

MINUTES OF THE SONI GRID CODE REVIEW PANEL MEETING

Ballsbridge Hotel, Dublin

Tuesday 25 April 2017, 1.30- 2.30pm

Present:

Members/Alternates	Representing	Position on the GCRP
Raymond Skillen	TSO	Chairperson
Sam Matthews	TSO	Member
Karen O'Doherty	TSO	Member
Conor O'Doherty	TSO	Member
Ciaran MacCann	Regulator	Member
Alan Kennedy	TSO	Observer
Denis McBride	Generator	Member
Brian Mongan	Generator	Alternate
Joseph Coyle	Generator	Alternate
Sam Gibson	Interconnector	Observer
Stephen Hemphill	Interconnector	Member
Tony McElroy	Generator	Member
Ronan McKeown	TO	Member
Mervyn Adams	Renewables	Member
Alastair Cooke	TSO	Observer
Eimear Watson	TSO	Observer
Ian Stevenson	TSO	Alternate
Leigh McCarthy	TSO	Secretary of the SONI GCRP

1. Chairperson's Introduction to the Meeting

The Chairperson welcomed the Panel Members, alternates and observers and gave an overview of the agenda.

2. Apologies for absence

The Chairperson noted that apologies were received from Ian Bailie, Cathal Martin and Jody O'Boyle.

3. Minutes of the Grid Code Review Panel Meeting held on 11th October 2016

The Panel Members were asked if there were any further comments on the minutes from the previous SONI GCRP meeting in January 2017. There being no other comments, the minutes of the previous meeting were approved by the Panel.

4. Points arising from minutes

4.1 The Chairperson noted the following actions from the previous meeting:

- 4.1.1 Ian Stevenson to arrange the removal of clause CC5.3.4 from the website version of the Grid Code. This action is now closed.
- 4.1.2 Ian Stevenson to modify the SONI website to ensure that Grid Code users read the Grid Code in conjunction with an up to date list of modifications. This action is now closed.
- 4.1.3 The Secretary to contact NI suppliers, NIRIG, SEMO and the other TSO to discuss and evaluate interest in joining the GCRP. Details are still being gathered and this matter will be discussed in further detail later in the meeting.
- 4.1.4 GCRP members to confirm alternate appointments. This action is now closed.
- 4.1.5 SONI to confirm trigger for compliance with the RoCoF modification. This action is now closed. Karen O'Doherty confirmed that she has been in contact with Angela Blair to discuss this matter.

5. Discussion Items

5.1 *Notice Required for Closure of Plant*

- 5.1.1 The Chairperson advised the GCRP that this matter had been brought forward at the JGCRP by generators seeking an amendment to the Grid Code regarding the requirements for retirement of plant. SONI's TSO licence requires it to periodically review the Grid Code and propose revisions for the achievement of objectives, one of which is the security of the NI transmission system. Sam Matthews stated his concern that there could be potential security issues in the event that the clause was removed from the Grid Code but it may be possible to allow the TSO some flexibility in specific circumstances. This would depend on the outcome of an All Island review carried out by the TSO's and the RA's which was proposed at the JGCRP. Denis

McBride queried whether generators will be involved in further discussions on this matter and AES would favour an inclusive approach.

Action: SONI to inquire if generators would be asked to participate in this review.

5.2 Controllability of Generation down to 1 MW

- 5.2.1 The Chairperson noted the proposal for a joint TSO/DNO working group to be set up in respect of this matter in NI. This was in light of the Requirements for Generators (RFG) Network Code and to maintain transmission system security. SONI would plan to bring forward a proposed revision of Grid Code to enable the TSO to achieve controllability of generation down to 1MW. This Joint TSO/DNO working group would address a number of technical issues involving controllability of generators in NI. SONI taking control allows more renewable generation to be connected to the system. Ronan McKeown confirmed that NIEN would be keen to engage on this issue, as they require visibility of that is happening on the Distribution System including the control of SS wind generation.

Action: SONI to setup a Joint TSO/DNO working group to enable SONI to achieve controllability down to 1MW in NI.

