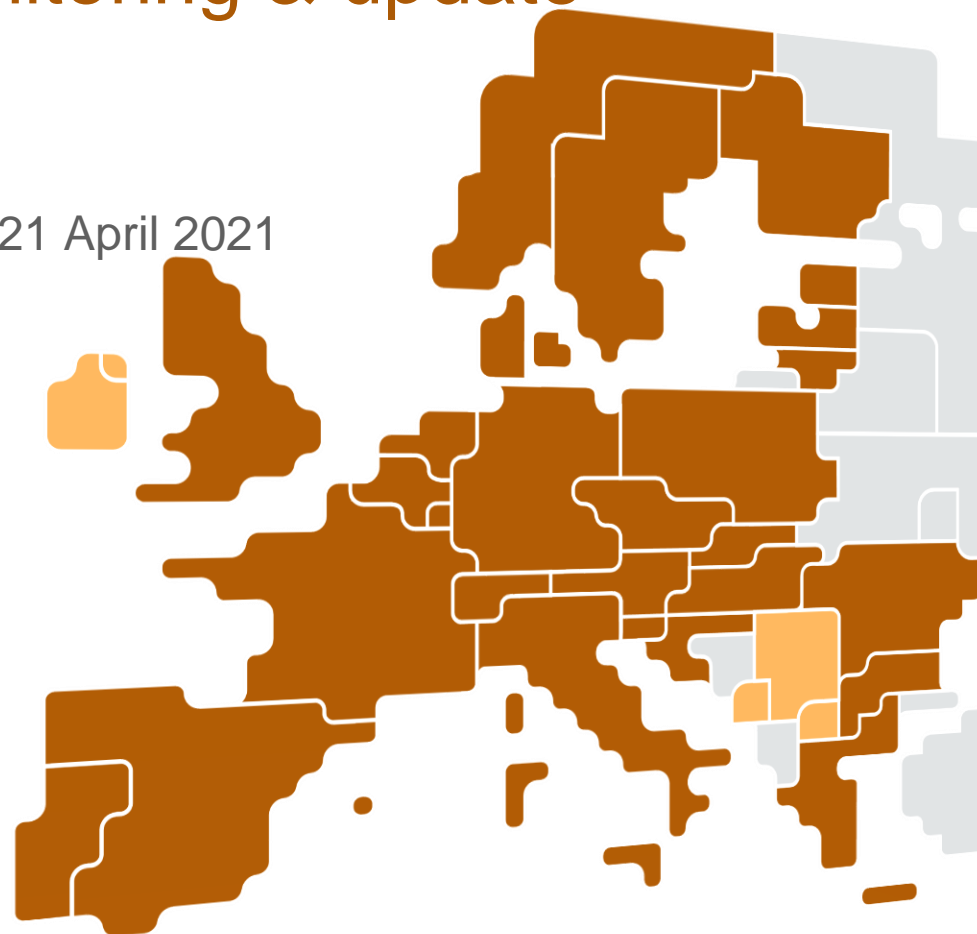


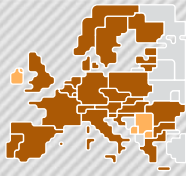


# MARI project monitoring & update

Electricity Balancing

Stakeholder Group meeting, 21 April 2021





### SUBJECT

- 1 **Project overview**
- Project planning
  - Project status and milestones
  - Work Streams

