

Public consultation document for the Baltic mFRR standard product for balancing



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1. Introduction

The Baltic TSOs have agreed to develop and harmonise a set of concepts, which are integral to the Baltic Coordinated Balancing Area (hereinafter –CoBA). One of these concepts is introduction of one standard mFRR product for balancing with non-discriminatory balancing procedures and settlement principles. Scope of the current public consultation is to present the Baltic standard mFRR product for balancing. Abovementioned product is described in the Chapter 4 of current public consultation document. All the other material in the public consultation document is for information and for understanding the background.

The proposed Baltic mFRR standard product is to be consulted with the Baltic market participants and upon completion of the consultation and amendments where it is required will be submitted to the Baltic National Regulatory Authorities (Baltic NRAs) for their approval. Following Baltic NRAs approval the principles described in this document should be applied in the daily operations by the Baltic TSOs.

The standard product for mFRR is planned to become in force by **November 2016** by then each TSO shall publish the standard rules for BSPs on its website and sign the new agreements related to balancing service.

2. General principles for standard products and specific products

The general principles for mFRR market standard products are set by the draft Guideline on Electricity Balancing (hereinafter: GL EB)

- a) Each TSO shall use standard products in order to ensure operational security and to maintain the system balance;
- b) The list of standard products for balancing energy shall define at least the following standard characteristics of a standard product bid: preparation period; ramping period; full activation time; minimum and maximum quantity; deactivation period; minimum and maximum duration of delivery period; validity period; mode of activation.
- c) Standard products for balancing energy shall:
 - i. ensure efficient standardisation and foster cross-border competition, liquidity and avoid undue market fragmentation;
 - ii. facilitate the participation of demand facility owners, third parties and owners of power generating facilities from renewable energy sources as well as owners of storage elements as balancing service providers;
 - iii. satisfy the needs of TSOs in order to ensure operational security and efficiency.
- d) The TSO may declare balancing energy bids for specific products for emergency state.
- e) Rules for conversion of balancing energy bids for specific products into balancing energy bids for standard products pursuant shall:
 - i. be fair, transparent and non-discriminatory;
 - ii. not create barriers for exchanges of balancing services;
 - iii. ensure financial neutrality of TSOs.

3. Main principles of balancing for Baltic Coordinated Balance Area

The Baltic balancing arrangements for maintaining the system frequency within a predefined stability range differ from the other European arrangements. The Baltic States are synchronously connected with the IPS/UPS power systems, where frequency control is handled by the Russian system operator in a centralized way, and the responsibility of Baltic TSOs is to participate in the manual frequency restoration process by keeping their area control error (ACE) inside allowed limits for every operational hour. Currently Baltic TSOs do not procure or activate frequency containment reserves (FCR) or automatic frequency restoration reserves (aFRR), but instead manually activated frequency restoration reserves (mFRR) is used to balance the system.

3.1. Coordinated balancing model for year 2017

Baltic TSOs have agreed to develop common mFRR market gradually by stepwise approach with the objective to start operations of fully functioning Baltic CoBA. The intermedium step is planned to implement from November 2016 where following principles shall apply:

1. **Extended information exchange between Baltic TSOs.** All required real time and planning information is available for each Baltic TSO. Possibility to coordinate balancing actions between Baltic TSOs;

2. **Individual TSO activation with purpose to control individual power system balance.** Each Baltic TSO is responsible controlling the individual power system's balance.
3. **Baltic standard mFRR product(s).** Details of Baltic standard mFRR product for balancing and emergency reserve (ER) mFRR product are defined in Section 4.1 and Section 5.1.
4. **Baltic Common Merit Order List.** All bids of Baltic standard mFRR product are shared between Baltic TSOs and available for activation from Baltic Common Merit Order List.
5. **Bilateral TSO-TSO settlement.** Settlement of standard mFRR product is based on pay-as-bid price between TSOs according to individual activation orders.

3.2. Baltic mFRR market model for year 2018

Baltic TSOs have agreed to develop the common Baltic mFRR market as part of Baltic CoBA by 01.2018 which shall include the following principles;

1. **Extended information exchange between Baltic TSOs.** All required real time and planning information is available for each Baltic TSO. Possibility to coordinate balancing actions between Baltic TSOs;
2. **Coordinated activation of balancing reserves.** Coordinated activation of balancing reserves is based on total Baltic's Area Control Error (ACE) by utilising imbalance netting potential between Baltic power systems during balancing market periods.
3. **Baltic standard mFRR product(s).** Details of Baltic standard mFRR product for balancing and emergency reserve (ER) mFRR product are defined in Section 4.1 and Section 5.1.
4. **Baltic Common Merit Order List.** All bids of Baltic standard mFRR product are shared between Baltic TSOs and available for activation from Baltic Common Merit Order List. Operation of a Baltic mFRR market with Baltic CMOL taking into account the future integration with the Nordic mFRR market (Baltic-Nordic CMOL);
5. **Common TSO-TSO settlement.** Settlement of standard mFRR product with purpose for Baltic needs is based on marginal price.

