All-island European Stakeholder Forum

27 March 2017

Dublin

CER Commission for Energy Regulation An Coimisiún um Rialáil Fuinnimh

Utility Regulator ELECTRICITY GAS WATER

EIRGRID semo Single Electricity Market Operator SONI

Agenda

Session 1: Network Codes update

Welcome & Introductions

RA update on regulatory developments

TSO update on European Network Code developments

- Market Guidelines
- Operations Guidelines & Connection Codes
- Implementation Programme

DSO update

NEMO update

Lunch- 12h30-13h30

Session 2: RfG consultation information - "Banding thresholds"

Background to “Types” in the RfG (Types A, B, C, D)

Banding threshold proposals for Types A, B, C and D for Ireland and Northern Ireland

Procedure for consultation launch and feedback

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Session 1: Network Codes update

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1. Welcome & Introduction

2. Regulatory developments

EU Network Codes
RA update

EU Stakeholder Forum March 2017

Network Codes

Connections

- High Voltage DC
- Demand Connection
- Requirements for Generators

Operational

- System Operation (LCFR, OS, OPS)
- Emergency Restoration

Markets

- CACM- Capacity and Congestion Management
- Forwards and Liquidity
- Balancing

Network Codes

= entered into force

= voted in by member states, parliament scrutiny

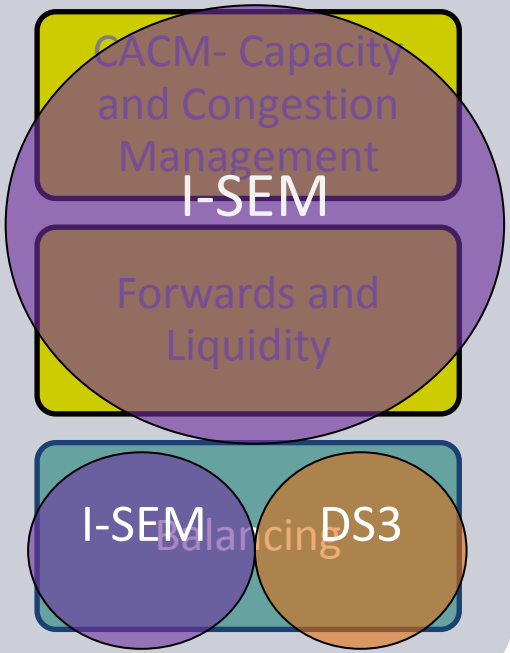
Connections

- High Voltage DC
- Demand Connection
- Requirements for Generators

Operational

- System Operation (LCFR, OS, OPS)
- Emergency Restoration

Markets



Requirements for Generators – in force

- Code will in general apply to all new generation connections over 800W, for plant procured after May 2018
- Not proposed to apply Code requirements to existing generators (unless significantly modified) at present

Current tasks

Emerging technology classification.

Oct 2016 : Paper inviting submissions for classification – limited to Type A generators i.e. between 800W and under 100kW, and with specific synchronous area capacity limits:

Country	Load (MW)	Net generation (TWh)	Share of total net generation in 2014 (%)	0.1% of load (MW)	Max total capacity of emerging technologies (MW) (0.1% of total load *MS net generation/synchronous area net generation)
IE	4572	24,5	75.38	4.572	4.762[10]
NI	1745	8,0	24.62	1.745	1.555
Total	6317	32,5	100.00	6.317	6.317

Requirements for Generators – in force

Emerging technology classification -Ireland.

- 4 Submissions received. Work ongoing at EU taskforce level to agree definitions – all technologies linked to Stirling engines
- Decision paper to be published in May 2017

Derogations criteria- Ireland

- Requirement to establish and consult upon derogation criteria to RfG
- Consultation paper issued Feb 2017- high level criteria as all processes and procedures for detailed implementation not yet available
- 3 responses received.
- CER Decision paper to be issued soon

EU Network Codes in force

Demand Connection Code (DCC)

Applies to all new demand (not storage) connections (includes T&D connected, Distribution systems and demand units providing demand response services);

RA Current Tasks

- Derogations criteria (high level) to be consulted upon in April 2017

HVDC

Applies to all new HVDC connections and DC Power park connections. Not proposed to apply to existing HVDC currently.

RA Current Task

- Derogations criteria to be consulted upon in May 2017

EU Network Codes - other updates

System Operation – due to enter into force Q2 2017

Emergency Restoration – due to enter into force Q3 2017

Electricity Balancing Guideline– voted in by Member states on March 16th 2017

Key highlights :

- Ireland and Northern Ireland have a derogation until the end of 2019.
- 15 minute Imbalance Settlement Period required – exemptions and derogations available
- Balancing capacity has to be procured on a short term basis , where economically efficient.

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Market Network Codes
CACM

- The goal of CACM is the coordination and harmonisation of capacity calculation and allocation in the day-ahead and intraday cross-border markets

- CACM entered into force 14 August 2015

- Except for NEMO designation and participating in the developments of terms and conditions or methodologies, Ireland and Northern Ireland have derogation until 31 Dec 2017

Approval Process

- All TSOs and/or NEMOs develop joint proposals for terms and conditions or methodology in accordance with CACM

- The joint proposals are submitted to NRAs for Approval (6 months). NRAs commit themselves to make a decision at a national level within this period

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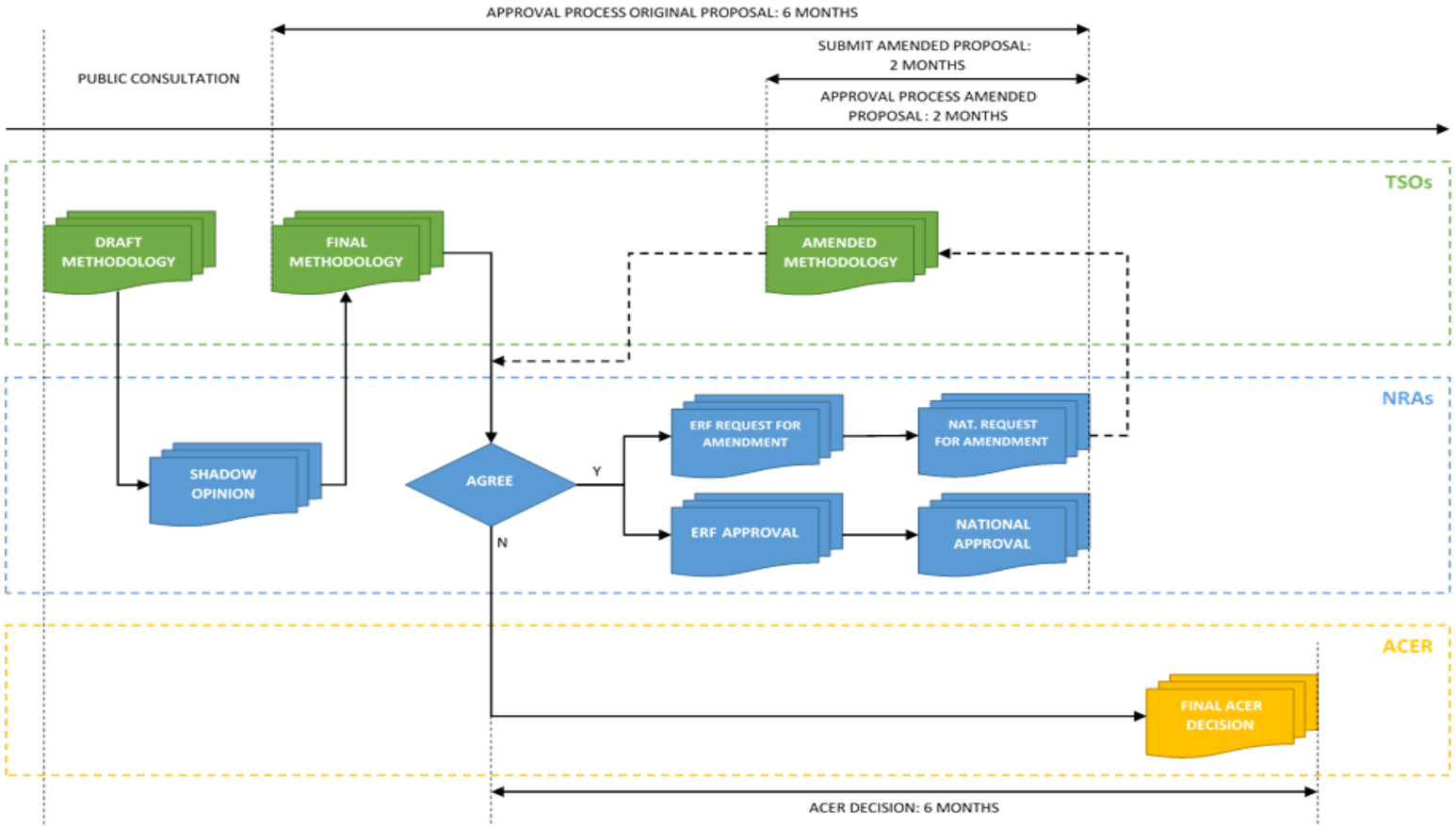
ACER Approval Process



