

## Grid Code Modification Recommendation Form



### Title of Recommended Proposal:

MPID 319 Incorporation of Synchronous Condenser Units (SCUs)

<b>Date:</b>	12/08/2025
<b>Recommended at GCRP Meeting No.:</b>	26 <sup>th</sup> June 2025
<b>Grid Code Version:</b>	14.2
<b>Grid Code Section(s) Impacted by Recommended Proposal:</b>	See "MPID319_SCUs_Incorporation_GridCodeModLocations" for list of Grid Code sections impacted by this recommendation proposal

### The Reason for the Recommended Modification:

The purpose of this recommended modification is to incorporate a Synchronous Condenser Unit (SCU) user type into the EirGrid Grid Code. SONI will also be submitting their version of this proposed modification (SPID\_07\_2024) to the Utility Regulator for decision.

Both SONI and EirGrid TSOs are seeking to increase System Non-Synchronous Penetration (SNSP) and reduce the operational requirements for running conventional, carbon-intensive, thermal generation on the power system which, as well as providing energy, also provides a range of system services required for the secure operation of the power system such as inertia, reactive power capability and short-circuit strength.

SCUs as a technology can provide grid stability services without contributing to emissions, and without the need to displace renewable generation. Delivery of these services from SCUs will reduce our dependency on conventional thermal generation, facilitate the further integration of renewable generation and contribute towards achieving the 2030 Renewable Energy Source (RES) targets set in both Ireland and Northern Ireland. This proposed modification also supports the TSO's Scheduling & Dispatch Project, which will introduce a structured approach to the registration and data submission of synchronous condensers within the Trading and Settlement Code (TSC) and establish optimal scheduling and dispatch mechanisms for synchronous condensers to ensure they meet applicable system service requirements.

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

An Implementation Note for SCUs was published by SONI and EirGrid in October 2022 to offer guidance to those planning to connect SCUs for provision of 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 20<sup>th</sup> 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 3<sup>rd</sup> May 2024. Upon receiving feedback from industry, the TSO issued a response document on 26<sup>th</sup> July 2024 and requested further feedback by 16<sup>th</sup> 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 24<sup>th</sup> September 2024. The modification proposal was revised in light of this engagement and presented at the December 2024 JGCRP. The changes included:

- ❖ **OC.4.4.1.3 & SDC2:** Voltage control strategies used by the TSO will include utilisation of SCU 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;
- ❖ **SCU1.4.7:** This section 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;
- ❖ **SCU1.6.10:** Pole slip protection has been removed and replaced with loss of excitation protection;
- ❖ **SCU1.7.1.1:** Addition of Voltage Regulation System slope setting (%) to the SCU signal list under SCU1.7.1.1.

As part of normal SONI Grid Code governance process, SONI opened a public consultation for the modification proposal on 21<sup>st</sup> January 2025, and industry were asked to review the proposed modification and provide feedback by 7<sup>th</sup> February 2025. EirGrid also accepted feedback from industry over this period. 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;
- ❖ 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;
- ❖ Some typos and auto referencing errors have been corrected.

At the March 2025 JGCRP, two industry representatives, referring to feedback submitted during the SONI public consultation period, raised concerns regarding the proposed SCU 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.

**Summary Note of any Objections to the Recommended Change from GCRP Members or Consultation Responses:**

No objections were raised to the final version of the proposed modification, which was recommended for submission to the CRU for decision with industry support.

**Outcome of any GCRP Meeting Actions Relating to the Recommended Modification:**

No other actions were raised in relation to this modification proposal.

**Proposed Changes and Accompanying Documentation**

See

- “MPID319\_SCUs\_Incorporation\_Redline\_GCV14.2”;
- “MPID319\_SCUs\_Incorporation\_Greenline\_GCV14.2”; and
- “MPID319\_SCUs\_Incorporation\_GridCodeModLocations”

for proposed changes

See zip file “MPID319 – Accompanying Documentation” for accompanying documents that span the full timeline of the development of this proposed modification.