



# Project MARI BSC Solution

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# Proposed BSC Solution Principles

1

**New product:** Project MARI introduces a new balancing energy product (mFRR). It is not TERRE v2.0



2

**Utilise Synergy:** Use as many of existing process as possible to reduce impact on BSC Parties



3

**Compliant:** GB (GC & CUSC) and EU (EBGL & mFRRIF)



4

**Consistent:** mFRR volumes and prices consistent with existing GB & EU markets



5

**Transparent:** mFRR auctions reported in real time (BMRS) and settlement post event (SAA)



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# Joint End to End Solution

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**Registration  
Pre-  
qualification**

**Data  
Submission**

**Dispatch/  
Delivery**

**Product  
Settlement**

**Imbalance  
Settlement**

**Reporting**

# How can a BSP Participate in the EU mFRR Market?

To participate in the EU mFRR market a Balancing Service Provider (BSP) must accede and comply with both the BSC and CUSC.



## BSC

BSP must 'Qualify' in a relevant participation capacity (e.g. Generator, Supplier or VLP).



## Grid Code

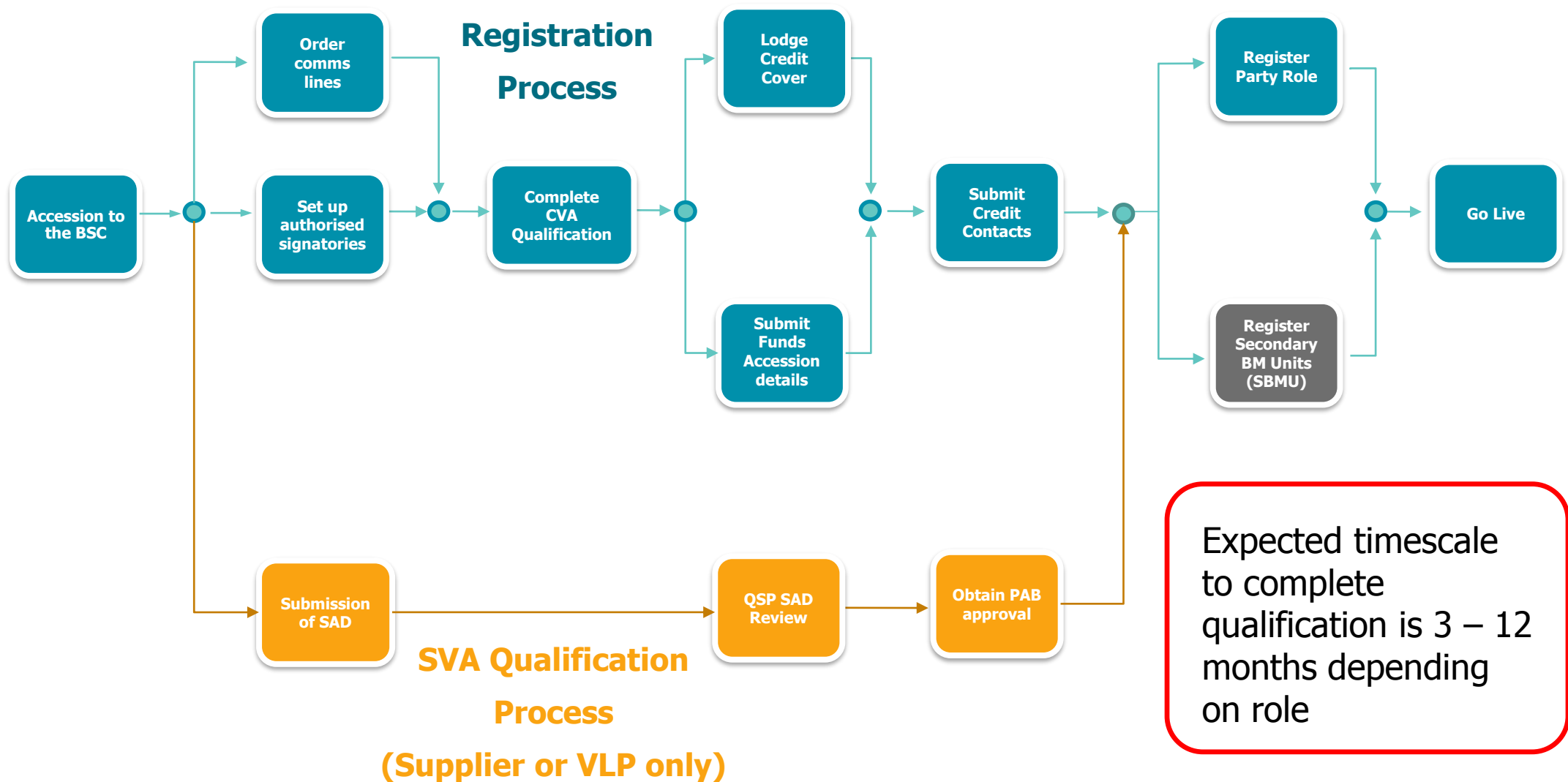
BSP must complete the 'PreQualification' and have the ability to submit MARI bids

