✓	✓	✓				✓	
Synchronous Start-Up Time Hot	✓	✓	✓	✓	✓	✓				✓	
Synchronous Start-Up Time Warm	✓					✓				✓	
Target Charge Level Percentage			✓								
Start of Restricted Range 1	✓	✓	✓	✓	✓	✓				✓	
End of Restricted Range 1	✓	✓	✓	✓	✓	✓				✓	
Start of Restricted Range 2	✓	✓	✓	✓	✓					✓	
End of Restricted Range 2	✓	✓	✓	✓	✓					✓	

Definition	Red Line Version Text *Deleted text in ~~strike-through red font~~ and new text highlighted in blue font*	Green Line Version Text
Forbidden Zone	A MW range within which a **Generator, ~~or~~ Interconnector** or **Synchronous Condenser Unit** cannot operate in a stable manner due to an inherent technical limitation of the machine.	A MW range within which a **Generator, Interconnector** or **Synchronous Condenser Unit** cannot operate in a stable manner due to an inherent technical limitation of the machine.
Forecast Minimum Output Profile	The **User's** forecast of the average level of minimum **MW Output**, in MW, for the **Pumped Storage Plant**, **Energy Storage Power Station** or **Synchronous Condenser Unit** for each **Imbalance Settlement Period** in the **Trading Day.**	The **User's** forecast of the average level of minimum **MW Output**, in MW, for the **Pumped Storage Plant**, **Energy Storage Power Station** or **Synchronous Condenser Unit** for each **Imbalance Settlement Period** in the **Trading Day.**
Maximum On Time	The maximum time that a **Generating Unit** or **Synchronous Condenser Unit** can run following **Start-Up**.	The maximum time that a **Generating Unit** or **Synchronous Condenser Unit** can run following **Start-Up**.
Minimum off time	The minimum time that must elapse from the time ~~of~~ a ~~**Generation Unit**~~ **User De-synchronises** before it can be instructed to **Start-up.** In the case of **Demand Side Units**, the minimum time that must elapse while the **Demand Side Unit MW Response** is at zero until the next delivery of **Demand Side Unit MW Response**.	The minimum time that must elapse from the time a **User De-synchronises** before it can be instructed to **Start-up.** In the case of **Demand Side Units**, the minimum time that must elapse while the **Demand Side Unit MW Response** is at zero until the next delivery of **Demand Side Unit MW Response**.
Minimum on time	The minimum time that must elapse from the time of a ~~**Generation Unit**~~ **User Start-up** before it can be instructed to **Shutdown**.	The minimum time that must elapse from the time of a **Start-up** before the **User** can be instructed to **Shutdown**.
Ramp Down Rate	The maximum rate of decrease in a **Generating Unit's Output** after the **End Of Start-up Period**. The **Ramp Down Rate** applies over the output range from its **Registered Capacity** to **Minimum Generation**. The rate of change is not dependent upon the initial **Warmth** of the plant but may depend on the **MW Output**. There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter. For **Synchronous Condenser Units**, the rate of increase of the **SCU's** MW consumption from **Start-Up** to its full MW consumption load.	The maximum rate of decrease in a **Generating Unit's Output** after the **End Of Start-up Period**. The **Ramp Down Rate** applies over the output range from its **Registered Capacity** to **Minimum Generation**. The rate of change is not dependent upon the initial **Warmth** of the plant but may depend on the **MW Output**. There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter. For **Synchronous Condenser Units**, the rate of increase of the **SCU's** MW consumption from **Start-Up** to its full MW consumption load.
Ramp Up Rate	The maximum rate of increase in a **Generating Unit's Output** after the **End Of Start-up Period**. This rate of increase continues until the **Generating**	The maximum rate of increase in a **Generating Unit's Output** after the **End Of Start-up Period**. This rate of increase continues until the **Generating Unit** reaches the

	Unit reaches the level of output instructed by the control room operator of its **Registered Capacity**. The rate of increase is not dependent upon the initial **Warmth** of the plant but may depend on the **MW Output**. There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter. For **Synchronous Condenser Units**, the rate of decrease of the **SCU's** MW consumption from its full MW consumption load to **Shutdown**.	level of output instructed by the control room operator of its **Registered Capacity**. The rate of increase is not dependent upon the initial **Warmth** of the plant but may depend on the **MW Output**. There may be circumstances where more than one parameter applies and this is indicated by adding a number at the end of the parameter. For **Synchronous Condenser Units**, the rate of decrease of the **SCU's** MW consumption from its full MW consumption load to **Shutdown**.
Synchronous Start-Up Time Cold	The time taken to bring a **Generating Unit** or a **Synchronous Condenser Unit** to a **Synchronised** state from a **Cold** (**De-Synchronised**) state.	The time taken to bring a **Generating Unit** or a **Synchronous Condenser Unit** to a **Synchronised** state from a **Cold** (**De-Synchronised**) state.
Synchronous Start-Up Time Hot	The time taken to bring a **Generating Unit** or a **Synchronous Condenser Unit** to a **Synchronised** state from a **Hot** (**De-Synchronised**) state.	The time taken to bring a **Generating Unit** or a **Synchronous Condenser Unit** to a **Synchronised** state from a **Hot** (**De-Synchronised**) state.
Synchronous Start-Up Time Warm	The time taken to bring a **Generating Unit** or a **Synchronous Condenser Unit** to a **Synchronised** state from a **Warm** (**De-Synchronised**) state.	The time taken to bring a **Generating Unit** or a **Synchronous Condenser Unit** to a **Synchronised** state from a **Warm** (**De-Synchronised**) state.