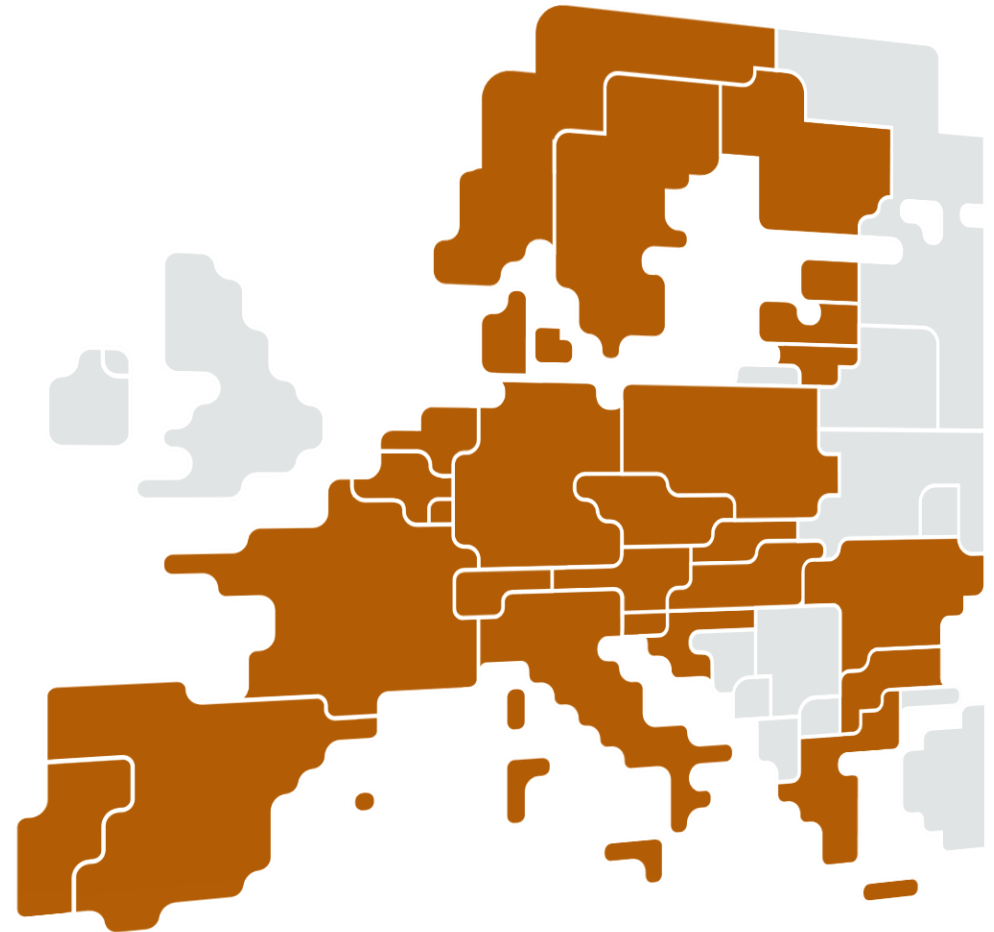


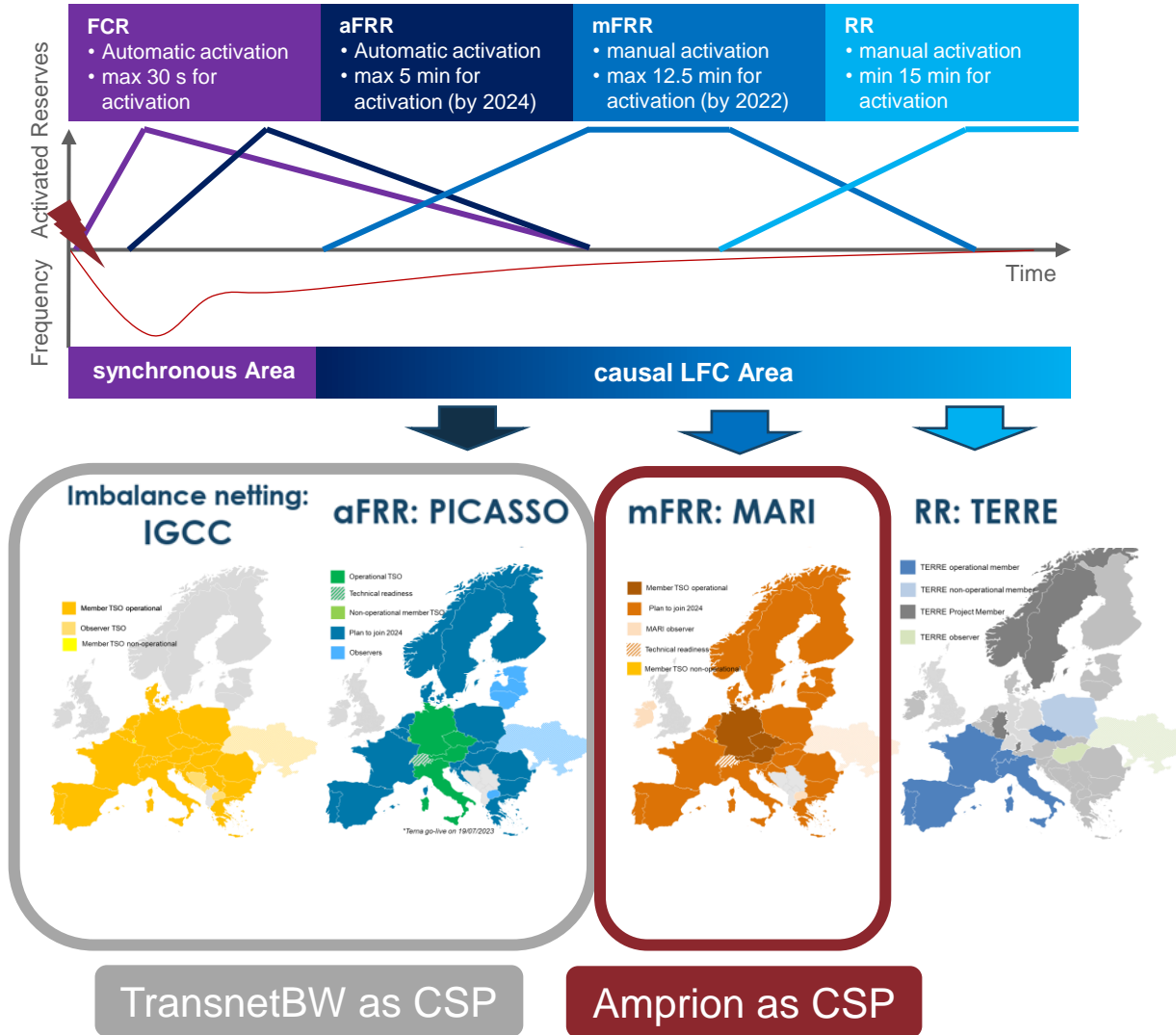


MARI Stakeholder Workshop

30th November 2023



1. Introduction	10:30 - 10:40 CET
2. Operational Platform Reporting	10:40 - 11:00 CET
3. Accession Roadmap	11:00 - 11:10 CET
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- Different balancing processes and products to contain and restore system frequency in case of imbalances
- Distributed activation of FCR by the whole synchronous area
- Each LFC area is responsible for the restoration of its system balance by activation of aFRR, mFRR and RR.
