















BSC Modification Proposal Form		At what stage is this document in the process?
<h1>P407</h1> <p>Mod Title: Project MARI</p>		<div>01 Modification</div> <div>02 Workgroup Report</div> <div>03 Draft Modification Report</div> <div>04 Final Modification Report</div>
<p>Purpose of Modification:</p> <p>Article 20 of the Electricity Balancing Guidelines (EBGL - Commission Regulation (EU) 2017/2195) requires Transmission System Operators (TSOs) to establish a platform for the exchange of balancing energy from manually activated frequency restoration reserves (mFRR) by July 2022. To achieve this, the European Network of Transmission System Operators for Electricity (ENTSO-E) launched the Manually Activated Reserves Initiative (MARI) to deliver the European-wide mFRR platform. P407 will ensure that the Balancing and Settlement Code (BSC), and associated systems, are amended to deliver MARI, ahead of go-live.</p>		
	<p>The Proposer recommends that this Modification should:</p> <ul style="list-style-type: none"> not be a Self-Governance Modification Proposal be assessed by a Workgroup and submitted into the Assessment Procedure <p>This Modification will be presented by the Proposer to the BSC Panel on 14 May 2020. The Panel will consider the Proposer's recommendation and determine how best to progress the Modification.</p>	
	<p>High Impact:</p> <p>NGESO</p> <p>BSCCo</p> <p>BSC Agents</p>	
	<p>Medium Impact:</p> <p>BSC Parties</p> <p>Interconnectors</p> <p>Virtual Lead Parties Party Agents</p>	
	<p>Low Impact:</p> <p>Nil</p>	

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Timetable

The Proposer recommends the following timetable:

Initial consideration by Workgroup	22/06/2020
Assessment Procedure Consultation	12/10/2020 - 30/10/2020
Workgroup Report presented to Panel	14/01/2021
Report Phase Consultation	01/02/2021 - 26/02/2021
Draft Modification Report presented to Panel	11/03/2021
Final Modification Report submitted to Authority	16/03/2021
Final Modification Report published	16/03/2021

This timetable is aligned to the Grid Code Modification to implement MARI. The BSC and Grid Code Modifications will be run jointly – that is, there will be joint Workgroups and consultations. The BSC Panel dates are roughly two weeks ahead of the planned presentations to the Grid Code Review Panel (GCRP).

1 Why Change?

What is the issue?

Although the United Kingdom (UK) has left the European Union (EU), the terms of the [European Union \(Withdrawal Agreement\) Act 2000](#) require that EU legislation is adhered to until the end of the transition period on 31 December 2020. This means that National Grid Electricity System Operator (NGESO), in its role as the TSO for Great Britain (GB) is required to implement the mFRR platform via its participation in MARI. Whether GB market participants will be able to participate in MARI from 1 January 2021 onwards is subject to ongoing negotiations between the UK and EU.

To meet the July 2022 go-live date, work must start now to identify changes to impacted Industry Codes (Grid Code, Connection Use of System Code (CUSC), and the BSC), and allow time to develop and implement changes to associated systems. Rather than waiting until the outcome of the UK-EU negotiations, and (dependant on when an announcement is made) being behind the curve and rushing to catch-up, it is felt that it is better to proceed as if GB's MARI participation will not be hampered.

The intention is for GB to remain in the internal energy market, and it is hoped that GB participants will be able to use MARI. Even if they are not able to from 1 January 2021, then they will be able to at some point in the future, so it would be better to have the necessary changes ready to go with everything on hold, rather than spend two years developing a solution later.

If P407 is not implemented, and we [NGESO] are required to adhere to EU legislation, then we [NGESO] will be non-compliant with EU legislation which could, potentially, involve Ofgem enforcement action. Further, it will, potentially, put GB market participants at a disadvantage as they will not have the same market access opportunities as their European counterparts. From a wider perspective, this would delay the benefits of MARI if participants can't access EU markets and, ultimately, reduce the number of products available to NGESO to manage the Total System.

