

# **Ireland Grid Code Review Panel #1 2021**

Welcome to all members

23 March 2021

# Agenda

## 1. INTRODUCTION: 15 MINS

- a. Welcome to Members
- b. Minutes and Actions from [Previous Meeting](#) (go to 03 November 2020)

## 1. MODIFICATION PROPOSALS: 50 MINS

- a. MPID 289 Incorporation of the HVDC Parameters (20 mins)
- b. MPID 290 Incorporation of the HVDC Derogation Process (10 mins)
- c. MPID 291 Incorporation of the HVDC Operational Notification Process for Interconnectors (10 mins)
- d. MPID 292 Incorporation of the HVDC Operational Notification Process for DC-connected PPMs (10 mins)

## 1. UPDATES: 40 MINS

- a. Grid Code Derogations Update (10 mins)
- b. FRT PPM Update (10 mins)
- c. Energy Storage Implementation Update (10 mins)
- d. CRU Update (10 mins)

## 1. FOR INFORMATION: 10 MINS

- a. Offshore – next step of incorporating the RfG requirements into the Grid Code (10 mins)

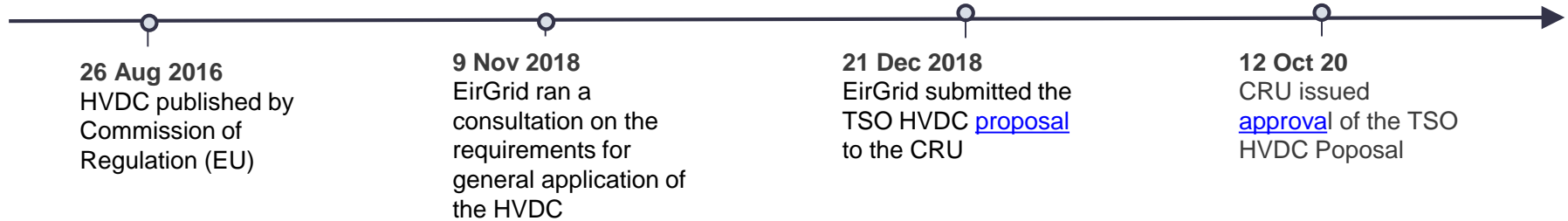
## 1. AOB 5 MINS

# MPID 289 – Incorporation of the HVDC Parameters

Niamh Daly

# MPID 289 - Incorporation of the HVDC

## Background to HVDC Incorporation



➤ The HVDC 'entered into force' on **15 September 2016** and applies to HVDC systems and DC-connected PPMs that conclude a final and binding contract for the purchase of their main plant after **15 September 2018**.

# MPID 289 - Incorporation of the HVDC

## Granted Derogations

On 22 May 2020, EirGrid submitted three Derogation requests to the CRU. The Derogation requests were in relation to:

- HVDC Article 18.1 Voltage Withstand Capability
- HVDC Article 39.8 Frequency Sensitive Mode
- HVDC Article 40.1 Voltage Withstand Capability

The CRU issued their [decision paper](#), approving these derogation requests on 22 October 2020.

The proposed Grid Modification has been drafted in line with these approved derogations.

# MPID 289 - Incorporation of the HVDC

## Demarcation of Requirements

Requirements in the **Grid Code** which are not marked by a symbol and border are applicable to all **Users** (which expression means all persons (other than the **TSO**) to whom any individual section of the **Grid Code** applies).

Requirements in the **Grid Code** which are marked by a symbol and border are applicable to the corresponding **Users** as per Table 1: Demarcation of Requirements.

Table 1: Demarcation of Requirements

Symbol	Applicable to
○	RfG Generation Units
⊖	Non-RfG Generation Units
⌢	DCC Units
⌢	Non-DCC Units
	HVDC Units
≡	Non-HVDC Units

# MPID 289 - Incorporation of the HVDC

- Example of incorporated HVDC requirement:



CC.7.5.8.5

The **TSO** shall specify, on a site-specific basis, how an **Interconnector** shall be capable of modifying the transmitted **Active Power** infeed in case of disturbances into one or more of the AC networks to which it is connected. If the initial delay prior to the start of the change is greater than 10 milliseconds from receiving the triggering signal sent by the **TSO**, it shall be reasonably justified by the **Interconnector** to the **TSO**.

CC.7.5.8.6

An **Interconnector** shall limit its loss of **Active Power** injection in a synchronous area to a value specified by the relevant **TSOs** for their respective load **Frequency** control area, based on the **Interconnector's** impact on the power system. The value will be specified on a site-specific basis.

Where an **Interconnector** connects two or more control areas, the relevant **TSOs** will consult each other in order to set a coordinated value, on a case-by-case basis, of the maximum loss of **Active Power** injection, taking into account common mode failures.

CC.7.5.8.7

In the case where the **Interconnector** is connecting a DC-connected **Controllable PPM**, the adjustment of **Active Power Frequency** response shall be limited by the capability of the DC-connected **Controllable PPM**.

