Grid Code Modification Proposal Form Email to gridcode@eirgrid.com	

Title of Modification Proposal: MPID 315 Housekeeping of Various PPM Clauses and Acronyms

MPID (EirGrid Use Only): MPID 315

Date:	12/09/2023
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Grid Code Version:	Grid Code Version 12
Grid Code Section(s) Impacted by Modification Proposal:	Various

Modification Proposal Justification:

The Grid Code is a living document and is constantly evolving. Several formatting and syntax errors have come to our attention. The TSO are proposing a fix to the errors that span various PPM clauses and the Acronyms table within the code itself.

The table below outlines the clause or section, the error, the red-line version of the text and the green-line version of the text.

A Table Outlining the Proposed Changes:

Clause/Section	Error	Red Line Version Text ***Deleted text in ~~strike through red font~~ and new text highlighted in blue font***	Green Line Version Text
PPM1.3.1	The TSO is not a User as defined under the Grid Code, and so the language used to refer to Users this section applies to should be corrected for clarity.	PPM1 applies to the **TSO** and to the following **Users**: ~~(a) The **TSO;**~~ (a) **Grid Connected Controllable PPMs**; and (b) **Grid Connected Controllable PPM Extensions;** ~~**and**~~ and (c) **Grid Connected Energy Storage Power Station Demand**	PPM1 applies to the **TSO** and to the following **Users**: (a) **Grid Connected Controllable PPMs**; and (b) **Grid Connected Controllable PPM Extensions;** and (c) **Grid Connected Energy Storage Power Station Demand**
PPM1.4.2 (a)	SVCs is included in the Grid Code acronyms list and so should be bolded here.	The **Controllable PPM** may use all or any available reactive sources, including installed statcoms or ~~SVCs~~**SVCs**, when providing reactive support during **Transmission System Fault Disturbances** which result in **Voltage Dips**.	The **Controllable PPM** may use all or any available reactive sources, including installed statcoms or **SVCs**, when providing reactive support during **Transmission System Fault Disturbances** which result in **Voltage Dips**.
PPM1.5.1 (d) (ii)	The term 'Voltage Dip' is a defined term under the Grid Code, and so should appear bolded and capitalised. The letter 'o' in the acronym 'RoCoF' has been changed to lowercase.	**Controllable PPMs** shall have the capability to: (d) (ii) remain connected to the **Transmission System** for a **Rate of Change of Frequency** up to and including 1 Hz per second as measured over a rolling 500 milliseconds period. **Voltage** ~~dips~~ **Dips** may cause localised ~~**ROCOF**~~ **RoCoF** values in excess of 1 Hz per second for short periods, and in these cases, the **Fault-Ride Through** clause PPM1.4.2(f) supersedes this clause. For the avoidance of doubt, this requirement relates to the capabilities of **Controllable PPMs** only, and does not impose the need for **Rate of Change of Frequency** protection nor does it impose a specific setting for anti-islanding or loss-of-mains protection relays.	**Controllable PPMs** shall have the capability to: (d) (ii) remain connected to the **Transmission System** for a **Rate of Change of Frequency** up to and including 1 Hz per second as measured over a rolling 500 milliseconds period. **Voltage Dips** may cause localised **RoCoF** values in excess of 1 Hz per second for short periods, and in these cases, the **Fault-Ride Through** clause PPM1.4.2(f) supersedes this clause. For the avoidance of doubt, this requirement relates to the capabilities of **Controllable PPMs** only, and does not impose the need for **Rate of Change of Frequency** protection nor does it impose a specific setting for anti-islanding or loss-of-mains protection relays.
Definition: Rate of Change of Frequency (ROCOF)	The letter 'o' in the acronym 'RoCoF' has been changed to lowercase.	**Rate of Change of Frequency (~~ROCOF~~RoCoF)**	**Rate of Change of Frequency (RoCoF)**

