

Ireland Grid Code Review Panel #2 2020

Welcome to all members

03 November 2020

Agenda

1. **INTRODUCTION: 10:30 hrs**
 - a. Welcome to Members
 - b. Minutes and Actions from [Previous Meeting](#) (02 July 2020)
2. **MODIFICATION PROPOSALS: 10:45 hrs**
 - a. MPID 285 – Correction of RfG Derogation Process Forms References
 - b. MPID 286 – CC.7.3.6.5 Correction of Graph
 - c. MPID 287 – PPM1.7.1.2.1 and PPM1.7.1.6 Wind Farm Signal List
 - d. MPID 288 – Blackstart Test Scheduling
3. **UPDATES: 11:20 hrs**
 - a. Update on the RfG, DCC & HVDC Derogation Requests and DCC RfAs
 - b. Update on the Application of the CNCs to Existing Users.
 - c. Update from ESBN on Distribution Code Modifications
 - d. Update on HVDC Decision Paper
 - e. Grid Code Derogations
 - f. EirGrid Level 2 Org Update
 - g. CRU Update
4. **DISCUSSION ITEMS: 11:55 hrs**
 - a. Energy Storage Implementation
5. **FOR INFORMATION: 12:10 hrs**
 - a. PPM FRT
6. **AOB 12:20 hrs**

