GC0145
Updating the Grid Code to include the Manually Activated Reserve Initiative (MARI)

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Agenda

- What is MARI
- Timeline
- Grid Code Solution
- Prequalification and Registration
- Mapping
- Legal Texts
- Current Risks

What is MARI?

Manually Activated Reserve Initiative (MARI) is the platform used for exchange of manual frequency reserve restoration (mFRR).

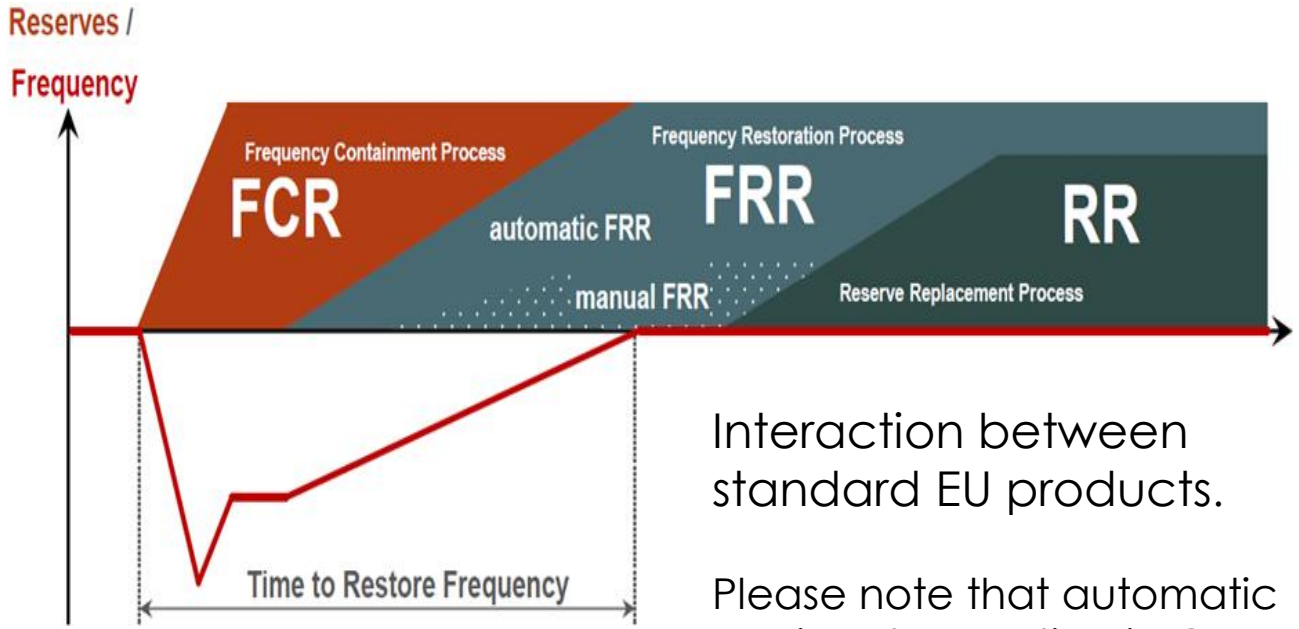
mFRR is a standard EU balancing energy product.

mFRR contributes to the creation of harmonised balancing energy products for TSOs. Unlike TERRE, MARI is mandatory for all TSOs in Europe.

What is MARI?

MARI is a reserve balancing product activated in 12.5 minutes, in comparison TERRE (RR) is activated in 30 minutes (both are settled on pay as clear mechanism). MARI aims to restore frequency containment reserves in a similar way to some BOAs, Fast Reserve and STOR (being activated in less than 15 minutes).

Additionally, MARI can be activated in two ways (either scheduled over the 15 minute window, or via a direct activation of energy within the 15 minute window).