PPM1.5.1 (e)	TSO is a defined term under the Grid Code and is included in the Grid Code acronyms list, and so should appear bolded here.	**Controllable PPMs** shall have the capability to: e) remain connected, in the case of a DC-connected **Controllable PPM**, to the remote-end **Interconnector Converter Station** network and operate within the **Frequency** ranges and time periods specified in Table PPM1.5.1. Where a nominal **Frequency** other than 50Hz, or a **Frequency** variable by design is used, the applicable **Frequency** ranges and time periods shall be specified by the ~~TSO~~ **TSO** taking into account specific characteristics of the system and the requirements of Table PPM1.5.1.	**Controllable PPMs** shall have the capability to: e) remain connected, in the case of a DC-connected **Controllable PPM**, to the remote-end **Interconnector Converter Station** network and operate within the **Frequency** ranges and time periods specified in Table PPM1.5.1. Where a nominal **Frequency** other than 50Hz, or a **Frequency** variable by design is used, the applicable **Frequency** ranges and time periods shall be specified by the ~~TSO~~ **TSO** taking into account specific characteristics of the system and the requirements of Table PPM1.5.1.
PPM1.5.1. (g)	The term 'synchronised' is not appropriate to PPMs as they are connected asynchronously to the Transmission System. It has been replaced by the more appropriate term 'connected'.	**Controllable PPMs** shall have the capability to: g) Remain ~~synchronised~~ connected to the **Transmission System** and operate within the frequency ranges and time periods specified in *Table PPM1.5.1(e).*	**Controllable PPMs** shall have the capability to: g) Remain connected to the **Transmission System** and operate within the frequency ranges and time periods specified in *Table PPM1.5.1(e).*
PPM1.5.2.1	The term 'TSO' is a defined term under the Grid Code and so has been bolded and capitalised here. Also, the term 'ramp rate' has been replaced by the more appropriate defined term 'Ramp Up Rate'.	**Active Power Control** The **PPM Control System** shall be capable of operating each **Generation Unit** at a reduced level if the **Controllable PPM's Active Power** output has been restricted by the **TSO**. In this **Active Power Control Mode**, the **PPM Control System** shall be capable of receiving an on-line **Active Power Control Set-point** sent by the **TSO** and shall commence implementation of the set-point within 10 seconds of receipt of the signal from the **TSO**. The rate of change of output to achieve the **Active Power Control Set-point** should be the **Active Power Control Set-Point Ramp Rate** setting of the **PPM Control System**, as advised by the ~~TSO~~ **TSO**, as per PPM1.5.4. The **TSO** acknowledges that if the **Active Power** output of the **Controllable PPM** is initially less than the **Design Minimum Operating Level**, and if the **Controllable PPM** is expected to increase its **Active Power**	**Active Power Control** The **PPM Control System** shall be capable of operating each **Generation Unit** at a reduced level if the **Controllable PPM's Active Power** output has been restricted by the **TSO**. In this **Active Power Control Mode**, the **PPM Control System** shall be capable of receiving an on-line **Active Power Control Set-point** sent by the **TSO** and shall commence implementation of the set-point within 10 seconds of receipt of the signal from the **TSO**. The rate of change of output to achieve the **Active Power Control Set-point** should be the **Active Power Control Set-Point Ramp Rate** setting of the **PPM Control System**, as advised by the **TSO**, as per PPM1.5.4. The **TSO** acknowledges that if the **Active Power** output of the **Controllable PPM** is initially less than the **Design Minimum Operating Level**, and if the **Controllable PPM** is expected to increase its **Active Power**