- EBGL requires implementation of platforms for cross-border activation of these balancing products.
- Operation of balancing platforms allow the cost-optimal restoration of imbalances.

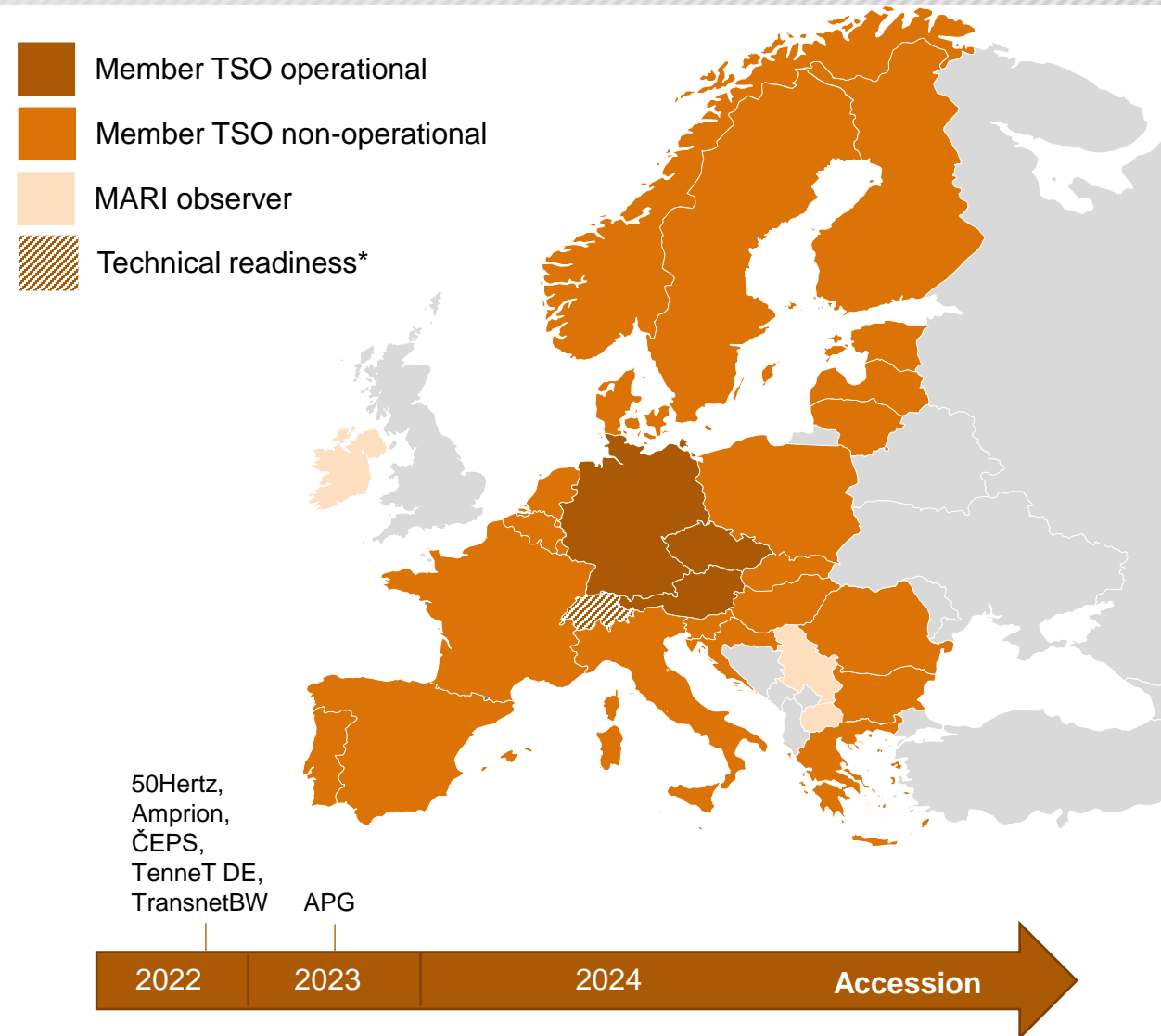
Introduction (ii)

Manually Activated Reserves Initiative (MARI)

- Project “Manually Activated Reserves Initiative” (MARI) has been set up already in 2017 to provide the basis for a European mFRR platform.
- Start of dry-run (CEPS) on 18/07/2022
- Technical go-live on 15/09/2022
- First TSOs (CEPS and German TSOs) joined on 05/10/2022.
- APG joined on 20/06/2023.

