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**All TSOs' proposal on methodologies for pricing balancing energy and cross-zonal capacity used for the exchange of balancing energy or operating the imbalance netting process pursuant to Article 30(1) and Article 30(3) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing**

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**DATE**

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**DISCLAIMER**

This document is released on behalf of the all transmission system operators ("TSOs") only for the purposes of the public consultation on the All TSOs' proposal for the methodology of the pricing balancing energy and cross-zonal capacity used for the exchange of balancing energy or operating the imbalance netting process in accordance with Articles 30(1) and Article 30(3) of Commission Regulation (EU) 2017/2195 establishing a guideline on electricity balancing. This version of the proposal does not in any case represent a firm, binding or definitive TSOs' position on the content.

All TSOs, taking into account the following:

### Whereas

- (1) This document is a common proposal developed by all Transmission System Operators (hereafter referred to as “TSOs”) regarding the methodologies for pricing balancing energy and cross-zonal capacity used for the exchange of balancing energy or operating the imbalance netting process pursuant to Article 30(1) and Article 30(3) of EBGL. This proposal is hereafter referred to as the “PP”).
- (2) The PP takes into account the general principles and goals set in Regulation (EC) 2017/2195 establishing a guideline on electricity balancing (hereafter referred to as the “EBGL”), Regulation (EC) 2017/1485 establishing a guideline on electricity transmission system operation (hereafter referred to as the “SOGL”) as well as Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity (hereafter referred to as the “Electricity Regulation”).
- (3) The goal of EBGL is the integration of balancing markets. To facilitate this goal, it is necessary to develop implementation frameworks for European platforms for balancing energy exchange from frequency restoration reserves with manual and automatic activation, replacement reserves and imbalance netting process pursuant to Article 19 to 22 of EBGL. Additionally, Article 30 of EBGL formulates the requirements regarding the pricing of balancing energy and cross-zonal capacity.
- (4) Article 30 of EBGL constitutes the legal basis for this proposal:
  - “1. By one year after the entry into force of this Regulation, all TSOs shall develop a proposal for a methodology to determine prices for the balancing energy that results from the activation of balancing energy bids for the frequency restoration process pursuant to Articles 143 and 147 of Regulation (EU) 2017/1485, and the reserve replacement process pursuant to Articles 144 and 148 of Regulation (EU) 2017/1485. Such methodology shall:*
    - (a) be based on marginal pricing (pay-as-cleared);*
    - (b) define how the activation of balancing energy bids activated for purposes other than balancing affects the balancing energy price, while also ensuring that at least balancing energy bids activated for internal congestion management shall not set the marginal price of balancing energy;*
    - (c) establish at least one price of balancing energy, for each imbalance settlement period;*
    - (d) give correct price signals and incentives to market participants;*
    - (e) take into account the pricing method in the day-ahead and intraday timeframes.”*
  - “3. The proposal pursuant to paragraph 1 shall also define a methodology for pricing of cross-zonal capacity used for exchange of balancing energy or for operating the imbalance netting process. Such methodology shall be consistent with the requirements established under Commission Regulation (EU) 2015/1222, and:*
    - (a) reflect market congestion;*
    - (b) be based on the prices for balancing energy from activated balancing energy bids, determined in accordance either with the pricing method pursuant to paragraph 1(a), or if applicable, the pricing method pursuant to paragraph 5;*

*(c) not apply any additional charges for the exchange of balancing energy or for operating the imbalance netting process, except a charge to compensate losses if this charge is also taken into account in other timeframes.”*

