

SONI Limited

Grid Code Consultation Cover Note

8th July 2019

Following the Grid Code Review Panel meeting held at the SONI offices on 26th June 2019 and as per Condition 16 of SONI TSO Licence, SONI are pleased to present the following consultation papers for amendments to the Grid Code.

Each consultation paper provides background information, details of changes and next steps. A short summary of each consultation paper is provided below:

- **Paper 1: Grid Code Housekeeping Modifications Consultation Paper**

SONI has prepared drafts of certain sections of the Grid Code with proposed amendments to cover a number of housekeeping modifications.

- **Paper 2: Requirements for Generators Grid Code Amendments and Power Park Module Setting Schedule Consultation Paper**

SONI has prepared drafts of certain sections of the Grid Code and PPM Setting Schedule with proposed amendments to cover the incorporation of Commission Regulation (EU) 2016/631 establishing a network code on requirements for grid connection of generators (RfG) into the Grid Code and Power Park Module (PPM) Setting Schedule.

Grid Code amendments for both **Paper 1** (housekeeping modifications) and **Paper 2** (RfG modifications including Power Park Module Setting Schedule modifications) can be found in the single redline and clean version of the Grid Code and PPM Setting Schedule documents which can be found in the “Grid Codes” section of SONI’s website.

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Paper 1

**Grid Code Housekeeping Modifications
Consultation Paper**

8th July 2019

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Paper 1

Grid Code Housekeeping Modifications Consultation Paper

8th July 2019

1. Introduction

- 1.1 Following discussions held at the Grid Code Review Panel (GCRP) on 26th June 2019 in Belfast and subsequent meetings with the Utility Regulator, SONI has prepared drafts of certain sections of the Grid Code with proposed amendments to cover a number of housekeeping modifications.
- 1.2 The proposed amended texts of the Grid Code, with both clean and redlined versions of each relevant section showing all the changes made to the existing version of the Grid Code can be found in the “Grid Codes¹” section of SONI’s website. This consultation paper sets out a high-level summary of the proposed changes to the Grid Code and SONI seeks comments from Users on any aspect of the proposed amendments.
- 1.3 Section 2 of this paper provides background information. Section 3 provides details of the proposed Grid Code housekeeping modifications.
- 1.4 The deadline for submission of comments is close of business on 30th August 2019. See section 4.1 for further details.

2. Background and overview

- 2.1 At the October 2018 GCRP it was agreed that SONI should consolidate the Grid Code and existing approved modifications on the SONI website into a single document prior to commencing the incorporation of Requirements for Generators EU Network Code into Grid Code. As a result of the consolidation process a number of minor housekeeping modifications relating to “Target Charge Level” and “Target Charge Level Percentage” were identified. These housekeeping modifications are described in more detail in Section 3.
- 2.2 At the January 2017 meeting of the GCRP it was noted that a review of the GCRP membership would be beneficial to consider the rapidly changing structure of the Electricity Supply Industry in Northern Ireland particularly in light of the increasing number of grid users and varying technologies. On the 28th September 2018 SONI ran a consultation on the Grid Code Constitution Amendments to reflect these changes to the GCRP membership. The GCRP membership has now been changed in Grid Code for consultation; further details can be found in Section 3.5.

¹ <http://www.soni.ltd.uk/how-the-grid-works/grid-codes/>
Grid Code Housekeeping Modifications Consultation Paper

3. Section by section review

3.1 Introduction

The main modification to the Grid Code regarding housekeeping is the removal of “Target Charge Level” and “Target Charge Level Percentage” definitions and associated references in the Grid Code.

Modifications to the Grid Code regarding the amendments to the Grid Code Constitution are the updating of the GCRP membership in General Conditions.

3.2 Glossary and Definitions

Target Charge Level: this definition was introduced in the PPM modification² for Energy Storage devices. The concept of the System Operator’s ability to instruct the Energy Storage facility to retain a certain level of energy for a certain time remained in the context of the original SEM arrangements on which the PPM modification was based. Under ISEM the concept of the System Operator instructing a facility to have enough charge in place by a certain time no longer exists. This definition has therefore been deleted.

