

EirGrid GCRP

9 November 2022

Welcome to all members.

Agenda

INTRODUCTION:

- Welcome to Members;
- Minutes and Actions from [Previous Meeting](#) (14 June 2022);

PROPOSAL:

- MPID 229(a) Incorporation of the RoCoF modification approved in principle by the RAs;
- MPID 301 Alert States naming convention as per NCER;
- MPID 302 Correction of 220 kV P/Q graph for remote-end Interconnector Converter Stations;
- MPID 304 Incorporation of ESPS as per implementation note.

UPDATES:

- Offshore PPMs;
- Grid Code Derogations;
- CRU;

AOB.

MPID 229(a)

Incorporation of the RoCoF

Emma Fagan, EirGrid

RoCoF Grid Code modification MPID229(a)

- In 2014 the CRU (then the CER) approved in principle the RoCoF modification MPID229
- [CER decision](#)
- Link to decision is present on the front of the EirGrid Grid Code since 2014 to ensure all Users are aware of the approval in principle

3.1 Summary

The CER approves the modification in principle, but it will only come into effect following confirmation from EirGrid that, from a system security perspective, it can be implemented. To determine this there will be an industry implementation project made up of three strands; TSO & DSO implementation; Alternative solutions; and generator studies. The implementation of RoCoF will be phased over a period of 18 to 36 months, with higher priority units being required to complete their studies first. The overall industry project will be coordinated by an independent consultant and overseen by the CER. Incentives will be implemented and will be progressed through the established SEM process.

in the PPA report, published alongside the consultation paper, there is a level of uncertainty regarding the technical capability of the Irish generation fleet and the potential requirements to undertake work to comply with the higher RoCoF standard, the CER therefore considers it prudent to propose to delay implementation of the RoCoF modification (MPID 229) for a period of time to allow the required studies and works to be carried out.

Therefore, the CER approves the modification, as proposed, in principle but the CER will not give effect to the new standard in the Grid Code until it has received confirmation from EirGrid that, in its professional judgement, a sufficient number of generators can comply with the standard to allow EirGrid to safely operate the system in a manner reliant on the new RoCoF standard. Generators shall be required to make a declaration to EirGrid regarding their level of compliance within 18 to 36 months of the publication of this paper.

MPID 229 (a)

- A sufficient level of generation is now compliant
- 80 sites totaling only 19 MW remain non-compliant
- This low level of non-compliant generation does not prevent EirGrid from safely operating the system at 1 Hz/s RoCoF over 500 ms
- Thus the new standard should be implemented into the Grid Code
- However much has changed in the Grid Code since 2012
- Modification has been updated to take account of changes such as
 - WFPSs becoming PPMs
 - Updated numbering due to the implementation of RfG and HVDC EU Network Codes
- Modification has been renumbered from MPID 229 to MPID 229(a)