MPID 285 – Correction of RfG Derogation Process Forms References

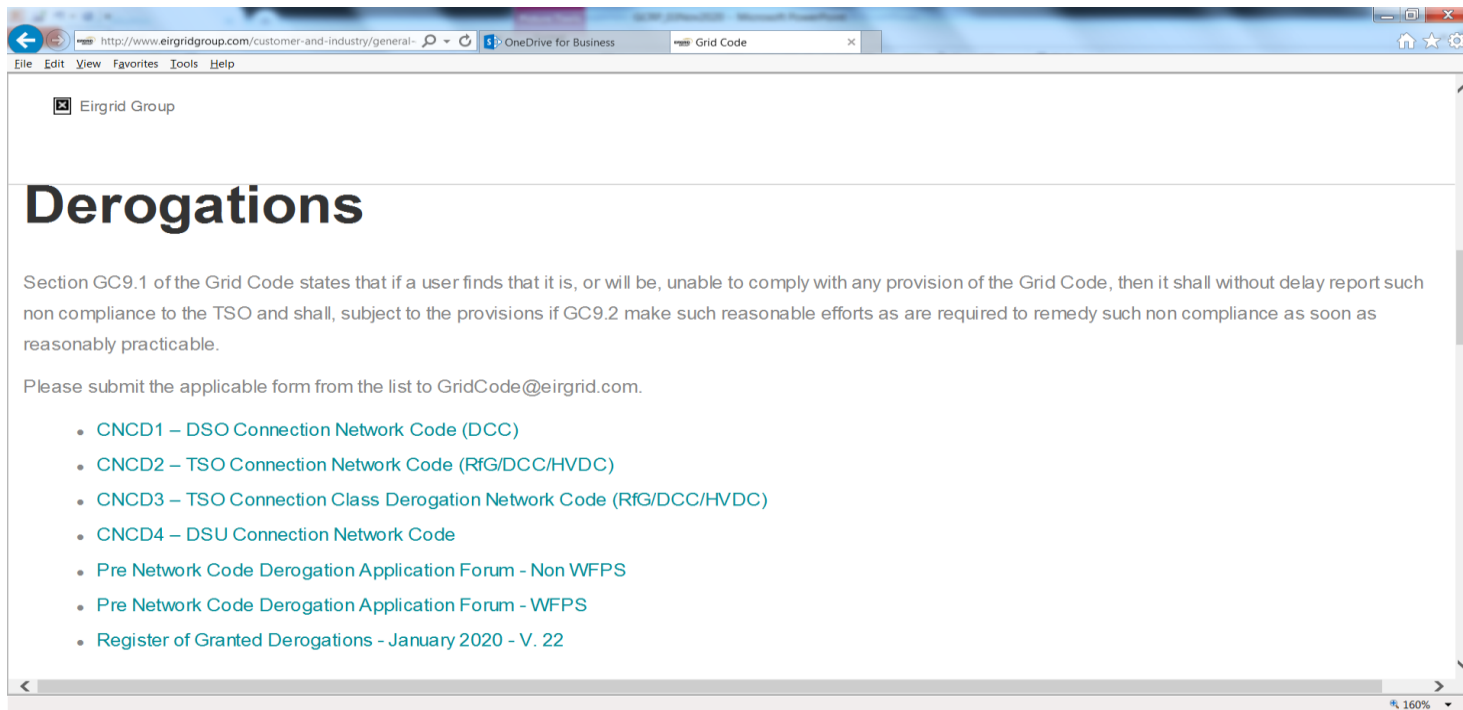
Anne Trotter

MPID 285 – Correction of RfG Derogation Process Forms References

- Following the incorporation of the RfG Derogation process, the derogation forms were revised and re-referenced.
- We now propose amending the Derogation form references in GC.9.3.2.1 and GC.9.3.3.2.

MPID 285 – Correction of RfG Derogation Process

Forms References



MPID 285 – Correction of RfG Derogation Process Forms References

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MPID 286 – CC.7.3.6.5 Correction of Graph

Niamh Daly

CC.7.3.6.5 Correction of Graph

- A voltage graph for 110 kV and 220 kV was included in CC.7.3.6.5 as part of MPID 275 (incorporating the RfG into the Grid Code).
- The graph currently shows the upper voltage boundary as 123 kV and 246 kV for 110 kV and 220 kV respectively.
- The requirement for 246 kV at 220 kV is above the operational requirement of 245 kV as per CC.8.3.2.
- This proposal will align CC.7.3.6.5 with CC.8.3.2.
- The requirements at 110 kV will remain unchanged.

MPID 286 – CC.7.3.6.5 Correction of Graph

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MPID 287 – PPM1.7.1.2.1 and PPM1.7.1.6 Wind Farm Signal List

Eric Lambert

MPID 287 – PPM1.7.1.2.1 and PPM1.7.1.6

Wind Farm Signal List

- The data ranges for wind farm meteorological signals transmitted to the TSO specified in *PPM1.7.1.2.1* of the Grid Code are not appropriate based on analysis of historical meteorological data in Ireland.
- It is more appropriate that the units/ranges be specified in the signal list thus we request their removal from the Grid Code.
- *PPM1.7.1.6 Time Delays and Data Quality* requires a change in wording to correctly reflect the criteria for accuracy of meteorological signals received by the TSO as recommended in the Met Mast and Alternatives Study.

MPID 287 – PPM1.7.1.2.1 and PPM1.7.1.6 Wind Farm Signal List

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MPID 288 – Blackstart Test Scheduling

Niamh Daly

Background – Blackstart Test Scheduling

- The Network Code Emergency Restoration (NCER) came into force 18 Dec 2017.
- The NCER details the measures for safeguarding operational security up to and including a blackstart state.
- As per NCER Article 2.2, the NCER applies to both new and existing Users.

Modification – Blackstart Test Scheduling

- Under Article 44.1 and Article 46, the TSOs are required to test Black Start service providers “at least every three years”.
- This proposed modification will update the Grid Code to reflect this requirement by:
 - Including a testing interval of “at least every three years” to Grid Code section OC.10.5.7.3; and
 - A re-wording of the existing clause OC.10.5.7.3 for the purpose of providing clarity and removing ambiguities.

MPID 288 – Blackstart Test Scheduling

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Update on the RfG, DCC & HVDC Derogation Requests and DCC RfAs

Miriam Ryan

Update on the RfG, DCC & HVDC Derogation Requests and DCC RfAs

- Derogation requests raised by the TSO against the RfG, DCC and HVDC Network Codes, as well as the DCC Requests for Amendments (RfAs) were approved by the CRU on 21 October 2020.
- The full approval letter is available on the [CRU website](#).

Update on the RfG, DCC & HVDC Derogation Requests and DCC RfAs



Update on the Application of the CNCs to Existing Users

Miriam Ryan

Update on the Application of the CNCs to Existing Users

- The proposed guideline was sent to the CRU for review after the GCRP meeting on 2 July 2020.
- In September, CRU agreed with the approach proposed by EirGrid and ESB Networks.
- A copy of the guideline document has been circulated to the EirGrid customer list and will be published to the EirGrid website.