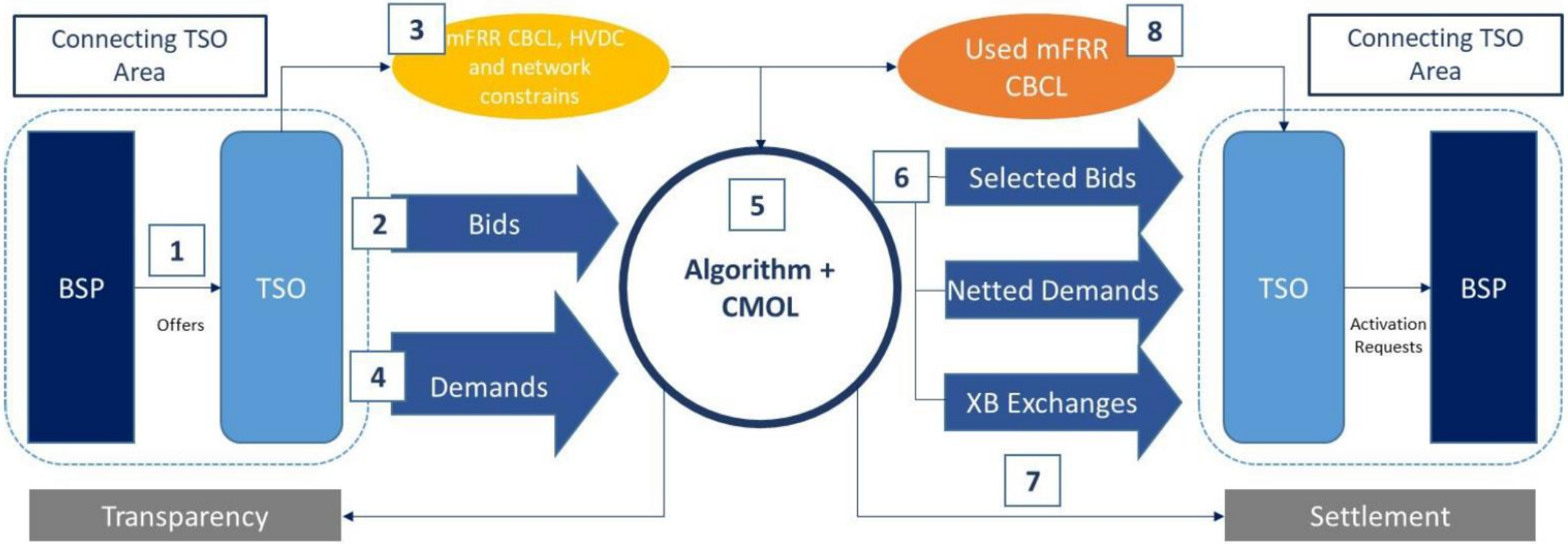


Interaction between standard EU products.

Please note that automatic FRR is not an option in GB, we are implementing manual FRR. Reserve Replacement (RR) is the EU balancing product known as TERRE.

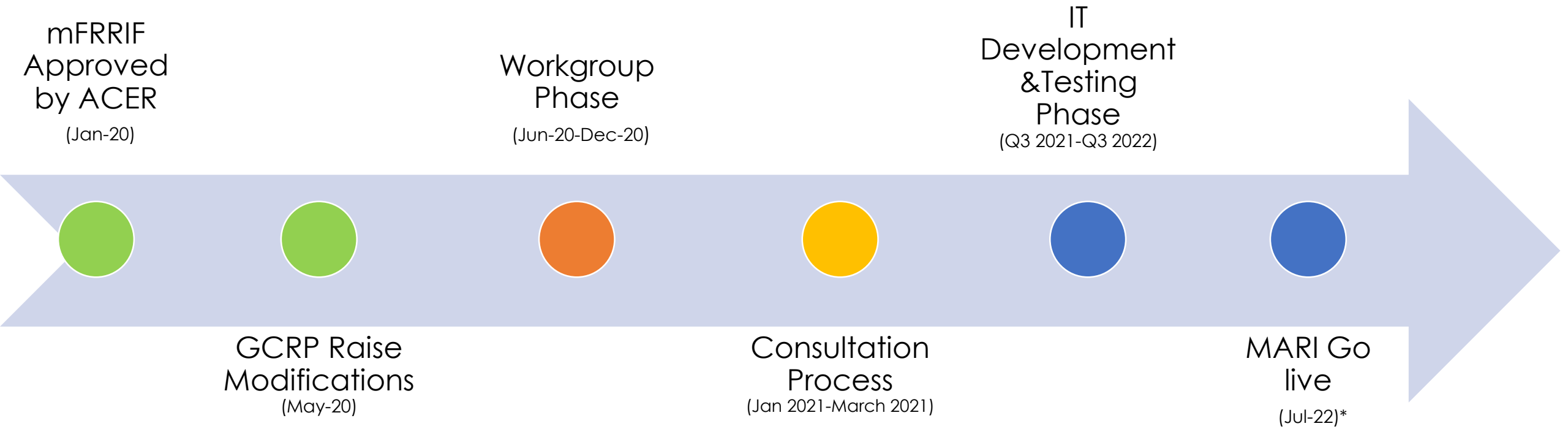
How the platforms will work

(Not shown explicitly are the GB Interconnectors (I/Cs))