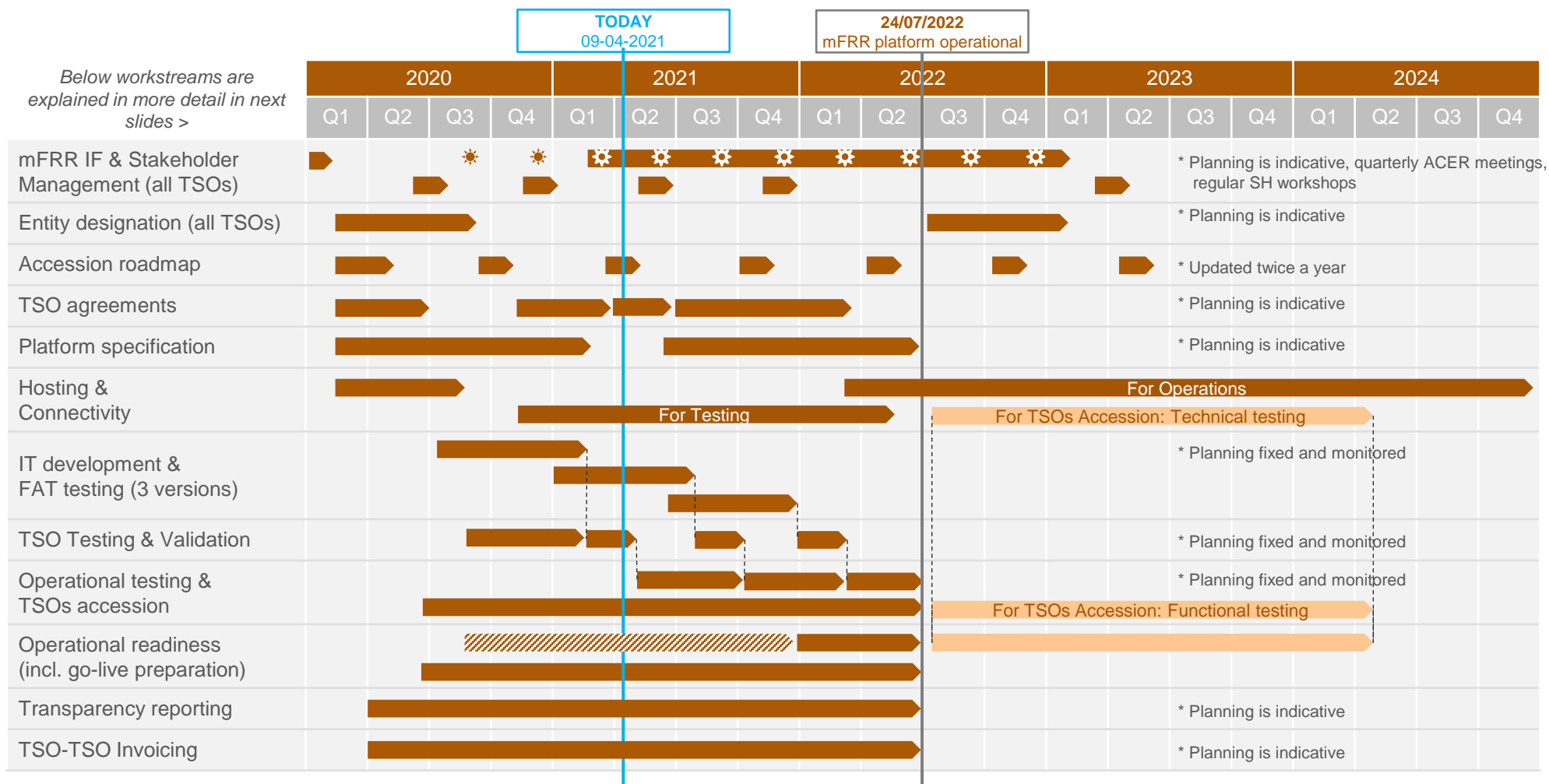
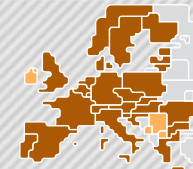
- 2 **Project Management**
- Governance
  - Risks