Relevant Features

- Counter activation of mFRR balancing energy for economic optimization
- mFRR balancing energy bids can be activated either for balancing or (locally) for system constraints purposes
- Direct and scheduled activation
- 100 % platform availability since go-live

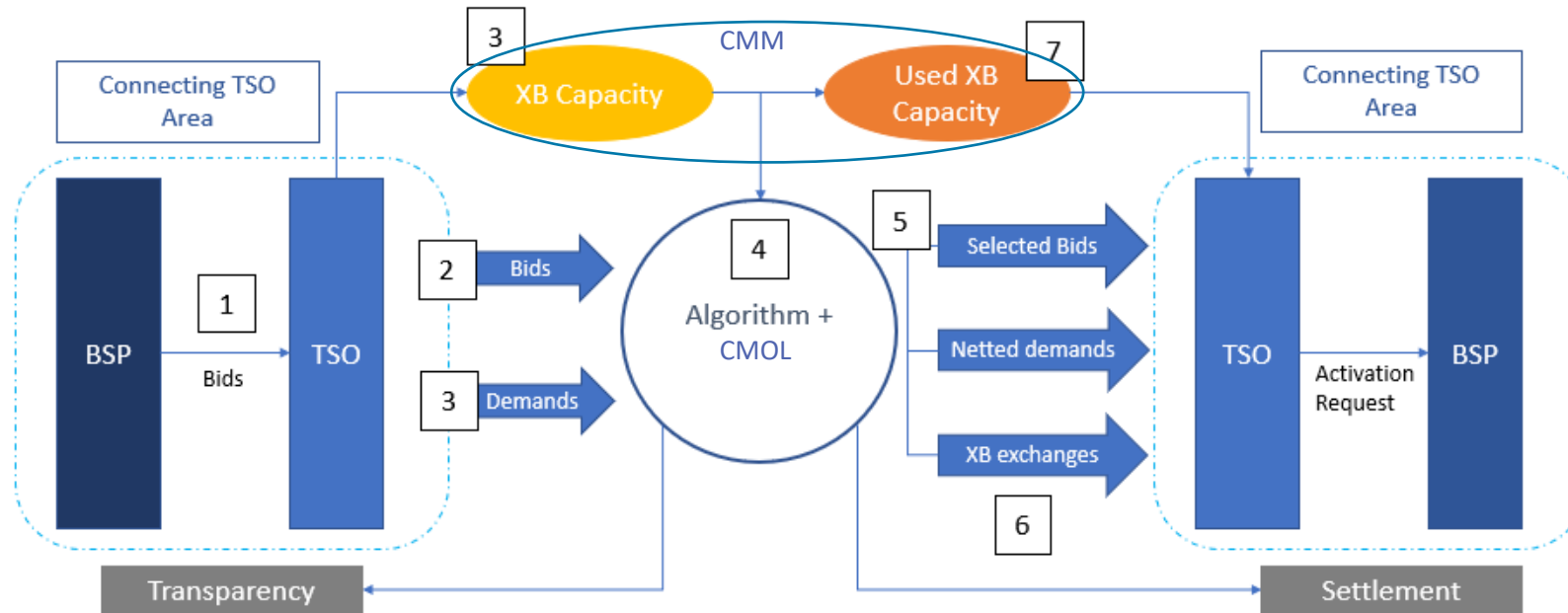


*The technical readiness of Swissgrid has been acknowledged. The participation of Switzerland in the mFRR-Platform is regulated based on article 1.6 and 1.7 of the EB Regulation and is currently the subject of litigation by Swissgrid at the Court of Justice of the European Union.

Introduction (iii)

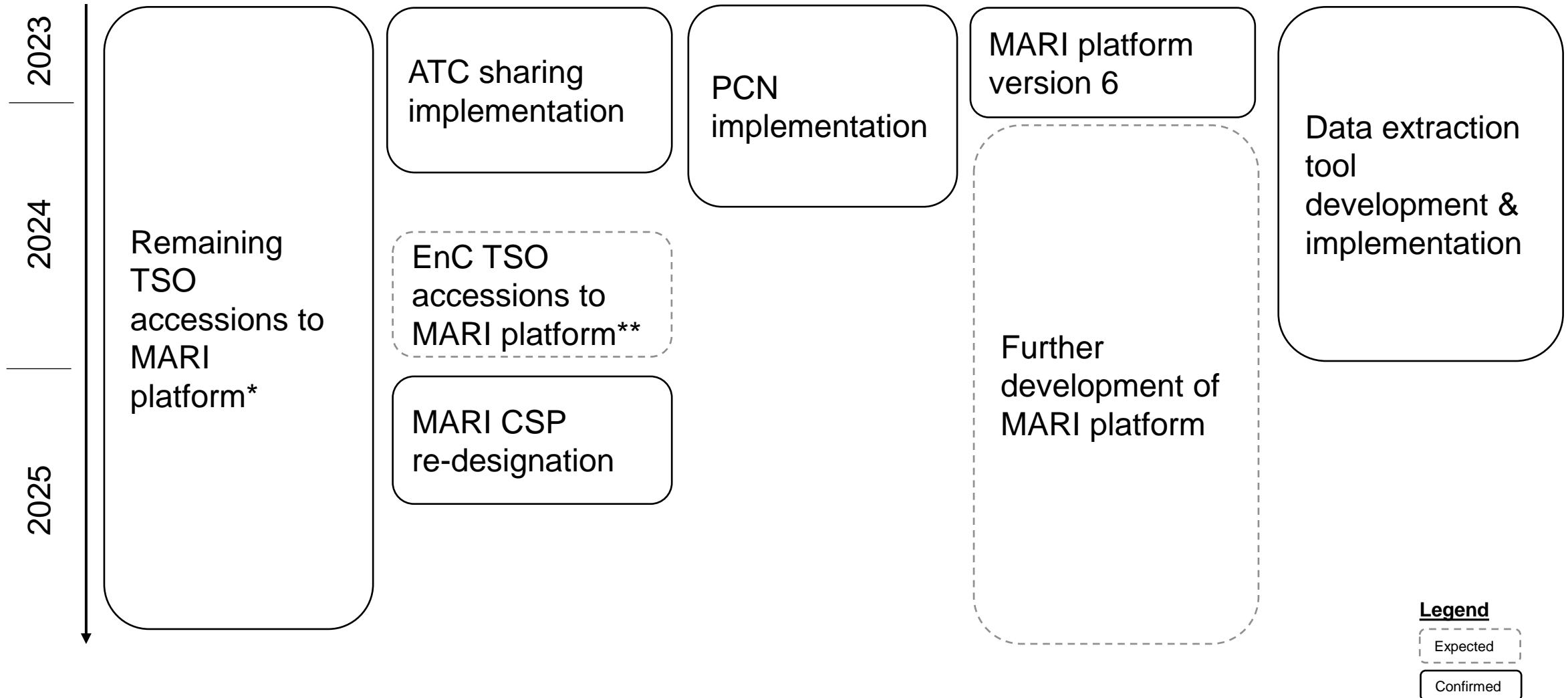
Description of how the MARI platform is working

