

## INTRODUCTION

**Baltic transmission system operators – Elering AS, AS “Augstsprieguma tīkls” and Litgrid AB (Baltic TSOs) are actively working on planned developments for Baltic balancing in accordance with commonly prepared Baltic Balancing Roadmap, which was initially published in October 2021 and updated in October, 2022.**

**With this update of the roadmap, Baltic TSOs provide information on deliverables, changes and details of the plans for developments.**

Since 1st of January 2018, Baltic TSOs operate a common model for balancing of power systems of Estonia, Latvia and Lithuania. To accommodate this, the common Baltic coordinated balancing area was introduced and the common Baltic balancing market for exchange of balancing energy in form of frequency restoration reserves with manual activation (mFRR) was established. In coming years significant changes in Baltic balancing model are foreseen in order for it to be compliant with the requirements of European regulations and ensure Baltic TSOs compliancy with Central European Synchronous Area (CESA) rules and agreements after synchronization with the network of CESA.

## mFRR balancing energy market

The existing Baltic balancing model and balancing energy market will be changed at the point of time when Baltic TSOs will join the common European platform for exchange of mFRR energy (Manually Activated Reserve Initiative - MARI), which is foreseen in July of 2024. Derogation granted by regulatory authorities in Baltics sets deadline for the Baltic TSOs to join MARI platform, actual joining date will be aligned with the plans of neighbouring TSOs (Nordic TSOs and/or Polish TSO) to join MARI platform, but Baltic TSOs have to join MARI no later than 24th of July 2024. The main change to the Baltic balancing model when joining MARI platform will be introduction of separate balance control for each control area (Estonia, Latvia and Lithuania) and moving to a 15 minute balancing market time unit with respective changes in mFRR energy products as well as processes. Joining MARI platform will ensure that the Estonian, Latvian and Lithuanian balancing market will be an integral part of the European balancing market, allowing local balance service providers to participate in the European mFRR market. Resulting raise in market size will increase the power system security through more liquidity in energy reserves market utilizing available cross-zonal capacities with neighboring areas. Estonian, Latvian and Lithuanian mFRR balancing energy markets will be operated in accordance with European mFRR balancing energy market requirements as defined in national terms and conditions for balancing service providers.

## aFRR balancing energy market

In order to accomplish the successful synchronization of Baltics with CESA and ensure power system load and frequency control within 15 minute balance control period, frequency restoration reserve product with automatic activation (aFRR) along with corresponding processes will be introduced by Baltic TSOs. Implementation of aFRR will be aligned with the requirements of common European platform for exchange of aFRR energy (Platform for the International Coordination of Automated Frequency Restoration and Stable System Operation – PICASSO). The same as for mFRR, local aFRR providers will be able to participate in the European aFRR energy market, introduction of it is planned to be done in Q1 2025.

Additionally, Litgrid AB aims to introduce local aFRR market during 2024 and perform aFRR pilot tests until then. aFRR pilot tests will not impact balancing prices but the demand for mFRR energy shall be reduced.

## Imbalance settlement period

In accordance with the European regulations, imbalance settlement period (ISP) shall be shortened to 15 minutes from existing 60 minutes in Baltics. Introduction of aFRR and change to 15 minute balance control period in Baltics are the key elements to ensure that 15 minute ISP can be properly implemented in compliance and spirit of European guideline on electricity balancing, and as described in implementation concept prepared by Baltic TSOs. Implementation of 15 minute ISP in Baltic areas is planned until the end of 2024, which is the deadline set in the derogation from respective European requirements and has been granted by regulatory authorities in Baltics. This means balance responsible parties are subject to keeping their balance in 15-minute periods by the 1st of January 2025, the latest.

