

Joint Grid Code Review Panel #3 2018

Welcome to all members

18 Oct 2018



Agenda

11:00 – 11:30	Tea/Coffee on Arrival
11:30 – 12:30	<ul style="list-style-type: none">1. Introduction<ul style="list-style-type: none">a. Welcome Members;b. Review Minutes and Actions from Previous Meeting (02 May 2018);1. Working Group Updates<ul style="list-style-type: none">a. Enhanced Performance Monitoring System (EPMS)1. Updates<ul style="list-style-type: none">a. Network Codes;<ul style="list-style-type: none">i. Project Update;ii. Implementing Network Codes into the Grid Code;b. System Services references in the Grid Code;c. List of mods for SONI GCRP;d. List of mods for EirGrid GCRP;e. Regulator – UR;f. Regulator – CRU.1. AOB

Time	Topic	Lead	Duration
10:30	Session 1: Network Codes update		
	RA overview	CRU / RA	20'
	TSO update		
	-CACM & FCA	EirGrid / SONI	10'
	-Balancing		10'
	DSO/DNO views	ESBN	20'
	Further information	EirGrid / SONI	5'
	Q&A	CRU / RA	10'
	Break		15'
12:00	Session 2: Focus on Operations and Connection Codes		
	Introduction - WSL presentations	EirGrid / SONI	5'
	SOGL		
	• SAOA, LFCBOA	EirGrid / SONI	10'
	• Regional Security Coordination	Subject Matter Experts	5'
	• Regional Outage Coordination		5'
	• KORRR (Data exchange)		10'
	Emergency and Restoration		
	• System Restoration Plan	EirGrid / SONI	10'
	• System Defence Plan	Subject Matter Experts	10'
	• Suspension/Restoration of Market Activities		5'
	• Market Settlement Rules		10'
	Connection Codes		
	• HVDC	EirGrid / SONI	15'
		Subject Matter Experts	
	Open floor for questions	Tomas	10'
13:30	Working lunch and one-to-ones	EirGrid / SONI	30'
		Subject Matter Experts	
	AOB & Close	CRU / RA	

Network Codes – Project Update

- All Island Forum on Network codes 22 Oct SONI
- Register via [Eventbrite](#)

← Agenda



Harmonisation of Grid and Network Codes (HoGaN C)

Potential Solutions

Éanna Farrell



HoGaN C

- Objective:
 - A seamless and comprehensive update of SONI and EirGrid GCs with NCs
- Challenges:
 - Incorporating requirements with varying themes, dates of effect and technologies/facilities
 - Treatment and inclusion of modifications
 - Aligning GC terminology with that of NCs