6. SONI Grid Code Modifications

6.1 Metering Code

- 6.1.1 Alastair Cooke noted that a presentation was given regarding advanced metering reconciliation in January 2017. Following comments received at this meeting from GCRP members the text was amended prior to an open consultation. No responses were received to the consultation. The Regulators gave approval and modifications will be added to the next draft of the Grid Code.

6.2 ISEM

- 6.2.1 The ISEM modification proposal was presented to the JGCRP meeting immediately preceding this SONI GCRP meeting and the TSOs indicated their intention to submit final drafts to the RAs for approval. As a result there was no need to repeat the entire presentation at this SONI GCRP. However, Alan Kennedy advised the GCRP that the SDC3 section of the Grid Code re. frequency related dispatch instructions re. CDGUs and Wind Farms requires alternative wording regarding signals and target frequency. This is just a factual correction and shouldn't be contentious. Full details of this proposed amendment were included in the information pack provided to GCRP members on 10 April 2017.

6.3 Over Installation/Zero Export update

- 6.3.1 Eimear Watson presented slides which are included in Appendix A below.
- 6.3.2 Mervyn Adams asked if Registered Capacity is the same as the Ofgem term "Defined Network Capacity".

Action: Eimear Watson to confirm definition.

- 6.3.3 The Chairperson confirmed that the working group for reducing controllability down to 1MW will not be all-island, just Northern Ireland.

- 6.3.4 Mervyn Adams asked if zero export is different to “off grid”. Eimear Watson confirmed it is.

6.4 Power Park Module consultation response discussion

- 6.4.1 The Chairperson confirmed that following the last GCRP meeting, SONI have engaged with Cathal Martin and Joe Duddy around comments RES submitted to the PPM consultation
- 6.4.2 Karen O’Doherty presented slides which are included in Appendix B below.
- 6.4.3 Brian Mongan noted there is currently no service for importing from batteries. The Chairperson noted that the wording should be changed to reflect when reactive power is being consumed. Karen O’Doherty noted that the definitions would be amended for clarity.
- 6.4.4 Mervyn Adams suggested that a cross-reference should be included on the graph.
- 6.4.5 Karen O’Doherty noted that if Registered Capacity is greater than 10MW the terms of the Grid Code will apply and the PPM modifications have been written in light of this rule. If there are changes in the future that alter this rule, requirements for large non-energy providing services providers may be different.
- 6.4.6 Brian Mongan stated that as there was currently no System Service in place for this capability, plant may not be designed to achieve it. Karen O’Doherty clarified that technical capacity must be designed to comply with the Grid Code.
- 6.4.7 Karen O’Doherty advised that the PPM modifications will only apply from November 2016 and will not have retrospective effect.

7. Regulatory Updates

- 7.1 Ciaran MacCann confirmed that there are no further updates in addition to those given at the JGCRP. One requested temporary derogation from a wind farm generator is currently being considered by the Utility Regulator, and is with the TSO for comment.

8. Website Update

- 8.1 Ian Stevenson confirmed this action is now closed. All updates have been made and all modifications and minutes included. SONI will continue to keep this up to date going forward.

9. Grid Code Constitution Review

- 9.1 The Chairperson noted the previous discussion on the GCRP composition. Ian Stevenson confirmed that the Grid Code Constitution will be reviewed and amended following consultation.
- 9.2 Two applications for membership have been received from suppliers and the Utility Regulator will decide the appointment of a Member. Ciaran MacCann confirmed the Utility Regulator will review this.
- 9.3 Ian Stevenson advised that RES representatives are being contacted via NIRIG. Mervyn Adams confirmed that NIRIG has approached members regarding PV and storage and should make progress regarding interest over the next few weeks.
- 9.4 Ian Stevenson further advised that nominations have been received from SEMO. The other TSO did not believe it was necessary to appoint a Member to the GCRP. Applications for

membership has been received from two potential DSM Members, these have also gone to the Utility Regulator for consideration.

- 9.5 The Secretary advised that no Members will be appointed until the Constitution is amended to reflect the proposed revisions to membership. This will only be amended following consultation and approval from the Utility Regulator in accordance with the requirements of Condition 16 of SONI's TSO licence.