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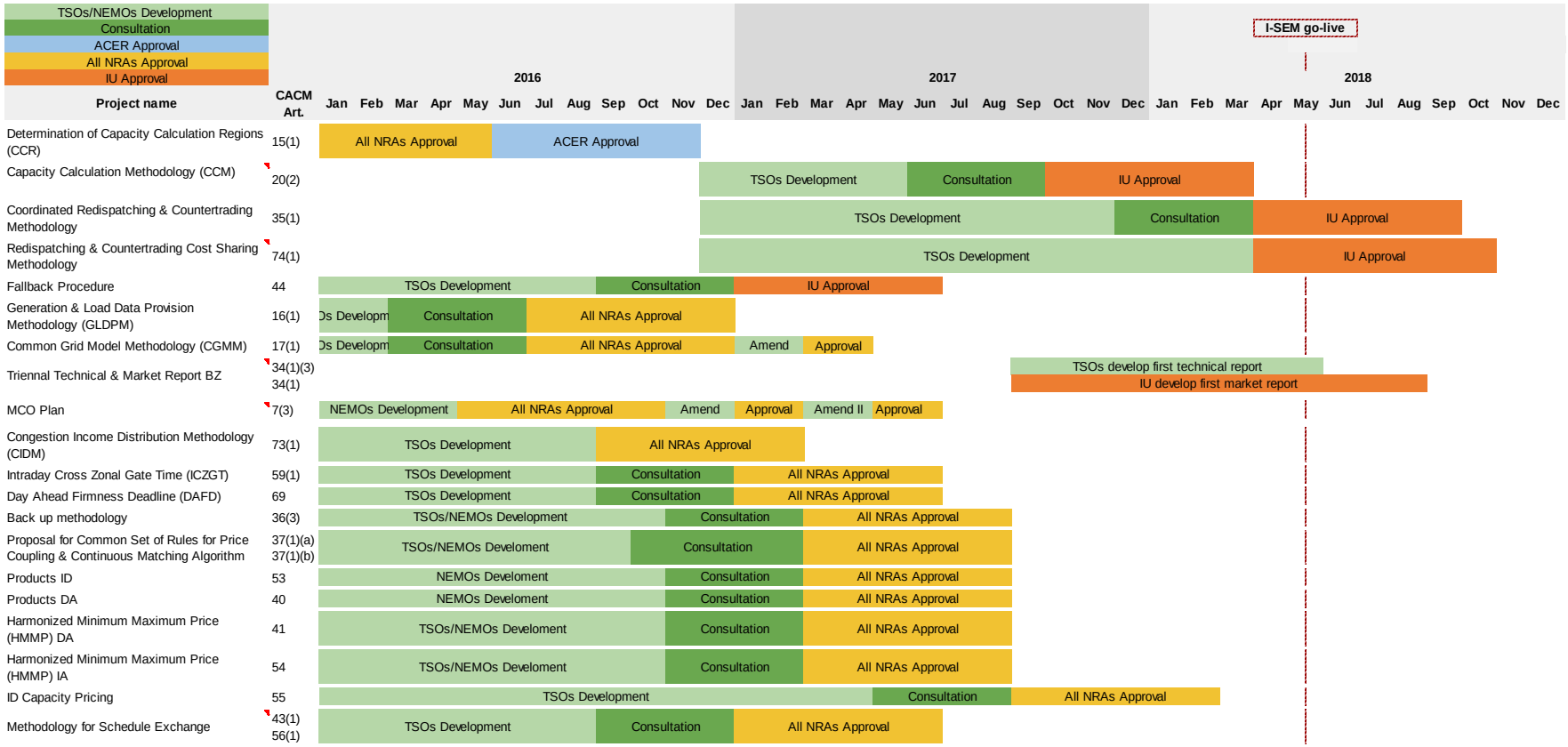
CACM Plan Implementation



Consultation Process

- TSOs consultations and proposals:
  https://www.entsoe.eu/news-events/entso-e-consultations/Pages/default.aspx
- NEMOs' consultations and proposals:
  https://www.epexspot.com/en/pressmedia/news/details/news/All_NEMOs_Consultation
- The consultation period gives an opportunity for the Market Participants to communicate their position on the given issue

Approved/Requested for amendment proposals

- Generation & Load Data Provision Methodology (GLDPM) – Approved
- Common Grid Model Methodology (CGMM)- request for Amendment
- MCO Plan – request for Amendment
- Congestion Income Distribution Methodology (CIDM) – request for Amendment
- National decisions published at: http://www.cer.ie

Application Process for Generator Classification as an Emerging Technology

- Oct 2016 - An information guidance paper was published on the application process for generator classification as an emerging technology.
- Nov 2016 - Manufacturers of a power generating modules technology to submit application to be classified as an Emerging Technology.
- Dec 2016 UR issued an update note.
- No response were received in NI
- UR will continue to engage with CER with regard to any emerging technologies that develop within the synchronous area of Ireland/Northern Ireland.

Derogations from Connection and System Operation Codes

- Dec 2016 UR published consultation on Derogations
- Feb 2017 UR Published a Decision paper and Guidance document

<u>Guidance document</u>

- Types of Derogation
- Minimum requirements of the derogation request
- Procedures for the different codes

Forward Capacity Allocation Guideline Subsidiary methodologies

- FCA entered into force 17 October 2016
- Submission to NRAs 17 April 2017

- Harmonised Allocation Rules (HAR) including regional annex 7
- Single Allocation Platform (SAP) including cost sharing
- Regional design of Long Term Transmission Rights (LTTR)

Further Methodologies:

- FCA Common Grid Model (CGM)
- FCA Generation Load Data Provision Methodology (GLDPM)
- FCA Congestion Income Distribution (CID)

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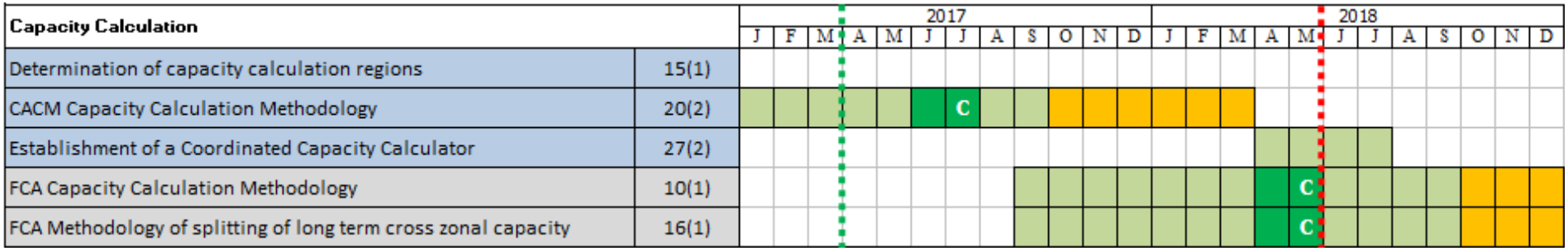
Thank you

3. TSO update on Network Codes

Mark Lane
Marie Hayden
Peter Campbell

Capacity Calculation



Capacity Calculation Regions approved by ACER on 17 November 2016

- Clock starts ticking on regional requirements from this date

Ireland-UK (IU) has commenced work on the CACM Capacity Calculation Methodology, with a consultation required in summer 2017. Agreement to develop Coordinated NTC.

FCA Capacity Calculation Methodology should be progressed after NRA approval of the CACM Methodology, however IU will likely start work early

Interim Capacity Calculation Methodology being developed for I-SEM as CACM Capacity Calculation Methodology will not be in place for I-SEM Go-Live

Interim Capacity Calculation for I-SEM

Capacity Calculation		2017												2018											
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Determination of capacity calculation regions	15(1)																								
CACM Capacity Calculation Methodology	20(2)							C																	
Establishment of a Coordinated Capacity Calculator	27(2)																								
FCA Capacity Calculation Methodology	10(1)																	C							
FCA Methodology of splitting of long term cross zonal capacity	16(1)																	C							

Currently being developed under GB-SEM Joint implementation Group

Interim Coordinated Capacity Calculation Arrangements

- Interim long-term Coordinated Capacity Calculation arrangements on the SEM-GB border
- Coordinated reassessment of cross-zonal capacity on the SEM-GB border
- Implementation of a “causer pays” principle
- Interim arrangements for countertrading and redispatching cross zonal capacity on the SEM-GB border
- Develop a third party countertrading solution (Coordinated Third Party Trading).

Common Grid Model

Common Grid Model		2017 J	F	M	A	M	J	J	A	S	O	N	D	2018 J	F	M	A	M	J	J	A	S	O	N	D
CACM Generation and Load Data Provision Methodology	16(1)		Data provision process is operational																						
FCA Generation and Load Data Provision Methodology	17(1)			C																					
CACM Common Grid Model Methodology	17(1)						OPDE operational							CGM process is operational											
FCA Common Grid Model Methodology	18(1)			C																					

CACM Generation and Load Data Methodology has been approved by NRAs

NRAs sought minor amendments to CACM Common Grid Methodology

Work on the FCA Methodologies has started with the consultation now open until 6 Apr

CACM/FCA Methodologies will not be in place for I-SEM Go-Live

Day-ahead and Intraday Markets

Day Ahead and Intraday Market		2017 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2018 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fall back	44																								
Day Ahead Firmness deadline	69																								
Intraday Capacity Pricing	55(3)						C																		
Intraday CZ Gate Opening and Closure time	59(1)																								

Day-ahead Fallback consultation is closed and an NRA decision is expected in Jun 2017. Proposed approach is to use the first I-SEM Interim Intraday Implicit Auction as the fallback solution.

Day-ahead Firmness Deadline is closed and an NRA decision is expected in Jun 2017. Proposed approach is to set the DAFD to 60 minutes ahead of the Day-ahead Gate Closure, or 30 minutes if the Coordinated Capacity Calculator has issues.

Intraday Capacity Pricing consultation is expected in June 2017. Proposed approach builds on the work done over previous years i.e. a hybrid solution with continuous trading and pricing of capacity via implicit auctions.

Intraday Gate Times consultation is closed and an NRA decision is expected in Jun 2017. Proposed approach is to have the IDCZGOT at 22.00 on D-1 and the IDCZGCT set to 60 mins before real time. IU TSOs intend to open the gate earlier than this.