In order to provide possibility for the market participants to reduce their potential imbalances by allowing them to trade as close as possible to the operation time, Baltic TSOs in line with other European TSOs, will actively support 15 minute market time unit (MTU) introduction in day ahead and intraday energy markets, which is also necessary to ensure 15 minute ISP implementation

in Baltic balancing model. The day-ahead market transition to 15 minutes is planned commonly for the entire coupled European electricity market and conducted within a working group under the Single Day-ahead Coupling (SDAC) cooperation. The planned go-live date for the 15 minute market time unit in the European common day-ahead market is beginning of 2025. In intraday markets, countries have more flexibility and can start offering 15 minute products at their bidding zones at a suitable time. The Baltic countries plan to start offering 15 minute products in the intraday market at the second half of 2024.

## Baltic Load-Frequency Control block

Synchronization of Baltic power systems with the network of CESA implies complex and fundamental changes in the operations of the power systems and requires completely new model of balancing in Baltics. For this purpose, Baltic TSOs plan to create Baltic load and frequency control (LFC) block consisting of three LFC areas – Estonia, Latvia and Lithuania. Main responsibility for balancing will be on the LFC area level. Along with aFRR and mFRR products, the frequency containment reserve (FCR) products will be introduced. Transmission system

operators will use frequency containment and frequency restoration processes for ensuring the applicable load frequency control parameters. Baltic TSOs have commonly prepared LFC block concept document in order to highlight the key concepts, principles and actions as well as to describe the technical requirements and procedures for the future of Baltic load frequency control and market setup to support it. Concept document describes LFC block structure, principles for reserve providers qualification, approach on capacity dimensioning and distribution, capacity sharing and exchange principles, capacity and energy standard products, capacity procurement process and activation process. To ensure readiness for synchronization with CESA Baltic LFC block is planned to be established by the end of 2024, and shall be implemented when synchronization with CESA takes place.

Preliminary amounts of each type of reserves necessary for Baltic LFC block operation are determined, and it is estimated that 36 MW of FCR and 811 MW of FRR shall be ensured for upward activation and 702 MW of FRR for downward activation. It is also estimated that 134 MW of FRR shall be ensured as aFRR. Baltic TSOs have commonly prepared and published Baltic LFC block FRR dimensioning forecast 2024-2031 in order to

inform about planned dimensioning methodology and its application. The exact volumes of reserves that shall be procured each day depend on the day-ahead dimensioning process and can differ from the above-mentioned values considering the Baltic LFC block operational conditions.

## Balancing capacity markets

To ensure availability of necessary reserves for operation of Baltic LFC block, Baltic TSOs plan to procure following types of reserves (FCR, aFRR, mFRR) in amount of dimensioned volumes determined in Baltic LFC block as capacity products. All Reserve Units providing LFC reserves need to have a successful prequalification testing to participate in the Baltic balancing markets. Baltic TSOs developed harmonised principles for Baltic LFC reserve prequalification to ensure level playing field for Baltic Reserve Units. Following public consultations, Baltic TSOs in April 2022 published harmonized principles for Baltic LFC reserves prequalification.

To increase readiness of the Baltic power system for synchronization with network of CESA, Baltic TSOs envisage procurement of FRR capacity up to levels of preliminary estimated



amounts of FRR for Baltic LFC block operation shall be ensured in Baltics already starting from operation of the Baltic balancing capacity market in Q1 2025. The final FRR capacity to be procured after implementation of Baltic LFC block shall follow LFC block FRR dimensioning methodology that was provided for public consultation during March 2023.

Baltic TSOs have prepared and submitted to the Baltic national regulatory authorities (hereinafter - NRAs) for approval the common Baltic balancing capacity market proposal that will be published after NRAs approval. The Baltic balancing capacity market proposal foresees a common procurement of balancing capacity and cross-zonal allocation mechanisms to give the possibility for balance service providers in Baltics to compete in a common Baltic market, ensuring most efficient procurement of balancing capacities within the Baltic countries. According to the prepared methodologies, a significant part of the cross-zonal capacity between the Baltic countries may be allocated for cross-zonal trade of balancing capacity. The allocation of cross-zonal balancing capacity between the Baltic countries shall follow the principle of economic benefit to consumers, thus increasing the allocated

cross zonal balancing capacity in cases, if the calculation shows that allocation of the capacity to day-ahead market is less beneficial.