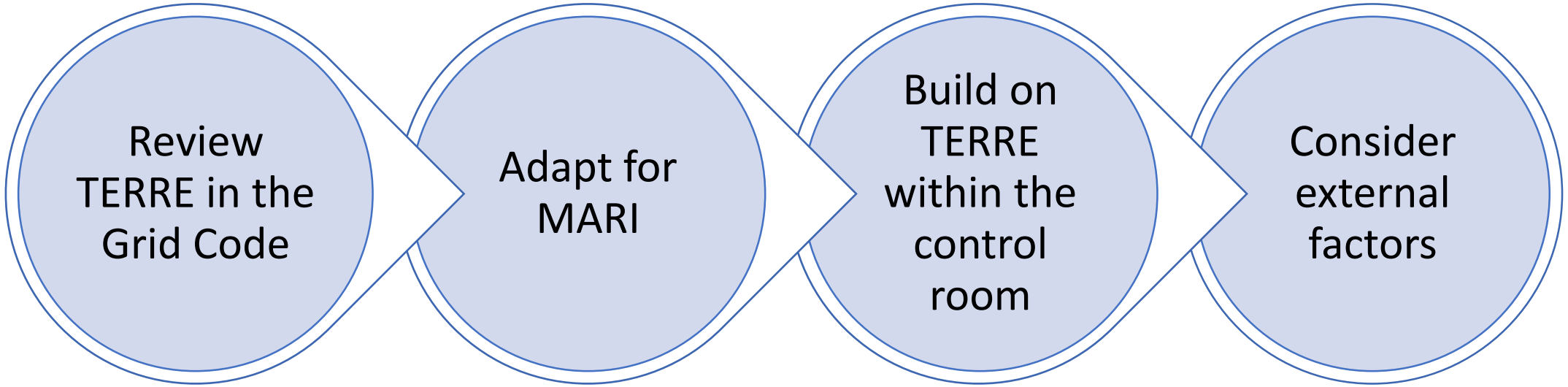


1. BSP provides bids to local TSO
2. TSO sends bids to central platform
3. Network constraints are provided to central platform
4. TSO sends needs to central platform
5. Algorithm computes optimal solution
6. Central platform informs TSOs of bids that are to be activated
7. Central platform informs TSOs of cross-border exchanges
8. Network constraints are updated ready for next algorithm ‘run’
9. TSOs inform BSPs of their activation

Timeline


mFRRIF Approved by ACER
(Jan-20)
GCRP Raise Modifications
(May-20)
Workgroup Phase
(Jun-20-Dec-20)
Consultation Process
(Jan 2021-March 2021)
IT Development &Testing Phase
(Q3 2021-Q3 2022)
MARI Go live
(Jul-22)*

Grid Code Solution



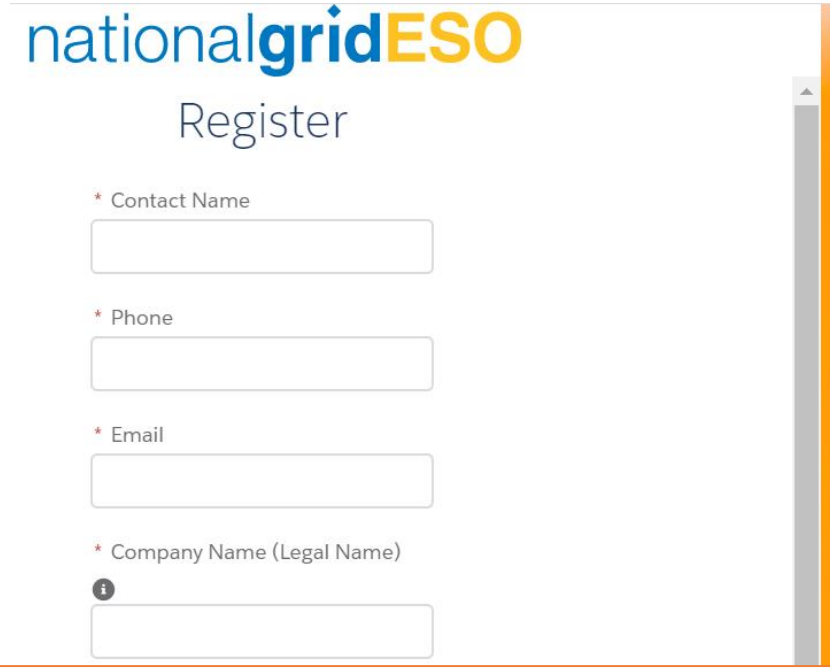
GB has a legal requirement under EBGL Article 20 to implement by July 2022