Mandatory Requirements

Non-Mandatory Requirements

RFG

- ☒ Requirements already in place
- ☐ New requirements

DCC

- ☒ Requirements already in place
- ☐ New requirements

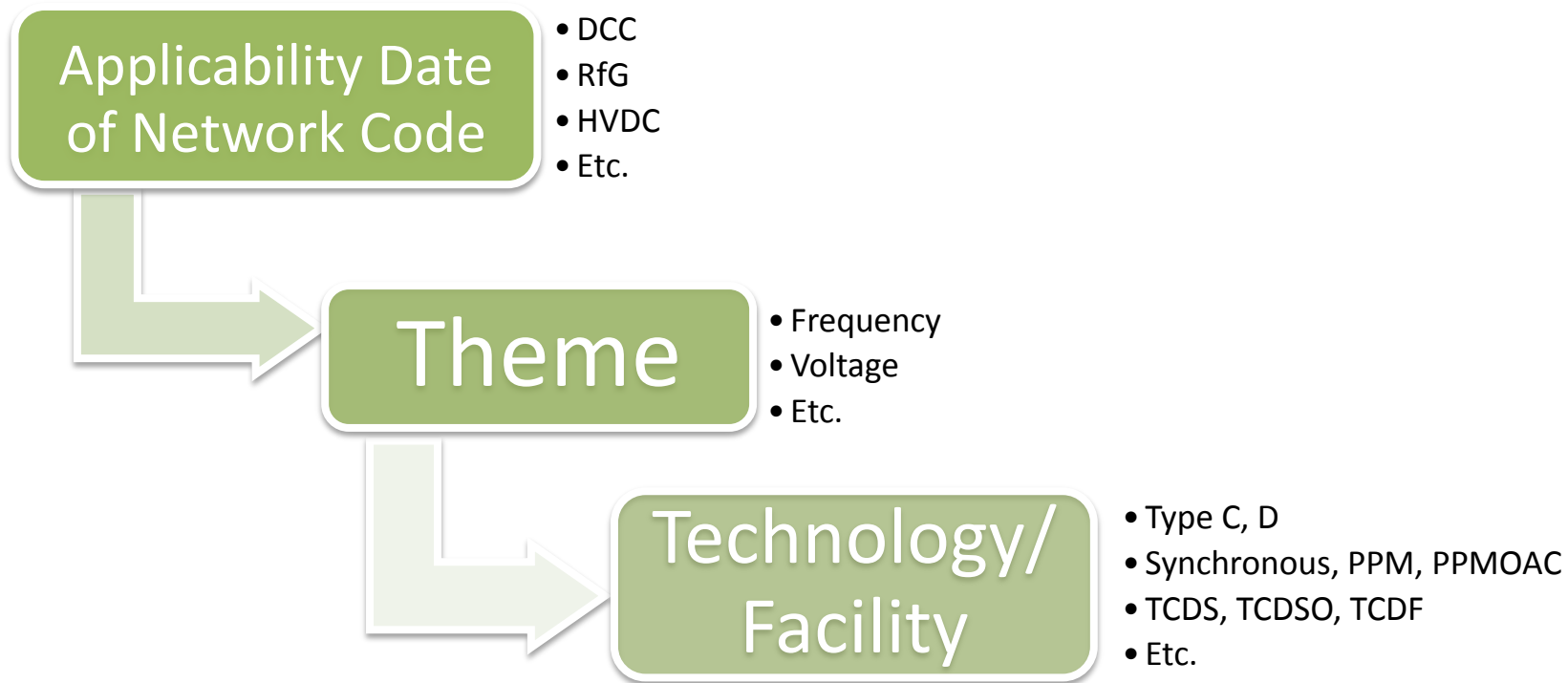
HVDC

- ☒ Requirements already in place
- ☐ New requirements

Process

Article	Requirement	Mandatory	Mandatory Nationally	N.E.	Applicability	Proposer	Theme	Justification Code
13.1.a.i	FREQUENCY RANGES AND TIME PERIODS	X		X	A, B, C, D, PPMOAC	TSO	Frequency Ranges	2
13.1.a.ii	wider frequency ranges		X	X	A, B, C, D, PPMOAC	RSO w/ TSO and PGFO	Frequency Ranges	
13.1.a.iii	not unreasonably withhold consent to apply wider frequency ranges or longer minimum times for operation	X			A, B, C, D, PPMOAC	-	Frequency Ranges	
13.1.b	Maximum ROCOF for which the Power Generating Module (PGM) shall stay connected	X		X	A, B, C, D, PPMOAC	TSO	ROCOF	1
13.1.b	specify ROCOF of the loss of main protection	X		X	A, B, C, D, PPMOAC	RSO w/ TSO	ROCOF	1
16.2.c	voltage thresholds for automatic disconnection		X	X	D	RSO w/ TSO and PGFO	Automatic Disconnection Due to Voltage Level	3
16.3.a.i	shall be capable of staying connected to the network and continuing to operate stably after the power system has been disturbed by secured faults	X			D, PPMOAC	-	FAULT RIDE THROUGH CAPABILITY	2
16.3.a.i	Voltage-against-time profile at the connection point	X		X	D, PPMOAC	TSO	FAULT RIDE THROUGH CAPABILITY	2

? New requirements



Solution 1: Bolt-on

EU Network Codes

RfG 1 Requirements for Generators

RfG 1.1 INTRODUCTION	RfG 1-1
RfG 1.2 OBJECTIVE	RfG 1-2
RfG 1.3 SCOPE	RfG 1-3
RfG 2.1 FREQUENCY REQUIREMENTS	RfG 1-4
RfG 2.2 VOLTAGE REQUIREMENTS	RfG 1-5
Etc.	

DCC 1 Demand Connection Code

DCC 1.1 INTRODUCTION	DCC 1-1
DCC 1.2 OBJECTIVE	DCC 1-2
DCC 1.3 SCOPE	DCC 1-3
DCC 2.1 FREQUENCY REQUIREMENTS	DCC 1-4
DCC 2.2 VOLTAGE REQUIREMENTS	DCC 1-5
Etc.	