- (5) Article 3 of the PP sets the pricing methodology based on marginal pricing (pay-as-cleared) as required by Article 30(1)(a) of EBGL.
- (6) Article 30(1)(b) of EBGL requires to define the impact on the price from the activation for other purposes than balancing. Standard balancing energy bids selected by the AOF for system constraint purpose will be remunerated based on pay-as-bid if the respective bid price is higher than the marginal price for balancing in accordance with Article 8 of the PP and shall not set the marginal price. The activation purpose proposal does not foresee activation for other purposes than balancing for aFRR-Platform and for direct activation in the mFRR-Platform.
- (7) Article 30(1)(c) of EBGL foresees a pricing proposal that establish at least one price of balancing energy, for each imbalance settlement period. Article 3 of the PP determines the number of prices per uncongested area and balancing energy products. Article 4, Article 5 and Article 6 of the PP require that at least one price will be established for each imbalance settlement period.
- (8) Article 30(1)(d) of EBGL requires a proposal that gives correct price signals and incentives to market participants. This requirement is fulfilled by choosing the cross-border marginal price as the basis for the proposal. Moreover, the pricing methodology differentiates between the different products and processes in Article 4, Article 5 and Article 6 of the PP ensuring that the pricing methodology values the different product properties and is consistent with the congestions identified within each process while establishing the cross-border marginal prices.
- (9) Article 30(1)(e) of EBGL asks to take into account the pricing method in day-ahead and intraday market timeframes. Article 4, Article 5 and Article 6 of the PP fulfil this requirement by proposing a cross-border marginal price methodology which is consistent to the day-ahead market pricing. Moreover, the PP proposes to determine prices based on market clearings and not to introduce cross-process pricing as it is also not the case for day-ahead and intraday market prices.
- (10) Article 30(3) of EBGL requires that cross-zonal capacity pricing reflects market congestions, is based on balancing energy prices and does not require additional charges. Article 9 of the PP fulfils this requirement by defining the cross-zonal capacity price as the price difference between the uncongested areas for the respective products and processes. The price for cross-zonal capacity used for the imbalance netting process implemented by the imbalance netting activation optimisation function (AOF) is 0 €/MWh due to the fact that the imbalance netting process is not based on a common-merit order activation and does not require the usage of common pricing mechanisms and standard products.
- (11) The PP contributes to the objective stated in Article 3(1)(a) and Article 3(1)(c) of EBGL as follows:
  - (a) By proposing a methodology based on cross-border marginal pricing for the pricing of all standard balancing energy bids, the PP fosters effective competition and integration of balancing markets since the methodology will be harmonised for all balancing energy bids, including balancing energy bids converted to standard products from specific products or integrated scheduling process bids.

- (b) The effective competition is also fostered by the choice of the balancing energy pricing period (BEPP) for the pricing of balancing energy from automatic frequency restoration process (aFRR) which will be equal to the AOF optimisation cycle. This approach will maximise the time periods with price convergence and lower incentives mark-ups on balancing energy bid prices motivated by limited cross-zonal capacity in areas with limited internal competition. The fostering of effective cross-border competition is a core condition to make the application of a marginal pricing approach successful.
  - (c) PP ensures non-discrimination because the pricing methodology is applied in the same way to all standard balancing energy products regardless of location, technology or other factors. The same applies for the pricing of cross-zonal capacity.
  - (d) Currently, prices are determined by each TSO in a non-harmonised way. In combination with European regulation on transparency, cross-border marginal pricing also fosters the transparency of the balancing markets since prices are derived from the market clearing calculated by the activation optimisation function of the respective common platform.
- (12) In combination with the implementation frameworks, the PP contributes to the objective stated in Article 3(1)(b) of EBGL. The cross-border marginal pricing incentivises the BSPs to submit bids with prices equal to the respective marginal costs. At the same time, the AOF selects the overall cheapest bids for the satisfaction of the balancing energy demand. The result will be decreased balancing costs, and hence, increased efficiency of the balancing energy markets.
- (13) The PP contributes to the objective stated in Article 3(d) of EBGL since the proposed methodology is consistent with the day-ahead pricing methodology. Moreover, the proposal to calculate different prices for different processes corresponds to the approach of the day-ahead and intraday markets and hence facilitates consistency.
- (14) The PP contributes to the objectives stated in Article 3(e) of EBGL since the pricing methodology is non-discriminatory. Moreover, cross-border marginal pricing lowers the barrier for new entrants since no complex probabilistic bidding strategy is required to maximise the earnings from participation in the balancing markets.
- (15) The PP is technology neutral and non-discriminatory which means that it does not favour a specific technology to provide balancing energy. Nonetheless, it contributes to the objectives stated in Article 3(f) of EBGL and Article 3(g) of EBGL since the integrated balancing energy market combined with lowered entry barriers facilitate the participation of demand response, energy storage and renewable energy sources.
- (16) In conclusion, the PP meets the objectives of EBGL.

