

---

# The Concept of Baltic CoBA

---

Explanatory document

Supporting public consultation material

27<sup>th</sup> June, 2016

Elering, Augstsprieguma tīkls, LITGRID

## 1. Introduction

According to draft guideline on Electricity Balancing (hereinafter – GL EB) TSOs should facilitate the possibilities to exchange balancing capacity, balancing energy as well as for operating the imbalance netting process within a coordinated balancing area (hereinafter – CoBA). The leaders of Baltic TSOs have agreed to develop a Baltic Coordinated Balancing Area for the exchange of manual frequency restoration reserves (hereinafter – mFRR<sup>1</sup>) which shall become fully operational by 1 January 2018. Baltic mFRR CoBA will be an integral part of a wider Baltic CoBA, which entails all aspects of functioning of the Baltic balancing model. The Baltic countries currently, based on already existing cooperation between Baltic TSOs, operate the imbalance netting process, which can be considered as a starting base for further developments.

The concept of the Baltic CoBA is currently being developed by Baltic TSOs as part of the Baltic – Nordic balancing market cooperation development project, and the main milestones for successful CoBA establishment are already identified. Nordic balancing pilot project intends to explore the Nordic region cooperation potential with neighbouring regions, in particular it focuses on developing cooperation for the exchange of mFRR between the Nordics and neighbouring systems, including Baltic countries. On later stages is foreseen Baltic mFRR CoBA integration with Nordic mFRR CoBA.

The objective of the Baltic CoBA is to establish common rules and principles for all balancing related activities while facilitating competition and at the same time paving the way for equal treatment towards each market participant regardless of the country it operates or resides in. By January 2018, the Baltic CoBA will persist of an agreement made among three Baltic TSOs, in which TSOs will agree to exchange balancing energy and operate the imbalance netting process as well as initial cooperation with Nordic mFRR CoBA shall be in place. The GL EB also requires the defining of standard products for the exchange of balancing energy incl. harmonised rules for activation and settlement processes.

This document covers a brief description of the current state of the agreement on the main principles, which will be applied in the development and operations of the Baltic CoBA. The many principles described in this concept document upon completion of their elaboration and development will be consulted with the Baltic market participants and upon completion of the consultation where it is required will be submitted to the Baltic National Regulatory Authorities (Baltic NRAs) for their review and approval.

## 2. The Objectives of the Baltic CoBA

Baltic TSOs have agreed to a set of concepts, which shall be integral to the Baltic CoBA. These concepts include:

---

<sup>1</sup> mFRR – according to EU network code on Balancing Energy refers to manual Frequency Restoration Reserves, and in essence corresponds to the current regulation/balancing energy bids currently applied by Baltic TSOs.

1. Introduction of one standard mFRR product for balancing and emergency reserves (ER) mFRR product by Lithuania, Latvia and Estonia with non-discriminatory balancing procedures and settlement principles;
2. the creation and operation of a Baltic mFRR market with a common merit order list (hereinafter – CMOL) taking into account the future integration with the Nordic mFRR market (Baltic-Nordic CMOL);
3. imbalance netting potential for Baltic CoBA during market periods, usage of the activation optimisation function (hereinafter – AOF<sup>2</sup>) and establishment of common coordinated operation and settlement procedures for the Baltic CoBA’s area control error (hereinafter – CoBA’s ACE<sup>3</sup>);
4. imbalance netting (post factum) for CoBA’s ACE;
5. balance settlement rules between TSOs for all energy exchanges incl. intended and unintended;
6. balance management principles, including a common balance model and imbalance pricing methodology;
7. a concept of cooperation with non EU and non EEA countries (3<sup>rd</sup> countries);
8. a concept and establishment of deeper cooperation between Baltic and Nordic mFRR market.

Figure 1 contains the items agreed, which shall be developed, harmonised and included within the Baltic CoBA.