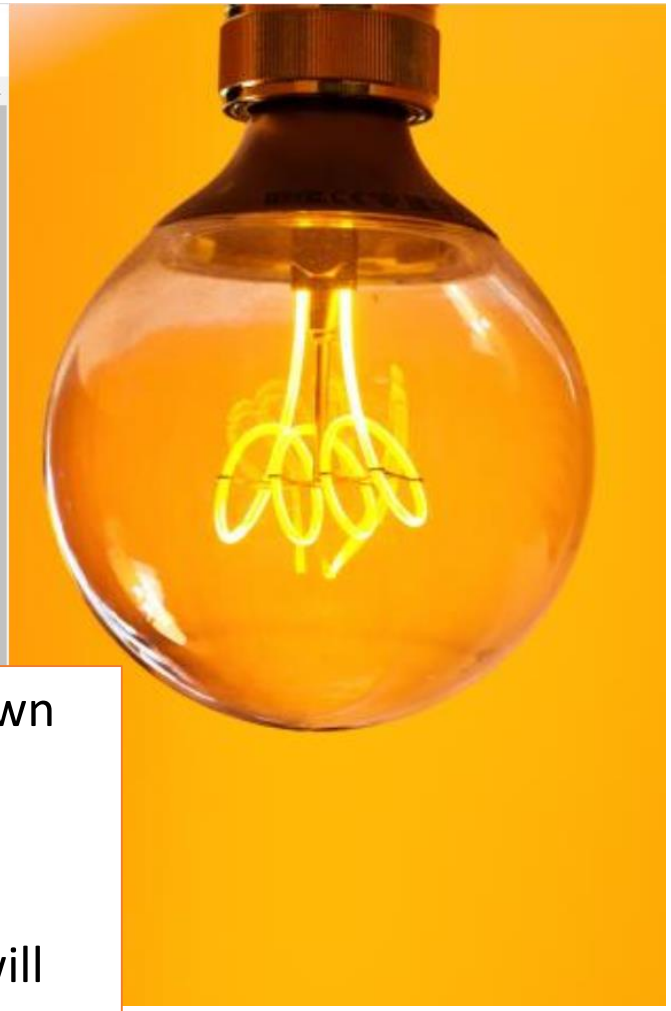
Prequalification and Registration for MARI

Prequalification for MARI m**FRR** is specified currently in the Grid Code under BC5

The minimum technical requirements are specified in BC5.3 (FRR Prequalification process)

The timescales in BC5.1.1.1 and BC5.1.1.2 are applicable





- MARI will be listed as a product in its own right on the NGESO website, as for our other balancing services.
- A link to register, and support for this will be available nearer the time for launch.

MARI v TERRE

How does MARI fit into the Wholesale Market

- TERRE time fits into the BM-MARI is shorter
- Gate Closure
- Time for FAT

Potential challenges for the ENCC

- How does the stacking of bids fit?
- Linked bids?
- Scheduled and Direct Activations

Mapping Codes

Article 159		*Article 162*
MARI **FRR prequalification process**		**TERRE** **RR prequalification process**
1. By 12 months after entry into force of this Regulation each TSO shall develop a FRR prequalification process and shall clarify and make publicly available its details.		1. Each TSO of a LFC block which has implemented a RRP shall develop a RR prequalification process within 12 months after entry into force of this Regulation and shall clarify and make publicly available the details thereof.
2. A potential FRR provider shall demonstrate to the reserve connecting TSO or the TSO designated by the reserve connecting TSO in the FRR exchange agreement that it complies with the FRR minimum technical requirements in Article 158(1), the FRR availability requirements in Article 158(2), the ramping rate requirements in Article 158(1) and the connection requirements in Article 158(3) by completing successfully the prequalification process of potential FRR providing units or FRR providing groups, described in paragraphs 3 to 6 of this Article.		2. A potential RR provider shall demonstrate to the reserve connecting TSO or the TSO designated by the reserve connecting TSO in the RR exchange agreement that it complies with the RR technical minimum requirements, the RR availability requirements and the connection requirements referred to in Article 161 by completing successfully the prequalification process of potential RR providing units or RR providing groups, described in paragraphs 3 to 6.
3. A potential FRR provider shall submit a formal application to the relevant reserve connecting TSO or the designated TSO together with the required information of potential FRR providing units or FRR providing groups. Within 8 weeks from receipt of the application, the reserve connecting TSO or the designated TSO shall confirm whether the application is complete. Where the reserve connecting TSO or the designated TSO considers that the application is incomplete they shall request additional information and the potential FRR provider shall submit the additional required information within 4 weeks from the receipt of the request. Where the potential FRR provider does not supply the requested information within that deadline, the application shall be deemed to be withdrawn.		3. A potential RR provider shall submit a formal application to the relevant reserve connecting TSO or the designated TSO together with the required information of potential RR providing units or RR providing groups. Within 8 weeks from receipt of the application, the reserve connecting TSO or the designated TSO shall confirm whether the application is complete. Where the reserve connecting TSO or the designated TSO considers that the application is incomplete, the potential RR provider shall submit the additional required information within 4 weeks from the receipt of the request for additional information. Where the potential RR provider does not supply the requested information within that deadline, the application shall be deemed withdrawn.
4. Within 3 months after the reserve connecting TSO or the designated TSO confirms that the application is complete, the reserve connecting TSO or the designated TSO shall evaluate the information provided and decide whether the potential FRR providing units or FRR providing groups meet the criteria for a FRR prequalification. The reserve connecting TSO or the designated TSO shall notify their decision to the potential FRR provider.		4. Within 3 months from confirmation of the completeness of the application, the reserve connecting TSO or the designated TSO shall evaluate the information provided and decide whether the potential RR providing units or RR providing groups meet the criteria for a RR prequalification. The reserve connecting TSO or the designated TSO shall notify its decision to the potential RR provider.
5. The qualification of FRR providing units or FRR providing groups by the reserve connecting TSO or the designated TSO shall be valid for the entire LFC Block.		
6. The qualification of FRR providing units or FRR providing groups shall be re-assessed: (a)at least once every 5 years; and (b)where the technical or availability requirements or the equipment have changed.		5. The qualification of RR providing units or RR providing groups shall be reassessed: (a)at least once every 5 years; and (b)where the technical or availability requirements or the equipment have changed.
7. To ensure operational security, the reserve connecting TSO shall have the right to exclude FRR providing groups from the provision of FRR based on technical arguments such as the geographical distribution of the power generating modules or demand units belonging to a FRR providing group.		6. To ensure operational security, the reserve connecting TSO shall have the right to reject the provision of RR by RR providing groups, based on technical arguments such as the geographical distribution of the power generating modules or demand units establishing a RR providing group.