		output, then it may not be able to achieve the specified ~~ramp rate~~ **Ramp Up Rate** at first, due to **Generation Units** going through a start-up sequence. In such a case, **Generation Units** shall start up as quickly as the technology allows, and in any case, not longer than three minutes from the time the **Active Power Control Set-point** was received.	output, then it may not be able to achieve the specified **Ramp Up Rate** at first, due to **Generation Units** going through a start-up sequence. In such a case, **Generation Units** shall start up as quickly as the technology allows, and in any case, not longer than three minutes from the time the **Active Power Control Set-point** was received.
PPM1.5.3.1	The terms 'Connection Point' and 'Frequency Response' are defined terms under the Grid Code, and so should appear bolded and capitalised here.	A DC-connected **Controllable PPM** shall be capable of receiving a fast signal from a ~~connection point~~ **Connection Point** in the **Transmission System** to which **Frequency** ~~response~~ **Response** is being provided, and be able to process this signal within 100 ms from sending to completion of processing the signal for activation of the response. **Frequency** shall be measured at the ~~connection point~~ **Connection Point** in the **Transmission System** to which **Frequency** ~~response~~ **Response** is being provided. If **Frequency** ~~response~~ **Response** is provided to more than one synchronous area, then DC-connected **Controllable PPMs** shall be capable of delivering coordinated **Frequency** control as specified by the **TSO**.	A DC-connected **Controllable PPM** shall be capable of receiving a fast signal from a **Connection Point** in the **Transmission System** to which **Frequency Response** is being provided, and be able to process this signal within 100 ms from sending to completion of processing the signal for activation of the response. **Frequency** shall be measured at the **Connection Point** in the **Transmission System** to which **Frequency Response** is being provided. If **Frequency Response** is provided to more than one synchronous area, then DC-connected **Controllable PPMs** shall be capable of delivering coordinated **Frequency** control as specified by the **TSO**.
PPM1.5.3.5	The word 'setting' has been unbolded and uncapitalised here as it is not a defined term, and does not form part of a defined term, under the Grid Code. The term 'Disconnected' is a defined term under the Grid Code, and so has been bolded and capitalised here.	If the **Frequency** drops below F_A, then the **Frequency Response System** shall act to maximise the **Active Power** output of the **Controllable PPM**, irrespective of the **Governor Droop** ~~**Setting**~~ setting. If the **Frequency** rises above F_D, then the **Frequency Response System** shall act to reduce the **Active Power** output of the **Controllable PPM** to its **DMOL** value. If the **Frequency** rises above F_E, then the **Frequency Response System** shall act to reduce the **Active Power** output of the **Controllable PPM** to zero. Any **Generation Unit** which has ~~disconnected~~ **Disconnected** shall be brought back on load as fast as technically feasible, provided the **Transmission System Frequency** has fallen below 50.2 Hz.	If the **Frequency** drops below F_A, then the **Frequency Response System** shall act to maximise the **Active Power** output of the **Controllable PPM**, irrespective of the **Governor Droop** setting. If the **Frequency** rises above F_D, then the **Frequency Response System** shall act to reduce the **Active Power** output of the **Controllable PPM** to its **DMOL** value. If the **Frequency** rises above F_E, then the **Frequency Response System** shall act to reduce the **Active Power** output of the **Controllable PPM** to zero. Any **Generation Unit** which has **Disconnected** shall be brought back on load as fast as technically feasible, provided the **Transmission System Frequency** has fallen below 50.2 Hz.