The MARI platform is based on the LIBRA platform that has been implemented for Replacement Reserves (RR) in the TERRE project. The MARI platform consists in (i) a data management platform (Libra Data Management), handling communications and data exchanges with TSOs and ENTSO-E, pre-processing, postprocessing and archiving, and (ii) an optimization module (AOF) optimizing the activations and computing Cross Border Marginal Prices (CBMP).



1. TSO receive bids from BSPs in local market balance area
2. Forward of coherent mFRR balancing products to mFRR platform
3. TSOs communicate their balancing demands via the balancing platform and the available XB transmission capacities (ATC) either directly or via CMM*.
4. Optimization of the clearing of balancing demands against BSPs bids
5. Communication of the accepted bids, satisfied demands, and prices
6. Calculation of the commercial flow 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 directly and to CMM (if configured)

* CMM is designed as a Single Point of Information when it comes to balancing capacities, which improves transparency among the TSOs. After CMM go-live V2 (summer 2024, the primary source of ATCs shall be CMM. Direct provisions of ATCs by TSOs to balancing platforms will be a backup option. It is foreseen that TSOs will connect to the balancing platforms first and then to CMM in order to test that the backup of sending ATCs is functioning properly.



* See accession roadmap later in this slide deck for further details.

** The accession date of EnC TSOs by end of 2024 is based on publicly available information, balancing platforms are aware of the possible derogation times and consider a later accession as likely.

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Reporting period

- Q1/2023 – Q3/2023

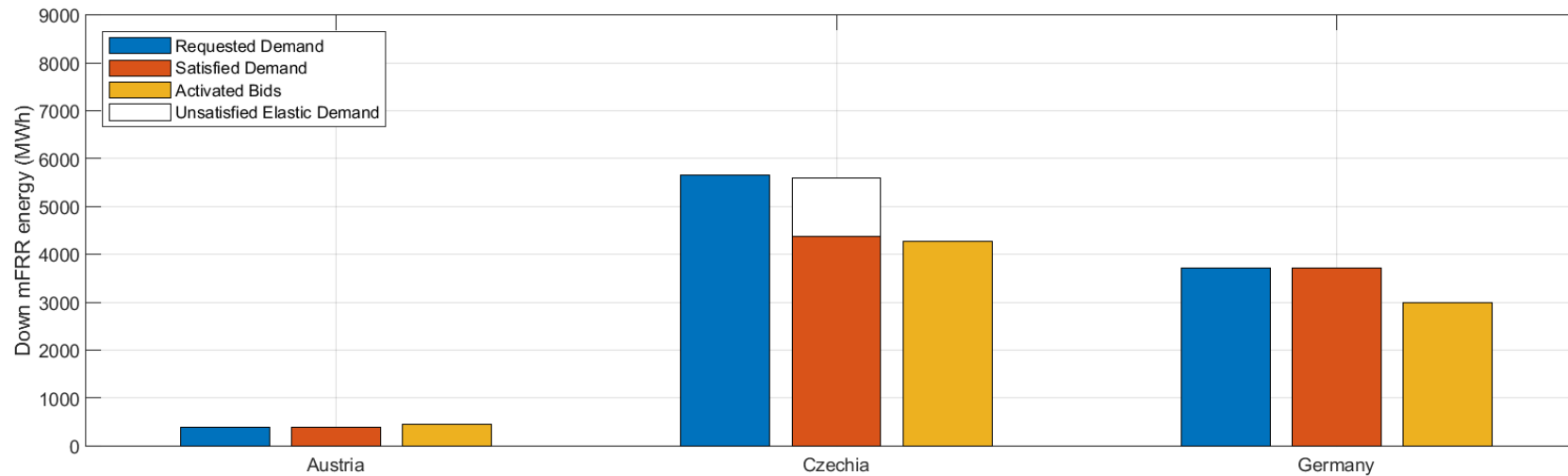
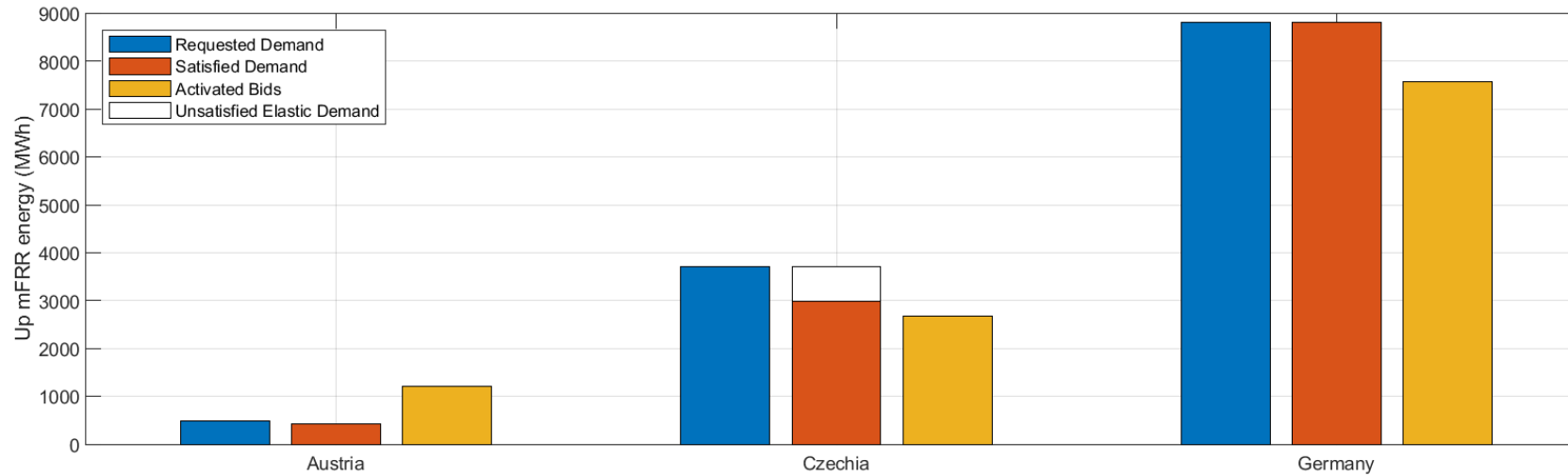
Featured analysis