Article 158		Article 161
MARI **FRR minimum technical requirements**		**TERRE** **RR minimum technical requirements**
1. The FRR minimum technical requirements shall be the following:		1. RR providing units and RR providing groups shall comply with the following minimum technical requirements:
(a)each FRR providing unit and each FRR providing group shall be connected to only one reserve connecting		(a)connection to only one reserve connecting TSO;
(b)a FRR providing unit or FRR providing group shall activate FRR in accordance with the setpoint received from the reserve instructing TSO;		(b) RR activation according to the setpoint received from the reserve instructing TSO;
(c)the reserve instructing TSO shall be the reserve connecting TSO or a TSO designated by the reserve connecting TSO in an FRR exchange agreement pursuant to Article 165(3) or 171(4);		(c) the reserve instructing TSO shall be the reserve connecting TSO or a TSO that shall be designated by the reserve connecting TSO in the RR exchange agreement pursuant to Article 165(3) or 171(4);
~~(d)a FRR providing unit or FRR providing group for automatic FRR shall have an automatic FRR activation delay not exceeding 30 seconds;~~		(d) activation of complete reserve capacity on RR within the activation time defined by the instructing TSO;
~~(e)a FRR provider shall ensure that the FRR activation of the FRR providing units within a reserve providing group can be monitored. For that purpose, the FRR provider shall be capable of supplying to the reserve connecting TSO and the reserve instructing TSO real-time measurements of the connection point or another point of interaction agreed with the reserve connecting TSO concerning:~~		(e) de-activation of RR according to the setpoint received from the reserve instructing TSO;
(i)time-stamped scheduled active power output;		(f) a RR provider shall ensure that the RR activation of the RR providing units within a reserve providing group can be monitored. For that purpose, the RR provider shall be capable of supplying to the reserve connecting TSO and the reserve instructing TSO real-time measurements of the connection point or another point of interaction agreed with the reserve connecting TSO concerning:
(ii)time-stamped instantaneous active power for: - each FRR providing unit, - each FRR providing group, and - each power generating module or demand unit of a FRR providing group with a maximum active power output larger than or equal to 1,5 MW;		(i) the time-stamped scheduled active power output, for each RR providing unit and group and for each power generating module or demand unit of a RR providing group with a maximum active power output larger than or equal to 1,5 MW; (ii) the time-stamped instantaneous active power, for each RR providing unit and group, and for each power generating module or demand unit of a RR providing group with a maximum active power output larger than or equal to 1,5 MW;
~~(f)a FRR providing unit or FRR providing group for automatic FRR shall be capable of activating its complete automatic reserve capacity on FRR within the automatic FRR full activation time;~~		
(g)a FRR providing unit or FRR providing group for manual FRR shall be capable of activating its complete manual reserve capacity on FRR within the manual FRR full activation time;		
(h)a FRR provider shall fulfil the FRR availability requirements; and		(g) fulfilment of the RR availability requirements.
(i)a FRR providing unit or FRR providing group shall fulfil the ramping rate requirements of the LFC block.		
2. All TSOs of a LFC block shall specify FRR availability requirements and requirements on the control quality of FRR providing units and FRR providing groups for their LFC block in the LFC block operational agreement pursuant to Article 119.		2. All TSOs of a LFC block shall specify RR availability requirements and requirements on the control quality of RR providing units and RR providing groups in the LFC block operational agreement.
3. The reserve connecting TSO shall adopt the technical requirements for the connection of FRR providing units and FRR providing groups to ensure the safe and secure delivery of FRR.		3. The reserve connecting TSO shall adopt the technical requirements for the connection of RR providing units and RR providing groups to ensure the safe and secure delivery of RR in the prequalification process description.
4. Each FRR provider shall:		4. Each RR provider shall:
(a)ensure that its FRR providing units and FRR providing groups fulfil the FRR technical minimum requirements, the FRR availability requirements and the ramping rate requirements in paragraphs 1 to 3; and		(a) ensure that its RR providing units and RR providing groups fulfil the RR technical minimum requirements and the RR availability requirements referred to in paragraphs 1 to 3; and
(b)inform its reserve instructing TSO about a reduction of the actual availability of its FRR providing unit or its FRR providing group or a part of its FRR providing group as soon as possible.		(b) inform its reserve instructing TSO about a reduction of the actual availability or a forced outage of its RR providing unit or its RR providing group or a part of its RR providing group as soon as possible.
5. Each reserve instructing TSO shall ensure the monitoring of the compliance with the FRR minimum technical requirements in paragraph 1, the FRR availability requirements in paragraph 2, the ramping rate requirements in paragraph 1 and the connection requirements in paragraph 3 by its FRR providing units and FRR providing groups.		5. Each reserve instructing TSO shall ensure compliance with the RR technical requirements, the RR availability requirements and the connection requirements referred to in this Article with regard to its RR providing units and RR providing groups.