PPM1.5.3.9	The term 'Frequency' is a defined term under the Grid Code, and so should appear bolded and capitalised here.	No time delays, such as moving average ~~frequency~~ **Frequency** filters, other than those necessarily inherent in the design of the **Frequency Response System** shall be introduced. The **Frequency Response System** shall continuously monitor the **Transmission System Frequency** in order to continuously determine the **Controllable PPM's** appropriate **Active Power** output by taking account of the **Controllable PPM's Available Active Power** or **Controlled Active Power**.	No time delays, such as moving average **Frequency** filters, other than those necessarily inherent in the design of the **Frequency Response System** shall be introduced. The **Frequency Response System** shall continuously monitor the **Transmission System Frequency** in order to continuously determine the **Controllable PPM's** appropriate **Active Power** output by taking account of the **Controllable PPM's Available Active Power** or **Controlled Active Power**.
PPM1.5.3.11 (e)	The term 'Active Power Control Mode' is a defined term under the Grid Code, and so should appear bolded and capitalised here.	(e) **Controllable PPMs** shall be capable of continuous stable operation when **MW Output** is reduced to **Minimum Load**. This response will prevail over any other **Active Power** ~~control mode~~ **Control Mode**.	(e) **Controllable PPMs** shall be capable of continuous stable operation when **MW Output** is reduced to **Minimum Load**. This response will prevail over any other **Active Power Control Mode**.
PPM1.5.3.12 (f)	Defined terms have been bolded and capitalised here.	(f) **Controllable PPMs** capable of acting as a ~~load~~ **Load** shall be capable of ~~disconnecting~~ **Disconnecting** their ~~load~~ **Load**. This requirement does not extend to ~~auxiliary~~ **Auxiliary** ~~supplies~~ **Supplies**.	(f) **Controllable PPMs** capable of acting as a **Load** shall be capable of **Disconnecting** their **Load**. This requirement does not extend to **Auxiliary Supplies**.
PPM1.5.3.14	The defined terms 'Frequency' and 'Frequency Sensitive Mode' should appear bolded and capitalised here.	The **Frequency Response System** shall be required to change between Limited ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** – Under- ~~frequency~~**Frequency**, Limited ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** – Over- ~~frequency~~**Frequency**, and ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** within one minute from receipt of the appropriate signal from the **TSO**. **Controllable PPMs** may be instructed to be in both Limited ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** – Under- ~~frequency~~**Frequency** and Limited ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** – Over- ~~frequency~~**Frequency** at the same time. ~~Generators~~ **Generators** shall only operate in ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** when they are not operating in Limited ~~Frequency Sensitive Mode~~ **Frequency Sensitive Mode** – Under- ~~frequency~~**Frequency** or Limited ~~Frequency~~	The **Frequency Response System** shall be required to change between Limited **Frequency Sensitive Mode** – Under-**Frequency**, Limited **Frequency Sensitive Mode** – Over-**Frequency**, and **Frequency Sensitive Mode** within one minute from receipt of the appropriate signal from the **TSO**. **Controllable PPMs** may be instructed to be in both Limited **Frequency Sensitive Mode** – Under-**Frequency** and Limited **Frequency Sensitive Mode** – Over-**Frequency** at the same time. **Generators** shall only operate in **Frequency Sensitive Mode** when they are not operating in Limited **Frequency Sensitive Mode** – Under-**Frequency** or Limited **Frequency Sensitive Mode** – Over-**Frequency**.

		~~Sensitive Mode~~ **Frequency Sensitive Mode** – Over-~~frequency~~**Frequency**.	
PPM1.6.1	In the HVDC section of this clause, the defined term 'Connection Point' should appear bolded and capitalised.	The DC-connected **Controllable PPM** shall be capable of stable operation within the minimum to maximum range of short circuit power and network characteristics of the **Interconnector** interface point specified by the **TSO**. For **Interconnector Converter Station** interface points at AC **Voltages** other than those given in Table PPM1.6.1, the **TSO** shall specify applicable requirements at the ~~connection point~~ **Connection Point**.	The DC-connected **Controllable PPM** shall be capable of stable operation within the minimum to maximum range of short circuit power and network characteristics of the **Interconnector** interface point specified by the **TSO**. For **Interconnector Converter Station** interface points at AC **Voltages** other than those given in Table PPM1.6.1, the **TSO** shall specify applicable requirements at the ~~connection point~~ **Connection Point**.
PPM1.6.2.2 (b)	In the RfG section of this clause, the defined term 'Connection Point' should appear bolded and capitalised.	The **Controllable PPM** shall be capable of setting the **Reactive Power** set-point at least within the **Reactive Power** range specified in PPM1.6.3, with setting steps no greater than 5 Mvar or 5 % (whichever is smaller) of maximum **Reactive Power**, controlling the **Reactive Power** at the ~~connection point~~ **Connection Point** to an accuracy within ± 5 Mvar or ± 5 % (whichever is smaller) of the maximum **Reactive Power**;	The **Controllable PPM** shall be capable of setting the **Reactive Power** set-point at least within the **Reactive Power** range specified in PPM1.6.3, with setting steps no greater than 5 Mvar or 5 % (whichever is smaller) of maximum **Reactive Power**, controlling the **Reactive Power** at the **Connection Point** to an accuracy within ± 5 Mvar or ± 5 % (whichever is smaller) of the maximum **Reactive Power**;
PPM1.6.2.2 (c)	In the RfG section of this clause, the defined terms 'Voltage Control', 'Voltage', 'Connection Point' and 'TSO' should appear bolded and capitalised.	The **Controllable PPM** shall be capable of contributing to ~~voltage control~~ **Voltage Control** at the **Connection Point** by provision of **Reactive Power** exchange with the **Transmission System** with a **Voltage Regulation Set-point** covering 0.95 to 1.05 p.u. in steps no greater than 0.01 p.u.. The **Reactive Power** output shall be zero when the grid ~~voltage~~ **Voltage** value at the ~~connection point~~ **Connection Point** equals the **Voltage Regulation Set-point**. The speed of response of the **Voltage Regulation System** shall be such that, following a step change in **Voltage** at the **Connection Point** the **Controllable PPM** shall achieve 90 % of its steady-state **Reactive Power** response within 1 second. The **Reactive Power** must settle at the steady-state **Reactive Power** response within 5 seconds, with a steady-	The **Controllable PPM** shall be capable of contributing to **Voltage Control** at the **Connection Point** by provision of **Reactive Power** exchange with the **Transmission System** with a **Voltage Regulation Set-point** covering 0.95 to 1.05 p.u. in steps no greater than 0.01 p.u.. The **Reactive Power** output shall be zero when the grid **Voltage** value at the **Connection Point** equals the **Voltage Regulation Set-point**. The speed of response of the **Voltage Regulation System** shall be such that, following a step change in **Voltage** at the **Connection Point** the **Controllable PPM** shall achieve 90 % of its steady-state **Reactive Power** response within 1 second. The **Reactive Power** must settle at the steady-state **Reactive Power** response within 5 seconds, with a steady-state **Reactive Power** tolerance no greater than 5 % of the maximum **Reactive Power**.