- 9.6 **Action:** *UREGNI to confirm the successful supplier and DSM member.*

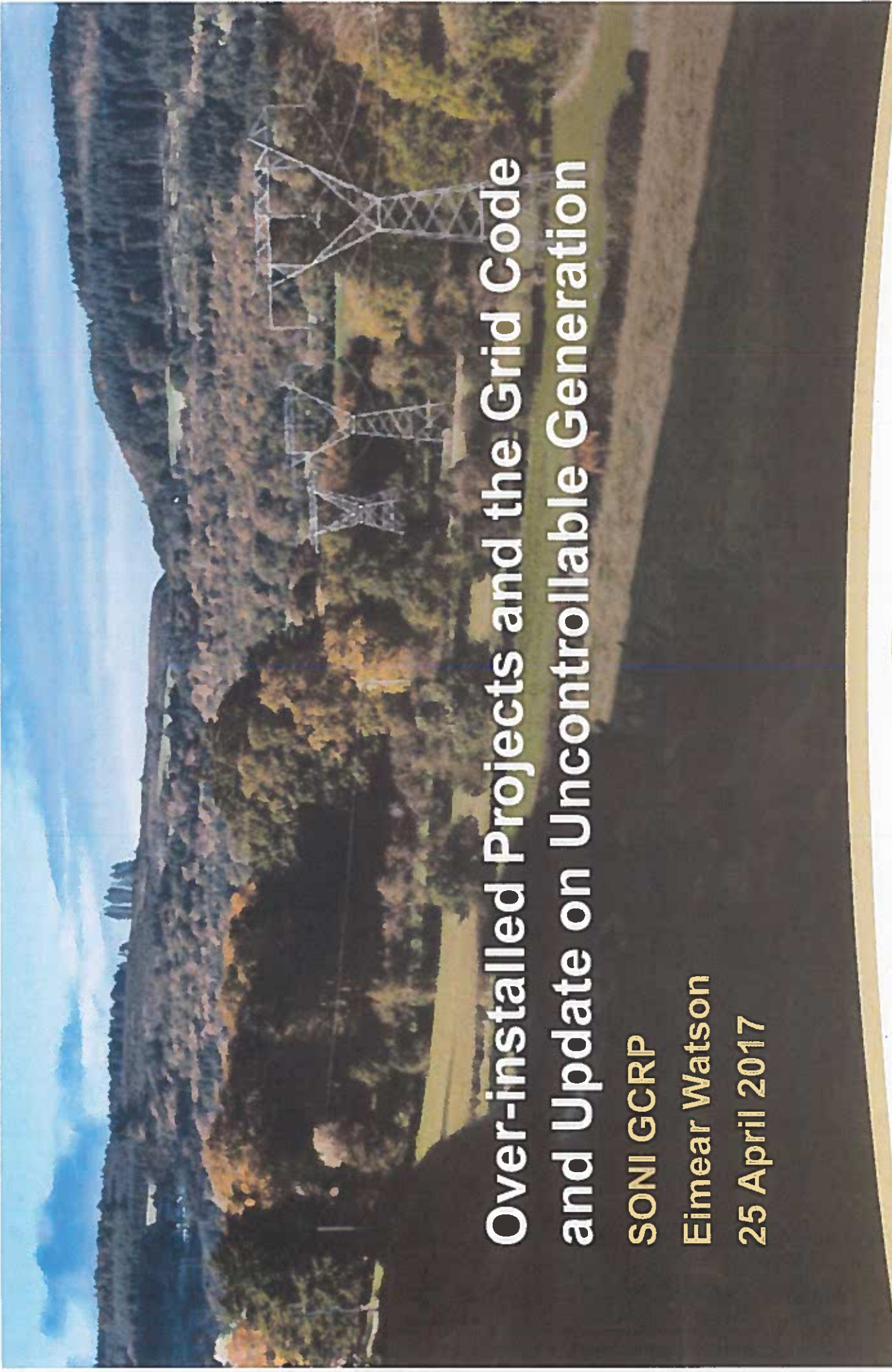
10. Any other business

No other business was discussed.