- 3 **Outlook**
- AOBs

- Appendix**
- Abbreviation list

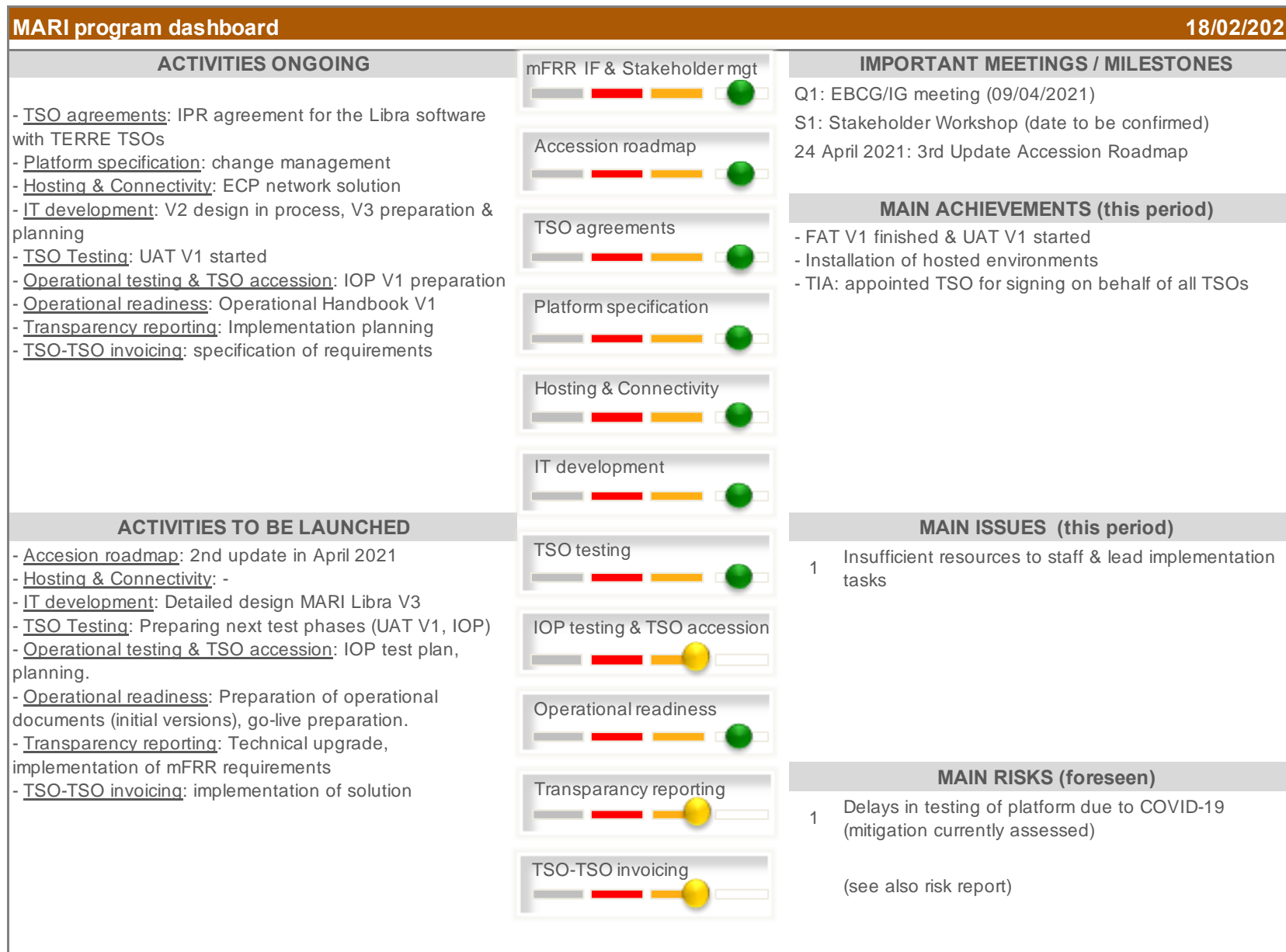
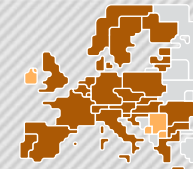
# 1. MARI Project Overview

## Project planning



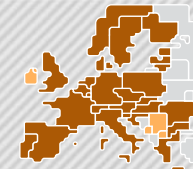
# 1. MARI Project Overview


## Project status and milestones



# 1. MARI Project Overview

## Work Streams – 1/4

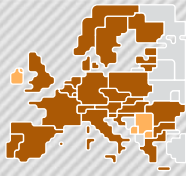


 Topic up for clarification, elaboration, discussion today's meeting → see next slides  
Important upcoming milestones are in bold

	Milestone	Past and Future Milestones	Status	Explanation
mFRR IF & Stakeholder Management	13/7/2020 9/3/2020 24/1/2020	<ul style="list-style-type: none"><li>• First Stakeholder Workshop</li><li>• First IG meeting</li><li>• mFRR IF approved</li><li>• <b>1st Amendment of All TSOs' proposal (mFRR IF)</b></li></ul>	<ul style="list-style-type: none"><li>• Closed</li><li>• Closed</li><li>• Closed</li><li>• In Progress</li></ul>	ACER decision mFRR IF published. Stakeholder Workshops are to be held 1x per year IG meetings are to be held 4x per year
Entity designation	24/07/2020	<ul style="list-style-type: none"><li>• Entity designation AOF</li></ul>	<ul style="list-style-type: none"><li>• Closed</li><li>• In Progress</li></ul>	MARI TSOs have confirmed the entity designation for the MARI platform by 24 July 2020.
Accession roadmap	24/04/2020 24/10/2020 24/04/2021	<ul style="list-style-type: none"><li>• Accession roadmap first version published 24/4/2020</li><li>• Accession roadmap first update published 13/11/2020</li><li>• <b>Second update</b></li></ul>	<ul style="list-style-type: none"><li>• Closed</li><li>• Closed</li><li>• In Progress</li></ul>	Accession roadmap will be updated twice a year.