Mapping Codes

SOGL Requirement	Current Gap for Article Text	Response
Pre Qualification for MARI A159	5. The qualification of FRR providing units or FRR providing groups by the reserve connecting TSO or the designated TSO shall be valid for the entire LFC Block.	We are only one LFC block area in GB- will map to current Grid Code
Minimum Technical Requirements A158	(g)a FRR providing unit or FRR providing group for manual FRR shall be capable of activating its complete manual reserve capacity on FRR within the manual FRR full activation time;	Map to the current Grid Code text or develop text to suit
Minimum Technical Requirements A158	(i)a FRR providing unit or FRR providing group shall fulfil the ramping rate requirements of the LFC block	Map to the current Grid Code text or develop text to suit
Minimum Technical Requirements A158	2. All TSOs of a LFC block shall specify FRR availability requirements and requirements on the control quality of FRR providing units and FRR providing groups for their LFC block in the LFC block operational agreement pursuant to Article 119	Map to the current Grid Code text or develop text to suit

Legal Text

BALANCING CODE NO. 4 6
(BC6)

~~TERRE~~ MARI PROCESSES

CONTENTS

(This contents page does not form part of the Grid Code)

BC6.1 INTRODUCTION

Balancing Code No ~~4 (BC4)~~ 4 (BC4) sets out the procedures for:

(a) prequalifation requirements for participation in ~~TERRE~~ MARI by **BM Participants**;

(b) submission of data by **BM Participants** wishing to take part in ~~TERRE~~ MARI;

(c) validation of data from **BM Participants** wishing to take part in ~~TERRE~~ MARI;

(d) issuing of ~~RR~~ **mFRR Instructions**;

(e) publication of ~~TERRE~~ MARI related data.

BC6.2 OBJECTIVE

This procedure facilitates the participation of **BM Participants** in the ~~TERRE~~ MARI market. Particpation in ~~TERRE~~ MARI is voluntary for **BM Participants**.

BC6.3 SCOPE

BC~~4~~ 6 applies to :-

(a) **The Company**;

(b) **BM Participants**;

(b) **Externally Interconnected System Operators**; and

(c) **Network Operators**.

BC6.4 REQUIREMENTS FOR BM PARTICIPANTS WHO WISH TO PARTICIPATE IN TERRE

The Company shall ensure that each relevant **Balancing Service** prequalification process shall, as a minimum, require the ~~RR~~ mFRR provider to submit a self-certification of the ~~RR~~ mFRR Minimum Technical Requirements as defined in ~~BC4.4.1 and BC4.4.2.~~ BC6.4.1 and BC6.4.2

BC6.4.1 All BM participants who wish to participate in ~~TERRE~~ MARI must have successfully completed the prequalification process to be a ~~RR~~ mFRR provider as detailed in ~~BC6~~ BC6.