Target Charge Level Percentage: as per Target Charge Level (above) this definition has been deleted.

3.3 Scheduling and Dispatch Code

SDC1.4.4.5 has been amended to remove (b) which instructs the Energy Storage Power Station to submit its Target Charge Level by Gate Closure for the relevant Trading Day.

SDC1.4.8.3 has been amended to remove (vii) which permits the TSO to take into account Target Charge Levels when compiling the Indicative Operations Schedules.

The table in SDC1 – Appendix A Part 1. Technical Parameters has been amended to remove Target Charge Level Percentage.

3.4 Data Registration Code

The table in Schedule 2 of the Data Registration Code, Part 2 Availability, Technical Parameters Data and other data required under SDC1, Technical Parameters have been amended to remove Target Charge Level Percentage.

3.5 General Conditions

GC.6.3 has been amended to reflect the Grid Code Constitutional changes to the GCRP membership panel.

² <http://www.soni.ltd.uk/media/documents/Operations/Grid-Code/SONI-GridCodeVersion2015-Redline-PPM-Mod.pdf>

4. Next steps

- 4.1 The consultation period will run for 8 weeks. Users are invited to send their comments to SONI via the GridCode@soni.ltd.uk email **by close of business on 30th August 2019**. In the meantime, should any Users have any queries or require a meeting with SONI, they should contact SONI via GridCode@soni.ltd.uk
- 4.2 Following receipt of comments in relation to this Consultation Paper and the expiration of the period for making comments, SONI will, in accordance with paragraph 2 of Condition 16 of its Licence, send to the Northern Ireland Authority for Utility Regulation (the “Authority”):
- 4.2.1 a report on the outcome of its review;
 - 4.2.2 the proposed revisions to the Grid Code which SONI (having regard to the outcome of such review) reasonably thinks fit for the achievement of the objectives of the Grid Code referred to in paragraph 1(b) and (c) of Condition 16 of the SONI Licence; and
 - 4.2.3 any written representations or objections from electricity undertakings or the Republic of Ireland System Operator (including any proposals by such persons for revisions to the Grid Code not accepted by SONI in the course of the review) arising during the consultation process and subsequently maintained.
- 4.3 Following the end of the consultation period and the discussions to be held with the Authority, revisions to the Grid Code will be finalised and published on the SONI website once approval has been received from the Authority.

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Paper 2

Requirements for Generators

**Grid Code Amendments and Power Park Module
Setting Schedule Consultation Paper**

8th July 2019

SONI Limited

Paper 2

Requirements for Generators

Grid Code Amendments and Power Park Module Setting Schedule Consultation Paper

8th July 2019

1. Introduction

- 1.1 Following the modification proposal issued in June 2019 relating to incorporation of Requirements for Generators (RfG) EU Network Code into the Grid Code and Power Park Module (PPM) Setting Schedule³, and the discussions held at the Grid Code Review Panel on 26th June 2019 in Belfast, SONI has prepared drafts of certain sections of the Grid Code and PPM Setting Schedule with proposed amendments to cover the incorporation of RfG into the Grid Code and PPM Setting Schedule⁴.
- 1.2 The proposed amended texts of the Grid Code and PPM Setting Schedule, with both clean and redlined versions of each relevant section showing all the changes made to the existing version of the Grid Code and PPM Setting Schedule, can be found in the “Grid Codes⁵” section of SONI’s website. This consultation paper sets out a high-level summary of the proposed changes to the Grid Code and PPM Setting Schedule and SONI seeks comments from Users on any aspect of the proposed amendments.
- 1.3 Section 2 of this paper provides background information. Section 3 provides a high-level overview of the proposed Grid Code modifications. Section 4 provides a high-level overview of the proposed PPM Setting Schedule modifications.
- 1.4 The deadline for submission of comments is close of business on 30th August 2019. See section 5.1 for further details.

