

**TSOs' proposal for the establishment of
common and harmonised rules and pro-
cesses for the exchange and procurement of
Balancing Capacity for Frequency Contain-
ment Reserves (FCR) in accordance with Ar-
ticle 33 of Commission Regulation (EU)
2017/2195 establishing a guideline on elec-
tricity balancing**

26 April 2018

FCR Procurement TSOs, taking into account the following,

Whereas

- (1) This document is the proposal for the common and harmonised rules and processes for the procurement of Balancing capacity for Frequency Containment Reserves (hereafter "FCR") for the concerned Transmission System Operators (TSOs) as developed by these TSOs of the involved countries Austria, Belgium, Denmark, France, Germany, the Netherlands and Switzerland in accordance with the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (hereafter "EBGL"). This is also compliant with the applicable law in Switzerland (Stromversorgungsgesetz). The presented proposal is hereinafter referred to as the "Proposal".
- (2) This Proposal takes into account the general principles, goals and other methodologies set in EBGL.
 - (a) The Proposal contributes to the objective of non-discrimination and transparency in balancing markets pursuant to Article 3(1)(a), (2)(a) and (b) of EBGL, since the same procurement methodology will apply to all TSOs and market participants in a non-discriminatory way. All TSOs and market participants will have access to the same reliable information at the same time and in a transparent way according to Article 12 of EBGL.
 - (b) The Proposal contributes to the objective of enhancing efficiency of balancing as well as efficiency of European and national balancing markets pursuant to Article 3(1)(b) and (2)(c) of EBGL by minimizing the costs of balancing reserves.
 - (c) The Proposal contributes to the objective of integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security pursuant to Article 3(1)(c) , (2)(d) and (f) of EBGL by implementation of the exchange of the balancing capacity.
 - (d) The Proposal contributes to the objective of facilitating the efficient and consistent functioning balancing markets pursuant to Article 3(1)(d) of EBGL by implementation of the exchange of the balancing capacity.
 - (e) The Proposal contributes to the objective of ensuring that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity pursuant to Article 3(1)(e) of EBGL;
 - (f) The Proposal contributes to the objective of facilitating the participation of demand response including aggregation facilities and energy storage while ensuring they compete with other balancing services at a level playing field and, where necessary, act independently when serving a single demand facility pursuant to Article 3(1)(f) of EBGL by implementing auctions close to delivery time and short product period;
 - (g) The Proposal contributes to the objective of facilitating the participation of renewable energy sources and supports the achievement of the European Union target for the penetration of renewable generation pursuant to Article 3(1)(g) of EBGL by implementing auctions close to delivery time and short product period;
 - (h) The Proposal serves the requirement of Article 3(2)(e) of EBGL since no capacity is reserved and thus it is ensured that the development of the forward, day-ahead and intra-day electricity markets is not compromised;
 - (i) The Proposal serves the requirement of Article 3(2)(h) of EBGL since it is based on agreed European standards, which are already in operation.

- (3) Article 1 of EBGL states, that the common principles regarding procurement and settlement in EBGL, also applies for Frequency Containment Reserves.
- (4) Pursuant to Articles 5(3)(b), 5(3)(o) and 58(3) of EBGL the common and harmonised rules and processes for FCR and the principles for balancing algorithms included in this proposal by TSOs require approval from all regulatory authorities of the concerned region.
- (5) Pursuant to Articles 5(4)(f) and 32(3) of EBGL separate procurement of upward and downward balancing capacity is only required for frequency restoration reserves and the replacement reserves and so not included in this Proposal.
- (6) Article 5(5) of EBGL requires that *"the proposal for terms and conditions or methodologies shall include a proposed timescale for their implementation and a description of their expected impact on the objectives of this Regulation. The implementation timescale shall not be longer than 12 months after the approval by the relevant regulatory authorities, except where all relevant regulatory authorities agree to extend the implementation timescale or where different timescales are stipulated in this Regulation."* Following this article, the FCR Cooperation TSOs propose an implementation timescale longer than 12 months which ends on 1 July 2020. The underlying reason is that the TSOs prefer to give market participants certainty about the expected changes on a long term horizon, by including also long term changes in this proposal.
- (7) Article 10(1) of EBGL stipulates that *"TSOs responsible for submitting proposals for terms and conditions or methodologies or their amendments in accordance with this Regulation shall consult stakeholders, including the relevant authorities of each Member State, on the draft proposals for terms and conditions or methodologies and other implementing measures for a period of not less than one month"*.
- (8) In Article 10(6) of EBGL it is provided that *"TSOs responsible for the proposal for terms and conditions or methodologies shall duly consider the views of stakeholders resulting from the consultations undertaken in accordance with paragraphs 2 to 5, prior to its submission for regulatory approval. In all cases, a sound justification for including or not including the views resulting from the consultation shall be provided together with the submission and published in a timely manner before or simultaneously with the publication of the proposal for terms and conditions or methodologies"*.
- (9) Article 12(3)(k) of EBGL requires that *"each TSO shall publish the following information as soon as it becomes available, description of the requirements of any algorithm developed and amendments to it referred to in Article 58, at least one month before the application"*.
- (10) Pursuant to Article 33(1) and 32(2) of EBGL the exchange of balancing capacity shall be performed based on a TSO-TSO model.
- (11) Article 33(2) of EBGL also provides that TSOs should take into account the available cross zonal capacity. Pursuant to Article 38(4) of EBGL FCR shall not use cross zonal capacity allocation.
- (12) Pursuant to Article 33, 57(1), 57(2) of EBGL common and harmonised rules for the settlement of procured balancing capacity are established and joint settlement of procured balancing capacity shall use the TSO-TSO settlement function.
- (13) Article 58(3) of EBGL stipulates that *"In the proposal pursuant to Article 33, two or more TSOs exchanging balancing capacity shall develop algorithms to be operated by the capacity procurement optimisation functions for the procurement of balancing capacity bids. Those*

algorithms shall: (a) minimise the overall procurement costs of all jointly procured balancing capacity(...)".