4. Balancing products and their use in securing balance

Balancing reserves are used to balance inaccuracy in the balance provider's consumption or production predictions, in case of unexpected tripping of production capacity or electrical equipment that influence cross-border transmission capacity or when the security of the power system's supply is endangered.

Balancing reserves are also used for exchange to Nordic balance purposes. In this case Baltic market participant does not cover the costs related to balancing for Nordics, but will use it as additional market opportunities.

Balancing reserves are offered to connected TSO by balance service providers (BSP). Balancing bids can be made for up-regulations as well as for down-regulations. Bidding on balancing reserves is voluntary for market participants, but shall follow the rules for standard product.

The Standard Products for Balancing Energy shall consist of at least the following standard characteristics and information related to a bid defined by a fixed value or an appropriate range, depending on the requirements of the system and type of product, as listed in table below:

Table 1: Definitions of standard products characteristics

Standard Products	Definition
Preparation Period	Preparation Period means the time duration between the request by the TSO and start of the energy delivery.
Ramping Period	Ramping Period means the time when the bid starts the physical activation, delivers the first MW and approaches the requested power of the TSO.
Full Activation Time	Full Activation Time means the time period between the activation request by TSO and the corresponding full activation of the concerned product.
Deactivation Period	Deactivation Period means the time period for ramping, from full delivery or withdrawal back to a set point.
Divisibility	Divisibility means the possibility for the TSO to use only part of the Balancing Energy bids or Balancing Capacity bids offered by the Balancing Service Provider, either in terms of power activation or time duration.
Minimum and maximum duration of Delivery Period	Delivery Period means a time period of delivery during which the Balancing Service Provider delivers the full requested change of power in-feed or withdrawals to the system.
Validity Period	Validity Period means the time period when the Balancing Energy bid offered by the Balancing Service Provider can be activated, whereas all the characteristics of the product are respected. The Validity Period is defined by a beginning time and an ending time.
Mode of Activation	Mode of Activation means the implementation of activation of Balancing Energy bids, manual or automatic, depending on whether Balancing Energy is triggered manually by an operator or automatically by means of a closed-loop regulator.

4.1. mFRR standard product for balancing

Balancing bids submitted by Baltic market participants to connected TSO shall need to correspond to requirements described in the table 2.

Table 2 – The Baltic standard mFRR product for balancing bids

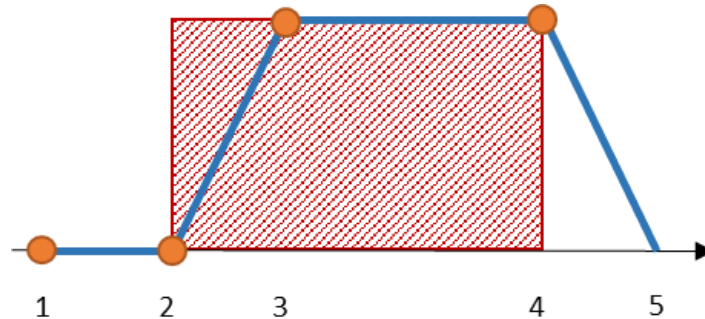
Parameter	Baltic standard mFRR product
Preparation Period	Agreed during the phone call
Ramping Period	Not more than 15 min
Full Activation Time	Not more than 15 min

Minimum and maximum quantity	MIN = 1 MW; MAX = no restrictions
Deactivation Period	Not more than 15 min
Pricing Method	After introduction of Baltic mFRR market (expected in 01.2018) marginal price, until that the “pay as bid” method shall be used.
Minimum and maximum price	MIN = no restrictions; MAX = no restrictions
Divisibility	Offers are divisible
Minimum and maximum duration of Delivery Period	MIN = 1 min; MAX = 60 min (but not more than until the end of operational hour).
Validity Period	60 min
Mode of Activation	Manual
Minimum duration between the end of Deactivation Period and the following activation.	Not determined
Settlement volume determination: Required start of delivery end time of the order	Block product of between required start of delivery and end time of order. (Figure 1)
Gate closure of the offers	H-45min ¹
Firmness of the offers	All received offers are firm (fixed). Market participant has responsibility to inform TSO if there are unplanned technical restrictions to execute the offer after the Gate closure but not later than exact order.