Once 'Qualified' under the BSC and 'Pre-Qualified' under the Grid Code a BSP will need to register a BM Unit with both BSC and NGESO

Further information on the BSC [Qualification](#) process can be found on the ELEXON website.

Further information on the [CUSC](#) and [Pre-Qualification](#) process can be found on the NGESO website.

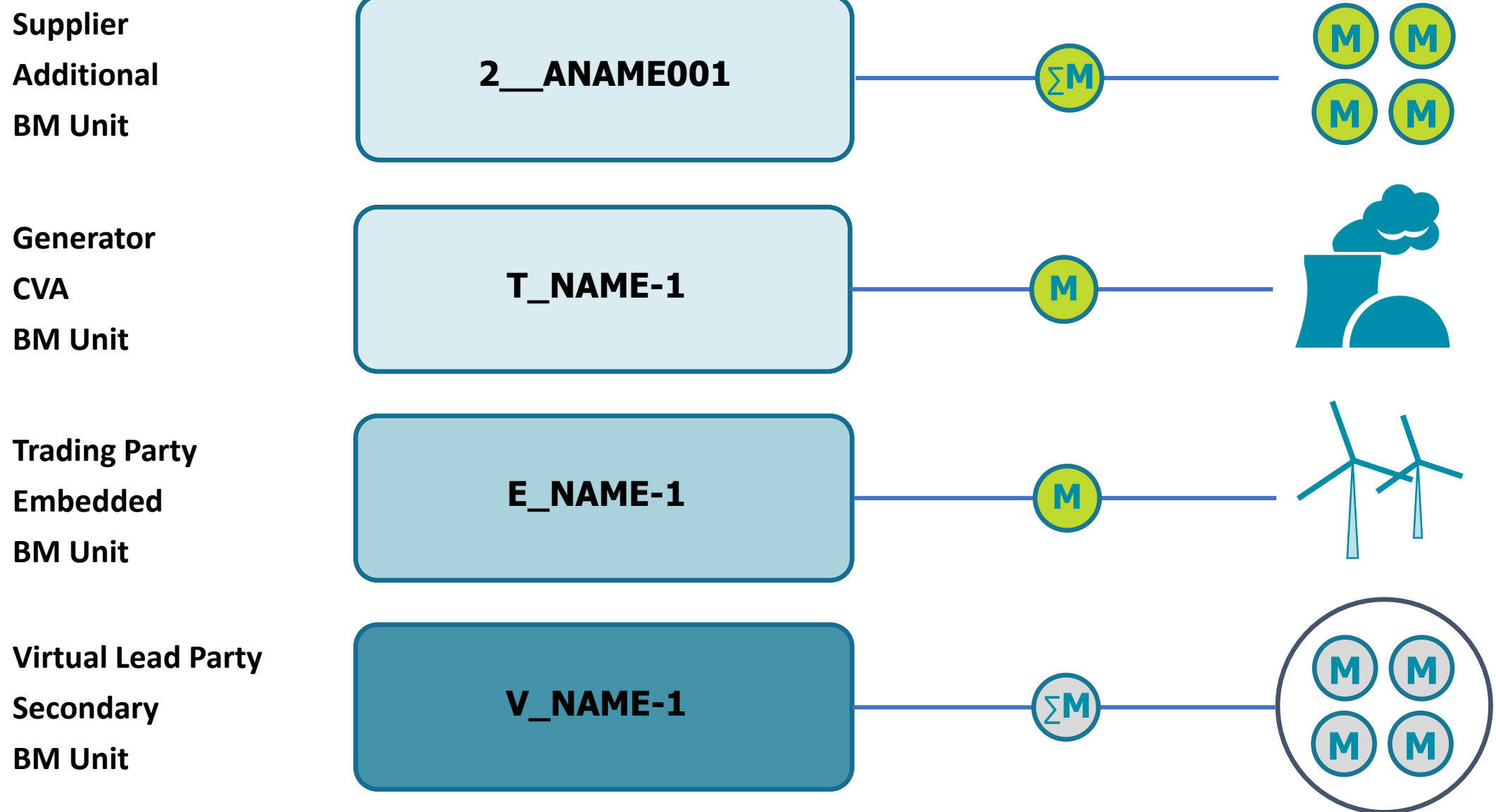
# Qualification – End to End Process



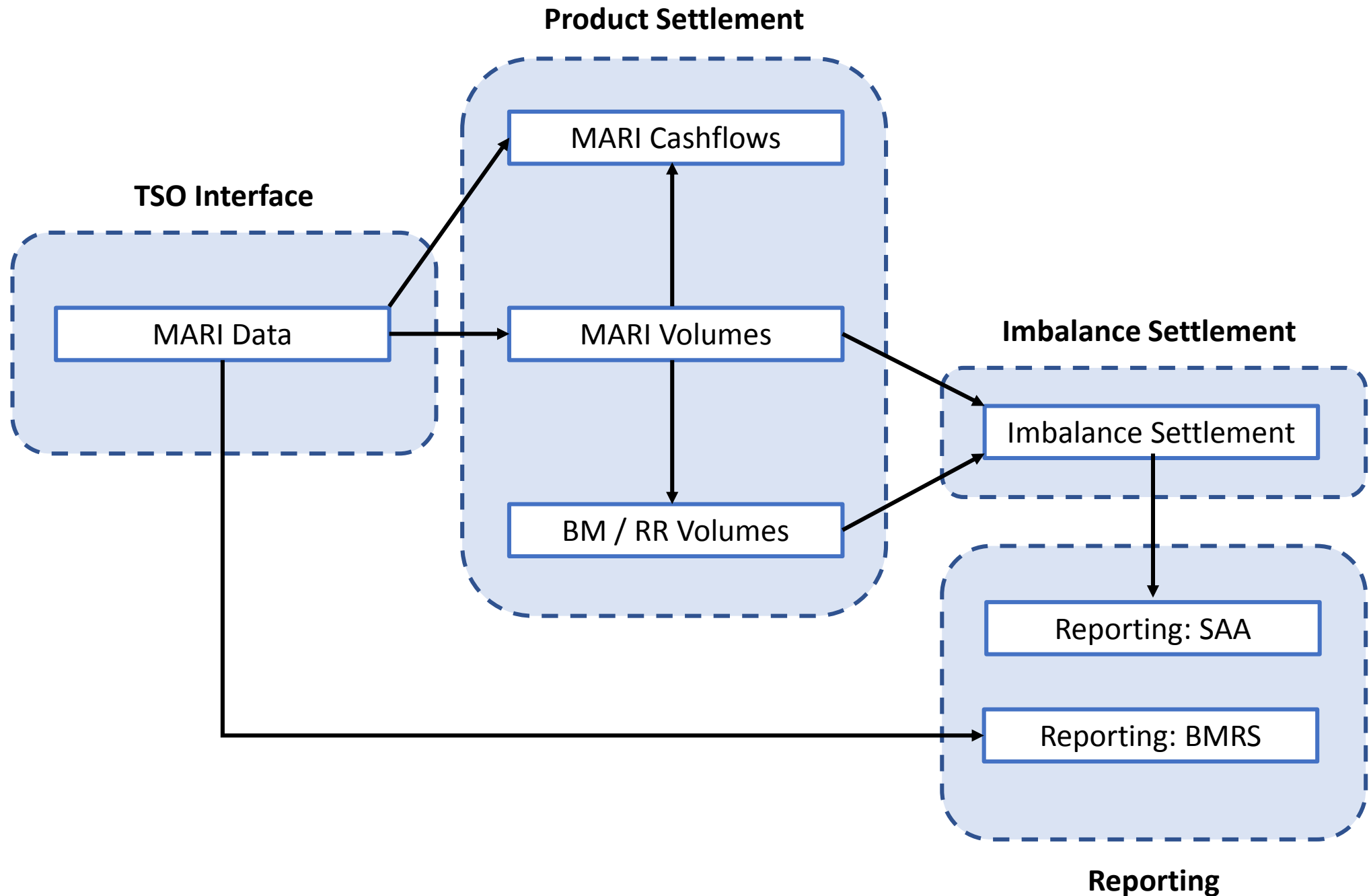
ELEXON has a dedicated Market Entry Team to offer support and advice to new BSC Parties.