From the start of common Baltic balancing capacity procurement, cross-zonal capacities will be allocated in accordance with the regional market-based methodology which is prepared by Baltic Capacity Calculation Region TSOs. But later, indicatively from the first half of 2026, the harmonized European methodology for cross-zonal capacity for the exchange of balancing capacity or sharing of reserves shall be implemented, which shall integrate the Baltic countries into the pan-European balancing capacity market.

Baltic TSOs have started to organize a prequalification process for balance service providers from 2023 in accordance to harmonized principles for Baltic LFC reserves prequalification

Considering the possibility of deficit of balancing reserves as concluded in the Baltic reserve capacity market study conducted by Baltic TSOs in 2021 and uncertainty brought by operation of Baltic power system in new conditions after synchronization with the network of CESA,

in order to enhance security of supply and ensure secure and effective operation of the Baltic power system, as a temporary measure, Baltic TSOs will use TSOs' infrastructure for provision of balancing reserves, subject to the approval from the Baltic NRAs. Namely, Kiisa Power Plant (Kiisa PP) in Estonia, planned AST Battery Energy Storage System (AST BESS) in Latvia and resources of Battery storage operator in Lithuania (BSO) may be used as demand reduction resources to cover part of the necessary balancing reserves as follows:

- Kiisa PP will be used to provide dimensioned share of Estonia for upward mFRR;
- AST BESS will be used to provide dimensioned share of Latvia for FCR and aFRR;
- BSO may be used to provide part of dimensioned share of Lithuania for FCR and aFRR.

A considerably larger portion of the total reserve needs (about 80%) will still have to be covered by market participants: at least 50% of FCR, 65 % of FRR for upward activation and 90% of FRR for downward activation. Additionally, subject to NRAs decision, Baltic TSOs may use the aforementioned resources as back-up to provide balancing capacity in addition to demand

reduction resources in case the capacity procurement optimisation algorithm is not able to provide satisfactory results, meaning that reserve demands are not met. This can occur if there is an insufficient number of bids provided from the market participants. Back-up resources shall not affect the marginal price of balancing capacity and shall be used only as a last resort in the capacity procurement optimisation algorithm.

Baltic TSOs consider the temporary use of TSO and BSO resources as critical for ensuring secure and effective operation of Baltic power system at the start of operation of the new LFC Block balancing model. Temporary usage of TSOs' and BSO's resources will be regularly assessed by the NRAs.

As soon as assessment will show that the market is able to securely ensure TSOs reserve requirements and effective operation of Baltic power system balancing is cost efficient without TSO and BSO owned resources, these resources may be phased out gradually. Latvian TSO, Estonian TSO and BSO owned resources could be used for balancing service provision for up to three years after Estonia, Latvia and Lithuania have joined the continental European synchronous area. When necessary to preserve

security of supply an extension of the initial three year period by a maximum of five years may be granted by European Commission.

In the balancing energy markets, TSOs'/BSO's reserves are expected to be used (activated) only as a last-resort option. In order to have as small as possible impact on the balancing energy activations a specific pricing methodology shall be developed. TSOs'/BSO's reserve energy bid pricing methodology is still under discussion and is a subject of NRAs approval, the methodology shall be in place before start of use TSOs'/BSO's resources for provision of bids in balancing energy markets.

## Implementation timeline

Baltic TSOs are actively working on planning and introducing of necessary changes to the Baltic balancing model. Stakeholders are involved in development of all relevant documents and methodologies through the public consultations and consecutive discussions. More detailed information on planned changes can be found in:

[Baltic 15 minute imbalance settlement period implementation Concept Document](#)

[Baltic Load-Frequency Control block concept document](#)

[Harmonised principles for Baltic LFC reserve prequalification](#)

[Baltic LFC block FRR dimensioning forecast 2024-2031](#)

[Baltic TSOs proposal for Baltic balancing capacity market<sup>1</sup>](#)

[Baltic CCR methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity<sup>2</sup>](#)

[Exemption to the obligation to allow transfer of aFRR and mFRR balancing capacity for all bidding zones in the Baltic countries<sup>3</sup>](#)

[Baltic energy market concept for aFRR](#)

[Baltic LFC block FRR dimensioning methodology](#)

[Baltic LFC block Coordinated actions to reduce FRCE.](#)

<sup>1</sup> pursuant with Article 33(1) and Article 38(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing.