BC6.4.2 All BM participants who wish to participate in ~~TERRE~~ MARI must have the following capabilities

(a) **BM Participants** must have the ability to submit data and receive instructions by the use of electronic data communication facilities as provided for in CC.6.5.8

(b) **BM Participants** must be capable of following an ~~RR~~ **mFRR Instruction** issued by **The Company**

(c) **BM Participants** must be able to provide **Physical Notifications**

(d) **BM Participants** must be able to provide a subset of **Dynamic Parameters** (as detailed in ~~BC4.6.2~~ BC6.5.2)

(e) **BM Participants** must provide operational metering for their total output and for any individual component that
have the following accu

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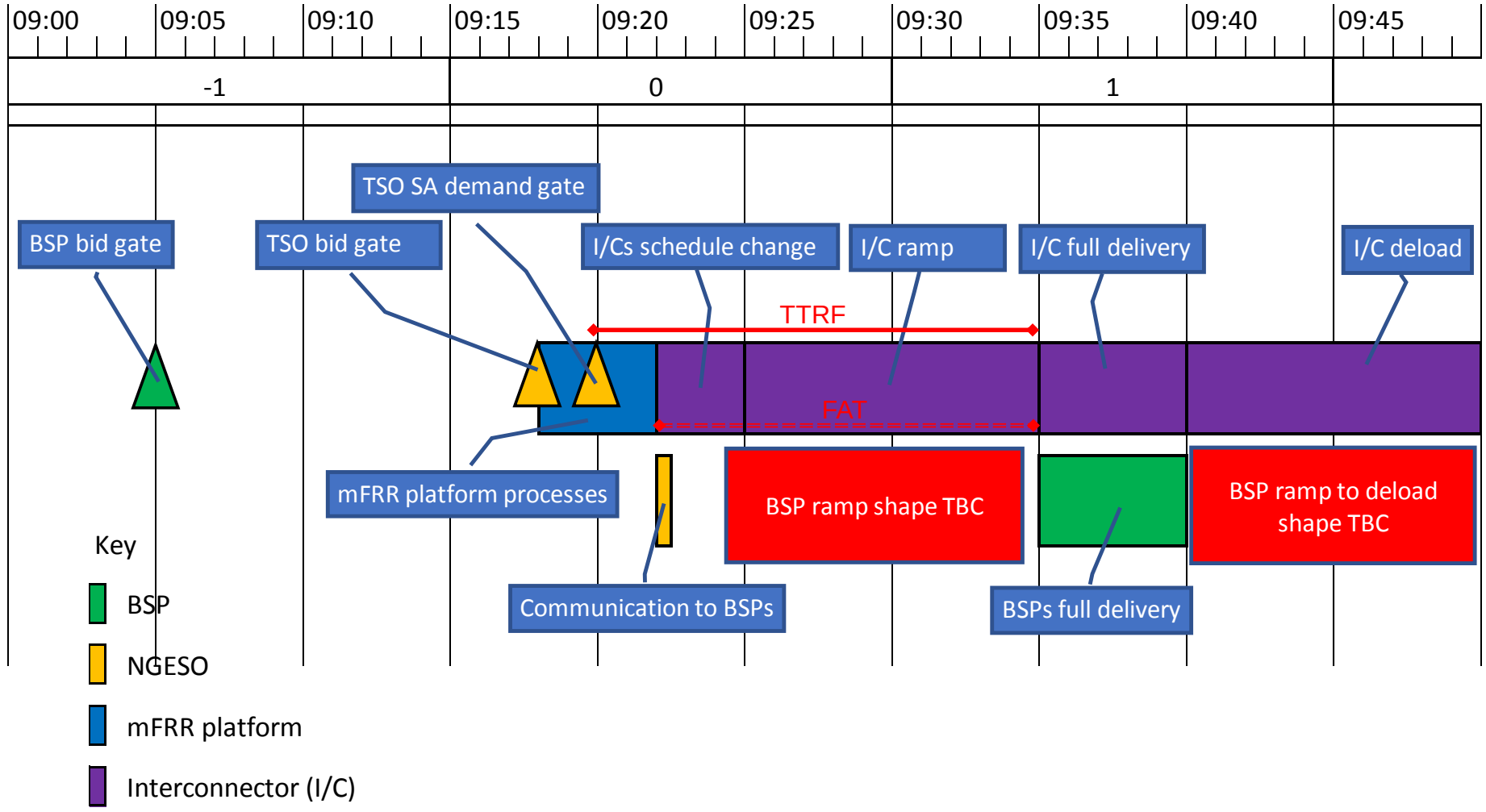
Risks