2. Background and overview

- 2.1 On the 17th May 2016, the Commission Regulation (EU) 2016/631 establishing a network code on requirements for grid connection of generators entered into force. This Regulation establishes a network code which details the requirements for grid connection of power-generating facilities, namely synchronous power-generating modules, power park modules and offshore power park modules, to the interconnected system. It, therefore, helps to ensure

³ Users should note that SONI have made amendments to the NIE Networks approved PPM Settings Schedule (<https://www.nienetworks.co.uk/about-us/distribution-code/consultations>) to incorporate proposed Grid Code RfG amendments. The PPM Setting Schedule is a joint document between SONI and NIE Networks and as such SONI have consulted with NIE Networks on proposed RfG amendments through-out the incorporation process.

⁴ Users should note that the PPM Setting Schedule only applies to RfG Generation Units (a definition of RfG Generation Unit is given in the redline and clean version of the Grid Code) and does not supersede the Wind Farm Power Station (WFPS) Setting Schedule. The WFPS Setting Schedule will remain in effect for the purpose of testing existing generating units.

⁵ <http://www.soni.ltd.uk/how-the-grid-works/grid-codes/>

fair conditions of competition in the internal electricity market, to ensure system security and the integration of renewable electricity sources, and to facilitate European Union-wide trade in electricity. This regulation also lays down the obligations for ensuring that system operators make appropriate use of the power generating facilities' capabilities in a transparent and non-discriminatory manner to provide a level playing field throughout the European Union. The requirements of the RfG apply from three years after its publication as per Article 72 of the RfG. The requirements of RfG do not apply to existing Power Generation Modules (PGMs).

- 2.2 The Northern Ireland (NI) Grid and Distribution Code Review Panels have been running areas of joint work implementing the EU Network Codes. This work has also been carried out as part of an all-Ireland TSO/DSO joint work package.
- 2.3 SONI and NIE Networks conducted consultation from 20th December 2017 to 9th February 2018 on proposals for the general application of technical requirements in accordance with Articles 13 – 28 of the Commission Regulation (EU) 2016/631 establishing a network code on requirements for grid connection of generators. The Utility Regulator approved these consulted technical requirements on 16th November 2018⁶ and this consultation paper will therefore not revisit these technical parameters.
- 2.4 Different RfG Grid Code integration proposals (namely a bolt-on method or incorporative method) were presented at the Joint Grid Code Review Panel in October 2018. At the October 2018 Grid Code Review Panel it was agreed that SONI would apply the new RfG requirements within the existing NI regulatory frameworks to provide familiarity to NI parties, as well as putting in place a robust governance route to apply the new requirements in a transparent and proportionate way. This took the form of using an incorporative method to implement RfG requirements in Grid Code and the PPM Setting Schedule.
- 2.5 The proposed Grid Code modifications outlined in this paper are intended to cover all the modifications required in the Grid Code and PPM Setting Schedule to allow the implementation of RfG requirements into the Grid Code and PPM Settings Schedule to proceed.

3. High-level overview of proposed Grid Code modifications

3.1 Introduction

The incorporation of RfG into the Grid Code has resulted in a large number of changes. This consultation paper will therefore provide a high-level summary of the main Grid Code changes; consequently, respondents are encouraged to read the red-line version of the Grid Code available on the SONI website in order to review all RfG modifications in their entirety.

3.2 Demarcation of Requirements

This section has been added to direct Users of the Grid Code of which sections apply to all Generators, RfG Generation Units and Non-RfG Generation Units.

⁶ <https://www.uregni.gov.uk/publications/requirements-generators-methodology-approval>
Grid Code & PPM Setting Schedule RfG Modifications Consultation Paper

3.3 Glossary

Changes have been proposed in the Glossary section to add and update the Grid Code definitions to reflect the modification which ensures harmonization with RfG. In the interest of familiarity and clarity for Users were possible existing Grid Code definitions have been used to incorporate RfG requirements.