New Section

SUB-CODE No. 1	363
SCHEDULE 7.1 DEMAND CONTROL CODE DEMAND CONTROL AND GENERAL	
DATA PROVIDED BY THE TSO TO DEMAND CONTROL DATA	365
SCHEDULE 8 DATA SUPPLY CODE DATA SUPPLIED BY THE TSO TO	
USERS	367
GENERAL CONDITIONS	369
METERING CODE	376
SUB-CODE No. 1	407
SUB-CODE No. 2	418

Solution 1: Bolt-on

EU Network Codes

RfG 1 Requirements for Generators

RfG 1.1 INTRODUCTION	RfG 1-1
RfG 1.2 OBJECTIVE	RfG 1-2
RfG 1.3 SCOPE	RfG 1-3
RfG 2.1 FREQUENCY REQUIREMENTS	RfG 1-4
RfG 2.2 VOLTAGE REQUIREMENTS	RfG 1-5
Etc.	

DCC 1 Demand Connection Code

DCC 1.1 INTRODUCTION	DCC 1-1
DCC 1.2 OBJECTIVE	DCC 1-2
DCC 1.3 SCOPE	DCC 1-3
DCC 2.1 FREQUENCY REQUIREMENTS	DCC 1-4
DCC 2.2 VOLTAGE REQUIREMENTS	DCC 1-5
Etc.	

New Section

Glossary	310
Acronyms	310
Units	312
Definitions	313

Solution 1: Bolt-on

PPM1.3.2 In addition to PPM1, **Controllable PPMs** and **Energy Storage Power Station Demand** are required to **comply with the following sections** of the **Grid Code**:

- GC - General Conditions
- PC - Planning Code
- PCA – Planning Code Appendix
- CC- Connection Conditions excluding:
 - CC 7.2.5.1
 - CC 7.2.5.2
 - CC7.3.1.1(a) to (h) and (j) to (u)
 - CC7.3.1.2
 - CC7.3.5
 - CC7.3.6
 - CC7.3.7
 - CC7.3.8
 - CC.12.2
 - CC.12.3
- OC1
- OC2
- **OC4 excluding:**
 - OC4.3.4
 - OC4.4.5.3
 - OC4.4.5.4
 - OC4.4.5.5
- OC6

Specify requirement to comply
with this section after date
DD/MM/YYYY

Solution 2: Incorporative

PPM1	PPM1 CONTROLLABLE PPM GRID CODE PROVISIONS.....	290
PPM 1.1	Introduction	290
PPM 1.2	Objective.....	291
PPM 1.3	Scope	291
PPM 1.4	Fault Ride Through Requirements.....	293
PPM 1.5	Transmission System Frequency Ranges	295
PPM 1.6	Transmission System Voltage Requirements.....	302
PPM 1.7	Signals, Communication & Control.....	307
Glossary.....		310
Acronyms.....		310
Units.....		312
Definitions		313

Include New PPM Requirements

Extend PPM1 to Include Other New PPM Requirements

Solution 2: Incorporative

PPM1.4

FAULT RIDE THROUGH REQUIREMENTS

PPM1.4.1

A Controllable PPM shall remain connected to the Transmission System for Transmission System Voltage Dips on any or all phases, and shall remain Stable, where the Transmission System Phase Voltage measured at the HV terminals of the Grid Connected Transformer remains above the heavy black line in Figure PPM 1.1 or Figure PPM 1.2.