Financial Transmission Rights Market

Financial Transmission Rights		2017 J	F	M	A	M	J	J	A	S	O	N	D	2018 J	F	M	A	M	J	J	A	S	O	N	D
Regional design of LTRs	31(3)		C																						
Functional requirements for Single Allocation Platform (SAP)	49(1)																								
SAP is operational	48											SAP is operational													
Harmonised allocation rules	51(1)		C																						

The Regional Design of Long Term Transmission Rights consultation is currently open.

TSOs are currently finalising the functional requirements for the Single Allocation Platform, including the governance and cost sharing arrangements.

The HAR consultation is now closed with comments to be taken on board by TSOs (ICOs) before submitting the HAR and Regional Annexes in April for NRA approval.

HAR & Regional Annex will not apply for FTRs in I-SEM until the first auction for I-SEM Go-Live

Tracking Regional tasks in ENTSO-E

Excel Web Access - Regional survey

FILE | OPEN IN EXCEL | DATA | FIND

Fall Back Procedures

Questions/Region	Nordic	Hansa	Core	Italy North	Greece Italy (GRIT)	South West Europe (SWE)	Ireland and United Kingdom (IU)	Channel	Baltic	South Eas Europe (S
SPOC name	Ali Haider (Fingrid)	Linette Linnemann Nielsen	Carsten Pflanz	B. Lemelayer (RTE)	Serena Rossi (Terna)	B. Baa-Puyoulet (RTE)	Mark Lane	R. Selbie (National Grid)		C.Buscov u (TEL)
Proposed date of submission	17 May 2017	14-Jun-17	17-May-17	7-Feb-17	15-May-17	7-Feb-17	14-Dec-16	14-Dec-16		14-Apr-17
Letter sent to NRA to inform of a delay	Yes	Yes	Yes	No	Yes	No	No	No		Yes
Finalised Draft	No	No	No	Yes	No	Yes	Yes	Yes		Yes
Public consultation	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes		Yes
if yes, starting date of the consultation	13 March 2017	3-Apr-17	17-Mar-17	17-Nov-16		18-Nov-16	14-Oct-16	14-Oct-16		1-Mar-17
Proposal approved at regional level	Yes		No	Yes	No	Yes	Yes	Yes		Yes
Date of submission	17 May 2017		17-May-17	7-Feb-17		7-Feb-17	14-Dec-16	14-Dec-16		
Approval by all regulatory authorities of the concerned region			No							
if yes, date of approval			17-Nov-17							
Amendment process			No							

Public consultation concerns the explanatory

CACM- Fallback procedures | FCA - Design of Long Term Trans | CACM- Complementary Regional Au | CACM- Redispatching and counter | ...

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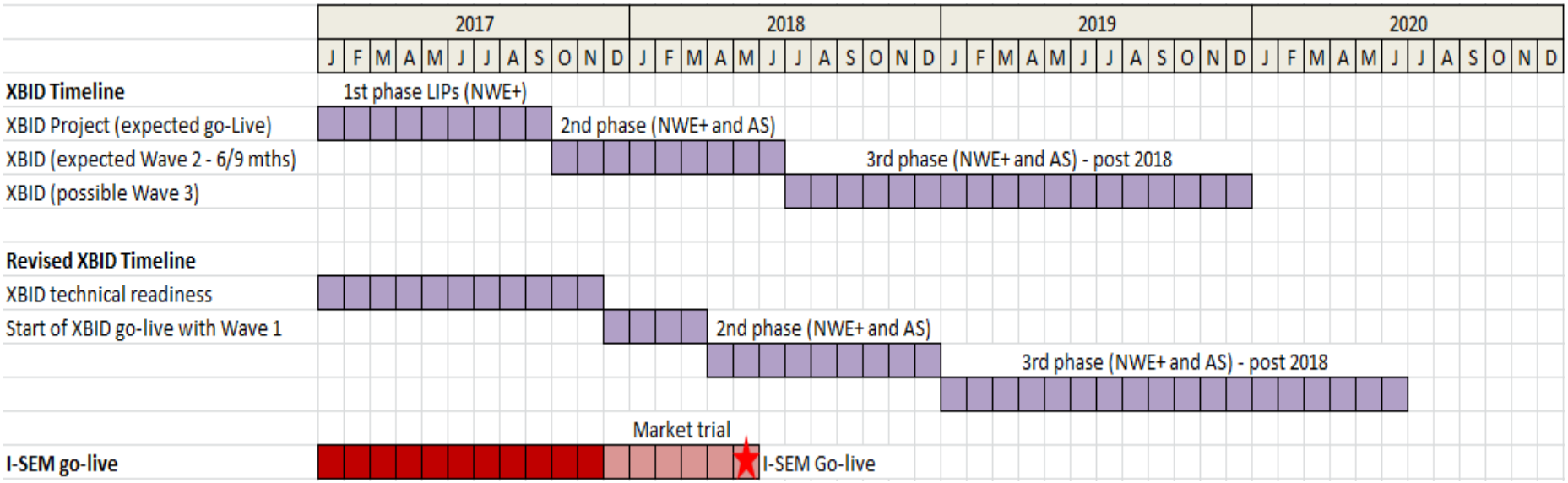
XBID Project status

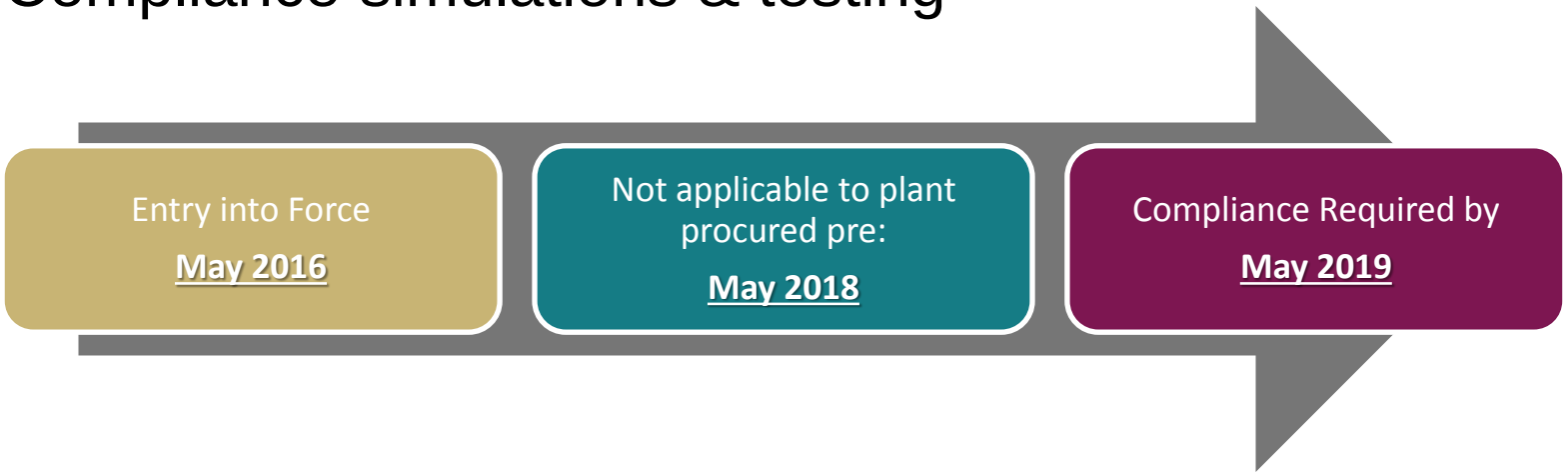


XBID Project has been delayed until Q1 2018 due to:

- The first phase of UAT took 7 weeks longer than planned;
- The need to include an additional testing phase for added functionality that is essential for go-live (the so called, Release 1.2)

Requirements for Generators

- Technical requirements for all
  - Synchronously connected PGM, PPMs, Offshore PPMs
- Requirements are dependant on generator capacity & connection voltage
- Compliance simulations & testing



RfG Implementation Plan

- Theme based
  - Frequency, voltage, robustness, system restoration, system requirements, testing/compliance
- Consultation 1* – Banding *(mandated)* – ***April 2017***
  - afternoon session
- Consultation 2* – Parameter Selection - ***September 2017***
  - Consulting on non-exhaustive requirements
  - Consultation will also include details of exhaustive requirements

** All consultations will be carried out on a jurisdictional basis*

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RfG Key Points

- Size threshold for requirements
  - Today GC requirements are based on Registered Capacity: “the lesser of MEC and Installed Plant”
  - Under Network Codes requirements are based on maximum capacity
    - *‘maximum capacity’ or ‘Pmax’ means the maximum continuous active power which a power-generating module can produce, less any demand associated solely with facilitating the operation of that power-generating module and not fed into the network as specified in the connection agreement or as agreed between the relevant system operator and the power-generating facility owner;*
  - This is more akin to installed plant; MEC will no longer be relevant
  - Zero export units will have to comply based on max capacity
- RfG requirements will only apply to generation units procured after 17th May 2018 or existing units which undergo substantial modifications

Demand Connection Code

- Technical specifications for all:
  - Transmission-connected demand/distribution facilities
  - Distribution systems including closed distribution systems
  - Demand units used by to provide demand response services
- Compliance simulations & testing requirements

DCC Implementation Plan

- Theme based
  - Frequency, voltage, robustness, system restoration, system requirements, testing/compliance

- Consultation 1* - Parameter Selection
  - similar to RfG
  - Consultation planned for Dec 2017

- Consultation 2* - Demand Response Requirements
  - example frequency control of Demand Side Units
  - Consultation planned for Q1 2018