- mFRR requested and activated via MARI → Which country requests and which country activated mFRR?
- mFRR demand per country → To which extend are direct and scheduled activations used?
- mFRR prices → What prices result from the activation?
- MARI economic surplus → Economic benefits resulting from MARI

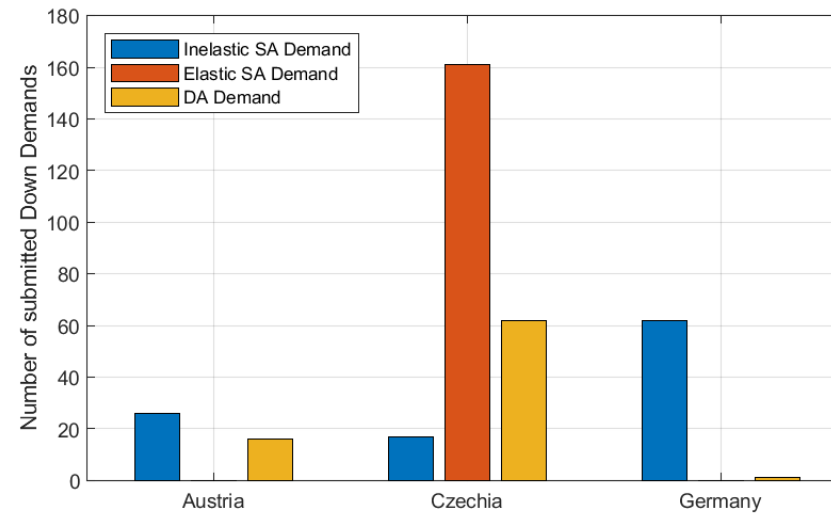
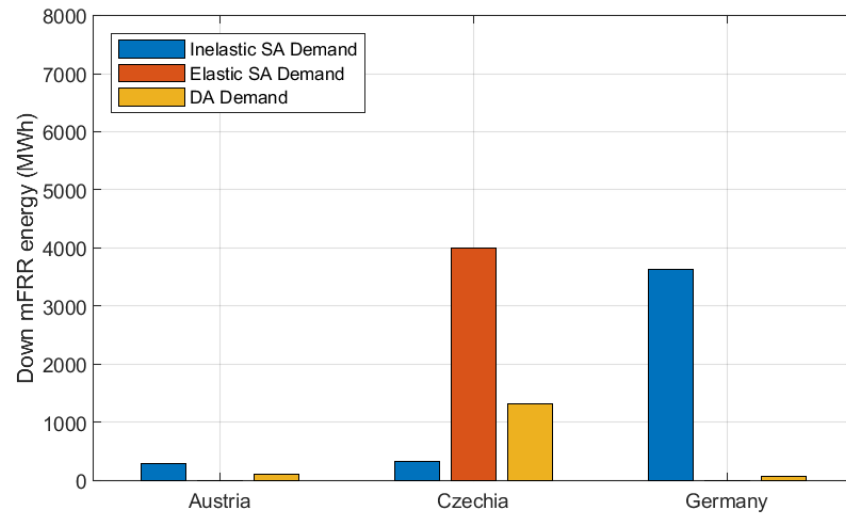
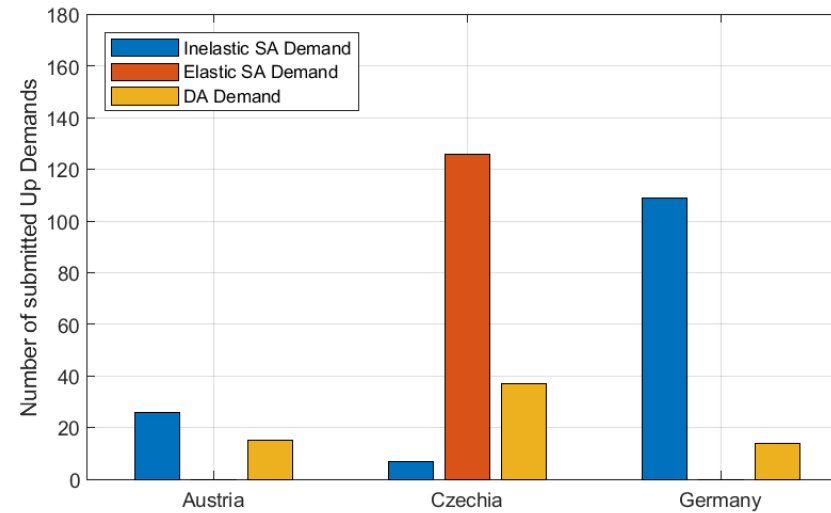
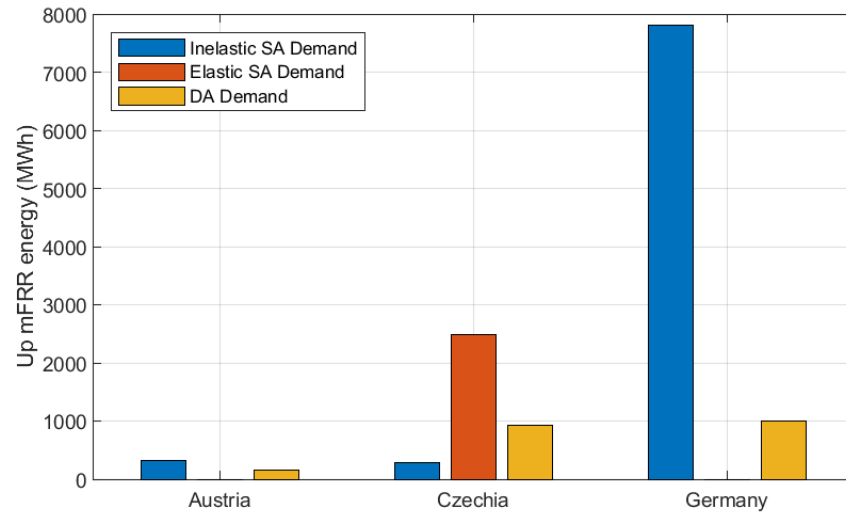
Operational Platform Reporting (ii)