Update on the Application of the CNCs to Existing Users

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Grid Code Review Panel – Ireland 3-11-20

ESBN Distribution Code update

- Version 6 approved and published
- This hoovered up all non-RfG related changes before RfG-Version 7.
- This included a reduction of MW controllability from 5MW to 1MW for PPMs
- Version 7 – with RfG content now approved and published
- Huge piece of work!
- Upcoming for next DCRP meeting in early December;
- RfG derogation process for voting
- DCC content for voting
- Last outstanding piece on Operational Notification
- Held up due to EirGrid-ESBN discussions to be concluded on processes for allocation of harmonic limits

Update on HVDC Decision Paper

Miriam Ryan

Update on HVDC Decision Paper

- EirGrid's proposals for Articles 11 to 50 of the HVDC Network Code were approved by the CRU on 12 October 2020.
- The full approval letter is available on the [CRU website](#).

Update on HVDC Decision Paper

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Grid Code Derogations

Anne Trotter

Grid Code Derogations (Oct 2019 – Sept 2020)

- 1 Derogation Approved
- 39 Derogations Assessed by TSO
- Assessments for 20 additional units currently being finalised by TSO
- Approx. 300 derogation applications to be assessed or followed up with applicant

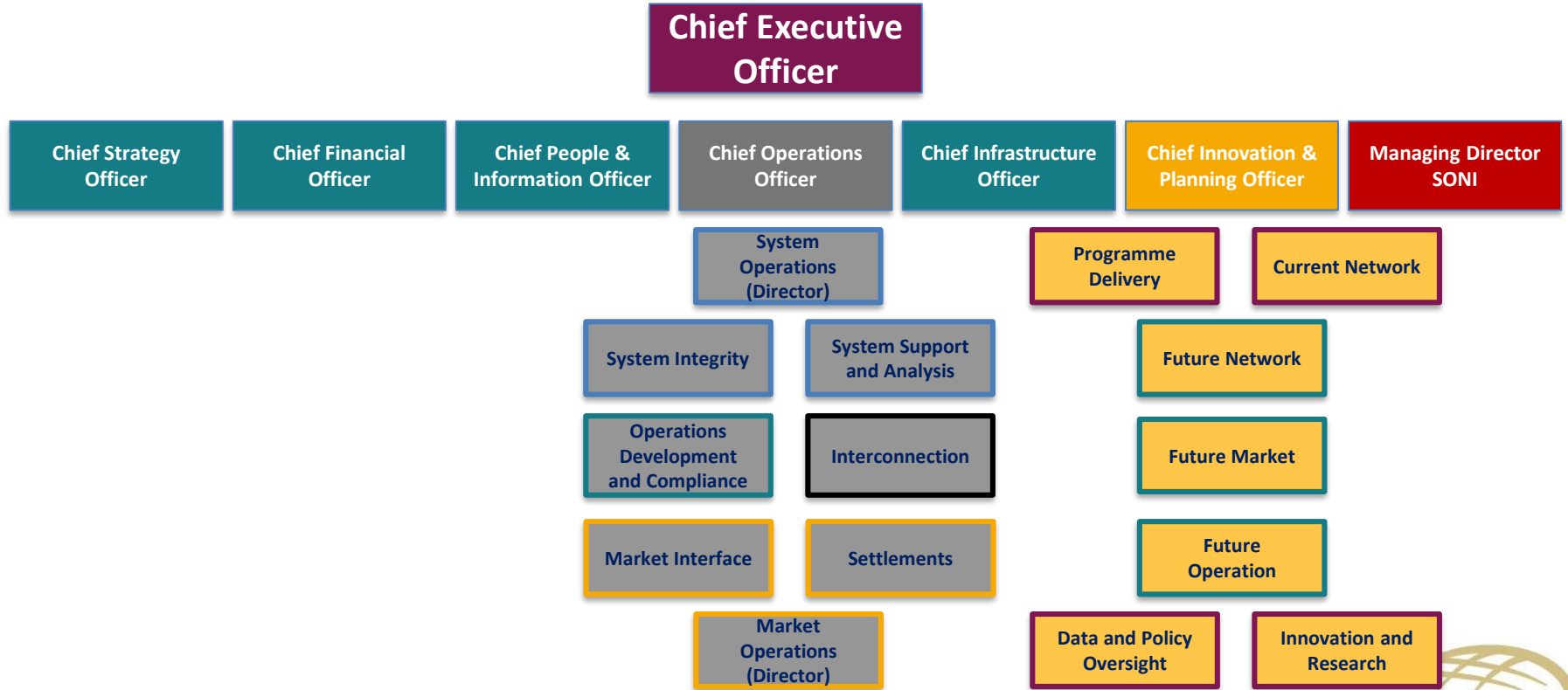
Grid Code Derogations

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EirGrid Level 2 Organisational Update