** All consultations will be carried out on a jurisdictional basis*

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DCC Key Points

- We don't currently have many technical requirements on demand customers in the Grid Code so this is a new departure
- We need to strengthen our technical relationships with demand customers to ensure appropriate engagement can take place
- There are new requirements at TSO/DSO interface that need to be worked through
- DCC requirements will only apply to demand "main plant and equipment" procured after September 2018 or installations which undergo substantial modifications

High Voltage Direct Current Code

- Technical specifications for all:
  - HVDC systems connecting synchronous areas or PPMs
  - Embedded HVDC systems connected to transmission systems
  - Embedded HVDC systems connected to distribution systems
- Compliance simulations & testing requirements

HVDC Implementation Plan

- Theme based
  - Frequency, voltage, robustness, system restoration, system requirements, testing/compliance

- Consultation 1* - Parameter Selection : estimated Q2 2018

- HVDC requirements will only apply to “main plant and equipment” procured after September 2018 or installations which undergo substantial modifications

* All consultations will be carried out on a jurisdictional basis

System Operator Guidelines

- SOGL has not entered into force but is estimated to do so in July 2018
- Some requirements are immediate and others go out to 2 years

SOGL Implementation Plan

- Majority of requirements are on the TSO and DSO
- In many cases we are compliant but need to tidy up the documentation around same
- Main area for discussion with the industry will be on Data Exchange and outage coordination
- Discussions will open in Q3 2017 on data exchange
- More information will be available at the next ESF

SOGL Key Points

- Code is split into 3 themed areas
  - Real time operational security
  - Operational Planning & Scheduling
  - Frequency control
- Each TSO has to become part of a Regional Coordination Security Initiative (RCSI) – EirGrid Group is applying for membership of CORESO to fulfil this requirement for EirGrid and SONI
- By two years after entry into force of this regulation, the TSOs of GB and IRE may each submit a proposal to their competent regulatory authorities requesting not to implement an aFRP - this refers to Automatic Generation Control (AGC) also known here as SFRS

Emergency Restoration

- ER has not entered into force but is estimated to do so in September 2018
- Compliance requirements vary from immediate and others go out to 30 months

ER Implementation Plan

- Majority of requirements are on the TSO and DSO
- In many cases we are complaint but need to tidy up the documentation around same
- An assessment of this code will take place during summer 2017 and further information will be provided at the next ESF

ER Key Points

- Rules for development and testing of System Defence and Restoration Plans
- Both plans should be consulted on
  - Need to respect national security objectives when doing this
- TSO must specify and seek approval from RAs for a Procurement Strategy for services related to Defence and restoration is allowed for in the codes
- Market Suspension rules are to be developed under ER

Network Code Implementation Programme

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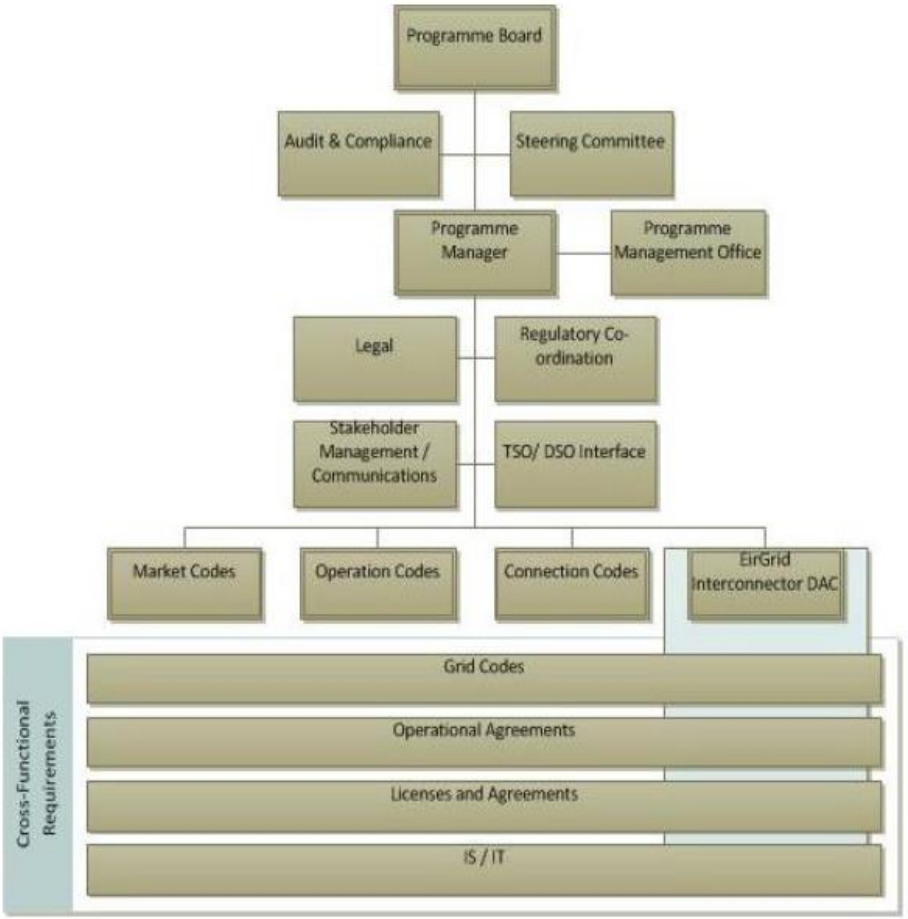
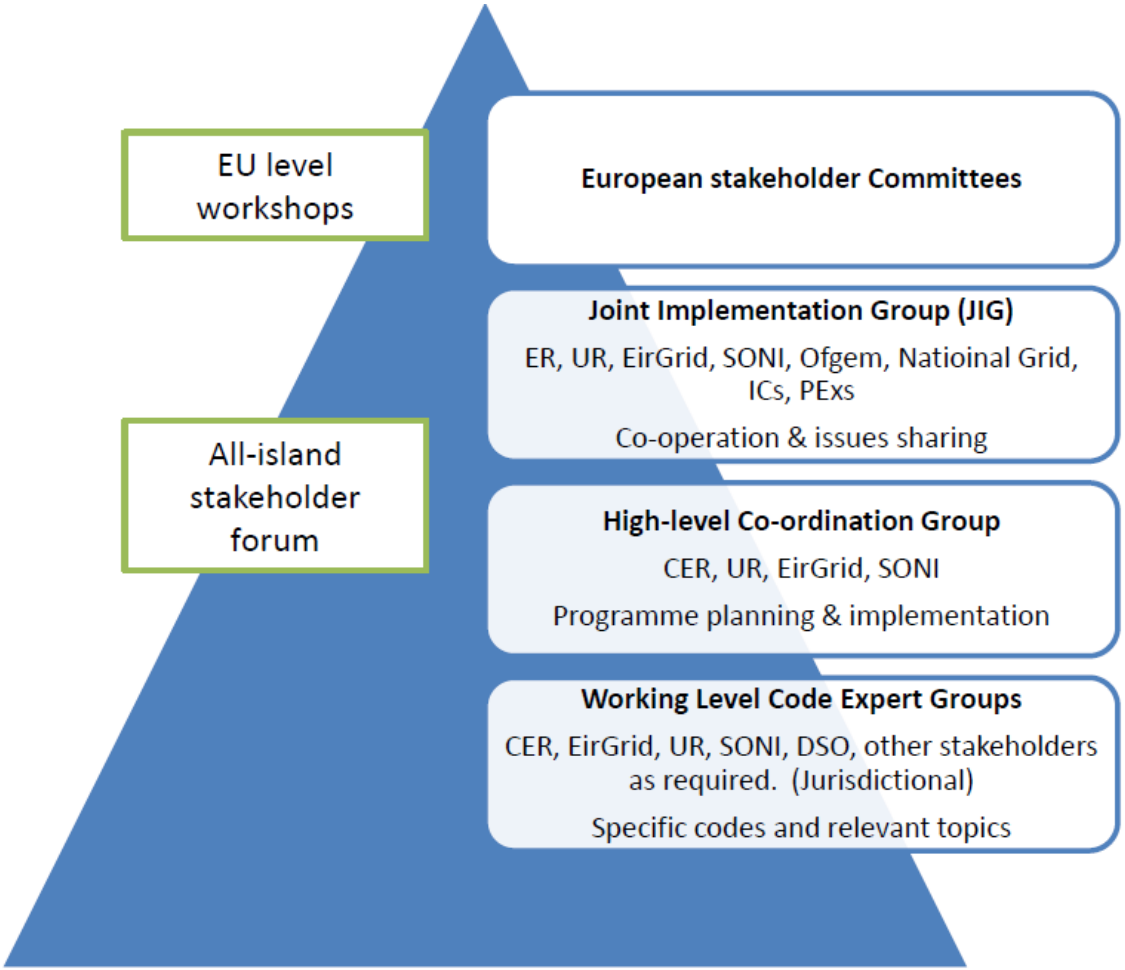
EirGrid implementation programme

- ENCIP governance structure updated
- Programme Board, Steering Group & regular work stream meetings scheduled;
- Internal workshops held to scope work & to identify resource requirements;
- Programme planning discussions held with CER & UR.