Desired outcomes

P407 will run in conjunction with a similar Grid Code Modification (number/name to be nominated) to develop complementary solutions for the Grid Code and BSC. The intention will be that, as far as industry is concerned, there will be a single GB solution for participation in MARI. P407 and the Grid Code Modification will develop changes to their respective Code text as well as identifying required changes to BSC System and ESO Systems.

These System changes will (subject to confirmation during the Assessment Phase) be developed during 2021 to be tested in the first half of 2022 ahead of go-live on 22 July 2022.

2 Solution

The European platform to deliver MARI is still to be confirmed, but we are expecting it to be the LIBRA platform used for the delivery of the Trans-European Replacement Reserve Exchange (TERRE). It is important to note that MARI will be a balancing product in its own right and will have its own rules and applications. That being said though, we [NGESO and ELEXON] intend to replicate and emulate the TERRE delivery mechanism as much as possible.

Once operational, and participants are submitting bids, MARI will have two types of activation:

1. Scheduled activation (SA) every 15 minutes (same as TERRE); and
2. Continuous Direct activations (DA).

The MARI processes can be summarised as follows:

- NGESO will collect mFRR bids from Balance Service Providers (BSPs);
- NGESO will send bids and needs and cross border capacity to the mFRR platform;
- Platform will run an algorithm to choose which bids are activated;
- Platform will send activated bids to host TSO (e.g. NGESO) to dispatch under local arrangements;
- Platform also sends Clearing Price, Need Met and Border Schedule to TSO; and
- Relevant information sent to TSO-TSO settlement function.

Proposed solution

The BSC solution will form part of a wider end-to-end (E2E) solution that will ensure NGESO and ELEXON are able to deliver their own parts of the MARI solution.

At a high level, the diagram below shows the E2E solution (blue is ELEXON's role, yellow is NGESO's and the weighting represents proportional responsibility in each step):

High level E2E solution



The BSC high level solution is shown in the following diagram:

High level BSC solution



Based on the requirements in the EBGL and other information from ENTSO-E and the Agency for the Cooperation of Energy Regulators (ACER), the BSC solution will:

- Identify which BM units are activated by MARI, and what their cash flow for each 15 minute auction is;
- Amend Trading Charge Advice notes to reflect MARI cash flows;
- Allow the Settlement Administration Agent (SAA) to process notifications from NGESO in relation to MARI activations;
- Enable the SAA to be able to determine how MARI activations affect and interact with wider Settlement operations by comparing Bid-Offer Acceptances (BOAs) against MARI notices;
- Enable SAA to calculate Non-Delivery Charges;
- Allow SAA to include MARI activations when calculating System Buy Price and System Sell Price;
- Allow for reporting of MARI actions and effect on Settlement (including via BMRS where required); and
- Allow for the MARI to be included in calculations of Actual Energy Indebtedness.

We [NGESO and ELEXON] will also consider the following as alternative solution requirements:

- SAA & BMRA shall receive, validate and process new MARI-specific data from National Grid;
 - MARI Bids, MARI Auction Results, MARI Instructions etc.
- SAA shall calculate new MARI Cash flows for each BM Unit for each quarter-hour;
- New MARI Cash flows shall be a new Trading Charges, included on Trading Charge Advice Notes that are sent to Parties
- SAA shall calculate MARI volumes and define the interactions between MARI, BM and RR activations
- SAA shall use MARI volumes and prices in the existing Non-Delivery Charge calculation
- SAA shall
- SAA shall include MARI activations when calculating System Buy Price and System Sell Price
- Reporting of MARI actions and effect on Settlement
 - The SAA-I014 Settlement Report shall contain new MARI-specific data items.
 - New indicative MARI-specific data shall be calculated by BMRS
 - EU Transparency reporting
- Allow for the MARI to be included in calculations of Actual Energy Indebtedness
MARI Cash flows shall be included in the calculation of Actual Energy Indebtedness (Credit)]

Based on information in the EBGL, as well as information from ENTSO-E and other European sources, ELEXON has developed a list of initial draft high-level Business Requirements (see Appendix One). These will form the initial basis for developing the BSC solution and will be amended and/or replaced as the Assessment Phase develops to dovetail with the Grid Code solution.