Applicable Legislation: this is a new definition which is used to establish the hierarchy of the European Network Codes.

Event Recorder: amended to provide greater clarity and alignment with RfG.

Frequency Response Deadband: this is a new definition added to align with RfG.

Frequency Response Insensitivity: this is a new definition added to align with RfG.

Frequency Sensitive Mode: amended to provide greater clarity and alignment with RfG.

Full Load: the added wording under Full Load was taken from the Commission Regulation (EU) 2016/631 maximum capacity definition (Article 2: Definition 16), this wording was added to ensure that the Grid Code's definition of Registered Capacity is in alignment with RfG's definition of maximum capacity.

Limited Frequency Sensitive Mode – Overfrequency: this is a new definition added to align with RfG.

Limited Frequency Sensitive Mode – Underfrequency: this is a new definition added to align with RfG.

Network Codes: this is a new definition which is used to establish the hierarchy of the European Network Codes.

Non-RfG Generation Unit: new definition added for the purpose of demarcation for Non-RfG (existing) Generation Units.

Power Park Module Settings Schedule: definition added to establish governance of PPM Setting Schedule under Grid Code.

Rate of Change of Frequency⁷: definition added to ensure alignment with RfG.

Registered Capacity: amended to provide greater clarity.

RfG Generation Unit: new definition added for the purpose of demarcation for RfG (new) Generation Units.

Unit Load Controller: amended to provide greater clarity.

⁷ It should be noted that Rate of Change requirements in the redline and clean versions of the Grid Code only apply to RfG Generation Units at this point.

3.4 Planning Code

PC.D3.1 has been added to capture RfG Generator model requirements Generators shall provide.

3.5 Connection Conditions

CC5.3.3 added to capture RfG based Rate of Change of Frequency requirements for RfG Generating Units.

CC6.4.4, CC6.4.5, CC6.4.6 and CC6.4.7 has been added to outline RfG Generator protection system requirements.

CC8.8.6 has been added to detail RfG permitted System Frequency variations and Generator Frequency Response control modes.

Connection Conditions Schedule 1 Part 1 and Connection Conditions Schedule 2 Part 1 have had voltage/reactive power RfG requirements added to them as well as RfG fault ride through requirements.

Connection Conditions Schedule 1 Part 2 and Connection Conditions Schedule 2 Part 2 have had RfG fault ride through requirements added.

Sections throughout Connections Conditions have also been boxed off to indicate applicability to non-RfG Generators (see demarcation).

3.6 Operating Code

OC7.4.6.5, OC7.5.4 and OC7.8 have been added to capture RfG requirements for Generator black-start capability, re-synchronisation and system restoration respectively.

3.7 Scheduling and Dispatch Code

SDC2.A.4.1.7 has been added to capture RfG requirements for Generator synchronisation.

4. High-level overview of proposed PPM Setting Schedule modifications

4.1 Introduction

The PPM Setting Schedule has been modified to accommodate the changes to the Grid Code brought about by incorporation of RfG. Frequency Control section 6.5 has been modified to reflect the introduction of FSM, LFSM-O and LFSM-U frequency control modes and describe their operation and testing.

4.2 PPM Setting Schedule Glossary of Terms

The Setting Schedule's glossary of terms has also been revised.

4.3 Frequency Control Tests

Frequency control test 1 has been updated to reflect the changes to parameters associated with an existing frequency control mode. A new frequency control test 4 has been added to test a new frequency control mode.

5. **Next steps**

- 5.1 The consultation period will run for 8 weeks. Users are invited to send their comments to SONI via the GridCode@soni.ltd.uk email **by close of business on 30th August 2019**. In the meantime, should any Users have any queries or require a meeting with SONI, they should contact SONI via GridCode@soni.ltd.uk
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