TERRE	Aware this has not gone live in GB- extensions have been granted, expected go-live date is end of Oct-20
GB products	New frequency response products are being implemented in GB- how do these fit alongside MARI and our Interconnectors
Time to implement	We need to complete the workgroup process by December 2020 to allow sufficient time to develop and test our IT systems
COVID-19	Known unknown- will this cause workload issues for stakeholder to participate in the workgroup phase and for internal process in the control room and delays to other work
Derogations	Permitted once for a period of 2 years. Belgium are currently still progressing MARI, therefore, - the NEMO interconnector would be the only one available for mFRR (MARI Accession Road Map)
Brexit implications	How does this fit with GB involvement in the IEM post January 2021

What is mFRR - Scheduled Activation (SA) timeline (one run)



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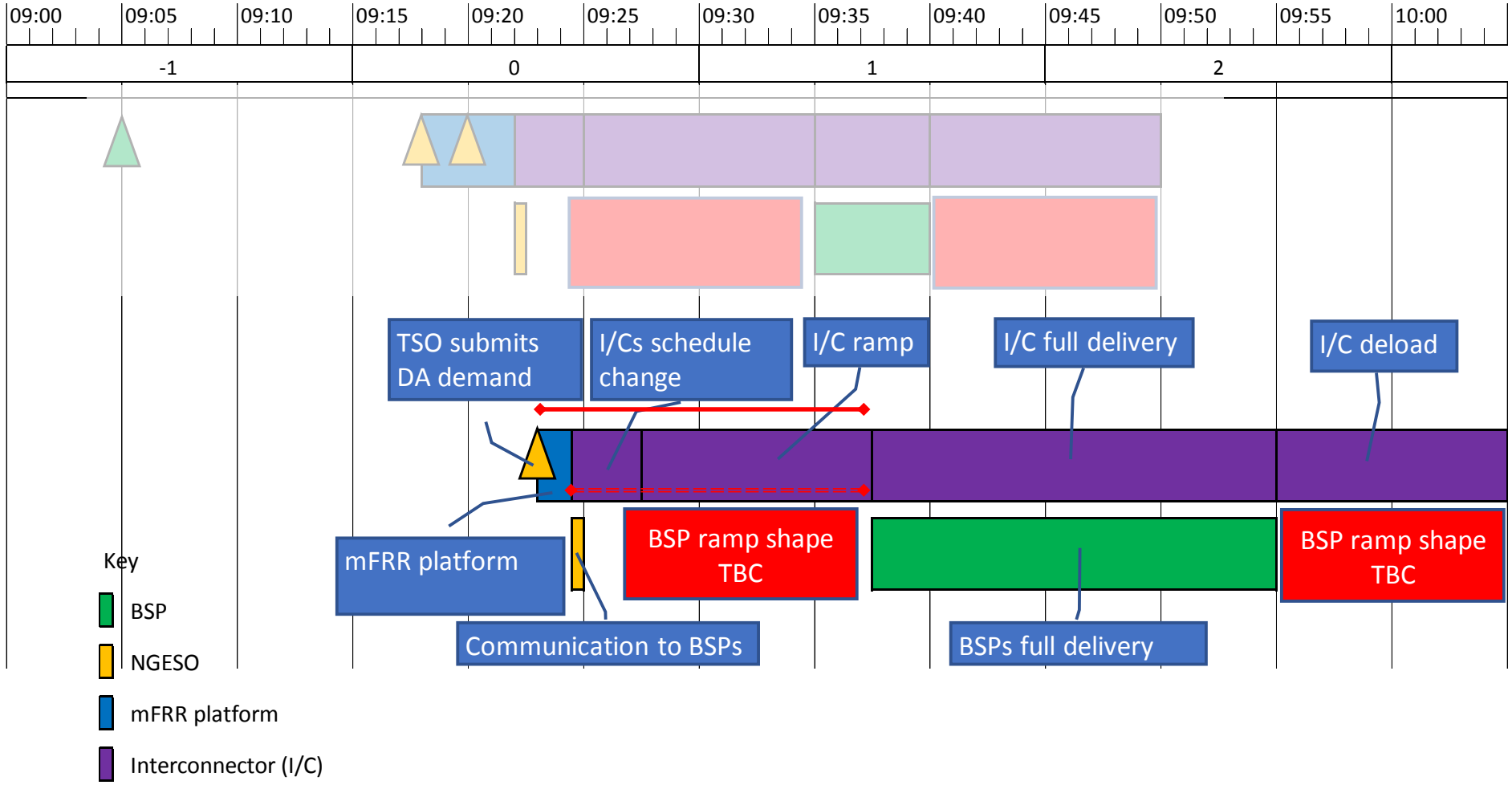
What is mFRR - Direct Activation (DA) timeline (one need just after previous SA run)



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