		state **Reactive Power** tolerance no greater than 5 % of the maximum **Reactive Power**. Subject to agreement with ~~TSO~~ **TSO**, the **Voltage Regulation Set-point** may be operated with or without a deadband selectable in a range from zero to ±5% of reference 1 p.u. **Transmission System** ~~voltage~~ **Voltage** in steps no greater than 0.5%.	Subject to agreement with **TSO**, the **Voltage Regulation Set-point** may be operated with or without a deadband selectable in a range from zero to ±5% of reference 1 p.u. **Transmission System Voltage** in steps no greater than 0.5%.
PPM1.6.2.2 (c)	In the general requirements section of this clause, the defined terms 'Reactive Power' and 'Mvar Output' should appear bolded and capitalised. The term 'Reactive Power Control' however is not a defined term, so the word 'control' should appear unbolded and uncapitalised here.	A change to the **Power Factor** (PF) control set-point, **Reactive Power** (Q) control set-point or **Voltage Regulation** (kV) **Set-Point** shall be implemented by the **Controllable PPM** within 20 seconds of receipt of the appropriate signal from the **TSO,** within its ~~reactive power~~ **Reactive Power** capability range as specified in PPM1.6.3. One **Reactive Power** ~~**Control**~~ control mode shall be operational at all times with the facility to toggle between each of the **Reactive Power** control modes from NCC. Toggling between **Reactive Power** controllers shall be smooth in transfer i.e. the **Controllable PPM** shall calculate and implement an appropriate set-point when transferring to the new control mode. The set-point calculated for the new control mode shall be consistent with the ~~Mvar output~~ **Mvar Output** at that time.	A change to the **Power Factor** (PF) control set-point, **Reactive Power** (Q) control set-point or **Voltage Regulation** (kV) **Set-Point** shall be implemented by the **Controllable PPM** within 20 seconds of receipt of the appropriate signal from the **TSO,** within its **Reactive Power** capability range as specified in PPM1.6.3. One **Reactive Power** control mode shall be operational at all times with the facility to toggle between each of the **Reactive Power** control modes from NCC. Toggling between **Reactive Power** controllers shall be smooth in transfer i.e. the **Controllable PPM** shall calculate and implement an appropriate set-point when transferring to the new control mode. The set-point calculated for the new control mode shall be consistent with the **Mvar Output** at that time.
Acronyms	The list of acronyms in the Glossary section of the Grid Code are not currently in alphabetical order, but should be.	The list of acronyms will be edited so they are presented in alphabetical order.	
Acronyms	The acronyms 'PF' and 'RoCoF' should be added to the Grid Code acronyms list.	After the acronyms list has been alphabetised, the acronyms 'PF' and 'RoCoF' will be added to the list.	