

Grid Code Modification Proposal Form

Email to gridcode@eirgrid.com



Title of Modification Proposal: Incorporation of Synchronous Condenser Units (SCUs)

MPID (EirGrid Use Only): 319

Date:	11/06/2025
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Grid Code Version:	Version 14.2
Grid Code Section(s) Impacted by Modification Proposal:	Various - see document entitled "MPID319_SCUs_Incorporation_GridCodeModLocations" for full list of Grid Code Sections impacted by this modification proposal.

Modification Proposal Justification:

Purpose:

The purpose of this modification is to incorporate a Synchronous Condenser Unit (SCU) user type into the EirGrid Grid Code.

Background:

An Implementation Note for Synchronous Condenser Units (SCUs) was published by SONI and EirGrid in October 2022 to offer guidance to those planning to connect SCUs to provide system services within Ireland and Northern Ireland, specifically in relation to the application of Grid Codes within both jurisdictions. This Implementation Note did not propose any Grid Code modifications at the time but allowed for the submission of stakeholder feedback on its contents with the intention of implementing SCUs into the Grid Codes in the future.

On 20th March 2024, the incorporation of SCUs into the Grid Codes as a new User type was brought as a discussion item to the SONI and EirGrid Joint Grid Code Review Panel Meeting (JGCRP). A draft red-line and green-line version of both the SONI and EirGrid Grid Codes demonstrating SCU incorporation was circulated to JGCRP members post this meeting, and members were asked to submit feedback on the documentation by 3rd May 2024. Upon receiving feedback from industry, the TSO issued a response document on 26th July 2024 and requested further feedback by 16th August 2024. After TSO review of additional feedback, further engagement was required between the TSO, industry and OEMs to solidify voltage regulation requirements for SCUs, which was indicated to JGCRP members in an update at the JGCRP meeting on 24th September 2024.

The modification proposal was revised in light of this industry feedback and presented at the December 2024 JGCRP. The changes include:

- Voltage control strategies used by the TSO will include utilisation of Synchronous Condenser Unit Reactive Power capability by means of suitably acting Voltage Regulation System control of Synchronous Condenser Units only. SCUs are not required to have the capability to receive and respond to Mvar Dispatch Instructions issued by the TSO. SCUs will only be required to have the capability to receive and respond to Sync and Desync Dispatch Instructions from the TSO. This has been reflected in OC.4.4.1.3, and also in the Scheduling and Dispatch Code 2 section of the Grid Code.
- Section SCU1.4.7 has been revised to better align voltage regulation requirements for SCUs with those of conventional generators. Also, in SCU1.4.7.2, the word "implemented" has been replaced

with the word “initiated” to clarify the requirement that SCUs shall initiate a change to the Reactive Power (Q) control set-point or Voltage Regulation (kV) Set-point within 20 seconds of receipt of the appropriate signal from the TSO. The change is not required to be completed within 20 seconds;

- In SCU1.6.10, pole slip protection has been removed and replaced with loss of excitation protection;
- Addition of Voltage Regulation System slope setting (%) to the SCU signal list under SCU1.7.1.1.

SONI opened a public consultation for the modification proposal on 21st January 2025, and industry were given time to review the proposed modification and provide feedback until 7th February 2025. EirGrid also accepted feedback from industry during this time. Changes to the modification proposal driven by industry feedback received during this time were presented at the March 2025 JGCRP. These changes include:

- PC.A10.1: SCUs are required to submit “Maximum continuous operation losses (MW)” as part of their Planning Data, as opposed to “Continuous operation consumption(MW)”;
- SCU1.4.3: The requirement for SCUs to provide synchronisation via the Grid Connected Transformer HV circuit breakers has been removed;
- SCU1.7.1.1: For SCUs with a Connection Point on the HV side of the Grid Connected transformer, the requirement to provide signals from the HV side of the Grid Connected Transformer has been removed;
- Some typos and auto referencing errors have been corrected;
- Additionally, in order to align the Grid Code modification proposals with the SCU Trading & Settlement Code modification proposal, the requirements for SCUs to submit Physical Notifications has been removed.

At the March 2025 JGCRP, two industry representatives, referring to feedback submitted during the SONI public consultation period, raised concerns regarding the proposed reactive power capability requirements and requested further clarification and engagement with the TSOs before submission of the proposed modification to the Regulators for decision. The TSOs took an action to review the proposed requirements, and to meet with industry representatives before the next JGCRP in June 2025. The outcome of this engagement was agreement between the TSOs and industry representatives that the proposed minimum Grid Code requirements are acceptable, but that further, separate engagement will take place between the TSOs and industry representatives regarding reactive power System Service requirements for SCUs.

No changes have been made to the proposed modification since presenting at the March 2025 JGCRP.

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*

As per the document titled “MPID319_SCUs_Incorporation_Redline_GCV14.2”.

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

As per the document titled “MPID319_SCUs_Incorporation_Greenline_GCV14.2”.