**SUBMIT THE FOLLOWING PP TO ALL REGULATORY AUTHORITIES:**

## **Article 1**

### **Subject Matter and Scope**

- (1) The PP is the common proposal of all TSOs in accordance with Article 30(1) and Article 30(3) of EBGL.
- (2) The PP defines the methodology to determine prices of balancing energy resulting from the activation of balancing energy product bids for frequency restoration reserves with automatic activation (hereafter referred to as “aFRR”), frequency restoration reserves with manual activation (hereafter referred to as “mFRR”) and replacement reserves (hereafter referred to as “RR”). Where the PP defines different requirements for a methodology to determine prices of standard RR, mFRR and aFRR balancing energy product bids, only the TSOs obliged to implement the European platforms for the exchange of balancing energy in accordance with Articles 19, 20 and 21 of EBGL are required to comply with these requirements.
- (3) The PP defines the methodology for pricing of cross-zonal capacity used for the exchange of balancing energy or for operating the imbalance netting process.

## **Article 2**

### **Definitions and Interpretation**

- (1) For the purposes of the PP, the terms used shall have the meaning given to them in Article 2 of the Electricity Regulation, Article 3 of SOGL and Article 2 of EBGL.
- (2) In addition, in the PP the following terms shall apply:
  - a) ‘standard aFRR balancing energy product’ means the standard product for balancing energy from frequency restoration reserves with automatic activation;
  - b) ‘standard mFRR balancing energy product’ means the standard product for balancing energy from frequency restoration reserves with manual activation;
  - c) ‘standard RR balancing energy product’ means the standard product for balancing energy from replacement reserves;
  - d) ‘standard aFRR balancing energy product bid’ means the balancing energy bid for a standard aFRR balancing energy product;
  - e) ‘standard mFRR balancing energy product bid’ means the balancing energy bid for a standard mFRR balancing energy product;
  - f) ‘standard RR balancing energy product bid’ means the balancing energy bid for a standard RR balancing energy product;
  - g) ‘aFRR-Platform’ means European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation;
  - h) ‘mFRR-Platform’ means European platform for the exchange of balancing energy from frequency restoration reserves with manual activation;
  - i) ‘RR-Platform’ means European platform for the exchange of balancing energy from replacement reserves;
  - j) ‘cross-zonal capacity’ (hereafter referred to as “CZC”) means the capability of an interconnected system to accommodate balancing energy transfer between bidding zones and/or LFC areas. The cross-zonal capacity is determined in accordance with the implementation frameworks for the

exchange of balancing energy from replacement reserves, from frequency restoration reserves with manual and automatic activation as well as for the imbalance netting process.

- k) 'selected bid' means a bid that is selected by the AOF and must be fully or partially activated.
  - l) 'rejected bid' means a bid which is not a selected bid.
  - m) 'accepted bid energy volume' means the balancing energy volume from a balancing energy product bid to be settled in accordance with national terms and conditions related to balancing.
  - n) 'uncongested area' means the widest area, constituted by bidding zones and/or LFC areas, where the exchange of balancing energy and the netting of demands is not restricted by the available CZC or allocation constraints.
  - o) 'balancing energy pricing period' (hereafter referred to as "BEPP") means a time interval for which cross-border marginal prices (hereafter referred to as "XBMP") are calculated.
  - p) 'price indeterminacy' means that there is no unambiguous intersection point between the consumer and supply curves or that the bid price of some selected upward bids is higher than the bid price of some selected downward bids.
- (3) In the PP, unless the context requires otherwise:
- a) the singular indicates the plural and vice versa;
  - b) headings are inserted for convenience only and do not affect the interpretation of the PP; and
  - c) any reference to legislation, regulations, directives, orders, instruments, codes or any other enactment shall include any modification, extension or re-enactment of it when in force.