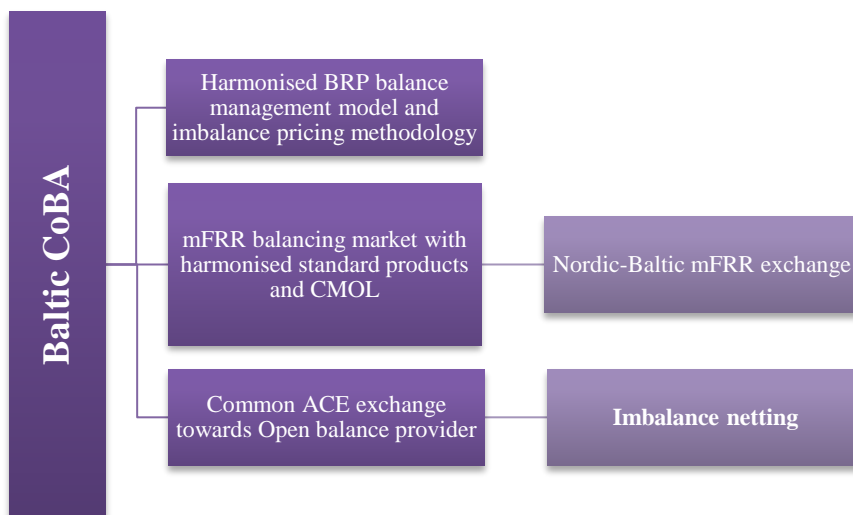


Figure 1: Baltic CoBA main content

### 3. General Principles of a Baltic CoBA

The general principles that need to be developed, harmonised and included in the Baltic CoBA concept are as follows:

---

<sup>2</sup> Activation Optimisation Function (AOF) – refers to the logic/algorithm applied for activations of balancing energy.

<sup>3</sup> Area Control Error (ACE), corresponds to the total imbalance of balancing area. In the context of common Baltic balancing market this corresponds to the total not netted imbalance of three Baltic power systems.

### **3.1. The operation of Baltic mFRR market with a CMOL (concept)**

Operation of Baltic mFRR market will be based on utilising the available balancing resources within the Baltics and available Nordic mFRR energy products that should be procured from a CMOL for the purpose of balancing the whole Baltic ACE while taking into account available cross border capacity for balancing purposes.

Standard mFRR product and separate emergency reserve (ER) mFRR product will be used in Baltic CoBA.

### **3.2. Imbalance netting potential for Baltic CoBA during market periods, AOF and common coordinated operation and settlement procedures for CoBA's ACE (concept)**

Imbalance netting potential for Baltic CoBA during market periods means that while determining the whole Baltic ACE that needs to be balanced (mFRR activations called), the AOF also takes into account the potential of imbalance netting during the operational hour. The resulting activations called by the AOF should be for the not netted volumes of Baltic imbalances. Principles and detailed procedures for determining imbalance netting potential will be developed by the Baltic – Nordic TSOs Balancing Cooperation working group.

### **3.3. Imbalance netting (post factum) for CoBA's ACE**

Baltic TSOs currently, based on already existing cooperation, net (post factum) the imbalance volumes between each system during the settlement phase. This principle is foreseen to continue as part of the Baltic CoBA operation (business) process.

### **3.4. Balance settlement rules between TSOs, including all energy exchanges (intended and unintended) (concept)**

The Baltic CoBA settlement concept foresees that the Baltic TSOs should carry out settlement between TSOs and deal with:

- CoBA's imbalance energy volume calculation and the allocation rules for netted and not netted volumes;
- Settlement for CoBA's not netted imbalance towards Russia, including data exchange flow by TSO>SC>OBP<sup>4</sup> and pricing principles;
- Imbalance netting inside the CoBA, including data exchange flow by TSO>TSO and pricing principles;
- Balancing mFRR market settlement principles for activated balancing energy.