MPID 301

Alert States naming convention as per SOGL and NCER

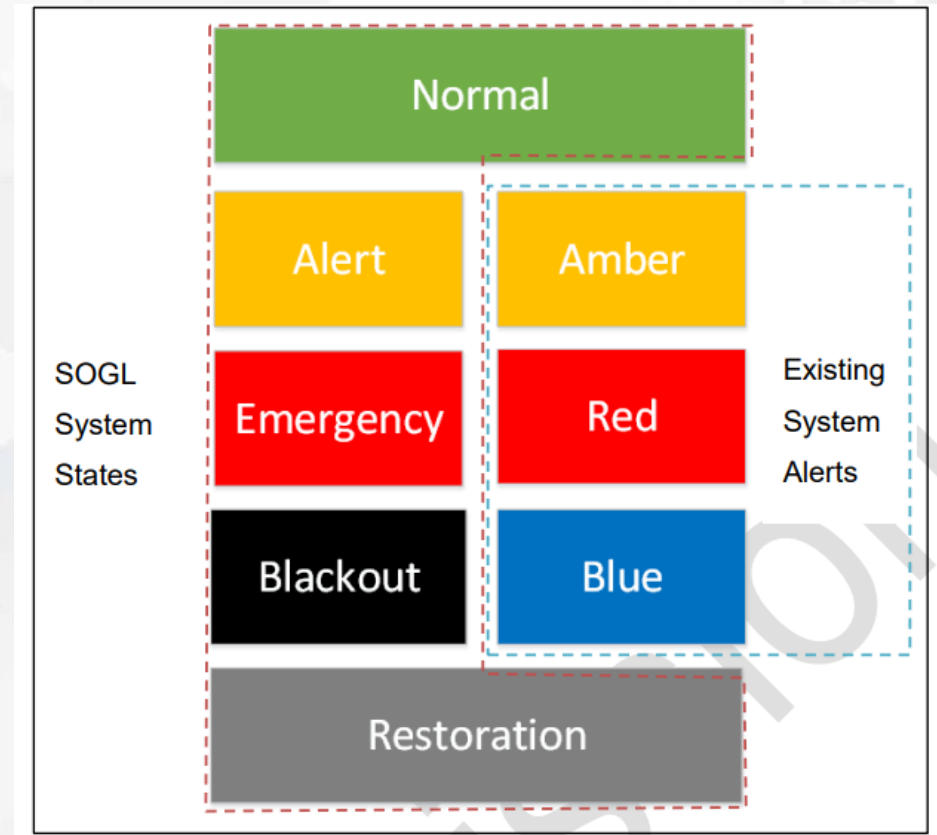
Niamh Daly, EirGrid

MPID 301

Impacted Clauses: OC.9.4, OC.9.5, OC.9.6, Definitions.

Justification:

- Commission Regulation (EU) 2017/1485 SOGL defines five system states to be used to monitor the transmission system. This is then referenced in Commission Regulation (EU) 2017/2196 NCER.
- These system states have been aligned with EirGrid's existing system alerts in an all-island business process.
- This modification applies these new system state names to the EirGrid Grid Code.



MPID 301

Sample Text:

OC.9.4 System Alerts

OC.9.4.1 In the event of a **System Emergency Condition** or imminent shortfall of MW capacity, the **TSO** may issue any of several **Alerts** to the Generator, key **Transmission Stations, Distribution Control Centres and Demand Side Unit Operators**. These **Alerts** may include an ~~Amber-Alert~~ **Alert State**, ~~Red-Alert~~ **Emergency State** or ~~Blue-Alert~~ **Blackout State**, or other **Alerts** as may be agreed from time to time.

MPID 301

Deletion of duplication:

OC.9.4.4.2 Standing procedures to be activated in response to an ~~Red-Alert~~ Emergency State will be developed by the TSO, in consultation with Users, and notified to each User as appropriate.

~~OC.9.4.4.3 Standing procedures to be activated in response to a Red-Alert Emergency State will be developed by the TSO, in consultation with Users, and notified to each User as appropriate.~~