# MPID 289 - Incorporation of the HVDC

## Questions?



# MPID 290 Incorporation of the HVDC Derogation Process

Anne Trotter

# MPID 290 HVDC Derogation Process

- Incorporation of HVDC Articles 77 to 83 into EirGrid Grid Code
- HVDC derogation process applies to new Interconnectors and new DC connected PPMs
- Applies to Interconnector Owners, Generators (DC-connected PPM Owners), the TSO and the CRU
- 2 derogation application forms: CNCD2 for Interconnector Owners and Generators; CNCD3 for TSO class derogations



# MPID 290 HVDC Derogation Process

- **Defined Timelines for each stage of the process:**
  - 2 weeks for validation by TSO
  - 1 month for HVDC Unit to submit additional information
  - 6 months for TSO to complete derogation assessment
    - *possible extn. of 1 month if addn. info. requested from HVDC Unit*
  - 6 months for CRU to make decision on whether to grant derogation
    - *possible extn. of 3 months if further info. required from HVDC Unit – HVDC Unit has 2 months to supply additional info to CRU*
- CRU will maintain register of derogations granted or refused, including reasons for decision and consequences
- No change to existing derogation process for Interconnectors/DC-connected PPMs

MPID 290

# Questions

# MPID 291 - Incorporation of the HVDC Operational Notification Process for Interconnectors

Niamh Daly

# MPID 291- HVDC Operational Notification Process for Interconnectors

- The Operational Notification Process is very similar to the process in RfG and DCC.
- The process consists of:
  - EON (Energisation Operational Notification);
  - ION (Interim Operational Notification);
  - FON (Final Operational Notification) and
  - LON (Limited Operational Notification).

# MPID 291- HVDC Operational Notification Process for Interconnectors

- EON: ...energise its internal network and auxiliaries by using the grid connection...
- ION: ...operate the associated **Interconnector** and generate power for a limited period of time, by using the grid connection ...
- FON: ...operate the associated **Interconnector** and generate power by using the grid connection ...

# MPID 291- HVDC Operational Notification Process for Interconnectors

- LON: An **Interconnector Owner** shall apply to the relevant system operator for a Limited Operational Notification (LON), if the **Interconnector Owner** reasonably expects the below circumstances to persist for more than three months.
  - the facility is temporarily subject to either significant modification or loss of capability affecting its performance; or
  - equipment failure leading to non-compliance with some relevant requirements.



# MPID 291- HVDC Operational Notification Process for Interconnectors

## Questions?

# MPID 292 – Incorporation of the HVDC Operational Notification Process for DC-connected PPMs

Niamh Daly

# MPID 292- HVDC Operational Notification Process for DC-connected PPMs

- The Operational Notification Process is very similar to the process in RfG and DCC.
- The process consists of:
  - EON (Energisation Operational Notification);
  - ION (Interim Operational Notification);
  - FON (Final Operational Notification) and
  - LON (Limited Operational Notification).

# MPID 292- HVDC Operational Notification Process for DC-connected PPMs

- EON: ..energise its internal network and auxiliaries by using the grid connection...
- ION: ...operate the associated DC-connected **PPM** and generate power for a limited period of time, by using the grid connection ...
- FON: ...operate the associated DC-connected **PPM** and generate power by using the grid connection ...

# MPID 292- HVDC Operational Notification Process for DC-connected PPMs

- LON: A **Generator** shall apply to the relevant system operator for a Limited Operational Notification (LON), if the **Generator** reasonably expects the below circumstances to persist for more than three months.
  - the facility is temporarily subject to either significant modification or loss of capability affecting its performance; or
  - equipment failure leading to non-compliance with some relevant requirements.

# MPID 292- HVDC Operational Notification Process for DC-connected PPMs

## Questions?

# Grid Code Derogations Update

Anne Trotter

# Derogations

- Total
  - Under TSO Assessment 238
  - Recommendation Forwarded to CRU 95
- Since October 2020
  - Approved by CRU 8
  - TSO Assessments sent to CRU 5
  - Submitted to TSO 23



# Grid Code Derogations Update

## Questions

# FRT PPM Update

Alan Rogers

# Simulation Studies and Model Requirements / FRT Note

- Version 1.0 of the Simulation Compliance document has been finalized and will be released after this meeting.
- The principles / FRT interpretation note is included in the Simulation Compliance document as an Appendix.
- This should be seen as an active document – we are happy to take suggestions and comments to clarify / amend as time goes on.
- Governance – any changes will be presented at GCRP and suggested changes from industry should be directed through Grid Code channels.
- Part 4 of the document on HVDC is still draft, awaiting finalisation of HVDC parameters / Grid Code changes etc.
- This now draws a line under the FRT PPM queries from industry dating back to 2018.

# FRT PPM Update

# Questions

# Energy Storage Implementation Update

Eamon Garrigan

# Energy Storage Implementation Update

- Update the battery implementation note based on recent testing with latest learnings from this new technology and industry feedback
- Publish new version of the battery implementation doc in June 2021 tbc
- Q4 2021 with additional operational experience of batteries to start work to include the battery implementation note into the Grid Code
- Aim to have battery changes in the Grid Code by Q4 2022 tbc



# Energy Storage Implementation Update

## Questions

# Dylan Ashe – CRU Update



# Questions

# Offshore – the next steps to incorporate the RfG requirements into the Grid Code

Niamh Daly

# RfG Off Shore – Next Steps

Chapter 4, Articles 23 to 28 – “*Requirements for Offshore Power Park Modules*” is yet to be incorporated into the GridCode.

## Background RfG Off Shore Incorporation



### Offshore PPM Definition:

(18) ‘offshore power park module’ means a power park module located offshore with an offshore connection point;

## RfG Off Shore – Next Steps

# Questions

# AOB

Draft Minutes will be issued by COB 08 April 2021