The Baltic CoBA settlement concept foresees that each TSO shall be responsible for carrying out settlement within their balance area i.e. for settling the imbalances with the BRPs and balancing energy with BSPs operating in the corresponding TSOs responsibility area, and intended and

---

<sup>4</sup> SC – Settlement Coordinator; OBP – Open Balance Provider

unintended energy exchanges arising from operating the HVDC interconnectors (Estlink 1 & 2 and NordBalt, LitPol Link).

### **3.5. TSO-BSP balance settlement principles (concept)**

Baltic mFRR market shall be operated according to principles set in paragraph 3.1 and the TSO-BSP balance settlement shall be based on following principles:

- Activated balancing energy from BSP shall be settled between BSP and connecting TSO;
- Activated balancing energy from BSP for Baltic CoBA shall be settled on marginal price. Pay as bid method shall be applied for emergency reserve product;
- Activated balancing energy from BSP for purpose of special regulation<sup>5</sup> shall be settled on pay as bid price;
- Activated balancing energy from BSP for other TSOs outside Baltic CoBA shall be settled on pay as bid price.
- First bids according to merit order should be used and settled for balancing needs (marginal pricing) and only the remaining bids should be used and settled for special activation (pay-as-bid).

### **3.6. TSO-BRP imbalance settlement and imbalance pricing (concept)**

The Baltic CoBA's operations foresee harmonisation of the Baltic TSO – BRP balance management models and imbalance pricing principles.

The TSO-BRP imbalance settlement and pricing harmonisation should take into account the following:

- the settlement shall be based on financial neutrality principles;
- the relevant harmonisation shall include balance portfolio model, imbalance pricing for imbalance settlement period and balancing cost recovery structure.

### **3.7. Concept of cooperation with non-EU and non-EEA countries (3<sup>rd</sup> countries) including the defining of standard and specific mFRR product with non-discriminatory balancing procedures and settlement principles (approved)**

Decision on the inclusion of 3<sup>rd</sup> countries balancing energy bids in the Baltic CMOL shall be taken after Baltic CMOL is operational.

There are certain conditions that the balancing bids from 3<sup>rd</sup> countries should meet:

- They should be compatible with the standard mFRR products applied for the exchange between Baltic TSOs and with Nordic TSOs;

---

<sup>5</sup> Special regulation is defined as activation carried out by Baltic TSOs for network reasons or congestion management purposes on the cross borders or internally in the power system, including activations by request of TSOs outside Baltic CoBA. Those activation should not affect or set the balancing price within Baltics.

- 3<sup>rd</sup> countries bids should not have an advantage over bids from the Baltic and Nordic market participants and i.e. they must follow the rules set up by European Union.

In order to maintain the operational security of the Baltic power systems it is essential to keep the existing practices of sharing the emergency reserves and exchanging the energy from emergency reserves activation with 3<sup>rd</sup> countries in place. For emergency reserve activations Baltic TSOs shall use separate emergency reserve (ER) mFRR product.

### **3.8. Concept and establishment of deeper cooperation between Baltic and Nordic mFRR CoBAs (concept)**

Establishment of deeper cooperation between Baltic and Nordic balancing markets shall include harmonisation of the mFRR balancing products, fulfilling pre-requirements and harmonising the main principles of balancing markets.

The proceedings of the Baltic and Nordic balancing market cooperation are subject to the Nordic and Baltic TSOs decision(s) regarding expansion of the cooperation across the region which may take place in parallel depending on the following developments in the Baltic and Nordic balancing markets:

- Exchange of the Baltic and Nordic CMOLs between TSOs for information and testing purposes;
- Harmonization of mFRR product exchanged between FI-EE and LT-SE;
- Creation of a cooperation model between the Baltic and Nordic balancing markets aiming at common Baltic-Nordic MOL;
- Decision on cooperation of Baltic - Nordic separate CMOL and mFRR product activation and settlement procedures;
- Implementation of the model for cooperation between Baltic and Nordic balancing markets aiming at CMOL and needed IT solutions.