John Ging

EirGrid Organisation Update



CRU Update

Dylan Ashe

CRU Update

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Energy Storage Implementation

John McGuckin

Agenda

- ❑ FlexTech
- ❑ Current Environment
- ❑ Battery ESPS Grid Code Implementation Note (2.0)
- ❑ General Discussion & Next Steps?

FT Energy Storage – Priority Areas

Storage Technology, given its ability to reduce RES curtailment and provide service availability without generating, has the potential to play a major role in both the energy and system services market over the next 10 years and beyond.

- Investigate a mechanism for identification of, and appropriate treatment of, various modes of operation
- **Review of Grid Code/ Distribution Code for Storage**
- Strategic consideration to be given to the prioritisation of grid access
- System Operator Task force to assess impacts of fast response services on Distribution Systems

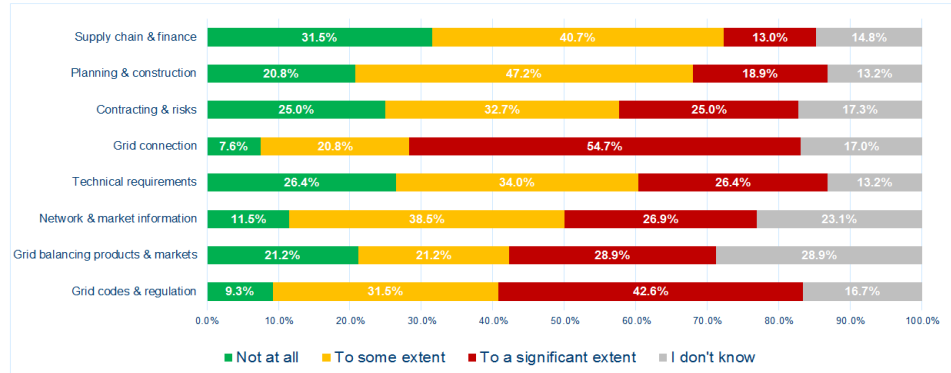


Storage – Key Messages

- **Prioritisation of Grid Access;**
 - Consider under Enduring Connection Policy (ECP-2) / Projects that help facilitation of renewables
 - Short (<20min) responses → Consider Planning Criteria to avoid over development
- **Operating Protocol;**
 - Concern raised around BESS Dispatch Protocols - Dispatch Instruction for imports
 - Clarity sought on ability of BESS to operate in Day-ahead markets
- **Regarding PSO Levy;**
 - CRU decision (CRU-19-034) - commercial storage and management of MIC
- **TSO/DSO Collaboration;**
 - System Operator taskforce to consider impacts of Fast Response on Distribution System
- **Grid Development;**
 - Storage may also help manage network congestion – more than provision of traditional services
 - Enabling competition in network reinforcements (e.g. industry driven 'non-wire' solutions)

NIE FESS Project - Response

Barriers to Entry

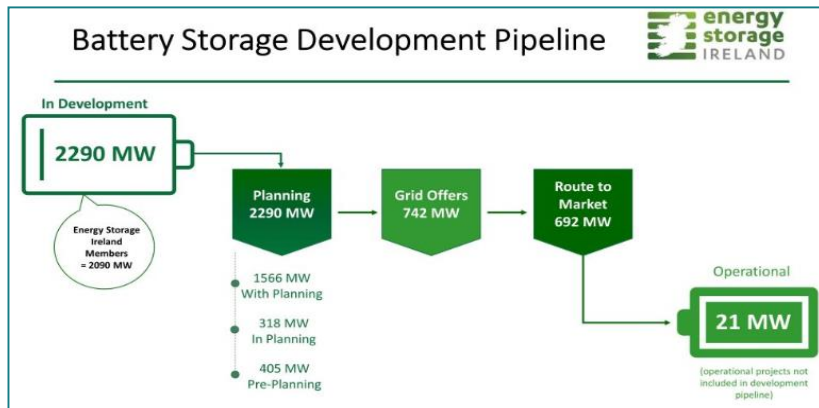


Factor	Respondents considering it a barrier
Grid connection	75.5%
Grid codes & regulation	74.1%
Planning & construction	66.0%
Network & market information	65.4%
Technical requirements	60.4%
Contracting & risks	57.7%
Supply chain & finance	53.7%
Grid balancing products & markets	50.0%