- UR/CER/EirGrid to discussed co-ordinated 'all-island' approach on 1 March.
- Second all-island stakeholder forum on 27 March.
- National consultations for connections NCs to be launched by EirGrid within the coming weeks;



Stakeholder Engagement



- Market – 6 Mar;
- Connection – 14 Mar;
- Operations – TBC

- 6 March

- Kick-off 1 March
- Monthly

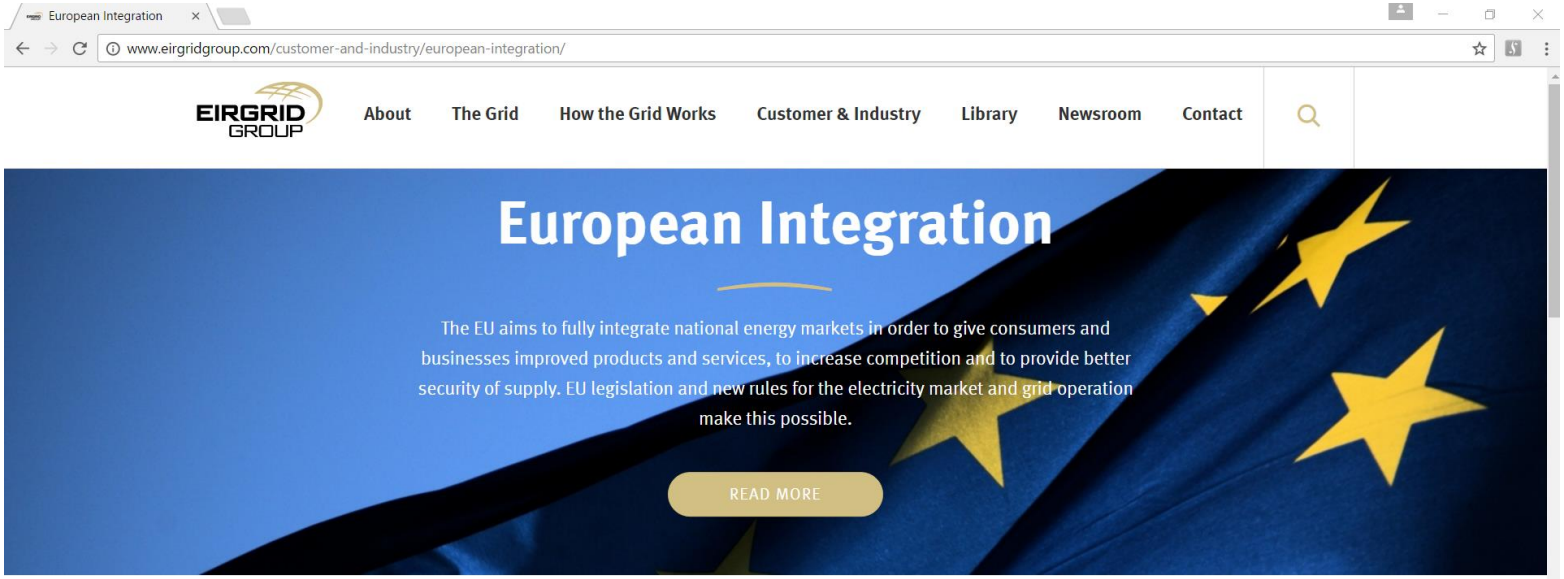
- CACM; c. 4 meetings since Dec '16
- Operations/Connections; 30 Jan
- Regular DSO/DNO meetings

Next Steps

- All island forum quarterly – 3rd meeting in the summer
- On-going discussions / reviews between TSOs, RAs, DSO/DNO.
- High-level milestone map to be published
- Network Code implementation section on EirGrid website
- Publication of consultations
- Working with ENTSO-E / ACER on compliance monitoring
- Monitor other policy issues (such as Winter Package)

Information & Transparency

http://www.eirgridgroup.com/customer-and-industry/european-integration/



DSO views

ESBN thoughts on accommodating Network Code content in RoI Distribution Code

Tony Hearne (ESBN)

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ESB NETWORKS

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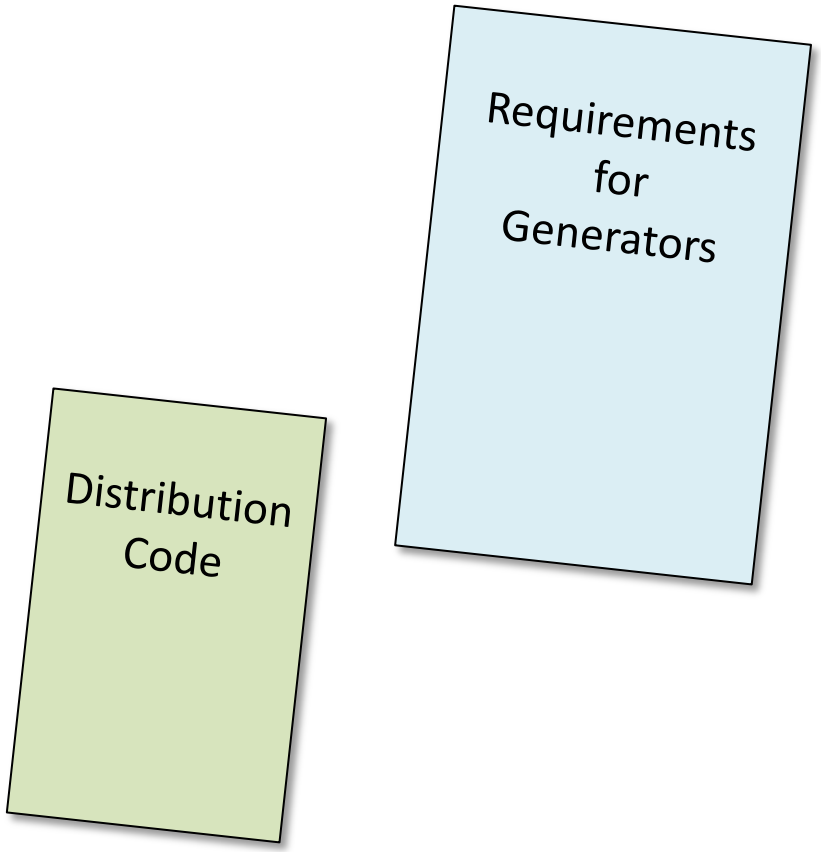
Content categories

- Primary Network Code text-content
- Existing Distribution Code text-content unaffected by Network Codes

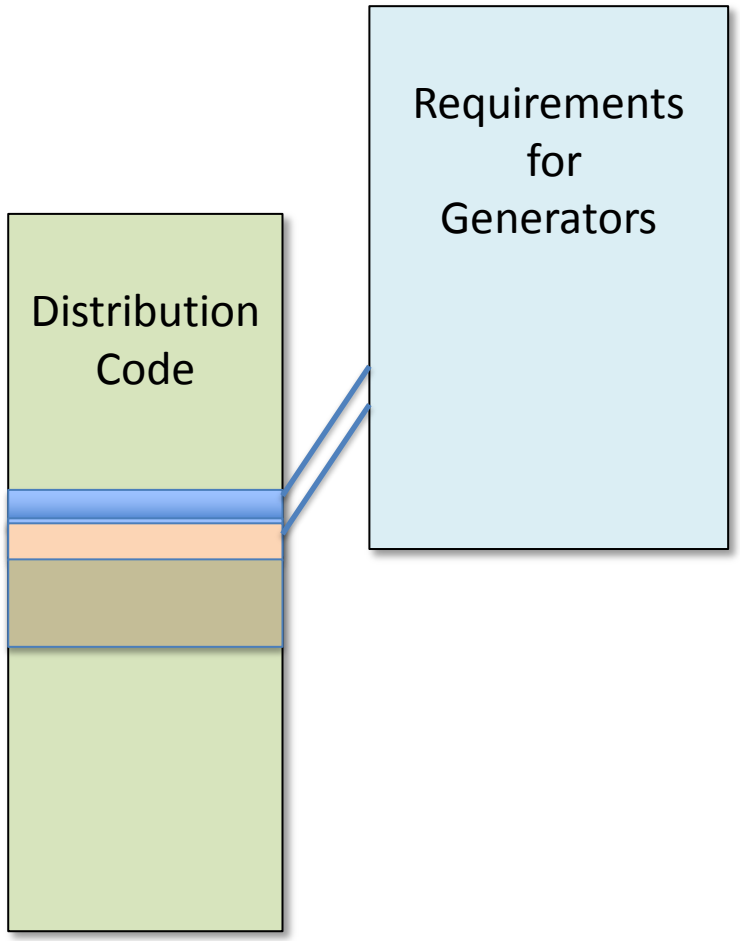


Content categories

- Existing Distribution Code text-content superseded-deleted by
  - Network Codes primary text-content on a go forward basis only
  - Application of non-exhaustive RoI requirements on a go forward basis only
- New Distribution Code text-content arising from
  - Network Codes primary text-content on a go forward basis only
  - Application of non-exhaustive RoI requirements on a go forward basis only
- New text-content required by Network Codes on matters upon which the existing Distribution Code had been silent, on a go forward basis only

General Approach

- Where it is appropriate and gives contest, and where not too bulky, reproduce segments of the primary NC content
- Arrange the new or altered content in a manner that flows for the reader
- Indicate by some means, the category od content so the reader can know the source, if interested



Means of indicating content category

- Text – formatting
- Vertical lines

- Examples

Comments and discussion welcome

Thank You

NEMO Committee update

Anne–Marie McCague (EirGrid)

NEMO Committee

- Responsible for MCO Plan and development of assigned methodologies
- Obliged to consult on methodologies as set out in CACM
- Consultation website: www.europex.org/external-consultations/all-nemos-consultation/

Market Coupling Functions

NEMO COMMITTEE

Pre-Coupling

- Regional/Local TSO submit input data on Cross-zonal capacity (CZC) and allocation constraints to local NEMO
- NEMO processes input data

Coupling

- Validates results and sends to all NEMOs
- MCO NEMO operates the price coupling (PCR) and continuous trading (XBID) algorithms

Post-Coupling

- Results are sent to local TSOs and cross-border nominations take place
- Clearing and settlement takes place

MCO Functions

Other functions incl. developing and maintaining the algorithms, systems and procedures

