MARI
Manually Activated Reserves Initiative

Presented at BSG meeting 28/9-2017
By Martin Møller
MARI Project Current Status

- Goal - creation of an European platform for mFRR
- TSOs of the cooperation started working on the principles of an mFRR platform already in 2016

RECENT DEVELOPMENT:
- All TSOs approves the MARI project as the European implementation project for mFRR in line with the GLEB on 7 September 2017
- All TSOs bound by GLEB are invited to join the project
Involved Parties – TSOs only

<table>
<thead>
<tr>
<th>MEMBERS</th>
<th>OBSERVERS</th>
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<tbody>
<tr>
<td>AUSTRIA</td>
<td>ESTONIA</td>
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<td>BELGIUM</td>
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**Involved Parties** – TSOs only

- Austria
- Belgium
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- United Kingdom
- Italy
- Netherlands
- Norway
- Portugal
- Spain
- Sweden
- Switzerland

- Estonia
- Hungary
- Latvia
- Lithuania
- Serbia
- Slovakia
- Slovenia
- Croatia
- Poland
- Romania

**Observers**

- MAREV
- AST
- EMC
- ELES
- HOPS
- PSE
Involvement all TSOs bound by the GLEB

Responsible for making sure that the Framework Guidelines are properly implemented

Responsible for making sure that the Guideline on Electricity Balancing is properly implemented

Responsible for making sure that the European mFRR Platform is properly implemented according to GLEB
Approach to External Stakeholders

- The involvement and feedback from the stakeholders is of utmost importance
- We plan a 3-step approach in communication with the stakeholders

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Purpose</th>
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<tbody>
<tr>
<td>Stakeholder workshop</td>
<td>4 September 2017</td>
<td>Introduce the project and provide information in a concise manner</td>
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<tr>
<td>MARI Stakeholders Feedback Collection</td>
<td>November, December 2017</td>
<td>Provision of a design report for external purposes and collection of feedback through an associated questionnaire</td>
</tr>
<tr>
<td>Public Consultation according to GLEB</td>
<td>May, June 2018</td>
<td>Standard public consultation of the finalized design proposal</td>
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</table>

No delays in the project due to the stakeholders’ feedback

Creation of a liquid platform
Approach to External Stakeholders

- First stakeholder workshop took place on 4 September 2017
- The feedback is being carefully considered
- Further feedback will be collected by means of a questionnaire available at the ENTSO-E web page
Communication with the NRAs

- MARI engages in discussion with NRAs in order to communicate the progress of the mFRR design preparation, and to gradually align and understand the challenges.

- Regular Implementation Group meeting with the MARI Project and the NRA’s will be held. Kick-off meeting between MARI and concerned NRA’s took place end of August 2017.

- The NRA’s have organised themselves with a SPOC dedicated to this Project.
Project Timeline according to the Balancing Guideline

Preparatory Work
- Design 1 – Collection of options
- Design 2 – Selection from available options

Simulations

Implementation
- Details for implementation are not yet finalised

Timeline:
- 2016: MoU Signed
- 2017: Selected as reference project
- 2018:
  - Timeframe for First Stakeholders Feedback
  - Timeframe for Public Consultation: > 2 months
- 2019:
  - Deadline for proposal submission on European mFRR Platform
  - NRAs approval of the design
- 2020-2022: Go-Live
# Design Roadmap Milestones

<table>
<thead>
<tr>
<th>MILESTONE</th>
<th>DATE</th>
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<tbody>
<tr>
<td>1  MC Decision on the Implementation Project</td>
<td>7 September 2017</td>
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<tr>
<td>2  Design 1 - Identification of options finalized</td>
<td>30 September 2017</td>
</tr>
<tr>
<td>3  Design 2 - Selection from options and proposal finalized</td>
<td>30 April 2018</td>
</tr>
<tr>
<td>4  Public Consultation Conducted</td>
<td>30 June 2018</td>
</tr>
<tr>
<td>5  Submission of the design to NRAs</td>
<td>1 December 2018</td>
</tr>
<tr>
<td>6  NRAs Approval</td>
<td>1 June 2019</td>
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<tr>
<td>7  Implementation</td>
<td>2019-2022</td>
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</table>
General Process

1. TSOs receive offers from BSPs in local market balance area
2. Forward of coherent mFRR balancing products to mFRR platform
3. TSOs communicate their balancing needs and the available XB transmission capacities (ATC)
4. Optimization of the clearing of balancing needs against BSPs’ offers
5. Communication of the accepted offers, satisfied needs and prices
6. Calculation of the commercial flows between market balancing areas and settlement of the expenditure and revenues between TSOs
7. The resulting XB schedules and remaining ATC are sent to the TSOs
The Product to be handled by the MARI Platform

- Time To Restore Frequency should be harmonized at 15 minutes throughout Europe (System Operation Guideline)

- TSO’s need a product with a full activation time of 15 minutes or less; exact requirement still to be defined

- Scheduled activations each fifteen minutes. BSP always activated 7.5 minutes before the start of an ISP

- Direct activation at any point in time

- All products ends at the end of an ISP
Full Activation Time (FAT) definition

- **Context:** GLSO (System Operation Guideline) requirements
  - To manage the system while respecting frequency quality targets, TTRF (Time To Restore Frequency) should be harmonized at 15 minutes throughout Europe.