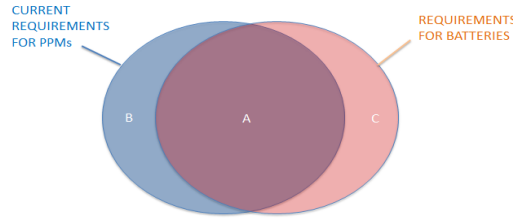
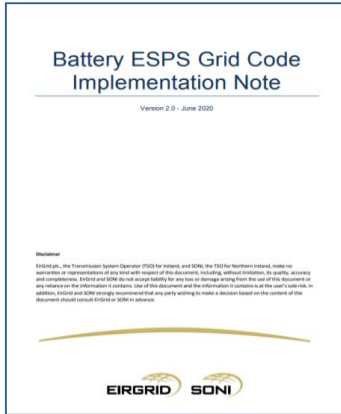
nienetworks.co.uk

Current Environment

- Batteries seeking to
 - Secure DS3 SS Contracts (Market Registration required)
 - Optimise the export / import of the Battery
 - Trade in the day-ahead market



Implementation Note



Implementation Note outlines:

- Which elements of current PPM Grid Code will apply to batteries
- Which elements will not apply to batteries
- Which elements will apply to batteries in a modified or varied form
- Any new concepts or requirements which have not existed to date but are required for batteries

Table A3: EirGrid Grid Code PPM Section

Grid Code Section	Subject/Topic	EirGrid Grid Code Clause	Applicability to Battery ESPS
PPM1.1	Introduction	PPM1.1	Applies
PPM1.2	Objective	PPM1.2	Applies
PPM1.3	Scope	PPM1.3.1	Applies
		PPM1.3.2	Applies (Note: In the list of applicable OC clauses identified in PPM1.3.2, OCL7 should refer to OCT)
PPM1.4	Scope	PPM1.4.1	Applies
	Fault Ride Through Requirements	PPM1.4.2	Applies
	Transmission System Frequency Ranges	PPM1.5.1.1	Applies
	Active Power Management	PPM1.5.2	Applies
	Active Power Control	PPM1.5.2.1	Variation applies - see Section B.3
		PPM1.5.3.1	Variation applies - see Section B.2 and B.3
		PPM1.5.3.2	Variation applies - see Section B.1 and B.3
		PPM1.5.3.3	Variation applies - see Section B.2 and B.3
		PPM1.5.3.4	Does not apply
		PPM1.5.3.5	Does not apply
		PPM1.5.3.6	Variation applies - see Section B.3
		PPM1.5.3.7	Variation applies - see Section B.3
		PPM1.5.3.8	Applies
		PPM1.5.3.9	Applies
		PPM1.5.3.10	Does not apply
		PPM1.5.3.11	Does not apply
		PPM1.5.3.12	Does not apply
		PPM1.5.3.13	Does not apply
		PPM1.5.3.14	Does not apply
	Procedure for setting and changing control parameters	PPM1.5.3.15	Variation applies - See Section B.3
	Range rates	PPM1.5.4.1	Variation applies - See Section B.2
	Range rates	PPM1.5.4.2	Variation applies - See Section B.2
	Procedure for setting and changing the ramp rate control	PPM1.5.4.3	Applies
	Transmission System Voltage Range	PPM1.6.1	Variation applies - see Section B.4
	Automatic Voltage Regulation	PPM1.6.2.1	Applies
	Reactive Power Control Modes	PPM1.6.2.2	Variation applies - see Section B.4
	Voltage Regulation System	PPM1.6.2.3	Applies
	Stator Current	PPM1.6.2.4	Applies
	Speed of response	PPM1.6.2.5	Applies