11. Arrangements for next meeting

It is anticipated that the next SONI GCRP meeting will take place in Belfast. The date and venue will be confirmed at a later date.

Appendix A



Over-installed Projects and the Grid Code and Update on Uncontrollable Generation

SONI GCRP

Eimear Watson

25 April 2017



Agenda

1. Background
2. Requirements for Generators
3. RfG and the Grid Code
4. High Level Clarifications Proposed
5. Examples
6. Housekeeping modifications
7. Next Steps for Over-installs
8. Impact of Uncontrollable Generation
9. Next Steps for Uncontrollable Generation

Background

- 120% over-installation policy – introduced in May 2016.
 - **Registered Capacity** can be up to 120% of **MEC**.
- SONI needs to clarify Grid Code requirements for these ‘over-installed projects’.
- Context in which we’re working:
 - Implementation of Network Codes; and
 - Increasing no. of requests for generation to be sited alongside load (distinct from a generator’s house load) with zero or limited export capacity.
- SONI needs to be mindful of this context so as not to necessitate future Grid Code modifications (as would have been the case with previous proposal to GCRP).

Requirements for Generators (RfG)

- SONI is required to implement the RfG Network Code.
- The RfG will apply to generation equipment procured after May 2018 and will not be retrospective.*
- The RfG requirements, where related to capacity, are based on a generator's **Maximum Capacity**:
“...the maximum continuous active power which a power-generating module can produce, less any demand associated solely with facilitating the operation of that power-generating module and not fed into the network as specified in the connection agreement or as agreed between the relevant system operator and the power-generating facility owner.”
- **Maximum Capacity** is interpreted by SONI to mean installed generation capacity minus house load.



*unless the TSO can bring forward a business case that justifies retrospection

RfG and the Grid Code

- The closest equivalent term in the Grid Code is **Registered Capacity**:

*“The normal **Full Load** capacity of a **Generating Unit** in **MW** measured as at the **Connection Point** and in relation to a **Power Park Module**, the normal **Full Load** capacity of the collection of one or more turbines, each being a **Generating Unit**, in **MW** measured as at the **Connection Point** of the **Power Park Module**.”*

- Grid Code requirements, where related to capacity, are currently based on **Registered Capacity** (or equivalent).
- Grid Code is already aligned with the RfG & optimises generator capability made available to the TSO.

High Level Clarifications Proposed

- By default, Grid Code requirements will be based on **Registered Capacity** even where **Registered Capacity** is greater than **MEC**.
- State the exceptions to Grid Code requirements that will be based on **MEC** where **Registered Capacity** is greater than **MEC**.
- Amend the definitions of **Full Load** and **Registered Capacity** to clearly specify that measurement at the **Connection Point** is to account for demand associated solely with facilitating the operation of the **Generating Unit**.
- Request both **Registered Capacity** and **MEC** figures from the **Generator / DNO**.

Example 1: 'Threshold' Limits

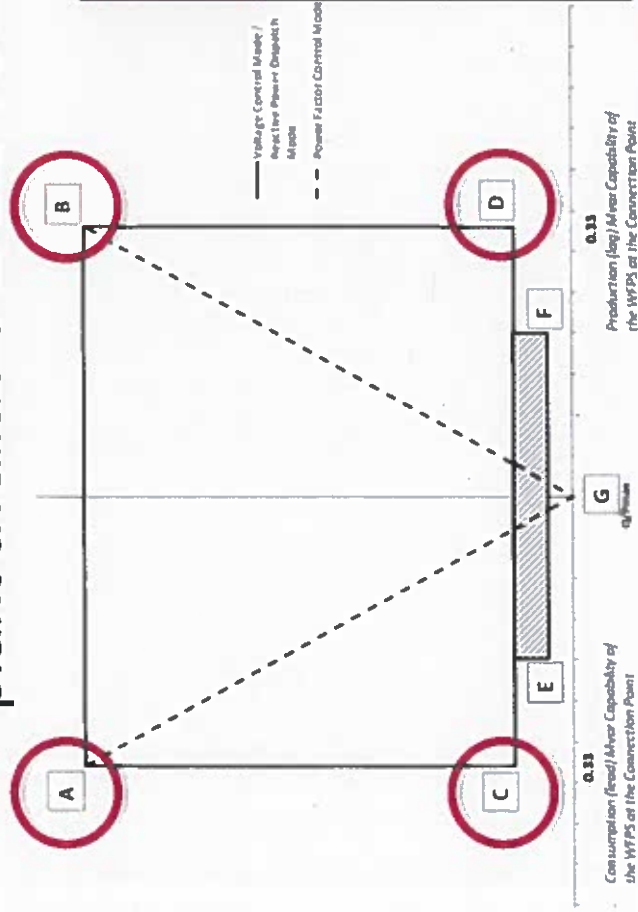
- **Controllable PPM (CPPM)** is defined as:

*“A **PPM** first connected to the **NI System** on or after 1 April 2005 whose generators comprise a **Registered Capacity** of 5 **MW** or more.”*

- A **PPM** that has over-installed by 120% and has an **MEC** of 4.25MW and a **Registered Capacity** of 5.1MW will be required to be a **Controllable PPM**.

Example 2: Reactive Power Requirements

- A **PPM** has over-installed by 120% and has an **MEC** of 10MW and a **Registered Capacity** of 12MW.
- **Reactive Power** requirements in CC.S2.1.3.2 are proposed to be based on **Registered Capacity** to make capability of plant available to the TSO.



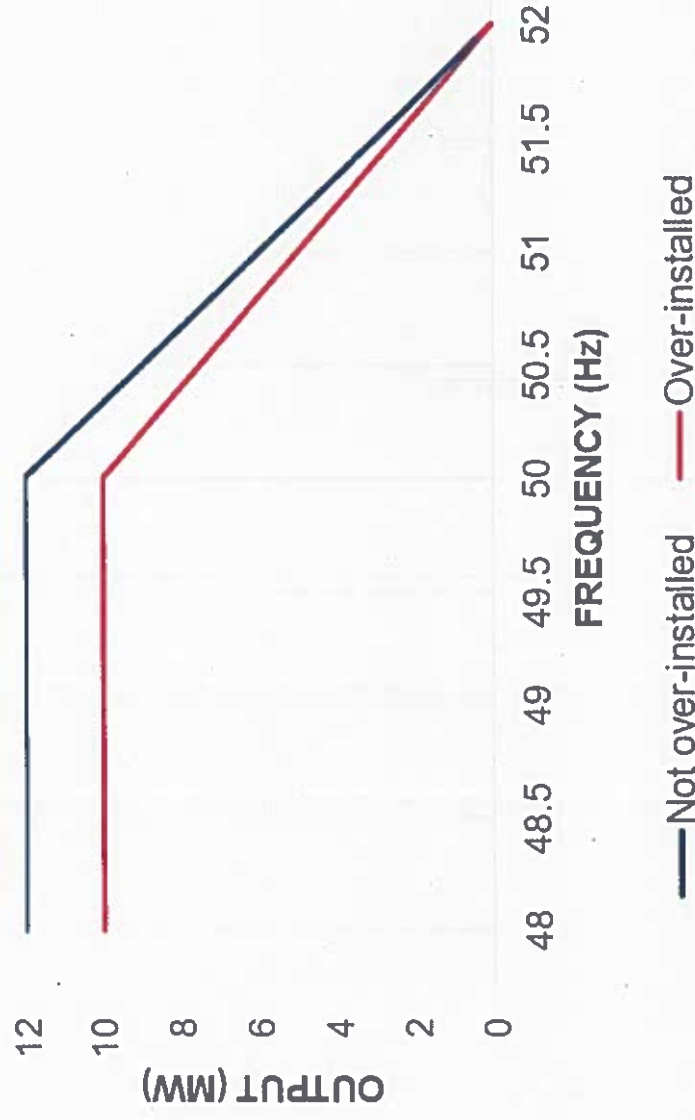
Points	Not Over-installed RC = 12MW MEC = 12MW	Over-installed RC = 12MW MEC = 10MW
A/B (max based on 0.95pf)	P = 12.00 MW Q = ±3.94 Mvar S = 12.63 MVA	P = 10.00 MW Q = ±3.94 Mvar S = 10.75 MVA
C/D	P = 1.44 MW Q = ±3.94 Mvar S = 4.19 MVA	P = 1.44 MW Q = ±3.94 Mvar S = 4.19 MVA

Example 3: Frequency Control

- A **PPM** has over-installed by 120% and has an **MEC** of 10MW and a **Registered Capacity** of 12MW.