- **Implications:** for mFRR, at least 2 possible interpretations:
  - $\text{FAT}_{\text{mFRR}} \leq 15'$
  - $\text{FAT}_{\text{mFRR}} < 15'$

- **Consequences for MARI:** at least two options in consideration
  - $\text{FAT}_{\text{mFRR}} = 15'$
  - $\text{FAT}_{\text{mFRR}} = 12.5'$

- **Conclusion:** MARI will follow the recommendation from ENTSO-E and put forward the possible options as soon as possible to obtain the view of the stakeholders.
Product Properties

mFRR Product Properties are based on:

- Key characteristics of standard products from GLEB (Art. 25)
- Further properties

<table>
<thead>
<tr>
<th>Figures legend</th>
<th>Properties</th>
<th>Expected Shape</th>
<th>Accepted Shape</th>
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<tbody>
<tr>
<td>1</td>
<td>Preparation Period</td>
<td>2.5'</td>
<td>0-12.5' (Exact accepted shape set by the local TSOs)</td>
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<tr>
<td>2</td>
<td>Ramping Period</td>
<td>10'</td>
<td>0-12.5' (Exact accepted shape set by the local TSOs)</td>
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<tr>
<td>3</td>
<td>Full Activation Time</td>
<td></td>
<td>12.5'</td>
</tr>
<tr>
<td>4</td>
<td>Minimum duration of delivery period</td>
<td>5' (scheduled and direct activation)</td>
<td>(Exact accepted shape set by the local TSOs)</td>
</tr>
<tr>
<td>5</td>
<td>Maximum duration of delivery period</td>
<td>20' (longest direct activation)</td>
<td>5' (longest scheduled activation) (Exact accepted shape set by the local TSOs)</td>
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</table>

- Minimum quantity: 1 MW
- Maximum quantity: 9999 MW
- Deactivation period: 10'
- Validity period: To be analyzed in the next phase of the project
- Mode of activation: Manual

NOTE: Table given with the assumption of a FAT equal to 12.5min
Specific Bid Properties - Linking Bids

- In general, bids can be linked in power and in time for economical reasons.
  - Linking of bids in time by BSPs is not feasible because optimization is done per 15’ period and not over several periods.
  - Linking in power is feasible and economically advantageous for both BSPs and TSOs. However, not all possible links will be allowed and there will be limits to the possibilities (e.g. max number of linked bids).
  - Different options will be investigated:
    - Linked bid orders
    - Exclusive group orders
    - ...

Note:
There exists a need to link bids in time, i.e. over different periods, for technical reasons. A methodology for this will be developed.
E.g.: a scheduled activated bid in ISP0 that is also offered for ISP1 cannot be direct activated at the start of ISP1. Since GCT for BSPs for ISP1 will fall after the clearing of scheduled bids for ISP0, this information must be known to the platform.
Specific Bid Properties - Indivisible Bids - Maximum Bid Size

- **Current Situation**: Most of the TSOs in the cooperation allow indivisible bids. Nevertheless, the maximum bid size varies from a minimum of 25 MW (Germany) to a maximum of approximately 300 MW (Portugal).

- **Allow indivisible bids**: Since most TSOs allow indivisible bids, this should be allowed in the MARI cooperation as well.

- **Maximum bid size**: Different criteria have to be considered in order to determine the maximum bid size.

<table>
<thead>
<tr>
<th>Advantages of small maximum bid size</th>
<th>Disadvantages of both options</th>
<th>Advantages of big maximum bid size</th>
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</thead>
<tbody>
<tr>
<td>Avoid market abuse</td>
<td>Implementation effort</td>
<td>Liquidity</td>
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<tr>
<td>Smaller deviations from need</td>
<td>Changes to current market design</td>
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<td>Incentives for BSPs to be flexible</td>
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TSO-BSP Rules Harmonization – Working Assumption

- The TSO-BSP Rules harmonization is a very complex topic as evident from the experience gained in Germany and Nordic countries. This complexity requires extensive work and involvement of the members, which would most likely delay the implementation of the platform.

- The TSOs prefer to focus on the creation of the European mFRR platform, which will be followed by the concentrated work on the TSO-BSP rules harmonization.

- The “correct” level of TSO-BSP harmonization rules is likely to materialize when the market is developed and BSPs will raise their requirements based on their experience with the new platform, by this we avoid to over harmonize

- We assume that BSPs favor creation of European market over full harmonization of TSO-BSP rules
Thank you for your attention!

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