Benefits

As with TERRE, MARI will enable a new route to market for GB market participants. EBGL encourages aggregators' and storage providers' participation in European markets and this will be reflected in the MARI solution. It is intended that we [NGESO] will conduct a cost-benefit analysis during the Assessment Phase, but our initial findings are that there will be clear benefits for the GB market. MARI will increase competition in the market by allowing more people to offer services. It will increase the number of services available to NGESO to balance and manage the Total System which will, in turn, increase the efficiency of our management of the National Electricity Transmission System. Ultimately though, it will ensure that we remain compliant with relevant legislation.

3 Relevant Objectives

Impact of the Modification on the Relevant Objectives:	
Relevant Objective	Identified impact
a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence	Positive
(b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System	Positive
(c) Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity	Positive
(d) Promoting efficiency in the implementation of the balancing and settlement arrangements	Negative
(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]	Positive
(f) Implementing and administering the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation	Neutral
(g) Compliance with the Transmission Losses Principle	Neutral

The Transmission Company has an obligation to implement MARI, therefore P407 will enable them to meet this obligation (Applicable Objective (a)) which in turn will lead to greater operation of the National Electricity Transmission System (Applicable Objective (b)) as we [NGESO] will have a wider choice of standard products to balance the Total System. The introduction of a new Standard Product will, as per the EBGL objectives, allow more options for accessing the market, thus increasing effective competition (Applicable Objective (c)). However, it will make the implementation of balancing and settlement more difficult as it will be adding even more calculations and will therefore be detrimental against Applicable Objective (d); that notwithstanding, implementation of MARI is a legislative obligation (Applicable Objective (e)) and we will do this in the least disruptive way feasible.

We do not anticipate that P407 will have any impact on any of the other Applicable BSC Objectives i.e. the operation of EMR legislation (f) or the Transmission Loss Principles (g).

4 Potential Impacts

Impacts on Core Industry Documents

Impacted Core Industry Documents			
<input type="checkbox"/> Ancillary Services Document	<input checked="" type="checkbox"/> Connection and Use of System Code	<input type="checkbox"/> Data Transfer Services Agreement	<input type="checkbox"/> Use of Interconnector Agreement
<input type="checkbox"/> Master Registration Agreement	<input type="checkbox"/> Distribution Connection and Use of System Agreement	<input type="checkbox"/> System Operator Transmission Owner Code	<input type="checkbox"/> Supplemental Agreements
<input type="checkbox"/> Distribution Code	<input checked="" type="checkbox"/> Grid Code	<input type="checkbox"/> Transmission License	<input type="checkbox"/> Other (please specify)

As described above, MARI will require changes to the Grid Code and we anticipate consequential changes to CUSC in due course.

Impacts on BSC Systems

Impacted Systems				
<input type="checkbox"/> CRA	<input checked="" type="checkbox"/> CDCA	<input type="checkbox"/> PARMS	<input checked="" type="checkbox"/> SAA	<input checked="" type="checkbox"/> BMRS
<input type="checkbox"/> EAC/AA	<input checked="" type="checkbox"/> FAA	<input checked="" type="checkbox"/> TAAMT	<input type="checkbox"/> NHHDA	<input checked="" type="checkbox"/> SVAA
<input checked="" type="checkbox"/> ECVA	<input type="checkbox"/> ECVA Web Service	<input type="checkbox"/> ELEXON Portal	<input checked="" type="checkbox"/> Other (Please specify)	SAA and NOVA

The solution will require changes to how data is calculated (ECVA, SAA and FAA) and reported (BMRS).