# 1. MARI Project Overview

## Work Streams – 2/4



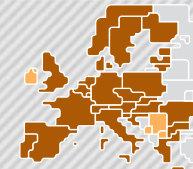
Topic up for clarification, elaboration, discussion today's meeting → see next slides  
Important upcoming milestones are in bold

	Milestone	Past and Future Milestones	Status	Explanation
TSO agreements	20/05/2020	• TSOs approve contractual framework	• Closed	TSOs have completed the signature process on the contractual framework encompassing all the necessary agreements for the establishment and operation of the balancing platforms, including MARI. All signatures have been received.
	01/07/2020	• EIF TSO agreements, all signatures received	• Closed	
	TBC (2021)	• <b>IPR agreement LIBRA</b>	• In progress	
	TBC (2021)	• <b>MARI Platform Support &amp; Maintenance agreement</b>	• Open	
Platform specification	01/07/2020	• Specify all detailed functions of the platform and underlying design concepts	• Closed	Completed with the delivery of Requirements catalogue V3.1 Feasibility demonstrated via Proof of Concept by IT providers, completed during the “Initial Study of the MARI Change Request on LIBRA” TWG to deliver RC procedures
	01/07/2020	• Validate the feasibility to add the MARI required functions to the LIBRA software	• Closed	
	17/02/2021	• AOF - Bid Structure and Linkage	• Closed	
	9/12/2020 TBC TBC	• Requirement Change Management <ul style="list-style-type: none"><li>• Pre-go live</li><li>• Parallel run</li><li>• Post-go live</li></ul>	• In progress	



# 1. MARI Project Overview

## Work Streams – 3/4

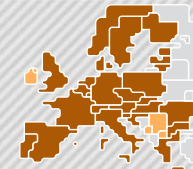



Topic up for clarification, elaboration, discussion today's meeting → see next slides  
Important upcoming milestones are in bold

	Milestone	Past and Future Milestones	Status	Explanation
Hosting & Connectivity	30/06/2020	• Hosting Requirements Catalogue approved	• Closed	Deliver the hosting environments and the (real-time) connectivity & communications required for the testing and operation of the MARI AOF
	18/12/2020	• Hosting for FAT/UAT ready	• Closed	
	01/02/2021	• V1 installed and ready for testing	• Closed	
		• <b>Ready for IOPs after each MARI version</b>	• Open	
	03/05/2021	• <b>V1</b>	• Open	
	04/10/2021	• <b>V2</b>	• Open	
	28/02/2022	• <b>V3</b>	• Open	
	28/02/2022	• PROD server ready for GL qualification	• Open	
Implementation Guide	End 2020	• <b>Deliver Implementation Guide to TSOs</b>	• Closed	Published on <a href="#">ENTSO-E EDI library*</a>
IT development & FAT testing	01/04/2020	• Start of Initial Study	• Closed	TSOs have finalized the detailed technical and functional study into the IT implementation of the mFRR requirements and will develop the MARI solution in 3 versions, branching off from LIBRA v6.1 (latest release for TERRE)
	01/07/2020	• Start of Design & Develop V1	• Closed	
	15/03/2021	• Approval of V1	• Closed	
	02/11/2020	• <b>Start of Design &amp; Develop V2</b>	• In progress	
	02/08/2021	• <b>Approval of V2</b>	• Open	
	29/03/2021	• Start of Design & Develop V3	• Open	
	01/01/2022	• Approval of V3	• Open	
TSO Testing	01/08/2020	• Start of testing preparations	• In progress	UAT V1 has started and is being tested by Testing Taskforce.
	End 2020	• Procurement of test support	• In progress	
	Early 2021	• Readiness for TSO testing	• In progress	
	15/03/2021	• Start of UAT V1	• In progress	
	30/04/2021	• <b>Approval of UAT V1</b>	• Open	
	01/08/2021	• Start of UAT V2	• Open	
	30/09/2021	• Approval of UAT V2	• Open	
	01/01/2022	• Start of UAT V3	• Open	
	28/02/2022	• Approval of UAT V3	• Open	