After having proven and successful operation between the Baltic CoBA and Nordic CoBA, the integration of mFRR markets with similar market setups can be considered as final target.

### **3.9. Transparency (concept)**

Baltic TSOs will pay particular attention to transparency issues. In light of the EU Commission regulation no 543/2013 on the submission and publication of data in electricity markets, a centralized data collection and publication platform has been created known as the EMFIP platform. In addition to the information related to load, generation, transmission, outages and congestion management, each TSO is responsible for submitting the following information related to balancing:

- contracted balancing reserves;
- accepted balancing offers and activated balancing volumes and prices;
- imbalance volumes and prices; and
- the financial expense and income incurred from conducting balance service.

Baltic TSOs will make information related to balancing available to all stakeholders as close as possible to real time operations. Transparency will be a part of the developed IT solution, which shall

support functioning of the Baltic balancing market. The information will include the following, but not limited to:

- accepted offers;
- activated balancing energy price (marginal price) and volumes;
- imbalance prices;
- ACE volumes;
- And other relevant information requested by EU Commission regulation no 543/2013 on the submission and publication of data in electricity markets and other related EU and national transparency regulations.

## Annex 1: Definitions

**Activation Optimisation Function** means the function of operating the algorithm applied to optimise the activation of balancing energy bids within a coordinated balancing area

**Balance Responsible Party** means a market-related entity or its chosen representative responsible for its imbalances.

**Balancing** means all actions and processes, on all timelines, through which TSOs ensure, in a continuous way, to maintain the system frequency within a predefined stability range, and to comply with the amount of reserves needed per frequency containment process, frequency restoration process and reserve replacement process with respect to the required quality.

**Balancing Energy** means energy used by TSOs to perform balancing and provided by a balancing service provider.

**Balancing Energy Gate Closure Time** means the point in time when submission or update of a balancing energy bid for a standard product on a common merit order list in a coordinated balancing area is no longer permitted.

**Balancing Market** means the entirety of institutional, commercial and operational arrangements that establish market-based management of balancing.

**Balancing Services** means either or both balancing capacity and balancing energy.

**Balancing Service Provider (BSP)** means a market participant with reserve providing units or reserve providing groups able to provide balancing services to TSOs.

**Area Control Error** means the difference between measured physical flow and final external schedules of coordinated balancing area.

**Baltic's Area Control Error (ACE)** means the Baltic's not netted imbalance towards Russia, which is settled through the trade of imbalance energy with the open balance provider of the Baltic system.

**Coordinated Balancing Area** means a region in which TSOs are exchanging balancing capacity, exchanging balancing energy and operating the imbalance netting process

**Baltic Coordinated Balancing Area** means a region in which the Baltic TSOs operate the activation optimisation function, exchange balancing energy and perform the imbalance netting process.

**Common Merit Order List** means a list of balancing energy bids sorted in order of their bid prices, used for the activation of balancing energy bids within a coordinated balancing area.

**Connecting TSO** means the TSO which operates the control area in which balancing service providers and balance responsible parties shall be compliant with the terms and conditions related to balancing.

**Countertrading** means if despite superimposing of counter directed flows the resulting physical flow reaches the capacity of the transmission line, a situation of congestion or bottleneck exists in the resulting direction. Any further contractual transaction in the congested direction can only be carried out, if at the same time e.g. the TSO arranges a corresponding contractual flow in the opposite direction. To achieve this, the TSO has to purchase or sell electricity from generators, or even consumers, that are willing to increase or decrease generation/consumption.

**Deactivation Period** means the time period for ramping, from full delivery or withdrawal back to a set point.



**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.

**Divisibility** means the possibility for the TSO to use only part of the balancing energy bids offered by the Balancing Service Provider, either in terms of power activation or time duration.