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MCO Plan

Proposal	Submitted	NRA Response	Notes
MCO Plan	14 April 2016	6 Oct 2016: amendments required	
	14 Dec 2016 resubmitted	9 Feb 2017: request for changes/ justification	• Remaining provisions on costs to be removed • Provisions that may restrict NEMO liabilities to be removed • No discrimination; any differentiated treatment needs justifying
	Resubmit by 14 April 2017	*Decision within 2 months*	Clarification meeting between All NEMOs and NRAs on 7 March

Status Overview

Proposal	Submitted	NRA Response	Notes
Algorithm proposal*, including • DA Algorithm Requirements* • ID Algorithm Requirements*	14 Feb 2017	*Decision within 6 months*	• Consultation period 3 Nov–2 Dec 2016 • Workshop 14 Nov 2016 • Proposals, consultation responses and justification against responses available on: www.europex.org/external-consultations/all-nemos-consultation/ and on individual NEMOs webpages
Products proposal: DA; ID	14 Feb 2017	*Decision within 6 months*	
Backup methodology*	14 Feb 2017	*Decision within 6 months*	
Harmonised Max/Min Clearing Prices proposal: DA*; ID*	14 Feb 2017	*Decision within 6 months*	

* in coordination with TSOs

Lunch

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Session 2:

RfG consultation information - "Banding thresholds"

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Agenda

- Banding Introduction
- Main principles
- Future generation mix
- Banding Thresholds
- Type D,C,B,A Proposals
- Interaction with other codes
- ESB Networks position
  - Reconciliation of Types
  - Demonstration of compliance
- Consultation questions
- Consultation Information
- Steps for Approval

Introduction

- RfG requirements apply to
  - Synchronous power generating modules (PGMs)
  - Power Park Modules
  - AC connected offshore Power Park Modules
- The RfG requirements are broken down by generator ‘type’
- Types A, B, C and D
- Types defined in Article 5 and based on
  - the maximum capacity of the PGM
  - the connection voltage level

Setting the bands

- The A/B, B/C and C/D boundaries can be set as per the ranges specified in Article 5
- Each synchronous area has different maximum thresholds for the boundary
- The TSO of each member state needs to propose the bands, with regulatory approval required
- Public consultation of one month required
- Consultation Paper will issue next week
- Separate consultations in Ireland and Northern Ireland

Main Principles

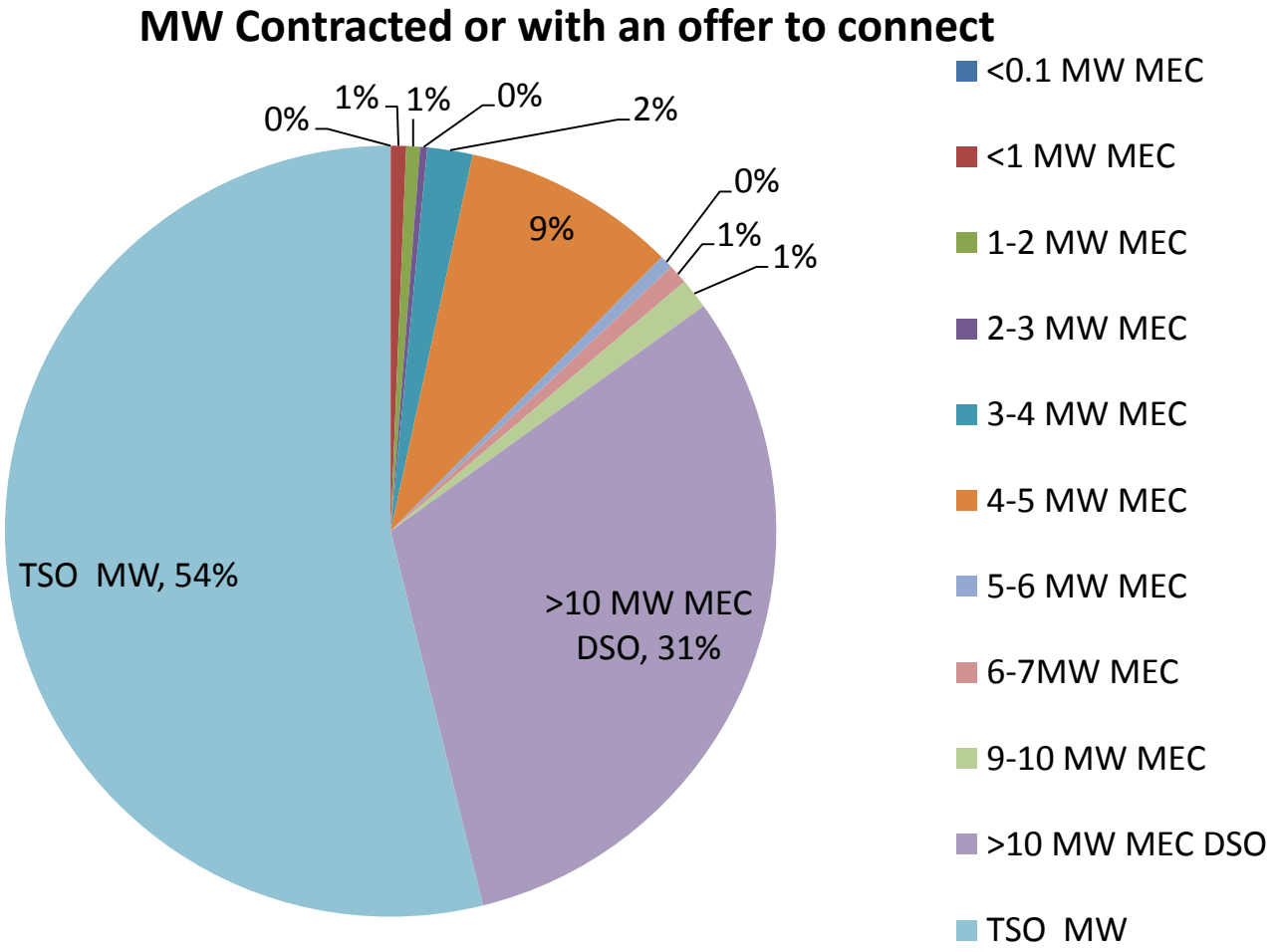
- Retrospection not being sought
  - Only for generation that procures its main plant from May 2018 onwards
- Periodic review allowed for every 3 years
- TSOs do not propose to reduce the lower boundary of the bands below the maximum limits allowed for in Article 5
- TSOs have co-ordinated with both the DSO in Ireland and DNO in Northern Ireland in making the proposal
- A band for a generator is based on its Pmax

- RfG defines “Capacity Thresholds”
  - limits of capacity threshold which define the maximum lower limit of each category leaving its final determination to the national level

- TSOs can either apply the maximum MW boundaries provided or, where it is reasonable, choose lower values.

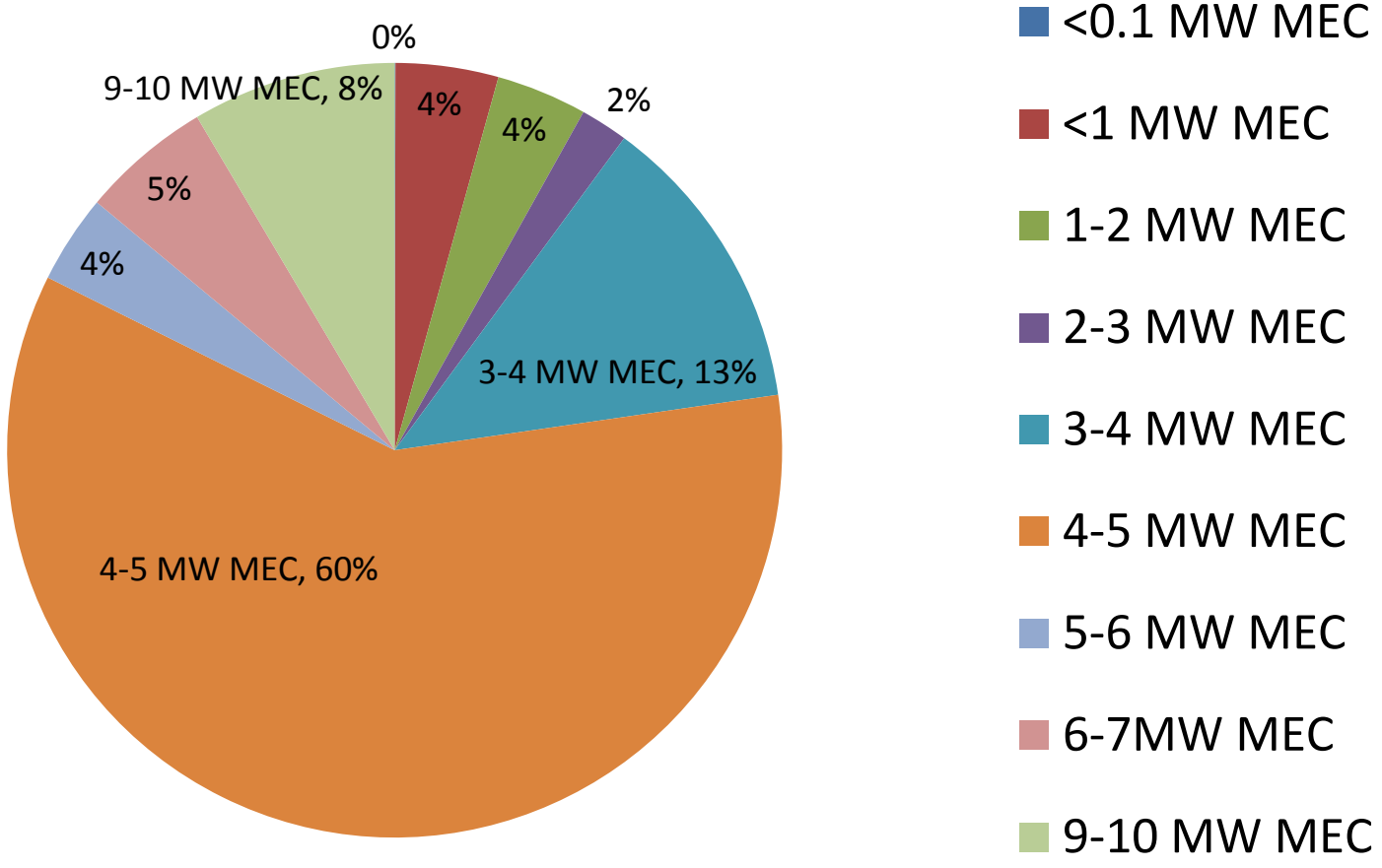
Future generation mix in Ireland

> 85% automatically Type D



Future generation mix in Ireland

MW Contracted or with an offer to connect (800 W to 10 MW only)