¹ In case of changes in the intraday market gate closure time from 1 hour before market period (operational hour) to shorter time period before market period, the gate closure time of the balancing bids offer can be also shortened respectively.

Baltic TSOs have agreed on Baltic mFRR products settlement as Figure 1 below illustrates, were: 1 – time of the phone call (activation request); 2 – start time of the order; 3 – time of full activation; 4 – end time of the order; Period 1-2 is Preparation time; Period 2-3 is Ramping time; Period 2-4 is Settlement period; Period 4-5 is Deactivation time.

Figure 1: Settlement product for Baltic mFRR market



The same settlement principles shall be implemented for Baltic mFRR market, also for Nordic-Baltic mFRR exchange model and also for 3rd countries-Baltic balancing energy exchange.

In addition to the requirements given in the table, BSP need to take into account the following requirements:

- All balancing bids have to be sent to connected TSO respective IT-system;
- Connected TSO has to have a chance to identify balancing reserve activation through its SCADA system.
- More precise requirements and procedures for making balancing reserve bids will be fixed in a standard agreement between connecting TSO and the BSP.

The target of standard product definition will be to harmonise values for the above mentioned parameters in order to allow the products to be price or cost ranked.

5. Emergency reserves and their use in securing balance of power system

Emergency reserves are used in the case of unexpected tripping of production capacity, electrical equipment that influence cross-border transmission capacity or when the security of the power system's supply is endangered. Emergency reserve is not used to balance inaccuracy in the balance provider's predictions of consumption or production. Emergency reserve is only used for up-regulation. Emergency reserves are used as a last resort in case when there is no mFRR balancing bids left that can be activated.

In accordance with multi party agreements and national requirements each Baltic TSO ensures that necessary amount of emergency reserve is available and can be used in emergency events.

Current Baltic TSOs agreements require that emergency reserve has to be activated in full capacity within maximally 15 minutes starting from the order to activate, and its uninterrupted full capacity realisation needs to be guaranteed for at least 12 hours. In the existence of need and technical possibility, system operators can mutually agree to extend the realisation time of emergency reserve for a period longer than 12 hours.

5.1. Specific product for emergency reserves

Based on draft GL EB the emergency reserves mFRR product shall be handled as specific product.

Baltic TSOs shall use separate emergency reserve (ER) mFRR product as defined below:

Table 3 – The standard product for emergency reserves

Parameter	ER mFRR product
Preparation Period	Agreed during the phone call
Ramping Period	Not more than 15 min
Full Activation Time	Not more than 15 min
Minimum and maximum quantity	MIN = MW to be defined individually by BSP; MAX = no restrictions
Minimum and maximum price	MIN = no restrictions; MAX = no restrictions
Deactivation Period	Not more than 15 min
Pricing Method	Pay as bid
Divisibility	Offers are divisible
Minimum and maximum duration of Delivery Period	MIN = 1 min; MAX = 60 min (but not more than until the end of operational hour).
Validity Period	Not determined
Mode of Activation	Manual
Minimum duration between the end of Deactivation Period and the following activation.	Not determined
Settlement volume determination: Start end time of the order	Block product of between start and end time of order
Gate closure of the offers	D-1 16:00 EET
Firmness of the offers	All received offers are firm (fixed). Offer may be not available after activation for 12 hours or longer period.

6. Settlement with BSP for activated balancing bids

The main principles for TSO-BSP settlement are:

- Each connected TSO shall settle the activated balancing energy amount with BSP;

- Energy amount shall be calculated as block product considering start time of the order, end time of the order and ordered capacity (as detailed in Figure 1)
- Every BSP bid needs to have a balance provider, whose balance report reflects a balancing bid.
- Calendar month is the calculation period that is the base of financial calculations in relation to balance settlement.
- Balancing energy amount is defined within 1kWh accuracy for every trading period.

7. Questions for Stakeholders

Stakeholders are invited to answer the following questions, directly linked to the chapters of this document.

1. Do you have any remarks or comments to description of Coordinated balancing model for year 2017 in Section 3.1 ? Please provide your detailed views on this section.
2. Do you have any remarks or comments to description of Baltic mFRR market model for year 2018 in Section 3.2 ? Please provide your detailed views on this section.
3. Do you have any remarks or comments to description of in mFRR standard product for balancing Section 4.1? Please provide your detailed views on this section.
4. Do you have any remarks or comments to description of Specific product for emergency reserves in Section 5.1? Please provide your detailed views on this section.