Impacts on BSC Parties

Impacted Parties			
<input checked="" type="checkbox"/> Supplier	<input checked="" type="checkbox"/> Interconnector User	<input type="checkbox"/> Non Physical Trader	<input checked="" type="checkbox"/> Generator
<input type="checkbox"/> Licensed Distribution System Operator	<input checked="" type="checkbox"/> National Electricity Transmission System Operator	<input checked="" type="checkbox"/> Virtual Lead Party	<input type="checkbox"/> Other (Please specify)

Balance Service Providers (Suppliers, Generators and VLPs) who want to offer MARI services will have to implement new processes. The TSO will be affected as they will be facilitating access to the MARI platform. Interconnectors may be impacted by the cross border exchanges of energy.

Legal Text Changes

Legal text has not been considered at this time and request it to be developed by ELEXON during the Assessment Phase.

5 Governance

Self-Governance

<input checked="" type="checkbox"/> Not Self-Governance – A Modification that, if implemented materially impacts:	
<input type="checkbox"/> the Code's governance or modification procedures	<input checked="" type="checkbox"/> sustainable development, safety or security of supply, or management of market or network emergencies
<input checked="" type="checkbox"/> competition	<input type="checkbox"/> existing or future electricity consumers
<input checked="" type="checkbox"/> the operation of national electricity Transmission System	<input type="checkbox"/> likely to discriminate between different classes of Parties
<input type="checkbox"/> Self-Governance – A Modification that, if implemented:	
Does not materially impact on any of the Self-Governance criteria provided above	

P4XX will open up the market to increase competition, which is generally accepted as being good but, for every new provider that benefits, existing providers may lose out. MARI will be a new Standard Product for NGESO, so it will have an obvious effect on the operation of the National electricity Transmission System, but as it is a European product will increase security of Supply, even though it will create complications for network management as there will likely be a necessity for new methods of dispatch.

Progression route

<input checked="" type="checkbox"/> Submit to assessment by a Workgroup – A Modification Proposal which:	
Does not meet any criteria to progress via any other route.	
<input type="checkbox"/> Direct to Report Phase – A Modification Proposal whose solution is typically:	
<input type="checkbox"/> of a minor or inconsequential nature	<input type="checkbox"/> deemed self-evident
<input type="checkbox"/> Fast Track Self-Governance – A Modification Proposal which meets the Self-Governance Criteria and:	
is required to correct an error in the Code as a result of a factual change including but not limited to:	
<input type="checkbox"/> updating names or addresses listed in the Code	<input type="checkbox"/> correcting minor typographical errors
<input type="checkbox"/> correcting formatting and consistency errors, such as paragraph numbering	<input type="checkbox"/> updating out of date references to other documents or paragraphs
<input type="checkbox"/> Urgent – A Modification Proposal which is linked to an imminent issue or current issue that if not urgently addressed may cause:	
<input type="checkbox"/> a significant commercial impact on Parties, Consumers or stakeholder(s)	<input type="checkbox"/> a Party to be in breach of any relevant legal requirements.
<input type="checkbox"/> a significant impact on the safety and security of the electricity and/or gas systems	

The MARI solution will be complicated and multi-faceted. To ensure that it is fit for purpose it is appropriate that we take advice and input from industry members before presenting the final solution for consideration.

Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

It is not anticipated that P407 will impact any SCRs ongoing, but we request that ELEXON confirm this with Ofgem prior to submitting their Initial Written Assessment to the BSC Panel.

Does this modification impact on end consumers or the environment?

It is not anticipated that there will be any impact on end consumers or the environment.