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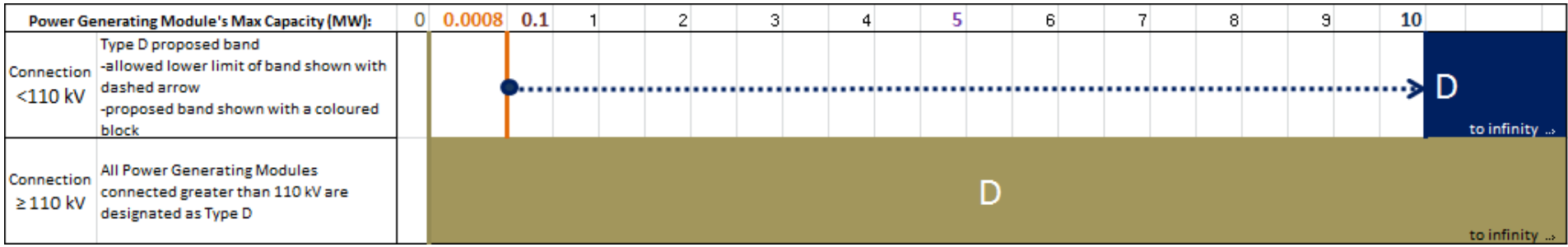
Banding Thresholds

- Generators with a Pmax > 800 W are subject to RfG

Synchronous areas	Limit for maximum capacity threshold from which a power generating module is of type B	Limit for maximum capacity threshold from which a power generating module is of type C	Limit for maximum capacity threshold from which a power generating module is of type D
Ireland and Northern Ireland	0.1 MW	5 MW	10 MW

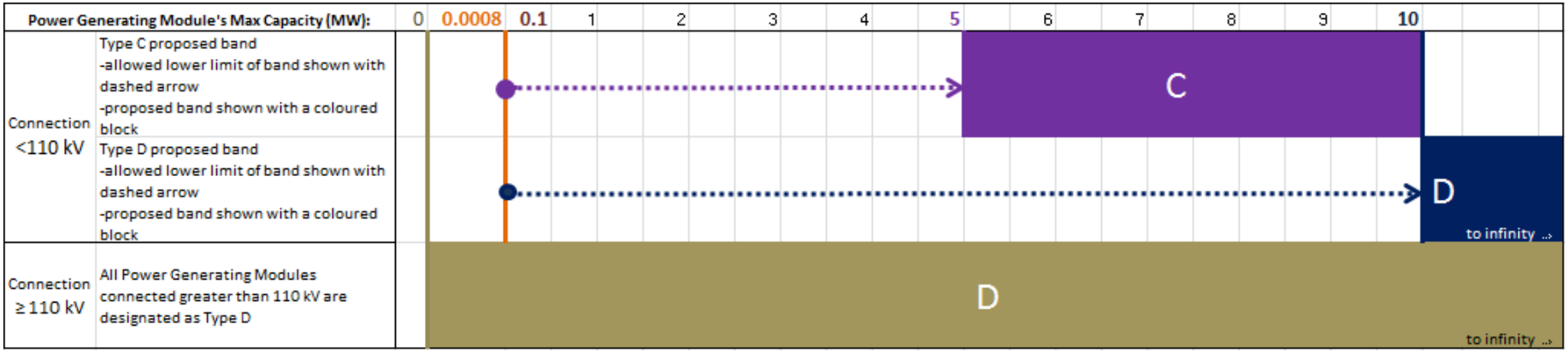
Type D

- Type D PGMs automatically applies to all generation connected at 110 kV or higher.
- For generation connected < 110 kV the Type D band has no upper limit. Its lower limit can be anywhere between 800 W and 10 MW.
- EirGrid/SONI proposes to set this lower limit of the band to 10 MW in order not to impose the more onerous Type D requirements on generators with a Pmax of < 10 MW.



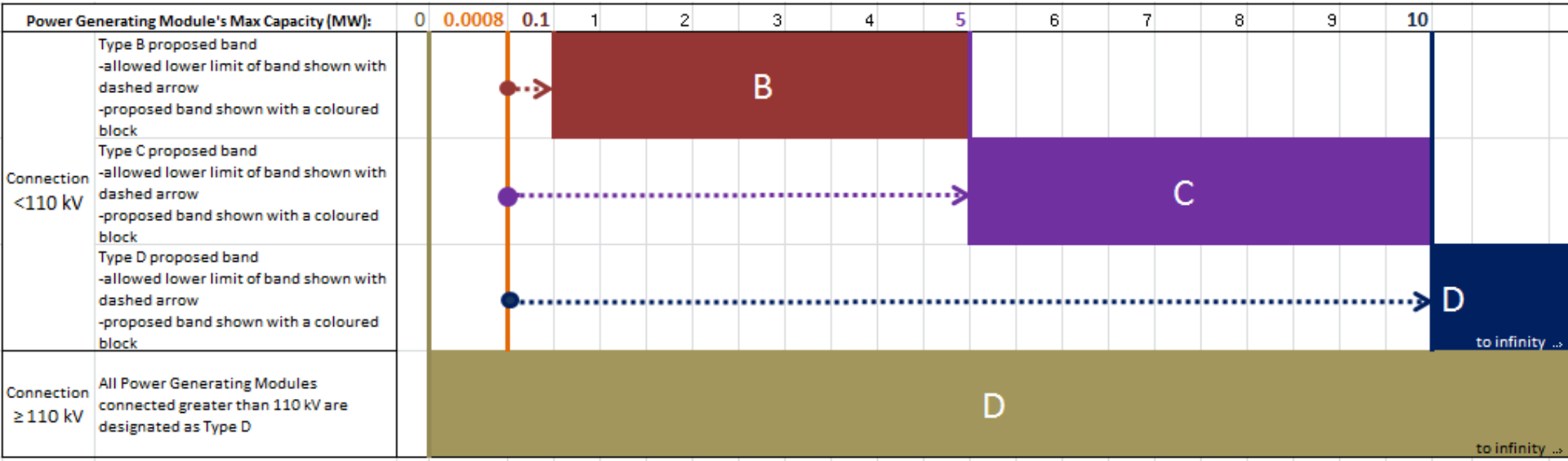
Type C

- For PGMs connected < 110 kV the upper limit of the Type C band is automatically set by the lower limit of the band for Type D, in this case 10 MW. Its lower limit can be anywhere between 800 W and 5 MW.
- EirGrid/SONI proposes to set this lower limit of the band to 5 MW in order not to impose the Type C requirements on generators with a Pmax of < 5 MW.



