

04/12/2024

# JGCRP Meeting

04 December 2024



# Agenda

## Introduction:

- a. Welcome Members.
- b. Minutes and Actions from Previous Meeting.

## Modifications:

- a. MPID319 and SPID\_07\_2024 - Incorporation of Synchronous Condenser Units.

## Discussion:

- a. Large Energy Users Fault-ride-through.

## Updates:

- a. CRU; and
- b. Utility Regulator.

AOB.



# 1. Introduction: 10 minutes

- a. Welcome Members
- b. Minutes and Actions from [Previous Meeting](#) (24 Sept 2024)



## 2. Modification: 15 minutes

### **MPID319 and SPID\_07\_2024** **Incorporation of Synchronous Condenser** **Units**



# Purpose of Proposed Modification

- To incorporate the *Grid Code Implementation Note for Synchronous Condensers* and Industry feedback received thereon.
  - ❑ Originally published October 2022
  - ❑ Requirements would hence be regulated, giving certainty to all parties
- Ensure the needs of Low Carbon Sources of Inertia (LCSI) System Services are captured within the Grid Code.
- Future proof for Scheduling and Dispatch Tranche 2, where possible.
- Follows the existing Grid Code methodology as much as possible.





# Background

- Implementation Note for SCUs was published by SONI and EirGrid in Oct 2022 to offer guidance to those planning to connect SCUs to provide system services.
- This I.N. 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 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 JGCRP, with draft red- and green-line versions of both Grid Codes circulated to members for feedback by 3rd May 2024.
- Upon receiving feedback from industry, the TSO issued a response document on 26 July 2024 and requested further feedback by 16 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 at the JGCRP meeting on 24th September 2024.
- A revised modification incorporating feedback from these engagements is presented today.



# New User Type

- SONI and EirGrid propose that Synchronous Condenser Units (SCUs) are an entirely new user type within the Grid Codes.
  - They are not bound by any existing EU Connection Network Codes (including the RfG).
  - They are not a subset of an existing user type, such as Generators or PPMs.
  - Existing synchronous generators with a clutch for synchronous compensation should apply existing Generator requirements, not SCU.
- SCU requirements are modified versions of Generator requirements.
- SCUs have been included explicitly within PC, PC.A, CC, OC, SDC1, SDC2 and Definitions sections.



# Key Inclusions

- New PC.A section is proposed for Planning Data Requirements
- Mvar Set Point Control and Voltage Set Point Control are both be included and will be measured at the Connection Point
- New CC Schedule section (SONI only)
- A new SCU section has been added (EirGrid Only)
- SCU signal list included (EirGrid only)
- Modification to PPM Settings Schedule is required (SONI only)





# Key Changes since discussion item

- ❖ 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 SCUs only. SCUs are not required to have the capability to receive and respond to Mvar Dispatch Instructions issued by the TSO.
- ❖ Regarding Dispatch Instructions, SCUs will only be required to have the capability to receive and respond to Sync and Desync Dispatch Instructions from the TSO.
- ❖ 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, addition of loss of excitation protection.



# Additional Change since circulation

## ❖ Additional text under SCU1.4.7.2

The **Synchronous Condenser Unit** may not disable or restrict the operation of the **Voltage Regulation System** except in accordance with SCU1.4.7.3, in which event the **Synchronous Condenser Unit** shall notify the **TSO** without delay.



## ❖ New text under SCU1.4.7.3

The **Synchronous Condenser Unit** may only disable or restrict **Voltage Regulation System** action where:

- (a) the action is essential for the safety of personnel and/or **Plant**; or
- (b) in order to (acting in accordance with **Good Industry Practice**), secure the reliability of the **Synchronous Condenser Unit**; or
- (c) the restriction is agreed between the **TSO** and the **Synchronous Condenser Unit** in advance.



# Additional Change since circulation

## ❖ Additional text under SCU1.4.7.4

The parameters and settings of the components of the **Voltage Regulation System** shall be agreed between the **Synchronous Condenser Unit Operator** and the **TSO**.