mFRR requested and activated via MARI

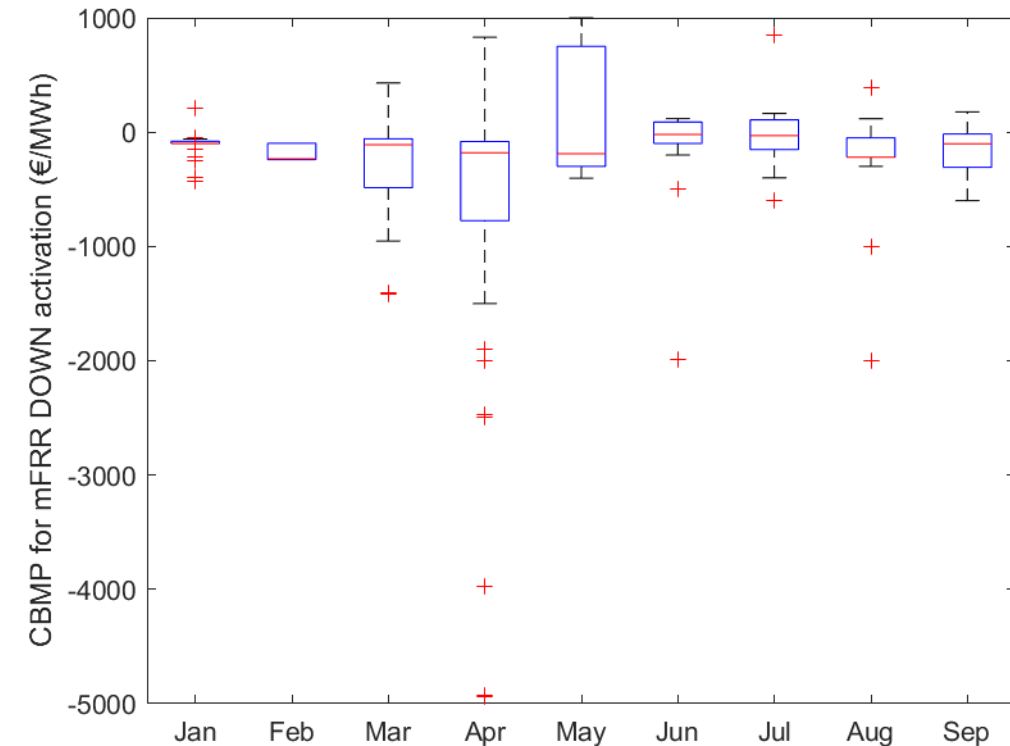
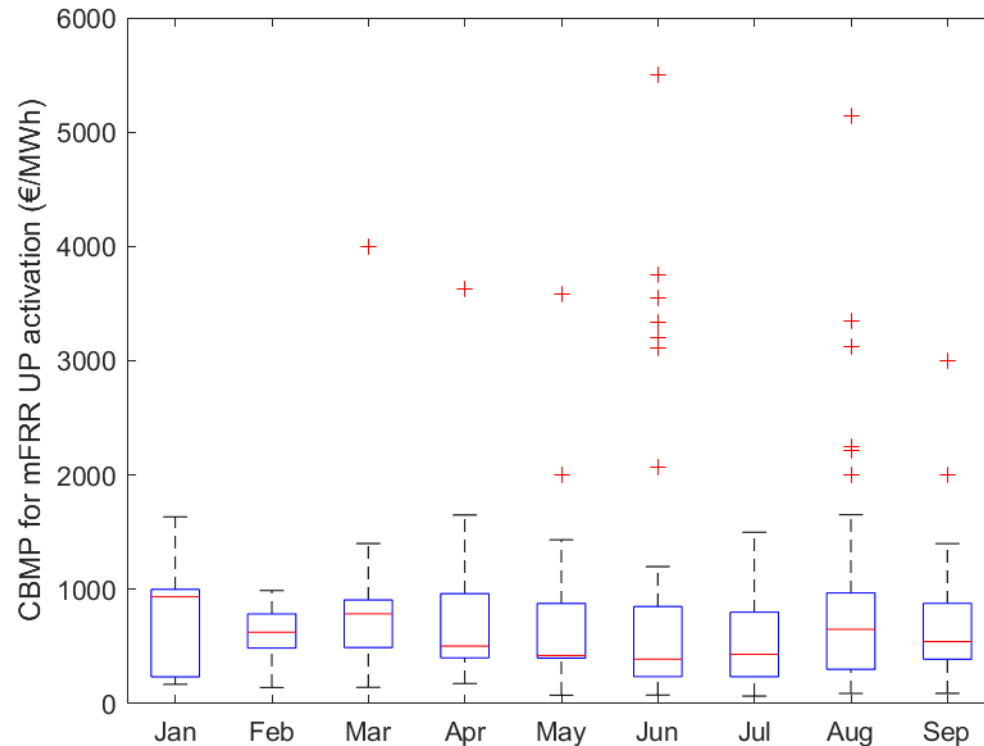
Based on operational data from
Q1/2023 – Q3/2023