Parties can contact them on the ELEXON website [here](#)

# Who Can Participate in MARI?



# Settlement Solution Overview



# Solution Overview – TSO Interface

## TSO Interface

MARI Data

ENTSO-e defined files expected to be received:

- mFRR Bid File
- mFRR Merit Order List (MOL) File
- mFRR Interconnector Schedule File
- mFRR Balancing File



Propose to utilise the existing NGESO – ELEXON interface to validate, load and store MARI data items.



# Solution Overview – TSO Interface

## What data does it contain?



### Merit Order List File

Auction result details including MW, price and start/end times for each successful mFRR bid

### Schedule File

Details of the mFRR flow scheduled on each relevant interconnector

### Balancing

Details of the marginal price

### mFRR Bid File

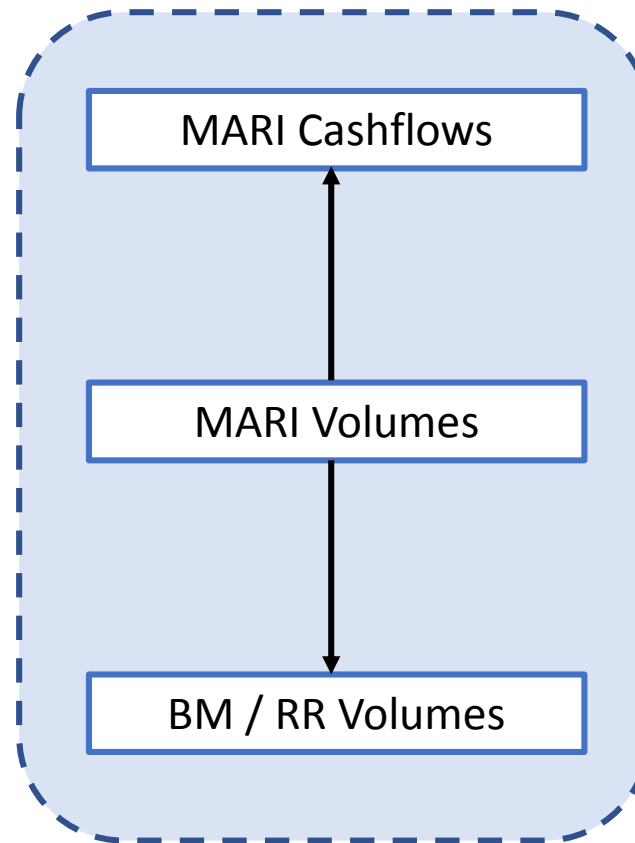
Details of each BSP mFRR bid including MW, price and start/end times