PASTE INTO GOOGLE CHROME

<http://www.eirgridgroup.com/site-files/library/EirGrid/Integration-of-Batteries-Implementation-Note.pdf>

New & Modified Requirements

New Requirements for Batteries:

- Capacity Limited Ramp Rate (**in place of 'Resource Following'*)

Modified Requirements for Batteries

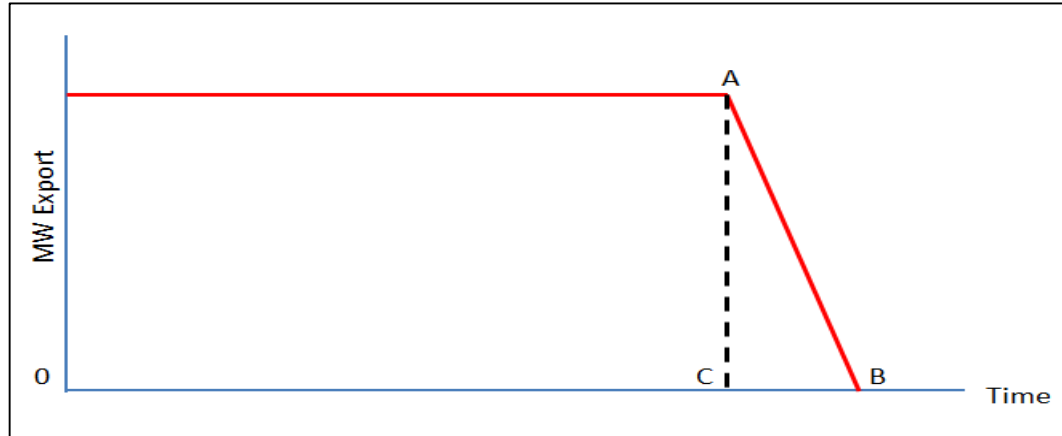
- Frequency Response
- Reactive Capability

Other points of Note

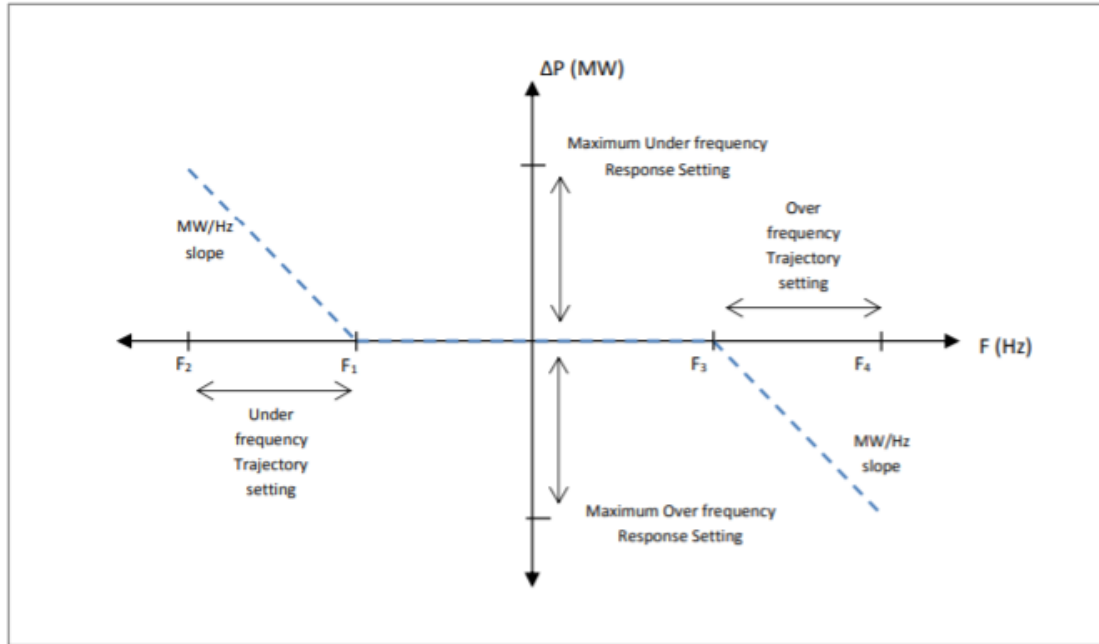
- Operating Range (region between MEC & MIC)