### **Article 3** **General Principles**

- (1) The price for balancing energy from standard product bids activated for balancing purpose shall be the XBMP of the respective process, in accordance with Article 4, Article 5 and Article 6 of the PP.
- (2) The respective platform shall calculate one XBMP price for standard balancing energy bids selected for the balancing purpose for:
  - (a) each BEPP;
  - (b) each activation direction;
  - (c) each uncongested area; and
  - (d) each of the following standard balancing energy products selected for the balancing purpose:
    - i. standard RR balancing energy product;
    - ii. standard mFRR balancing energy product with scheduled activation type;
    - iii. standard mFRR balancing energy product with direct activation type;
    - iv. standard aFRR balancing energy product.
- (3) In case of price indeterminacy, the XBMP shall be determined by the AOF.
- (4) Each TSO shall:
  - (a) determine the accepted bid energy volume in accordance with Article 45(2) of EBGL.

- (b) settle each accepted bid energy volume from a standard balancing energy product activated in upward direction with the maximum of the respective XBMP established in accordance with Article 4, Article 5 or Article 6 of the PP and the respective bid price in accordance with Article 47 and Article 48 of EBGL.
  - (c) settle each accepted bid energy volume from a standard balancing energy product activated in downward direction with the minimum of the respective XBMP established in accordance with Article 4, Article 5 or Article 6 of the PP and the respective bid price in accordance with Article 47 and Article 48 of EBGL.
- (5) Each TSO using specific products shall remunerate the respective accepted bid energy volume in accordance with Article 7 of the PP.

#### **Article 4**

##### **Additional Provisions for the Pricing of Standard RR Balancing Energy Product Bids and Standard mFRR Balancing Energy Product Bids with Scheduled Activation Type**

- (1) The BEPP for standard RR balancing energy product bids and standard mFRR balancing energy product bids with scheduled activation type shall be 15 minutes. The first BEPP of each day shall begin right after 00:00 and end at 00:15. The BEPPs shall be consecutive and not overlapping.
- (2) The XBMP for standard RR balancing energy product bids and standard mFRR balancing energy product bids with scheduled activation type in each uncongested area shall be equal to the price at the intersection of the consumer and supply curves which consist of:
  - (a) selected bids and satisfied demands;
  - (b) rejected upward bids or unsatisfied negative demands which have higher prices than the last selected upward bid or satisfied negative demand;
  - (c) rejected downward bids or unsatisfied positive demands which have a lower price than the last selected downward bid or satisfied positive demand.
- (3) Where there are no single intersection points between the consumer and supply curves as defined in paragraph (2), the cross-border marginal price is given by the price indeterminacy calculation in accordance with Article 3(3) of the PP.

#### **Article 5**

##### **Additional Provisions for the Pricing of Standard mFRR Balancing Energy Product Bids with Direct Activation Type**

- (1) The BEPP for standard mFRR balancing energy product bids with direct activation type shall be 15 minutes. The first BEPP of each day shall begin right after 00:00 and end at 00:15. The BEPPs shall be consecutive and not overlapping.
- (2) All standard mFRR balancing energy product bids with direct activation type selected by the activation optimisation function not earlier than 7.5 minutes before the beginning of the BEPP and no later than 7.5 minutes after the beginning of the BEPP shall be attributed to this BEPP. A part of the accepted bid energy volume is attributed to the subsequent BEPP.
- (3) The XBMP for all standard mFRR balancing energy product bids with direct activation type attributed to the same BEPP shall be the maximum of the price-components A and B for the positive activation direction and the minimum of A and B for the negative direction:
  - (a) The calculation of the price-component A is defined by paragraph (4) of this Article.