# Solution Overview – Product Settlement

## Product Settlement

### MARI Cashflows

- Main Cashflow
- Instruction Deviation Cashflow
- Non-Delivery Charge



### MARI Volumes

Based upon a settlement derived 'MARI Schedule'

- Based upon BMU dynamic data
- May deviate if the Activation is unfeasible

### BM / RR Volumes Interaction

- Instructions (BM / RR / MARI) processed by order of issue i.e. 'Acceptance Time'
- MARI Schedules to be settled as issued at MARI GCT (similar to TERRE)
- MARI Schedules to have priority if in conflict BM/RR instructions\*

# Solution Overview – Product Settlement

## MARI Cashflows

P407 proposes to calculate how much a Party should be paid for a successful mFRR bid using the 'block' mFRR activations from the MOL Document.

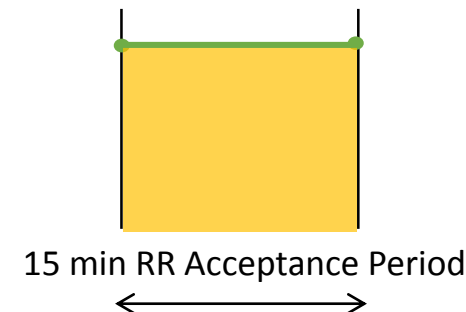
$$= \text{mFRR}_{AV_{ij}} * \text{Price } \text{£} / \text{MWh}$$

**Merit Order List File**

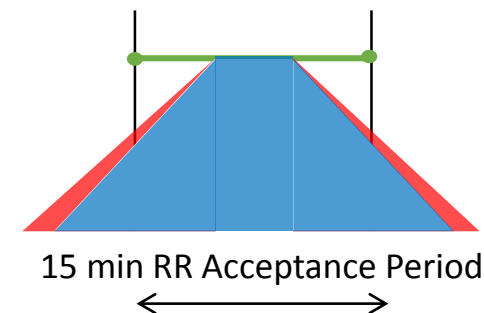
mFRR  
Cashflow

mFRR  
Deviation  
Cashflow

\*\*\* P344 solution has set BEDP = £0 \*\*\*



P407 introduces a second cashflow to (optionally) incentivise delivery of the mFRR Standard Product Shape by applying a Balancing Energy Deviation Price (BEDP) to volumes delivered in addition to / missing from the mFRR Standard Product Shape