- » Price elastic demand is applied by CEPS.
- » Czechia activates more negative than positive mFRR, Germany vice-versa.

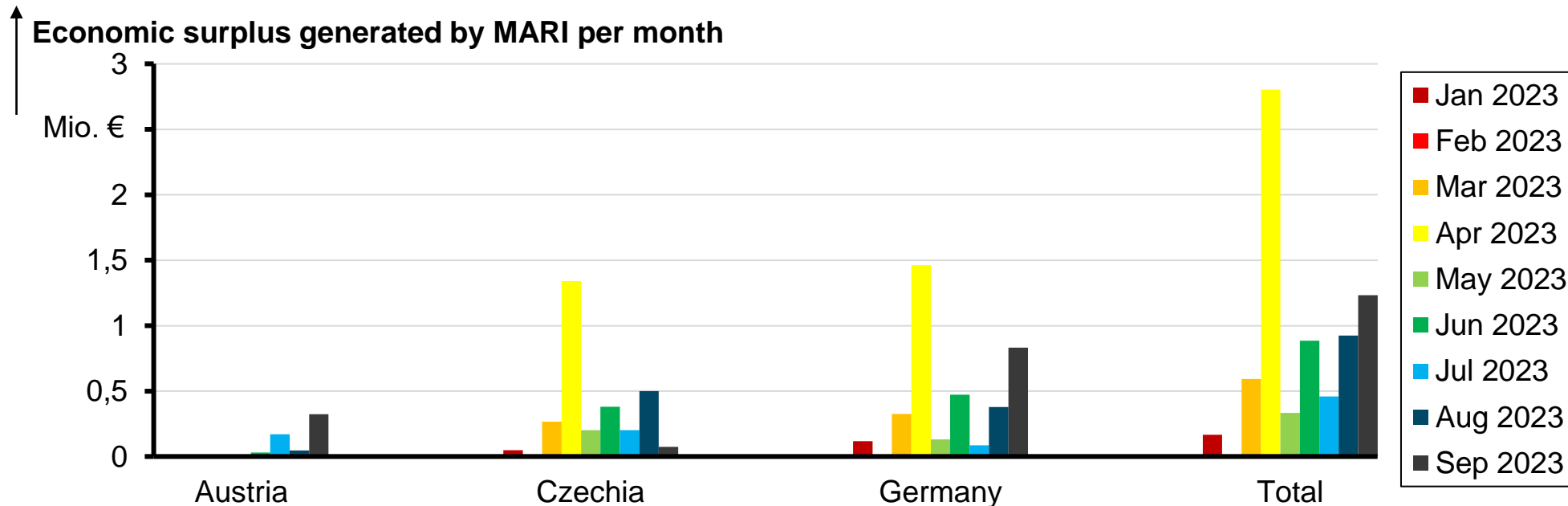


- » Quite small amounts of activation in average compared to CMOL volume
- » Amount of elastic demand and ratio between direct activation (DA) and scheduled activation (SA) varies per country.



- » Majority of the activations are small volumes, leading to low prices on average.
- » The probability of occurrence of high prices can be assumed as low. → No Price incident occurred since 07/07/2023.
- » Upward mFRR prices decreased slightly from January until April and were constant afterwards.
- » Downward mFRR prices were rather constant during 2023 with high prices in March and April as an exception.

- Calculation of economic surplus as comparison between actual mFRR activation with a reference scenario (same bids, demands and market design) but without exchange of balancing energy









- » Economic surplus (without pricing unsatisfied demand) sums up to 7.4 Mio. € from January to September 2023
- » Including economic surplus from additionally satisfied demand, surplus increases to 8.4 Mio. € for the same period in time

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- The accession of member TSOs to the mFRR-Platform is planned in accordance with the following accession roadmap.
- MARI member TSOs and ENTSO-E share this accession roadmap for informative purposes only and it does not, in any case, represent a firm, binding or definitive position of MARI on the content.
- The content is subject to change as the implementation progresses and new information becomes available.
- In particular, the feasibility of the present accession roadmap may depend on final detailed accession planning and possible operational and/or technical constraints that would result in the maximum number of parallel accessions.