**Emergency reserve** means reserve capacity held or pre-ordered by the system operator to manage emergencies that may occur in the electricity system.

**Exchange of Balancing Energy** means the process of instructing the activation of balancing energy bids for the delivery of balancing energy by a TSO in a different control area or scheduling area when appropriate, than the one in which the activated balancing service provider is connected.

**Full Activation Time** means the time period between the activation request by TSO and the corresponding full activation of the concerned product.

**Imbalance** means an energy volume calculated for a balance responsible party and representing the difference between the allocated volume attributed to that balance responsible party, and the final position of that balance responsible party and any imbalance adjustment applied to that balance responsible party, within a given imbalance settlement period.

**Imbalance Adjustment** means an energy volume representing the balancing energy from a balancing service provider and applied by the connecting TSO for an imbalance settlement period to the concerned balance responsible parties, for the calculation of the imbalance of these balance responsible parties.

**Imbalance Area** means the area for the calculation of an imbalance.

**Imbalance Netting Process Function** means the role to operate the algorithm applied for operating the imbalance netting process.

**TSO-TSO imbalance netting** means the action of matching opposite direction imbalances inside the Baltic balance area by transferring the imbalance energy inside the Baltic balance area as balancing delivery.

**Imbalance price** means the price, positive, zero, or negative, in each imbalance settlement period for an imbalance in each direction.

**Imbalance price area** means the area for the calculation of an imbalance price.

**Imbalance Settlement** means a financial settlement mechanism aiming at charging or paying balance responsible parties for their imbalances.

**Imbalance Settlement Period (ISP)** means time units for which balance responsible parties' imbalance is calculated.

**Manual Frequency Restoration Reserves** means the active power reserves activated manually to restore system frequency to the nominal frequency and for synchronous area consisting of more than one LFC area power balance to the scheduled value.

**Marginal Pricing** means a principle according to which the price of the last activated balancing energy offer following merit order applies to all activated bids during the particular imbalance settlement period.

**Netted Imbalance** means balance area imbalance that is resolved by applying the imbalance netting process in the Baltic coordinated balancing area.

**Not Netted Imbalance** means the residual imbalance after the imbalance netting process has been applied. Not netted imbalance is referred to as the Baltic area control error and is traded with the open balance provider of the Baltic coordinated balancing area.

**Position** means energy volume representing the sum of scheduled commercial transactions of a balance responsible party, on organised electricity markets or between balance responsible parties, for the calculation of imbalance, or, where appropriate, means an energy volume representing scheduled injections, scheduled withdrawals or the sum of scheduled injections and withdrawals of a balance responsible party, for the calculation of the imbalance of that balance responsible party.

**Preparation Period** means the time duration between the request by the TSO and start of the energy delivery.

**Standard Product** means a harmonised balancing product defined by all TSOs for the exchange of balancing services.

**Specific Product** means a product different from a standard product.

**Single Portfolio** means grid injection and offtake volumes are netted into a single balance responsibility account.

**Single Pricing** means a single imbalance price for system shortage and a single imbalance price for system surplus.

**Dual Portfolio** means grid injection and offtake volumes are summed into two separate balance responsibility accounts.

**Dual Pricing** means two imbalance prices for system shortage situations and two imbalance prices for system surplus situations. The price charged depends on whether the BRP is supporting the system balance or aggravating the system balance.

**TSO energy bid submission gate closure time** means the latest point in time when a connecting TSO can forward the balancing energy bids received from a balancing service provider to the activation optimisation function. The TSO energy bid submission gate closure time is after balancing energy gate closure time.

**TSO-BSP Model** means a model for the exchange of balancing services where the balancing service provider provides balancing services directly to the contracting TSO, which then provides these balancing services to the requesting TSO.

**TSO-TSO Model** means a model for the exchange of balancing services where the balancing service provider provides balancing services to its connecting TSO, which then provides these balancing services to the requesting TSO.

**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.