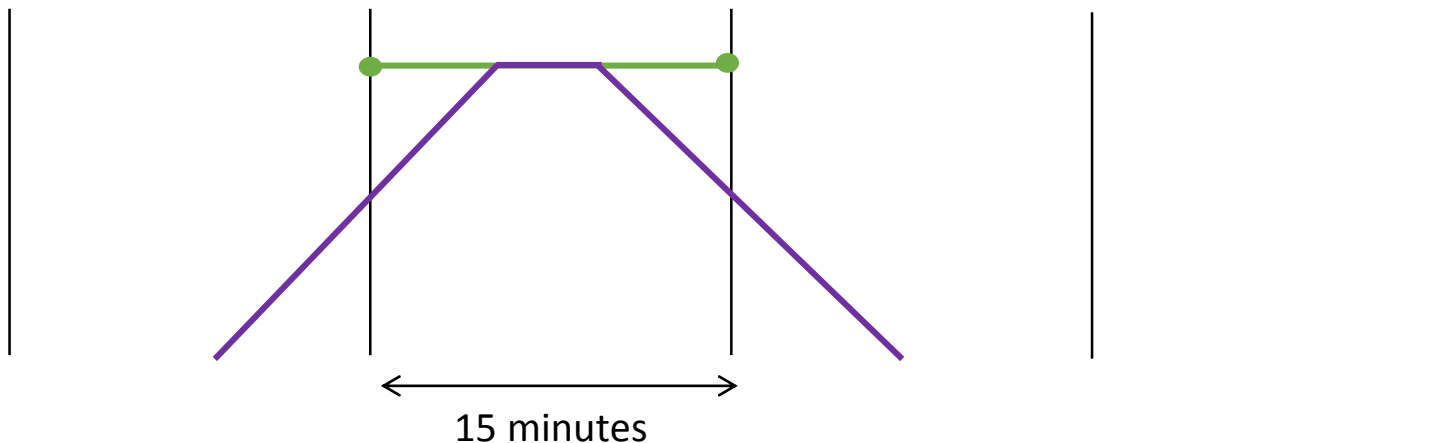


# How will MARI volumes be Settled?



## What is a mFRR Schedule?

- Settlement derived representation of the TSO mFRR dispatch instructions needed to successfully fulfil the activation for a Auction period
- The mFRR Schedule will respect the BM Unit declared Dynamic Data Set (where possible) and align with TSO mFRR Dispatch Principles (as defined by NGESO)

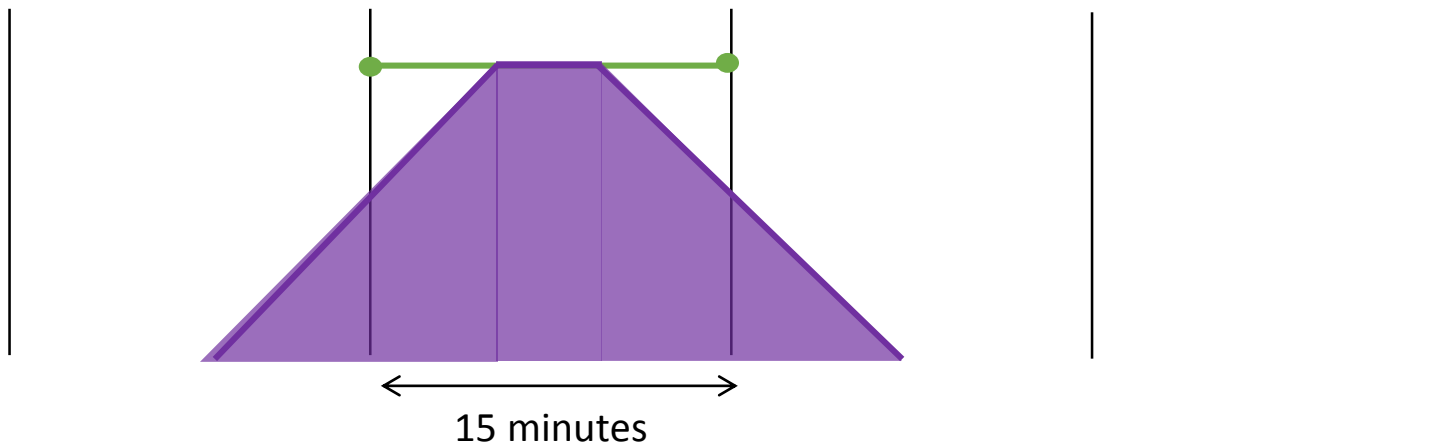


# How will MARI volumes be Settled?



## Why is it needed?

- NGESO have indicated they will not always issue a full mFRR Instruction.
- Settlement needs to account for all activated MARI volumes. Therefore the SAA will construct an 'mFRR Schedule' for use in settlement to account for the instances where a mFRR Instruction is not or partially received.