[Link](#) to published version October 2023

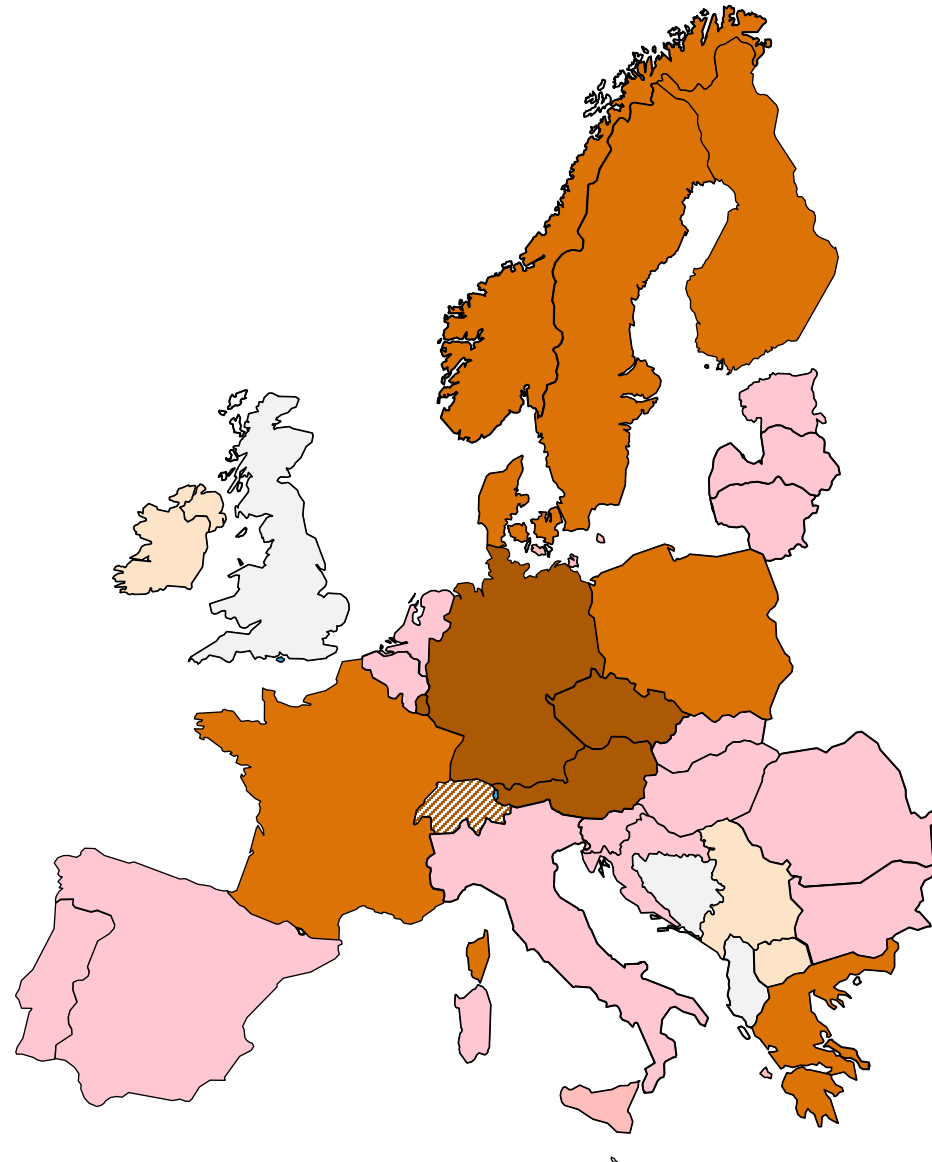
Legend	
	mFRR IF
	5.4.(b)(i) National terms and conditions development
	5.4.(b)(i) National terms and conditions entry into force
	5.4.(b)(iii) Interoperability tests between TSO and mFRR-Platform
	5.4.(b)(v) TSO connection to mFRR-platform / Go-live
	5.4.(b)(vii) EBGL Article 62 Derogation considered / requested / granted

Country	Derogation deadline	TSO	2023												2024			
			7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	Q4
Germany		50Hz/Amprion/ TenneT Gmbh/ TransnetBW	[Green]															
Czech republic		CEPS	[Green]															
Austria		APG	[Green]															
Belgium	24.07.2024	Elia	[Yellow]															
Portugal	24.07.2024	REN	[Yellow]															
Spain	24.07.2024	RE	[Yellow]															
Latvia	24.07.2024	AST	[Yellow]															
Estonia	24.07.2024	ELERING	[Yellow]															
Lithuania	24.07.2024	LITGRID	[Yellow]															
Croatia	24.07.2024	HOPS	[Yellow]															
Hungary	24.07.2024	MAVIR	[Yellow]															
Netherlands		TenneT BV	[Yellow]															
Italy	24.07.2024	Terna	[Yellow]															
Slovakia	24.07.2024	SEPS	[Yellow]															
Slovenia		ELES	[Yellow]															
Bulgaria	30.06.2024	ESO	[Yellow]															
Romania	01.03.2024	Transelectrica	[Yellow]															
Poland	24.07.2024	PSE	[Yellow]															
France	24.07.2024	RTE	[Yellow]															
Greece	24.07.2024	IPTO	[Yellow]															
Denmark	24.07.2024	Energinet	[Yellow]															
Finland	24.07.2024	Fingrid	[Yellow]															
Sweden	24.07.2024	SVK	[Yellow]															
EEA																		
Norway	24.07.2024	Statnett	[Yellow]															
Non-EU Member State																		
Switzerland		Swissgrid	[Green]															

Accession Roadmap (ii)

Geographical Representation

-  Member TSO operational
-  Member TSO non-operational
-  MARI observer
-  Technical readiness
-  Go-live foreseen in 2024



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Introduction

- MARI go-live took place in 2022 when ČEPS and the German TSOs accessed the mFRR platform. In 2023, APG joined.

Operational Platform Reporting

- mFRR requested and activated via MARI: Czechia activates more negative than positive mFRR, Germany vice-versa.
- mFRR demand per country: Amount of elastic demand and ratio between direct activation (DA) and scheduled activation (SA) varies per country.
- mFRR prices: Moderate prices, i. e. no price incidents since 07/07/2023
- MARI economic surplus: 7.4 Mio. € (without pricing unsatisfied demand) to 8.4 Mio. € from Q1/2023 to Q3/2023

Accession Roadmap

- A significant number of TSOs will join the mFRR platform in 2024.

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ANY QUESTIONS?