# 1. MARI Project Overview

## Work Streams – 4/4



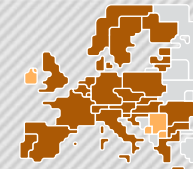
 Topic up for clarification, elaboration, discussion today's meeting → see next slides  
Important upcoming milestones are in bold

	Milestone	Past and Future Milestones	Status	Explanation
Operational testing & TSO connectivity	Q1/Q2 2021 03/05/2021 04/10/2021 28/02/2022	<ul style="list-style-type: none"> <li>• <b>Prepare IOP testing</b></li> <li>• <b>Start of IOP test on V1</b></li> <li>• IOP test on V2</li> <li>• IOP test on V3</li> <li>• Approval of IOP testing</li> </ul>	<ul style="list-style-type: none"> <li>• Open</li> <li>• Open</li> <li>• Open</li> <li>• Open</li> <li>• Open</li> </ul>	Test of the communication between the MARI platform and all connected systems. These include all TSO interfaces as well as the interface to the transparency platform and the invoicing agent.
Operational readiness (incl. go-live preparation)	01/07/2020  Q1 2021  Q3/Q4 2021 24/06/2022	<ul style="list-style-type: none"> <li>• <b>Start of preparing operational documentation</b></li> <li>• <b>Delivery of Operational Handbook V1</b></li> <li>• Approve Go Live Criteria</li> <li>• Confirm operational readiness based on Go Live Criteria</li> </ul>	<ul style="list-style-type: none"> <li>• In progress</li> <li>• In progress (first version)</li> <li>• Open</li> <li>• Open</li> </ul>	Operational readiness will be confirmed with the fulfilment of the Go Live requirements, including successful completion of Interoperability testing (IOP)..
Transparency reporting	Q4 2020  Q1 2021 Q2 2022 24/07/2022	<ul style="list-style-type: none"> <li>• Agreement on the requirements for MARI</li> <li>• Start of development</li> <li>• Start of testing</li> <li>• Operational readiness</li> </ul>	<ul style="list-style-type: none"> <li>• Closed</li> <li>• Open</li> <li>• Open</li> <li>• Open</li> </ul>	ENTSO-E is responsible for the Transparency Platform, the TSOs for publishing data on the platform. The ENTSO-E MC (MIT) is in lead of facilitating a process to agree with the balancing projects a timely adaption of the TP. The TP requirements for mFRR reporting are clear and validated.
TSO – TSO Invoicing	Nov 2020  Jan 2021	<ul style="list-style-type: none"> <li>• Agreement on the requirements for MARI</li> <li>• Task allocation / procurement</li> </ul>	<ul style="list-style-type: none"> <li>• Closed</li> <li>• In progress</li> </ul>	TSOs consider to cooperate on a cross platform solution in order to take out potential synergies. The requirements mFRR TSOs are clear and validated.