MPID 302

Correction of 220 kV P/Q graph for remote-end Interconnector Converter Stations

Niamh Daly, EirGrid

MPID 302

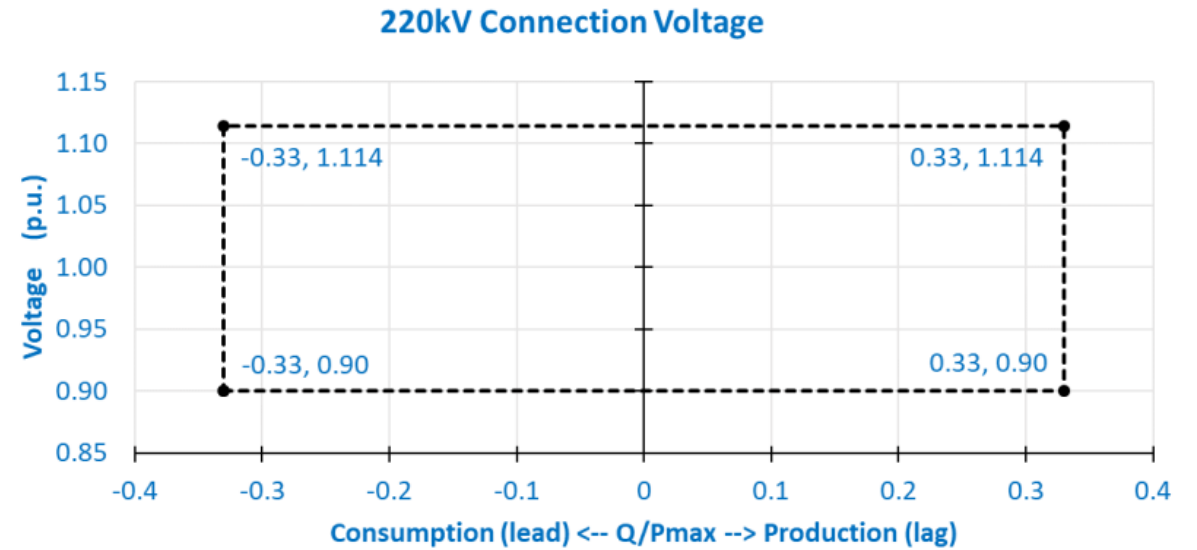
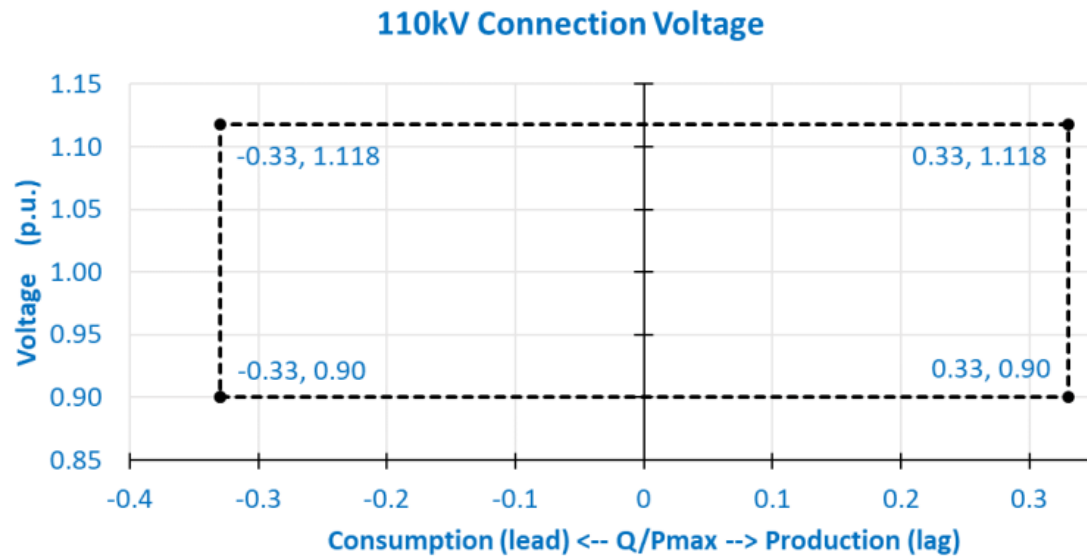
Impacted Clauses: CC.7.5.10 (f).

Justification:

- The graphs within clause CC.7.5.10(f) show a maximum voltage withstand capability of 1.118p.u. for connections at 110 kV and at 220 kV. In the case of 220 kV, this would require equipment to have the capability to continually withstand 246.4 kV. As per clause CC.8.3.2, the maximum transmission system voltages during a transmission fault for 220 kV are nominally 245 kV. This equates to an upper voltage limit of 1.114p.u. for 220 kV transmission systems.
- To rectify this error in clause CC.7.5.10(f), we propose separating out the graphs for 110 kV and 220 kV, retaining the upper voltage limit for 110 kV systems of 1.118 p.u. and correcting the upper voltage limit for 220 kV systems to 1.114 p.u.

MPID 302

Sample:



MPID 304

Incorporation of ESPS as per implementation note.