- (b) The calculation of the price-component B is defined by paragraph (5) of this Article.
- (4) The price-component A comprises all selected bid prices of direct activations that have occurred within the quarter hour for which the bid is submitted in the respective uncongested areas.
- (5) For the part of the accepted bid energy volume of a direct activation of mFRR that is assigned to the BEPP corresponding to the quarter hour for which the bid is submitted, the price-component B is equal to the XBMP resulting from scheduled activation of mFRR for the same BEPP, whereas for the part of the accepted bid energy volume of a direct activation of mFRR that is assigned to the subsequent BEPP, the price-component B is equal to the XBMP resulting from scheduled activation of mFRR for the subsequent BEPP.

## **Article 6**

### **Additional Provisions for the Pricing of Standard aFRR Balancing Energy Product Bids**

- (1) The BEPP for standard aFRR balancing energy product bids is equal to the optimisation cycle of the AOF.
- (2) The XBMP for selected standard aFRR balancing energy product bids in positive direction in an uncongested area shall be equal to the highest price of all selected standard aFRR balancing energy product bids in positive direction in the same uncongested area.
- (3) The XBMP for selected standard aFRR balancing energy product bids in negative direction in an uncongested area shall be equal to the lowest price of all selected standard aFRR balancing energy product bids in negative direction in the same uncongested area.
- (4) Where there are no single intersection points between the consumer and supply curves as defined in Article 4(2), the XBMP is given by the price indeterminacy calculation in accordance with Article 3(3).

## **Article 7**

### **Pricing of Specific Products**

- (5) Each TSO using specific products and submitting them to the common merit order list as a result of a bid conversion in accordance with Article 26(3)(a) of EBGL shall determine the price for the specific product bids representing the selected standard product bids taking into account:
- (a) XBMP for the respective standard balancing energy product bid if selected for balancing purpose;
  - (b) standard balancing energy product bid price if selected for system constraint purpose;
  - (c) bid conversion mechanism, where relevant;
  - (d) financial neutrality of the TSO.

## **Article 8**

### **Additional Provisions for Pricing for System Constraint Purpose Activations**

- (1) Each standard balancing energy bid selected for system constraint purpose shall be remunerated with its bid price if it fulfils the following criteria
- (a) The bid is selected by the AOF in an optimisation with activation for system constraint purpose.
  - (b) The upward bid price is higher than the XBMP of an optimisation without system constraint purpose but otherwise identical input parameters as the optimisation in (a).
  - (c) The downward bid price is lower than the XBMP of an optimisation without system constraint purpose but otherwise identical input parameters as the optimisation in (a).

- (2) Each standard balancing energy bid selected for system constraints purpose shall be remunerated with the XBMP if it fulfils the criterion (1)(a) but neither fulfils the criterion (1)(b) nor (1)(c).

### **Article 9** **Pricing of Cross-Zonal Capacity**

- (1) The CZC price for balancing energy exchange resulting from activation of standard energy product bids shall be 0 €/MWh within an uncongested area and shall correspond to the difference between the XBMPs of the respective uncongested areas on the borders separating two uncongested areas.
- (2) The CZC price for energy exchange resulting from the imbalance netting process performed implicitly by the AOF for aFRR shall be 0 €/MWh within an uncongested area and shall correspond to the difference between the XBMPs of the respective uncongested areas on the borders separating two uncongested areas.
- (3) The CZC price for energy exchange resulting from imbalance netting process performed explicitly by the AOF for IN shall be 0 €/MWh.

### **Article 10** **Publication and implementation of the PP**

- (1) The TSOs shall publish the PP without undue delay after all NRAs have approved the proposal or a decision has been taken by the Agency for the Cooperation of Energy Regulators in accordance with Article 5(7), Article 6(1) and Article 6(2) of EBGL.
- (2) The TSOs shall implement the PP in accordance to Article 4 of aFRR, mFRR and RR implementation frameworks.

### **Article 11** **Language**

The reference language for the PP shall be English. For the avoidance of doubt, where TSOs need to translate the PP into their national language(s), in the event of inconsistencies between the English version published by TSOs in accordance with Article 30 of EBGL and any version in another language, the relevant TSOs shall be obliged to dispel any inconsistencies by providing a revised translation of the PP to their relevant national regulatory authorities.