Capacity Limited Ramp Rate

- Designed to ensure that a battery exporting or importing to limits of capacity manages itself off in a controlled manner

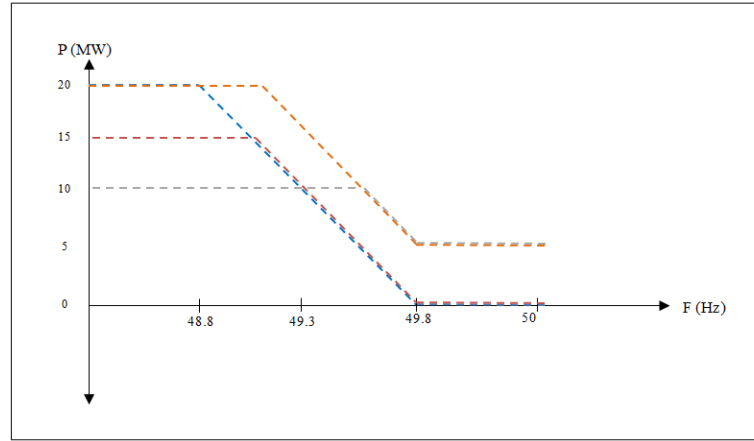


Frequency Control



- Battery ESPS must be capable of
 - contributing to the control of system frequency by modulation of active power.
 - responding to both high and low frequency conditions from a baseline active power output anywhere within their Operating Range
 - accommodating five separate programmable Frequency Response modes.
- The TSO will be able have the functionality to
 - toggle between the Frequency Response Modes via SCADA signals
 - turn Frequency Response on and off via a SCADA signal.

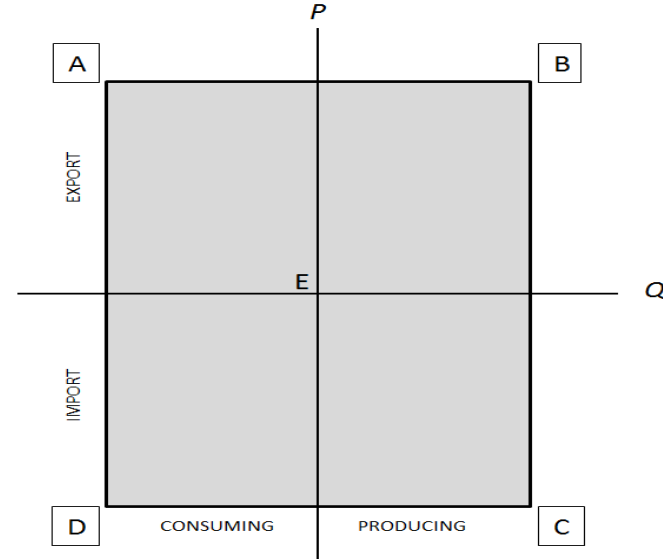
Frequency Control



Case 1 Example:	Blue	Red	Orange	Grey
Maximum Under frequency Response setting	40 MW	40 MW	40 MW	40 MW
Trajectory setting	2 Hz	2 Hz	2 Hz	2 Hz
Under frequency Trigger setting	49.8 Hz	49.8 Hz	49.8 Hz	49.8 Hz
Availability	20 MW	15 MW	20 MW	10 MW
Set-point	0 MW	0 MW	5 MW	5 MW

TSO Reactive Capability

- 3 Modes: Voltage Control, PF Control & MVar dispatch
- Effectively current PPM requirement mirrored to import side
- Q/P ratio +/- 0.33 defined at MEC
- Requirement to hold MVar setpoint while varying MW



Next Steps

- Industry Engagement
 - Customers & Industry Representatives
 - System Operators (Distribution Code requirements)
- Development of Grid Code Modifications
 - Secure Feedback on Implementation Note
 - Collate responses and update
 - Propose Grid Code Modifications to Review Panels
- Develop programme above activities
 - Consideration of EU Network Code activity

Thank-you

PPM FRT

Alan Rogers

PPM FRT

- Comments have been received from IWEA on FRT proposal and Simulation/Compliance document
- We don't believe there are any insurmountable issues in the comments from IWEA
- We propose to circulate EirGrid's response to the comments with the minutes, and then work towards finalising all the documents

AOB

Draft Minutes will be issued by COB 17 November 2020