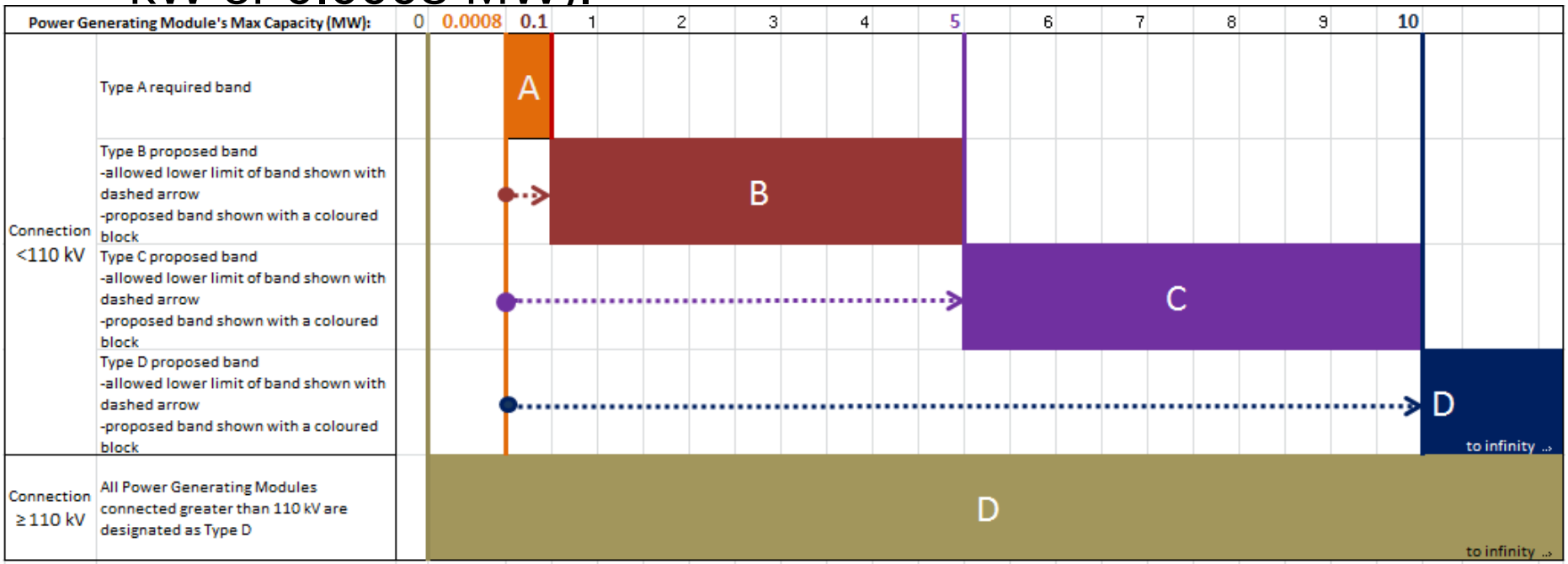
Type B

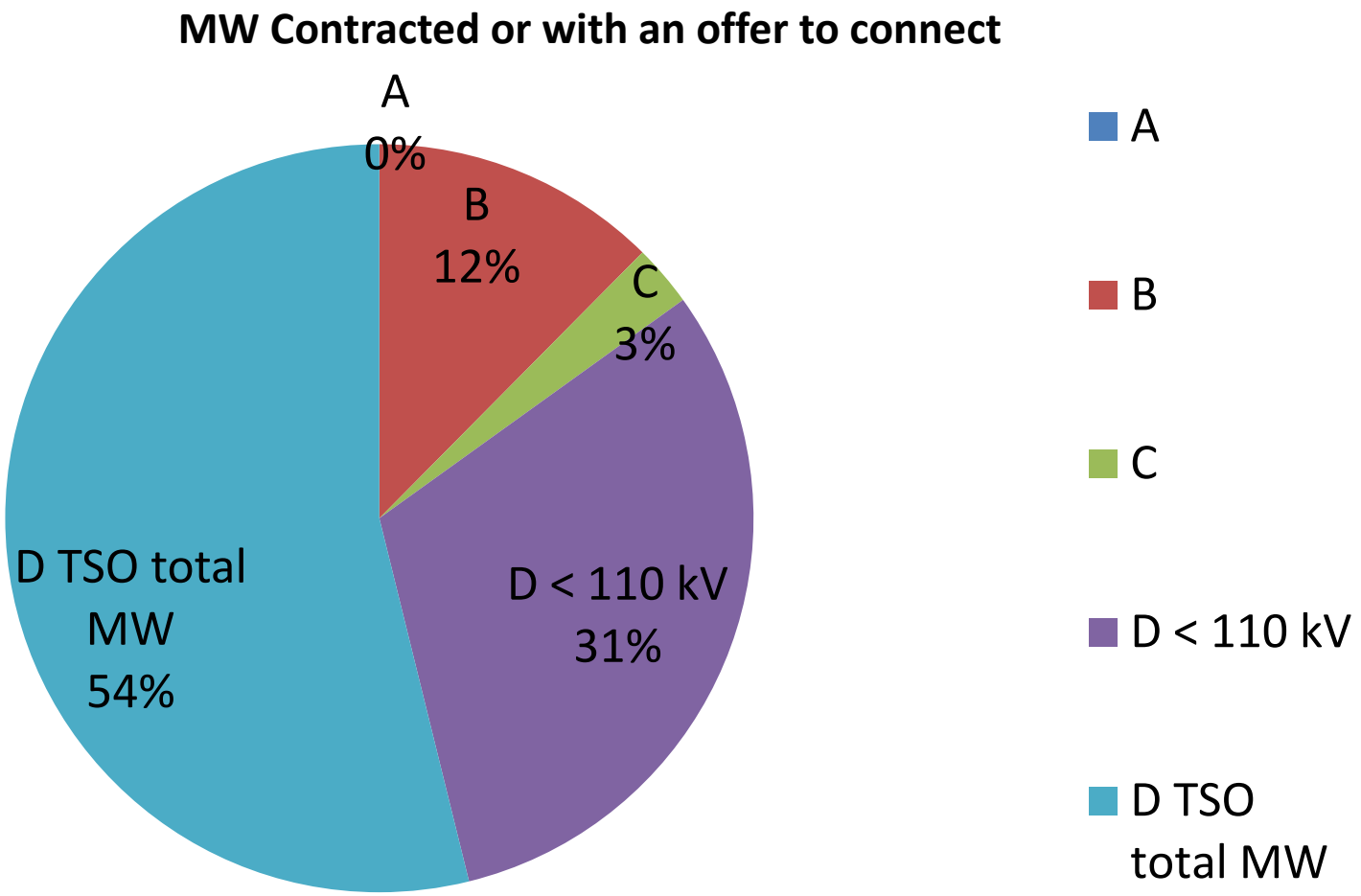
- For PGMs connected < 110 kV the upper limit of the Type B band is automatically set by the lower limit of the band for Type C, in this case 5 MW. Its lower limit can be anywhere between 800 W and 0.1 MW.
- EirGrid/SONI proposes to set this lower limit of the band to 0.1 MW in order not to impose the Type B requirements on generators with a Pmax of < 0.1 MW.



Type A

- For PGMs connected < 110 kV the upper limit of the Type A band is automatically set by the lower limit of the Type B, in this case 0.1 MW.
- Its lower limit is set as per Article 5(2)(a) at 800 W (or 0.8 kW or 0.0008 MW).




MW Contracted or with an offer to connect
A
0%
B
12%
C
3%
D < 110 kV
31%
D TSO total
MW
54%
A
B
C
D < 110 kV
D TSO
total MW

Interaction with other Network Codes

- The Emergency and Restoration Network Code and the System Operation guidelines refer to Significant Grid Users
- These are
  - Existing PGMs
  - New PGMs of Type B,C, and D

- Over to ESB Networks to discuss some DSO specific topics

ESB Networks input to RfG Banding consultation

ESBN wishes to consult on two issues

- Reconciliation of the newly defined Network Code "Types" A, B, C , and D, with the pre-existing Types A, B, C, D, and E in the existing Distribution Code

- The appropriate division between the use of Type Test certification and site specific testing or witnessing, as a means of demonstration of compliance

Reconciliation of Types

- The RfG content can be divided into various categories
  - absolute,
  - upon which the TSO have discretion as to whether and how to apply them
  - to those which the detail of their adoption has to be agreed between the TSO and DSO.

- For the latter, these form the so-called “Non Exhaustive” requirements and the outcome of these deliberations and proposed subject matter arising, will be the subject of a second consultation later in the year.

- The origin of the current Distribution Code Types, is a principle that is appropriate to have differing requirements for differing topologies. Thus they were originally defined in terms of topologies. One prominent example of their use was that of reactive power requirements. Reactive power requirements is also one of the Non-Exhaustive areas of RfG content.

Reconciliation of Types

- ESBN are minded that it is therefore, entirely appropriate to retain sub-divisions for various topologies and;
  - Retain the application of some existing provisions, about which the RfG is silent, to various topologies
  - Retain the application of some new RfG provisions to various topologies, where the latitude to do so is allowed in the Network Code.

- For the avoidance of doubt, where an RfG requirement is mandatory across a given RfG Type, this will be respected.

Reconciliation of Types

- ESB Networks is therefore minded to re-badge the existing Distribution Code Types A to E, to the newly named "Topologies 1-5".

- The definitions of these topologies will remain broadly as per the current Distribution Code but the opportunity will be taken to clean up the diagrams and text, where more clarity can be brought.

- It is recognised and acknowledged that the scope for confusion amongst users still remains but we believe this to be a valid approach.

Old Name	New Name
Type A	Topology 1
Type B	Topology 2
Type C	Topology 3
Type D	Topology 4
Type E	Topology 5

Review of threshold for Type Testing of generation

- Currently, the process of connecting micro-generation is covered by the document " Conditions Governing the Connection and Operation of Micro-generation". The technical thresholds here are:
  - 25A at low voltage [230V], when the DSO network connection is single-phase
  - 16A at low voltage [230V], when the DSO network connection is three-phase

- In this regime, an inform and fit process is employed and provision of a Type –Test certificate of conformance to EN 50438, with Republic of Ireland settings, is deemed sufficient.

- Any generator greater than these sizes has to formally apply for a connection and will in due course, be subject to an individual on-site witness test of the relevant generator interface protection.

Review of threshold for Type Testing of generation

- ESB Networks is minded to extend the threshold for the use of Type-test certification to beyond the range specified above. Networks is considering a new threshold of 50kW.

- Please note that for the avoidance of doubt, ESB Networks does not propose to make any changes to the threshold up to which the inform-and-fit process applies and beyond which the a generator connection ESB must apply for a connection.

Thank You

Continuing the conversation
We want your views

- Do you agree with the banding proposals as set out in this paper?
- Do you believe that lower thresholds should have been considered?
- If yes, please explain what levels you would have proposed?
- If yes, please explain why including any costs/benefits/savings you believe will materialise from your proposal?
- If yes, do you believe your levels facilitate Grid and Distribution Code objectives?
- IRELAND ONLY:
  - Do you have any views on the general approach on the extension of the threshold of type-testing as described in section XYZ?
  - Do you have any views on the renaming op the topologies A-E to topologies 1-6?
- Are there any other considerations you believe the TSO should consider in finalising the proposals?
- Any other comments

Continuing the conversation

- Consultation Papers due to be issued next week
- Separate consultations in Ireland and Northern Ireland
- Consultation period will be a minimum of one month
- Following this, the TSOs will issue a '*minded to*' paper
- This will allow us to progress other aspects of the Connection Codes
  - Making non-mandatory requirements mandatory
  - Selecting parameters for the non-exhaustive requirements

Steps for Approval

- Following the proposals for parameter selection, the band thresholds will be reconsidered
- Each TSO's final position will be issued to the relevant Regulatory Authority
- Approval is required from the relevant Regulatory Authority

Q&A

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Thanks for your attention!

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