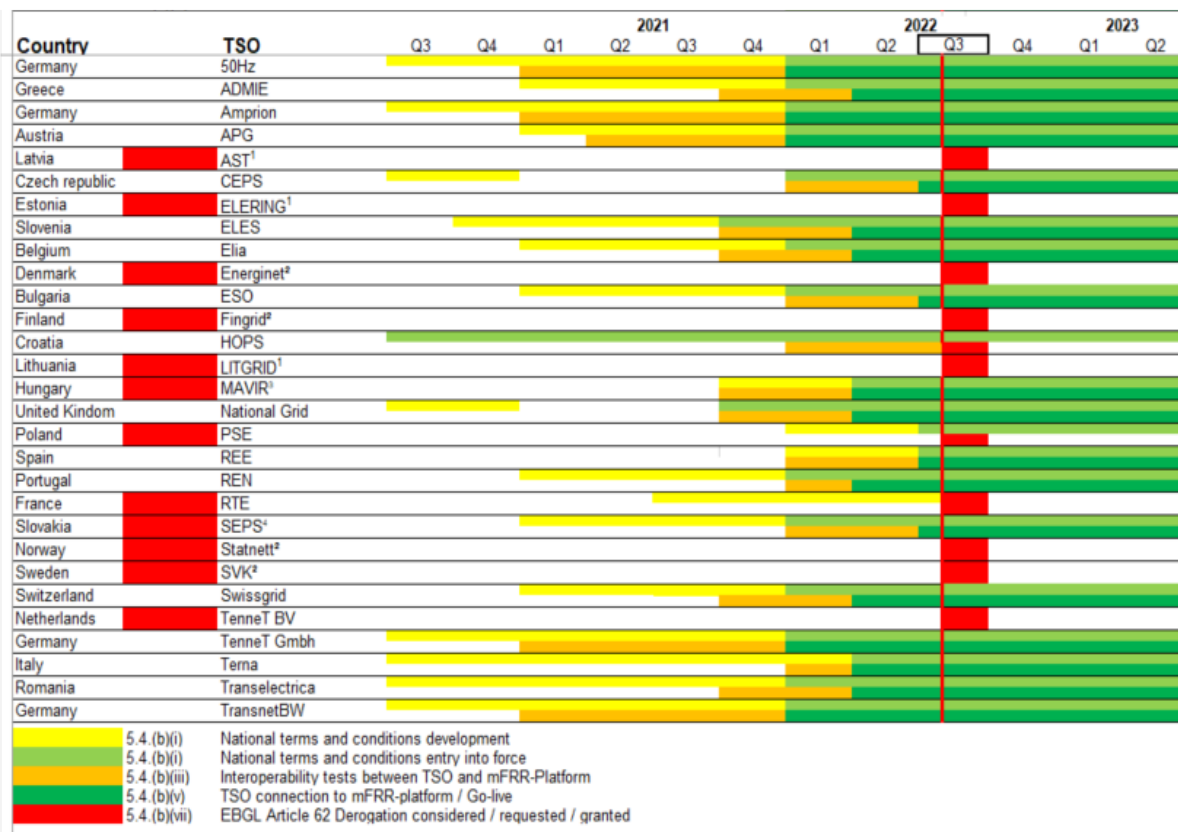


## 2. MARI Project Management

### Governance



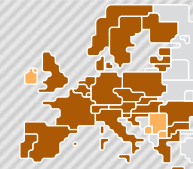
- The Manually Activated Reserves Initiative ('MARI') is the implementation project endorsed by all TSOs through ENTSO-E's Market Committee on 7 September 2017 to establish the European platform for the exchange of balancing energy from frequency restoration reserves with manual activation, i. e. the 'mFRR-Platform' pursuant to Article 20 of the EB Regulation.
- The accession of the TSO of Bulgaria (ESO) as a member and Creos (the TSO of Luxembourg) as non-operational member of MARI is completed as of July 1, 2020
- The TSO of Montenegro (CGES) has been sent the Accession Letters of the MARI agreements in order to become observer.
- All MARI member TSOs (countries) are:



Last updated on 09/10/2020 – published 13/11/2020

## 2. MARI Project Overview

### Risk report



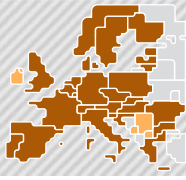
Risk	Status	Measures
<b>mFRR IF &amp; Stakeholder Management</b> <ul style="list-style-type: none"> <li>ACER decision on multiple entities/TSO entities and TSOs litigation at EU Court taking place in // to platform realization.</li> <li>United Kingdom/NG ESO – uncertainty on the participation of NG ESO due to the lack of provisions on electricity balancing in the Trade Agreement of March 2021.</li> </ul>		<ul style="list-style-type: none"> <li>Implementation project remains focused on mFRR IF while bearing mind the ongoing litigation.</li> </ul>
<b>Accession roadmap</b> <ul style="list-style-type: none"> <li>Local readiness of some TSOs for (IOP) testing delayed, impact on accession to be determined.</li> </ul>		<ul style="list-style-type: none"> <li>Establish regular reporting about process and status of local implementations.</li> </ul>
<b>Platform Specification</b> <ul style="list-style-type: none"> <li>Scope creep/change requests: change requests due to progressive insights during IT development.</li> <li>COVID impacting vendor resources for platform development</li> </ul>	 	<ul style="list-style-type: none"> <li>Involve experienced Change Control Adviser to verify the IT implementation against the requirements and manage the change request process, securing that omissions and faults are identified as early as possible and verifying the impact of changed requirements to the IT development.</li> </ul>
<b>Hosting &amp; Connectivity</b> <ul style="list-style-type: none"> <li>COVID impacting delivery and installation of hardware</li> </ul>		
<b>TSO testing</b> <ul style="list-style-type: none"> <li>Algorithm quality &amp; performance – designed algorithm might not fulfill requirements and/or operational use</li> </ul>		<ul style="list-style-type: none"> <li>Several testing waves and go-live waves with clear entry and exit criteria are to be defined. Furthermore, operational experiences from TERRE and additional studies are to be assessed on applicability to the MARI platform.</li> </ul>
<b>Operational readiness</b> <ul style="list-style-type: none"> <li>Potential interdependencies in the go-live planning between different projects and TSOs</li> </ul>		<ul style="list-style-type: none"> <li>Strong PMT attention to integrate all cross-platform activities and manage the overall resource plan. Regular alignment between Project PMTs (MARI, PICASSO/IGCC, TERRE) to align technical, IT and business activities.</li> </ul>
<b>Transparency reporting</b> <ul style="list-style-type: none"> <li>Technical feasibility (real-time data, large volume, high frequency) – dependency on architectural upgrade</li> <li>Resources (ENTSO-E, IT providers) impacting timely delivery</li> </ul>		<ul style="list-style-type: none"> <li>Joined TF of ENTSO-E and platform representatives to monitor and guide the implementation activities</li> </ul>

Probability: What is the chance the risk occurs?  
Impact: What is the impact when the risk occurs?

- Likely to occur, if it occurs impact is severe
- Quite likely to occur, if it occurs impact is manageable
- Not likely to happen, if it occurs impact is low

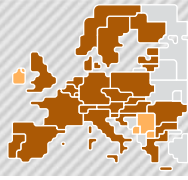
### 3. Outlook

#### AOBs

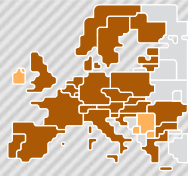


#### AOBs

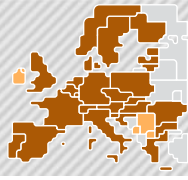
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Abbreviation	Term
aFFR	automatic Frequency Restoration Reserve
AOF	Activation Optimization Module
ATC	Available Transmission Capacity
BRP	Balancing Responsible Party
BSP	Balancing Service Provider
CACM GL	Capacity Allocation & Congestion Management Guideline
CBCL	Cross-Border Capacity Limit
CBMP	Cross-Border Marginal Price
CMM	Capacity Management Module
CMOL	Common Merit Order List
CSP	Common Service Provider
CZC	Cross-Zonal Capacity
DA	Direct Activation
DFR	Desired Flow Range
EB GL	Electricity Balancing Guideline
ECP	Energy Communication Platform
FAT	Factory Acceptance Test
GCT	Gate Closure Time
GUI	Graphical User Interface



Abbreviation	Term
GV	Guaranteed Volume
HVDC	High Voltage Direct Current
IF	Implementation Framework
IOP	Interoperability Phase
IPR	Intellectual Property Rights
ISP	Imbalance Settlement Period
ITWG	IT Working Group
KPI	Key Performance Indicator
LMOL	Local Merit Order List
LWG	Legal Working Group
mFFR	manual Frequency Restoration Reserve
MTU	Market Time Unit
NPL	Net Position Limit
OWG	Operational Working Group
PCN	Physical Communication Network
PMT	Project Management Team
RC	Requirement Catalogue
SA	Scheduled Activation
SOGI	System Operational Guideline



Abbreviation	Term
TIA	TSO Invoicing Agent
TP	Transparency Platform (in the context of data publication platform) / Technical Profile (in the context of type of allocation constraints)
TTF	Testing Task Force
TTRF	Time To Restore Frequency
TWG	Technical Working Group
UAB	Unforeseeable Accepted Bid
UAT	User Acceptance Test
URdB	Unforeseeable Rejected fully divisible Bid
URiB	Unforeseeable Rejected indivisible Bid
XB	Cross-border