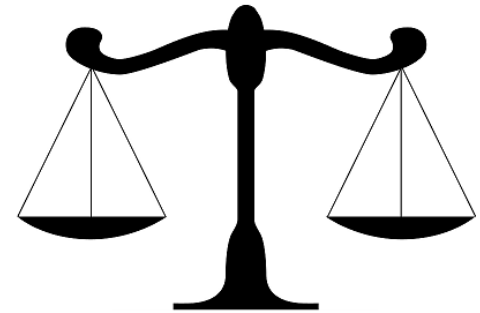


# Solution Overview

Calculation of Energy Imbalance Volume will account for MARI volumes via Account Period Balancing Services Volume

System Operator Cashflow will include MARI Cashflows

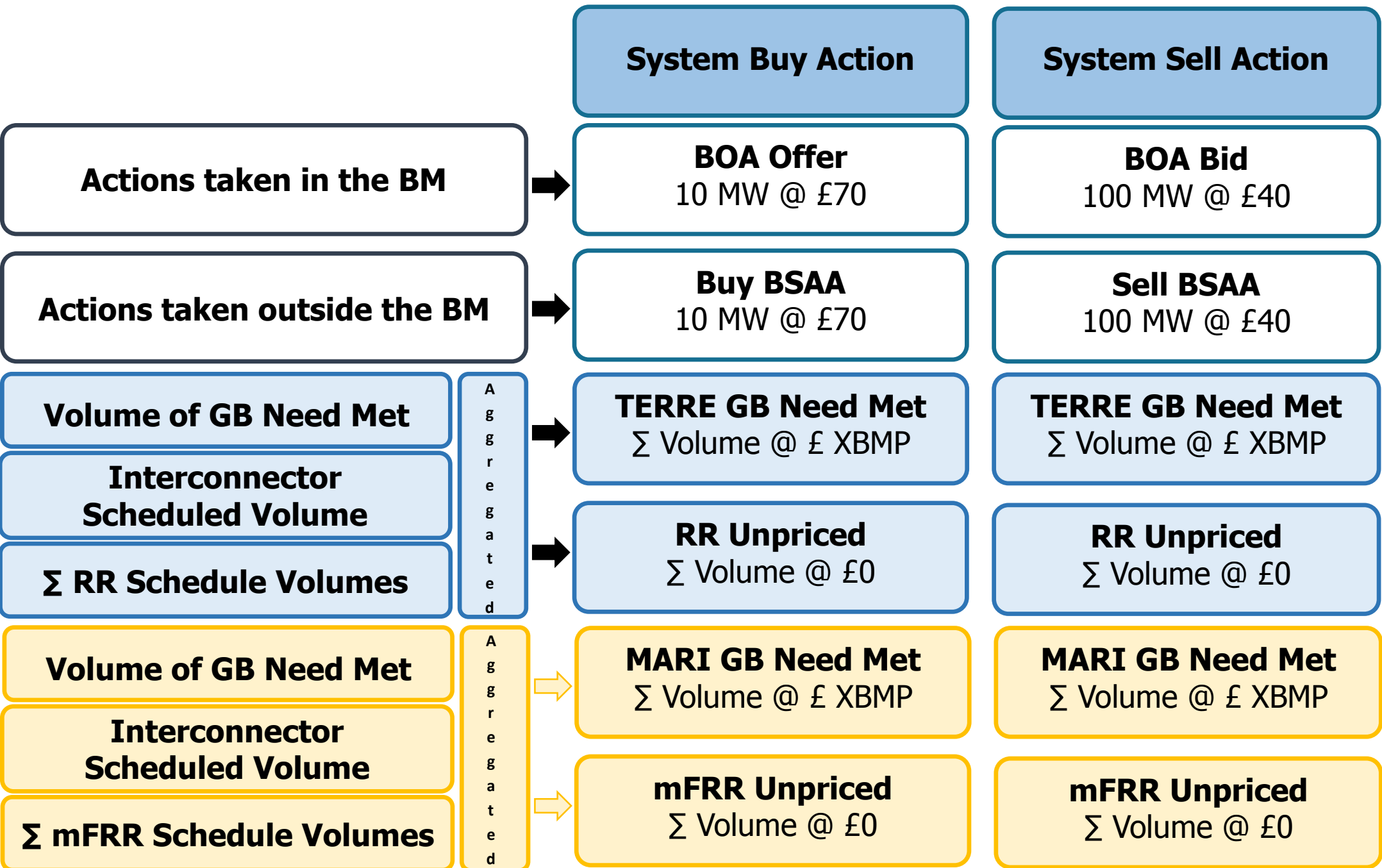
Imbalance Price calculation will be amended to include aggregate MARI balancing actions