## ❖ Removal of SCU1.4.7.5

### ~~SCU1.4.7.5~~

~~The speed of response of the **Voltage Regulation System** shall be such that, following a step change in **Voltage** at the **Connection Point** the **Synchronous Condenser Unit** shall achieve 90 % of its steady-state **Reactive Power** response within 5 seconds. The response may require a transition from maximum Mvar production to maximum Mvar absorption or vice-versa.~~



**Thank you!**

**Questions?**



3. Discussion: 15 minutes

# Fault Ride-Through Requirements for Demand Facilities

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# Fault Ride-Through Requirements for Demand Facilities

- The TSOs are proposing the inclusion of Demand Facility Fault Ride-Through Requirements in the Grid Codes to address the issue with some Demand Facilities reducing and restoring their demand in response to remote system faults.
- A draft modification proposal was originally presented as a discussion item to the JGCRP on 24th September 2024. The TSOs were aiming to submit a draft modification to members at the December 2024 JGCRP/GCRPs.
- The TSOs hosted an industry webinar on October 22<sup>nd</sup> to discuss our draft proposal and seek feedback. Based on the feedback we have received, and requests to provide more time for consideration of the issues, we have decided to delay bringing forward our Grid Code modification proposal to facilitate further engagement with industry.
- We will hold a further Industry Webinar on December 10<sup>th</sup> to provide an update on our proposal and next steps. There will also be an opportunity for any Demand Facility customer to present on work they are undertaking to address this issue.
- The TSOs are aiming to complete this engagement and submit a revised draft modification to members at the March 2025 JGCRP/GCRPs.



# Further Consideration for Grid Code Amendments

Frequency and Voltage range standards


- These standards are now only applied on DCC units.
- Also apply these standards to Non-DCC units.

Rate of Change of Frequency

- Include the application of the Rate of Change of Frequency (RoCoF) standard for Ireland and NI power systems ( +/- 1.0 Hz/s)

Active Power Recovery

- Add requirements for the recovery of the Demand Facilities’ load following system fault.
- Define recovery timeframes



CC.7.4.2

Demand Facilities, Closed Distribution Systems and Distribution Systems shall:

CC.7.4.2.1

Remain synchronised to the **Transmission System** and operate within the frequency ranges and time periods specified in *Table CC.7.4.2.1*.

Table CC.7.4.2.1: Minimum Time Periods for **Demand Facilities, Closed Distribution Systems and Distribution Systems** to Remain Operational without Disconnecting

Frequency Range	Time Period
47 – 47.5 Hz	20 seconds
47.5 – 48.5 Hz	90 minutes
48.5 – 49 Hz	90 minutes
49 – 51 Hz	Unlimited
51 – 51.5 Hz	90 minutes
51.5 – 52 Hz	60 minutes

CC.7.4.2.2

Remain synchronised to the **Transmission System** and operate within the ranges of the **Transmission System Voltage** at the connection point, for an unlimited time period, as specified below:

(i)

400 kV system:

360 kV to 420 kV (0.9 p.u. – 1.05 p.u.)

(ii)

220 kV system:

198 kV to 245 kV (0.9 p.u. – 1.114 p.u.)

(iii)

110 kV system:

99 kV to 123 kV (0.9 p.u. – 1.118 p.u.)

# Further Consideration for Grid Code Amendments

- ENTSO-E published a position paper recommending an implementation of connection requirements for Power-to-Gas demand facilities.
- “A large number of new power-to-gas units will likely be connected to the system before the new network code provisions are normally nationally implemented. The connection of these units without appropriate and coordinated technical requirements may therefore create an important risk for system robustness”.
- The position paper recommends TSOs establish minimum technical requirements for Power to Gas demand facilities to ensure grid resilience, including fault ride through requirements, RoCoF robustness, and post fault active power recovery.

## ENTSO-E Position on Urgent Connection Requirements for Power-to-Gas Demand Facilities

Approved | 17 September 2024

From: System Development Committee

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# Next Steps

- The TSOs are hosting a second online industry webinar on the Demand Facility Fault Ride Through proposal.
  - **Date/Time: Tuesday 10 December 2024, 10:00 to 12:00**
- The TSOs intend to return to the March 2025 JGCRP, and individual EirGrid and SONI GC panels, to seek recommendations for the proposal.



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# Open Discussion



## 4. Updates: 10 minutes

- a. CRU; and
- b. Utility Regulator.



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# AOB

Meeting Minutes will be issued by COB 18 December 2024