Implementation approach

Our initial expectation (as discussed with ELEXON) is that implementation will commence following Ofgem's decision in January/February 2021. We expect that this will take up most of 2021 prior to industry testing in the first part of 2022 ahead of go-live in 2022. During the Assessment Phase we expect that ELEXON will engage with Service Providers to confirm this hypothesis as well as gather costs. From there, we will be able to form some form of cost-benefit-analysis to form part of the Assessment Report.

Appendix one – initial draft high-level business requirements

The following were developed by ELEXON during our initial discussions and are included for information. As stated above, we anticipate that these will form the basis of the BSC solution.

Area	Reference	Business Requirement
TSO interface	BR1	SAA & BMRA shall receive, validate and process new MARI-specific data from National Grid. MARI Bids MARI Auction Results
mFRR Activation Settlement	BR2	SAA shall calculate the mFRR Cash flow for each BM Unit for each quarter-hour.
mFRR Activation Settlement	BR3	Daily Party mFRR Cash flow shall be a new Trading Charge, included on Trading Charge Advice Notes that are sent to Parties participating in MARI.
mFRR Activation Settlement	BR4	SAA shall amend the RR Schedule to include both TERRE and MARI. Or SAA shall create a mFRR Schedule for each MARI Auction
mFRR Activation Settlement	BR5	SAA shall process the mFRR Schedule from National Grid. In practice an mFRR Schedule will be similar to (and processed in a similar way to) any other BOA, except that: SAA shall calculate mFRR Schedule Volumes, separate to QAO _{knij} / QAB _{knij} and RRAO _{knij} / RRAB _{knij}
mFRR Activation Settlement	BR6	SAA will probably need to calculate Period Deemed Standard Product Offer Volumes (DSPO _{Jij}) and Period Deemed Standard Product Bid Volumes (DSPB _{Jij}) for MARI
mFRR Instruction Settlement	BR7	SAA shall receive and process mFRR Instructions from National Grid. In practice an mFRR Instruction will be indistinguishable from (and processed in the same way as) a RR Instruction i.e. no equivalent QAO _{knij} / QAB _{knij} will be calculated and qA _{kj(t)} are used for baseline only
mFRR Instruction Settlement	BR8	SAA shall calculate the difference between the mFRR Schedule and the Deemed Standard Product Shape
mFRR Instruction Settlement	BR9	SAA shall calculate the MARI Period Instruction Deviation Cash flow

Area	Reference	Business Requirement
mFRR Instruction Settlement	BR10	Daily Party MARI Instruction Deviation Cash flow shall be a new Trading Charge, included on Trading Charge Advice Notes that are sent to Parties participating in TERRE.
mFRR Instruction Settlement	BR11	Total System mFRR Cash flow shall be included in the calculation of System Operator Cash flow for each Settlement Period.
BOA Settlement	BR12	SAA shall compare each Bid-Offer acceptance data received against previous acceptance data. If the previously accepted data relates to a RR Schedule or mFRR Schedule and is of the same direction (i.e. offer/offer or bid/bid) and the Bid-Offer acceptance MW value is less than RR Activation MW value then Settlements shall not calculate Acceptance Volumes $q_{Aki}(t)$ for that time (t)
Non-Delivery	BR13	SAA shall include mFRR Activations Deemed Standard Product Volumes with MARI Instructed Offer/Bid Deviation Volumes in the existing Non-Delivery Charge calculations.
Imbalance settlement	BR14	SAA shall include MARI-specific actions in the calculation of the System Buy Price and System Sell Price.
Imbalance settlement	BR15	SAA shall include mFRR Activation Volumes in the calculation of Energy Imbalance Volumes.
Reporting	BR16	The SAA-I014 Settlement Report shall contain new MARI-specific data items.
Reporting	BR17	New MARI-specific data shall be published to BMRS.
Reporting	BR18	New indicative MARI-specific data shall be calculated by BMRS
Reporting	BR19	ETR and EBGL reporting will likely be impacted by MARI
Credit	BR20	Daily Party mFRR Cash flow shall be included in the calculation of Actual Energy Indebtedness.