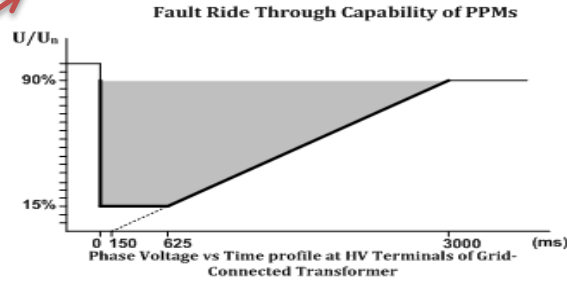


Figure PPM 1.1 - Fault Ride-Through Capability of Controllable PPMs

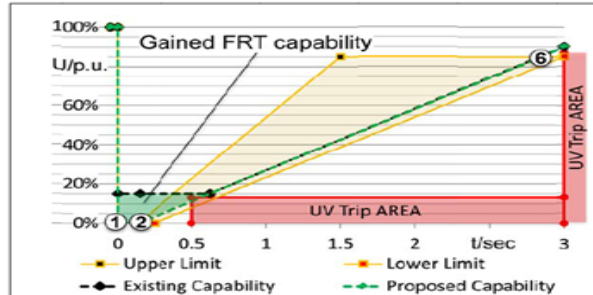


Figure PPM 1.2 - Fault Ride-Through Capability of Controllable PPMs

Date
Sensitivity

Key Aspects

Solution 1: Bolt-on

- Easy to follow
- Quickest to prepare
- Accommodates updates
- Reduces clashes with GC terms
- Similar solution practiced by NGESO
- Similar to WFPS/PPM section

Solution 2: Incorporative

- Some new requirements added to current sections – each section will have a “bolt-on” too
- Easier to compare new requirements

Grid Code Modifications: System Services

JGCRP - 18th October 2018

Lisa McMullan



All Island Assessment

Assessment Areas	Result
Clauses referencing System Services	Grid Code Modification
Clauses referencing different types of contracts for services	Grid Code Modifications
Clauses that differ from requirements of System Services	Modes of operation Derogations as per usual process.

NI Clauses for Modification

- **Main Definitions**
 - Ancillary Service
 - System Support Services
 - System Support Services Agreement
- **Other Definitions**
 - Contracted capacity
 - Contracted capacity (coal)
 - Contracted capacity (peak)
 - Sustained load diagram
- **Generating Unit & Power Station Data**
 - PCA3.3.12
- **Technical Criteria**
 - CC8.5.3
- **Testing Monitoring & Investigation**
 - OC 11.2
 - OC 11.12.1

IE Clauses for Modification

- Main Definitions
 - Ancillary Service
 - Ancillary Service Agreement
- Other Definitions
 - Declaration
 - Disputes Resolution Procedure
 - Forced outage probability
 - Reserve characteristics
- Operational Planning:
 - OC 2.2
 - OC 2.7.1
- OC4: System Services
 - Voltage Control Policy :OC 4.4.4.1
- Black Start
 - OC 4.7.3.2
- Automatic Low Frequency Demand Disconnection
 - OC 5.5.3
- Small Scale Generator Conditions
 - OC 6.6.1

IE Clauses for Modification

- Operational Planning:
 - OC 2.2
 - OC 2.7.1
- OC4: System Services
 - Voltage Control Policy: OC 4.4.4.1
- Black Start
 - OC 4.7.3.2
- Automatic Low Frequency Demand Disconnection
 - OC 5.5.3
- Small Scale Generator Conditions
 - OC 6.6.1
- Operational Communication and Data Retention
 - OC 7.2.4.2.3
 - OC 7.2.4.2.5
 - OC 7.2.4.5.3
 - OC 7.2.4.5.4
 - OC 7.2.4.6.3
 - OC 7.2.4.6.5
- Operational Testing
 - OC 8.2.3
 - OC 8.6.3
 - OC 8.7.3

IE Clauses for Modification

- Operational Communication and Data Retention

- OC 7.2.4.2.3
- OC 7.2.4.2.5
- OC 7.2.4.5.3
- OC 7.2.4.5.4
- OC 7.2.4.6.3
- OC 7.2.4.6.5

- Operational Testing

- OC 8.2.3
- OC 8.6.3
- OC 8.7.3

- Monitoring, Testing & Investigation

- OC 10.2.1
- OC 10.2.2
- OC 10.5.5
- OC 10.6.1
- OC 10.7.1.2
- OC 10.7.1.7
- OC 10.7.4
- OC 10.7.4.1
- OC 10.7.4.2

Common Clauses for Modification

- Technical Parameters
 - SDC 1.1.2
- General Availability Requirements
 - SDC 1.4.3.1
- Additional GC Characteristics Notice
 - SDC 1.4.4.2
- Differences between NI/IE
 - SDC 1 Annex I
- Dispatch Instructions
 - SDC 2.4.2.3
 - SDC 2.4.2.4
- Dispatch Instructions for MVAr
 - SDC 2.B.2
- Differences NI & IE
 - SDC 2 ANNEX I

Next Steps

- New Terminology to be agreed
- Grid Code Modifications required
- Post Network Code Grid Code Updates

AOB