**Imbalance Settlement**



# Imbalance Price Calculation



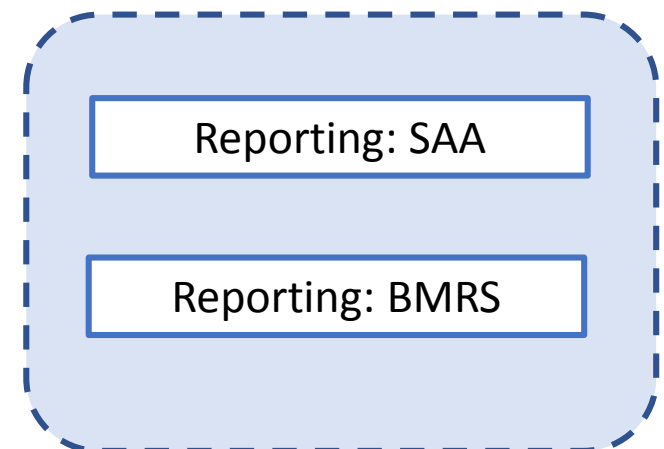
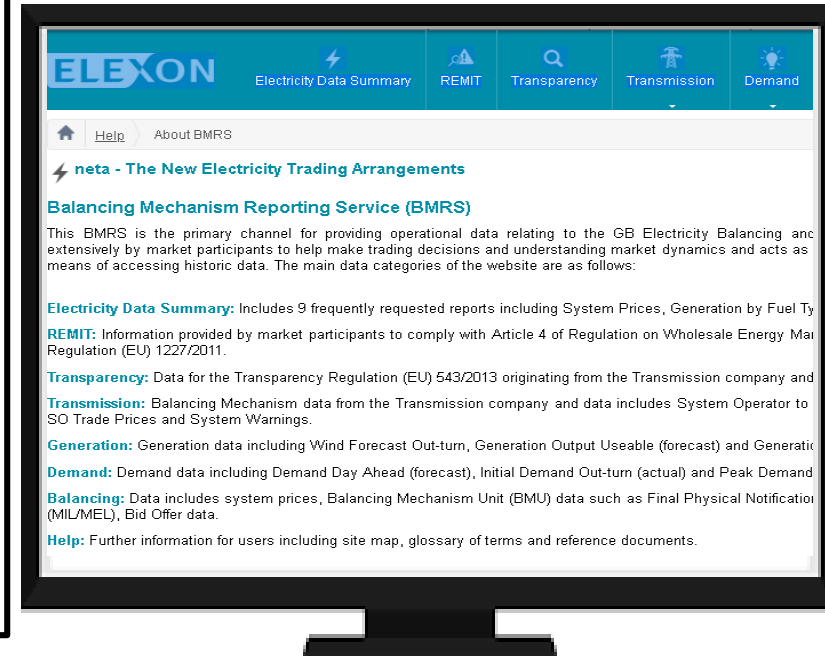
# Solution Overview

SAA – Data to be published post event per Settlement Run

SAA-I014: Settlement Report will be amended to include all relevant MARI data per Settlement Period and Settlement Date.

BMRS – Data to be published in real time including:

- MARI Bids
- MARI Activations
- Indicative MARI cashflows/volumes\*



**Reporting**



# Settlement Solution Overview