<sup>2</sup> in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing.

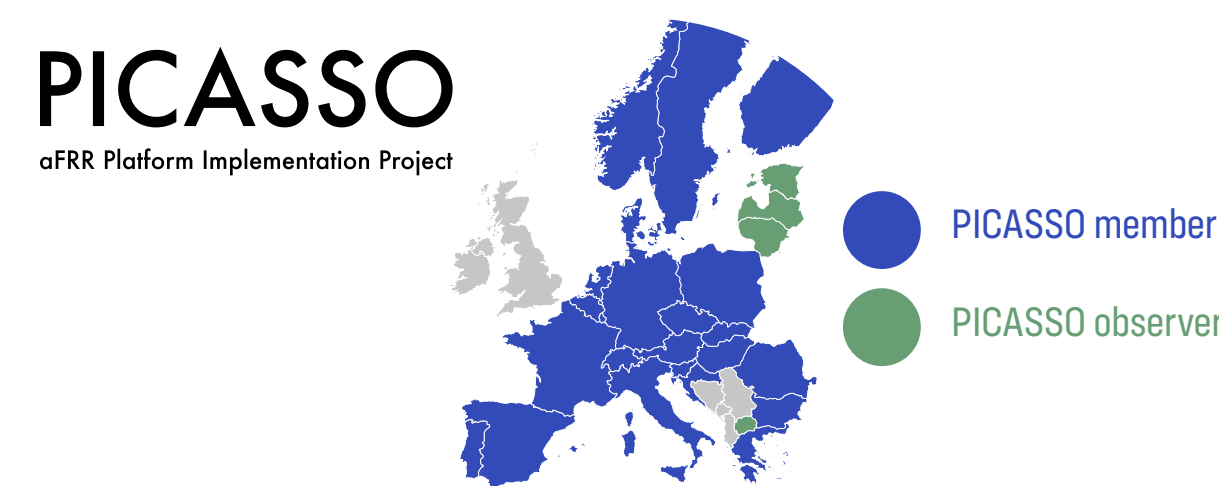
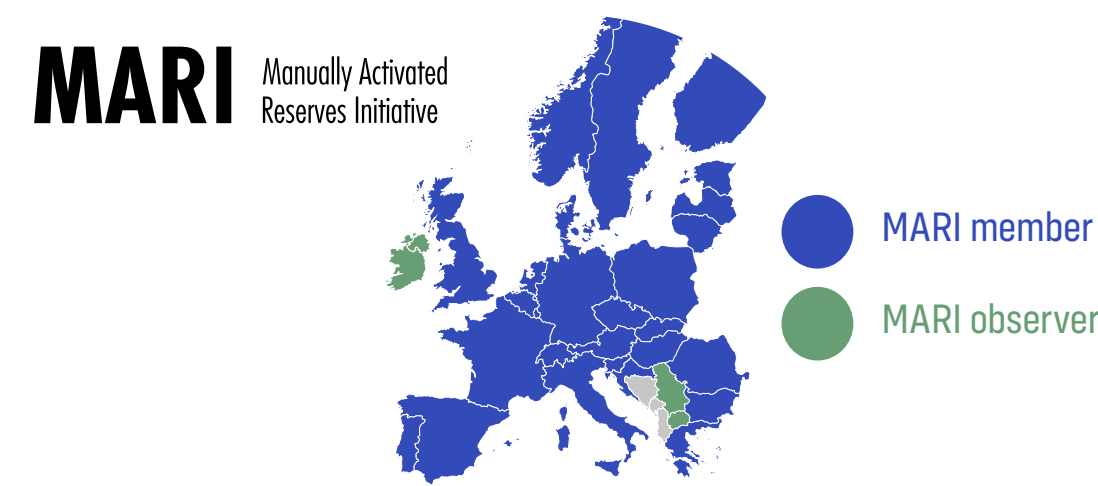
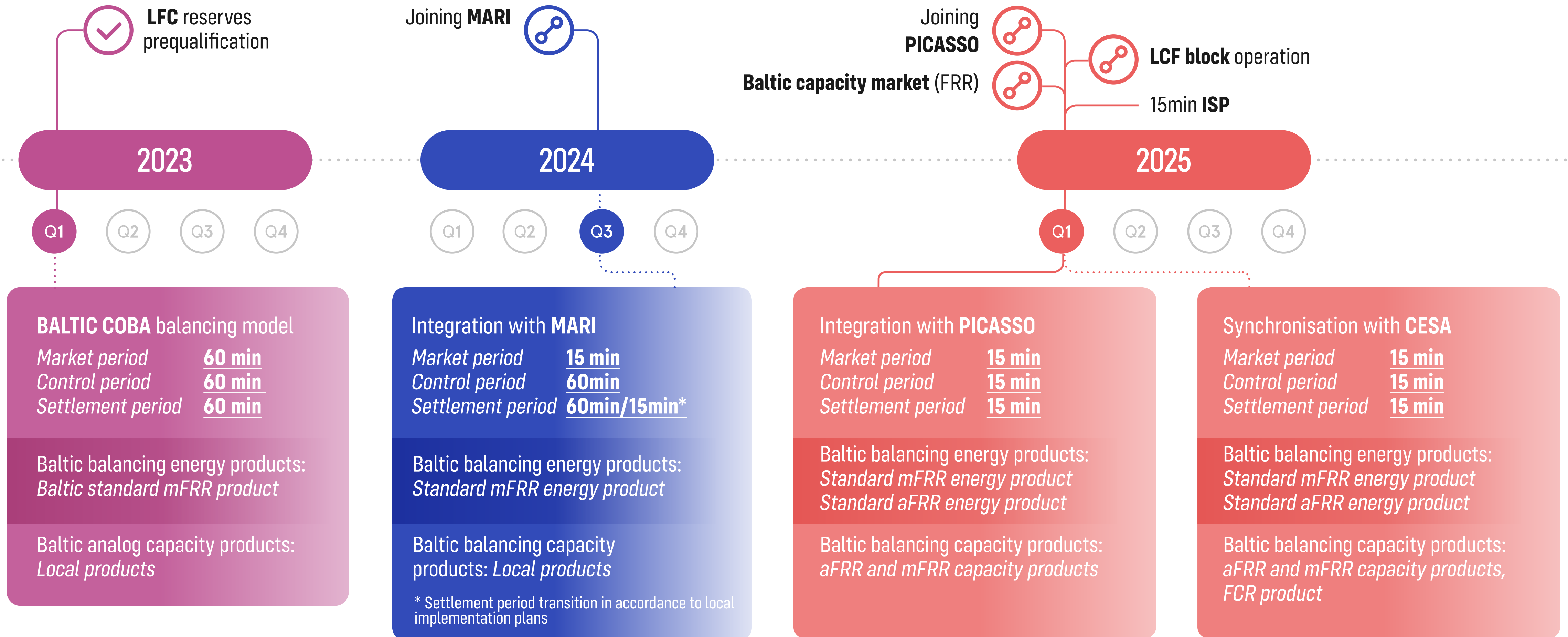
<sup>3</sup> in accordance with Article 34(1) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing.



See the next slide for the Summary of the implementation timeline for different projects.



# Foreseen developments and changes until 2026\*



\*The above milestones and deadlines indicate the best estimate of dates and are elaborated in the Baltic balancing roadmap text above.