- Requirements in CC.S1.1.5.2 are proposed to be based on **MEC** for over-installs.

- To base requirements on **Registered Capacity** would limit response range by lowering the droop.



Housekeeping Modifications

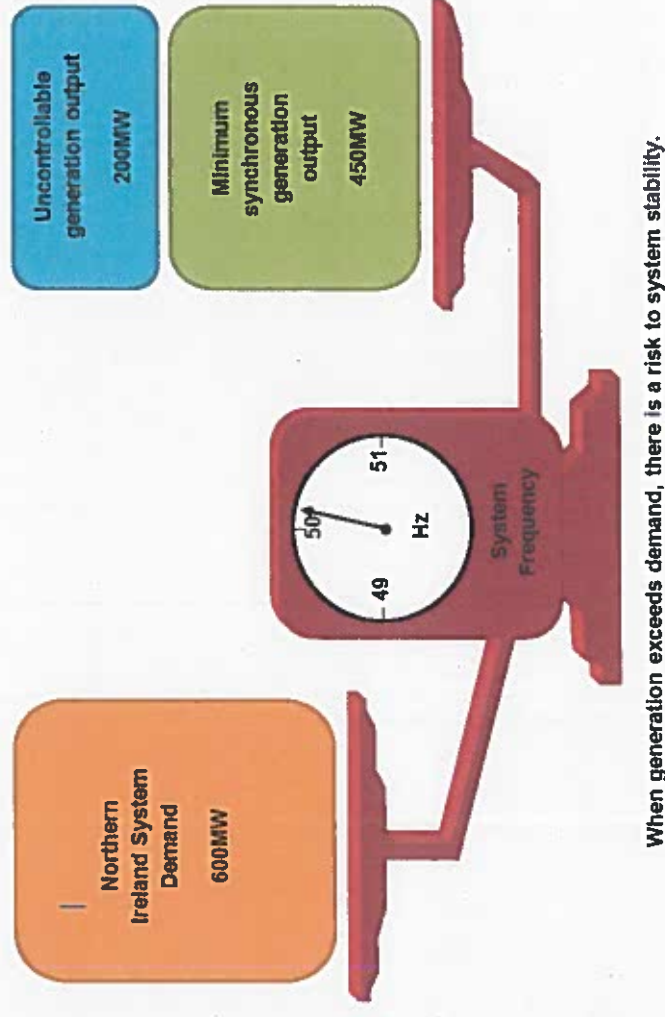
- Update definition of **DNO Connection Agreement**
 - to remove reference to the **DNO Demand Customer**.
- Update definition of **Maximum Export Capacity**
 - to remove reference to the **DNO Demand Customer**.
 - to include reference to the **Connection Point / connection point to the Distribution System**.
- Update definition of **Maximum Import Capacity**
 - to remove reference to the **DNO Demand Customer**.
 - to include reference to the **Connection Point / connection point to the Distribution System**.
 - To include **MW** and **MVA** reference

Next Steps for Over-installs

- SONI will discuss the principles with the DNO and seek agreement on the proposals.
- SONI will issue consultation with industry on Grid Code modifications in June 2017.
- Seek to put in place a group derogation from Grid Code for over-installed projects that have already been issued with connection offers or connected.

Impact of Uncontrollable Generation

- Uncontrollable generation impacts on SONI's ability to balance generation and demand on the system.
- If more uncontrollable generation connects to the system, at times, there is a real risk that system frequency cannot be maintained at 50 Hz, leading to an unstable power system.
- Particularly notable at times of low system demand.