Richard Lavender, EirGrid & SONI
Aaron Keogh, EirGrid

Update on the Incorporation of Offshore PPMs into Grid Code

Alan Rogers, EirGrid
Niamh Daly, EirGrid

Update on the Incorporation of Offshore PPMs into Grid Code

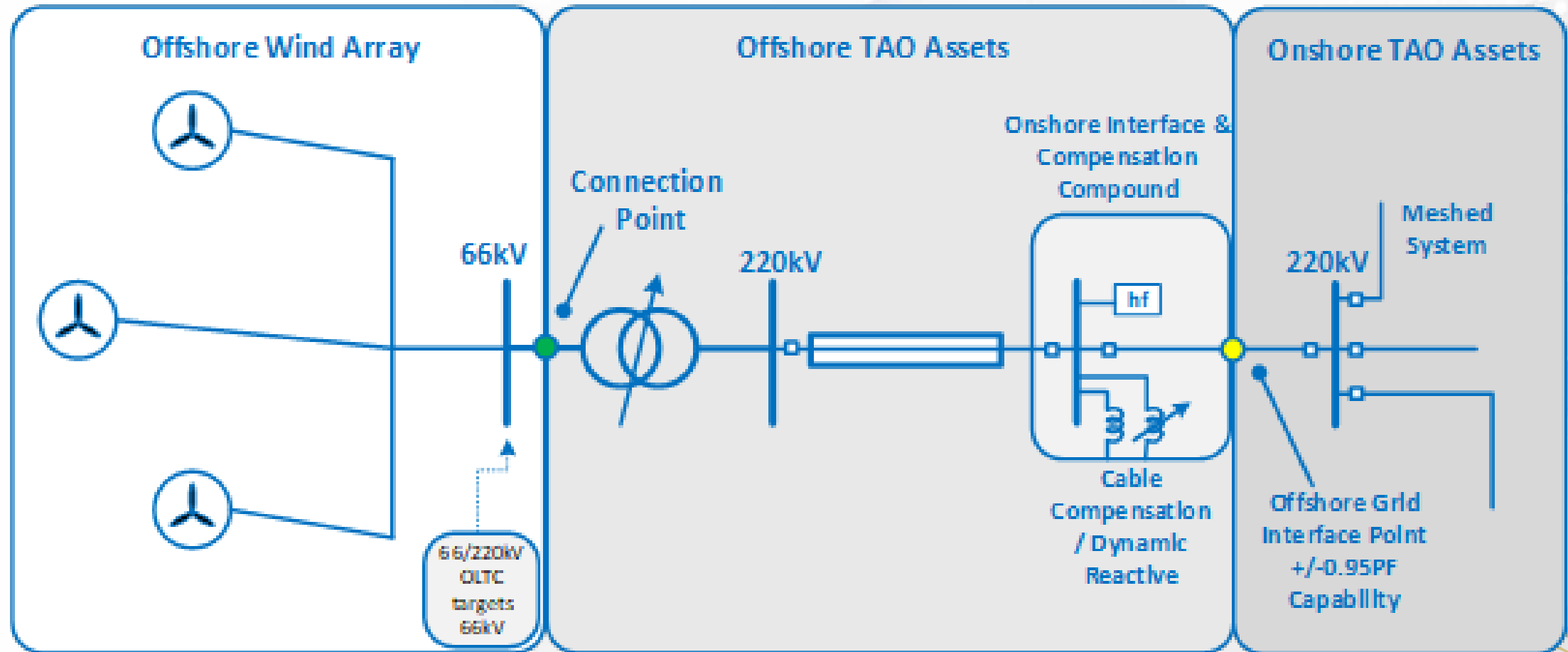
High Level Grid Code Philosophy Document

Alan Rogers, EirGrid

Update

- Representatives of offshore wind developers met with EirGrid several times over the summer to discuss proposed Grid Code “Direction of Travel”
- A set of high-level principles were agreed after several iterations
- Main stumbling block was on reactive power requirements offshore
- EirGrid/NCC need consistency across all developments to simplify operation and control
- Developers’ focus is on cable length and rating and the concern is that excessive reactive flows could limit MW on cable

Schematic



Principles I

- Minimise impact on Grid Operation
- Common approach for Phase 1 – similar technical and control capabilities
- Minimise equipment on offshore platform (insofar as this is possible)

Principles II

- Offshore PPM to be capable of maintaining zero MVar flow (unity power factor) at the very least, over full operating range, at the 66kV bus (connection point)
 - Note that onshore wind have ± 0.95 power factor capability
- Generator transformer 66/220kV will automatically regulate the 66kV voltage
- The overall design should provide for ± 0.95 power factor capability at the Grid Interface Point (onshore 220kV TX system connection)
- Require smooth voltage control, avoiding excess step changes (e.g. during energisation and switching)
 - Noting the presence of many sensitive customers in electrical proximity to East Coast wind

Principles III

- Harmonic filter requirement to be considered in design
- EirGrid to provide impedance loci and limits at 220kV interface point
- Also need to ensure harmonics within limits at 66kV to prevent damage to platform transformer
 - Existing IEC limits apply from 35kV upwards

Other items

- Potential for control interaction between windfarms
- Short-circuit level requirements
- Fault Ride-Through

Update on the Incorporation of Offshore PPMs into Grid Code

Timeline:

Develop Offshore PPM Requirements

9th Nov 2022:

High-Level Philosophy Documents shared at GCRP.

March 2023:

Draft modifications proposal shared with GCRP members.

April 2023:

GCRP vote held on whether to submit modification proposal to CRU.

Grid Code Derogations Update

Ciaran Maguire, EirGrid

Derogations Update

Total to be Assessed by TSO	174
Total with CRU for Decision	130

Since 01/03/2022

Approved by CRU	1
TSO Recommendations Sent to CRU	4
Submitted to TSO	10

CRU Update

Dylan Ashe, CRU

AOB

All



Thank you.

We will circulate the draft minutes by 23 November.