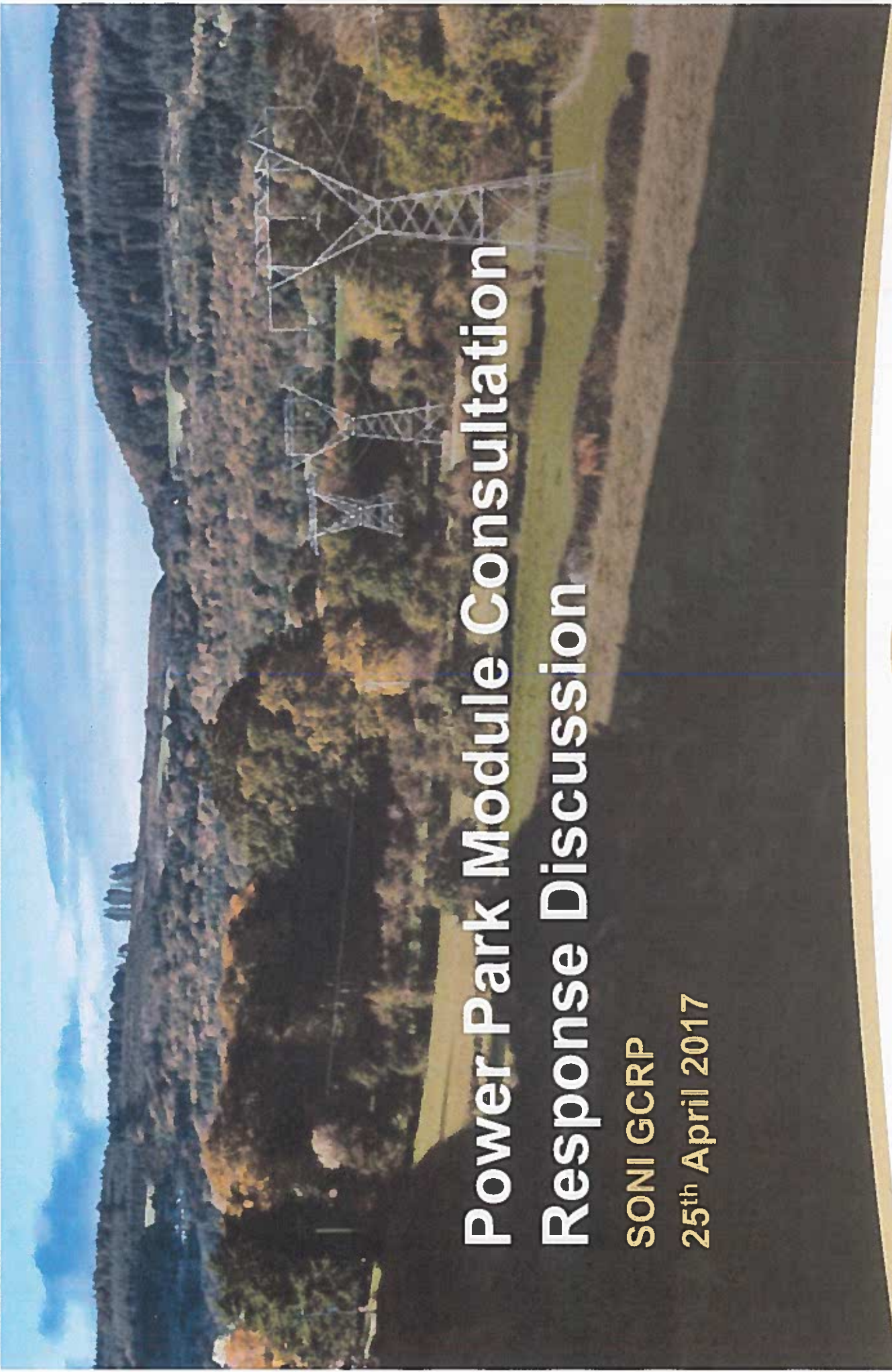
Next Steps for Uncontrollable Generation

- We are reaching the point where SONI has used all control centre tools/actions to manage the system, it could be very complex to manage the system with such high levels of uncontrollable generation.
- It is SONI's intention to request a level of visibility and control of generators down to 1 MW, subject to consultation and engagement with industry. This would align with the RfG.
- How we might achieve this has not been fully reviewed.
- All Island working group is being established to address the technical and communication requirements – NIE Networks, SONI, ESB Networks and EirGrid.
- It may be necessary for SONI to implement these controllability requirements in advance of the general implementation of the RfG.

Questions?



Appendix B



Power Park Module Consultation Response Discussion

SONI GCRP

25th April 2017



Background

- Power Park Module (PPM) proposal approved by UR 16th November 2016
- SONI contacted in January 2017 by User re. concerns with modification
- Bilateral meetings held in January and February 2017 to address concerns

Outcomes of Discussions

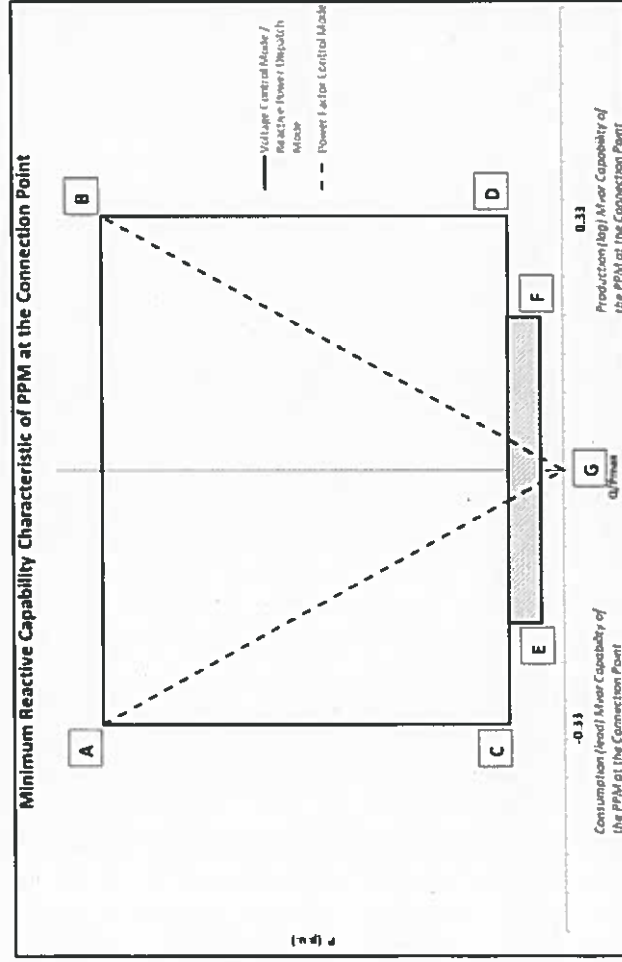
- Most of the concerns raised were clarified through discussion and had been taken on board previously by the TSO
- Misalignment of TSO modification report and redline GC changes highlighted
 - Addressed by notifying UR on 13/02/17
 - UR approved alignment on 16/02/2017
 - Documents on SONI website updated

Outcomes of Discussions (2)

- SONI to discuss with NIEN any potential implications of “Fast Acting”
 - SONI/NIEN discussions ongoing
- SONI to review definition of points in CC.S2.1.3.2 (to consider ESPS acting as demand)

Reactive Power Capability for PPM

Point A	Mvar consumption (lead) capability of the PPM at Registered Capacity at the Connection Point
Point B	Mvar production (lag) capability of the PPM at Registered Capacity at the Connection Point
Point C	Mvar consumption (lead) capability of the PPM when Output is 12% of Registered Capacity at the Connection Point
Point D	Mvar production (lag) capability of the PPM when Output is 12% of Registered Capacity at the Connection Point
Point E	Mvar consumption (lead) capability when any of the Generating Units begins to export Active Power at the Connection Point (to be defined by Generator)
Point F	Mvar production (lag) capability when any of the Generating Units begins to export Active Power at the Connection Point (to be defined by Generator)



Discussion

- Should these definitions be amended for clarity?
- Is the following clause sufficient?

CC.S2.1.10.3 & CC.S2.2.7.3	For the avoidance of doubt all requirements in this Schedule 2, Part I, shall be applicable to Energy Storage Power Stations (ESPS) under the full range of operation and shall not be interpreted to only apply during times the ESPS is providing Active Power or Reactive Power to the System .
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