- (14) In Article 163(2) of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (SOGL) it is required that *"all TSOs involved in the exchange of FCR within a synchronous area shall respect the limits and requirements for the exchange of FCR within the synchronous area specified in Table of Annex VI"*.

SUBMIT THE FOLLOWING PROPOSAL FOR THE COMMON AND HARMONISED RULES AND PROCESSES OF THE FCR PROCUREMENT TO RELEVANT REGULATORY AUTHORITIES.

Article 1 - Subject matter and scope

1. The Parties to the FCR Cooperation procure balancing capacity for Frequency Containment Reserves ("FCR") jointly in a FCR Procurement. The common and harmonised rules and processes as determined in this Proposal is the proposal of the FCR Cooperation in accordance with article 33(1) of EBGL.
2. This Proposal applies solely to the FCR procurement process.

Article 2 - Definitions and interpretations

1. For the purposes of the common and harmonised rules and processes proposed, terms used in this document shall have the meaning of the definitions included in Article 2 of EBGL and Article 2 of SOGL.
2. In addition, the following definitions shall apply:
 - (a) Balancing capacity Gate Closure Time (GCT) means the point in time when submission or update of a balancing capacity bid is no longer permitted;
 - (b) Gate Opening Time (GOT) means the point in time when submission or update of a bid for a standard product on a common merit order list is permitted for the first time;
 - (c) Marginal Pricing (pay-as-cleared) means that the last awarded bid (with the highest price) sets the price for all awarded bids;
 - (d) Overprocurement means that more than the total FCR demand is procured;
 - (e) Pay-as-bid means that every selected bid receives its demanded price;
 - (f) Symmetric product means that upward and downward balancing capacity are procured together;
 - (g) FCR Cooperation means the cooperation of all TSOs who have signed the FCR Cooperation contract;
 - (h) FCR Procurement means the joint procurement of FCR by all TSOs who have signed the FCR Cooperation contract and participate in the common auction for procurement of FCR capacity;
 - (i) Paradoxically rejected bids means the bids that are rejected although the bid price was lower than the marginal price.
3. In this document,
 - (a) the headings are inserted for convenience only and do not affect the interpretation of this Proposal; and
 - (b) any reference to legislation, regulation, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force.

Article 3 - TSO-TSO-Model

1. The FCR Procurement is organised with a TSO-TSO-model, as defined in Article 2 (21) EBGL, in which FCR is procured through a common auction based on a common merit order list where all TSOs of the FCR Procurement pool the offers they have received from the Balancing Service Providers (BSPs) connected to their respective grids. Every BSP needs to establish a contract with its connecting TSO.

Article 4 - Auction frequency and auction timing

1. The procurement process shall be performed on a short-term basis to the extent possible and where economically efficient (in accordance with Article 32 (2) (b) of EBGL).
2. Until (and including) 25 November 2018, the FCR Procurement works with weekly auctions. The auctions take place on Tuesday afternoon with Gate Closure Time (GCT) at 15:00 CET and apply for the next delivery week. The Gate Opening Time (GOT) is Friday before each auction at 12:00 noon CET. In case of bank holidays in one of the FCR Cooperation countries the GCT and GOT shall be modified. The auction calendar is notified by TSOs to BSPs in November of the previous year at the latest.
3. The auction frequency and auction timing will be changed from weekly to daily auctions in two distinctive steps.
 - (a) As of 26 November 2018 on (delivery day), the following changes will apply:

- i. GOT in D-14
- ii. GCT at 15:00 CET according to the table below and the FCR auction calendar.

GCT for a week without bank holidays:

GCT 15:00	Monday	Tuesday	Wednesday	Thursday	Friday
Delivery (D)	Wednesday	Thursday	Friday	Saturday Sunday	Monday Tuesday

- iii. Publication time at 16:00 CET at the date of GCT
 - iv. FCR Cooperation will respect all national bank holidays as defined in the FCR auction calendar and in addition following days will be treated as a holiday: 23.11.2018, 21.12.2018 and 28.12.2018
- (b) As of 1 July 2020 (delivery day), the target common and harmonised rules and processes will apply:
- i. GOT in D-14
 - ii. GCT at 08:00 CET in D-1
 - iii. Publication time at 08:30 CET in D-1

Article 5 - Product

1. Until (and including) 25 November 2018, the product duration is one week: same bid for the period between Monday 0h and Sunday 24h. The product is symmetric.
2. The product duration will then be changed in two distinctive steps.
 - (a) As of 26 of November 2018 (delivery day), a product duration of one day (24h) will be implemented.
 - (b) As of 1 July 2020 (delivery day), the product duration will be 4h, with 6 independent products in a day (0-4h, 4-8h, 8-12h, 12-16h, 16-20h, 20-24h).

Article 6 - Bid design possibilities

1. Until (and including) 30 June 2019, the FCR Procurement works with divisible bids: the Auction Allocation Algorithm can select a part of the volume offered by one bid in Austria, Belgium, Germany, France and the Netherlands. Only in Switzerland indivisible bids can be used with a maximum bid size of 25 MW. Except for Switzerland, submitting of exclusive bids (only one bid of a certain group of bids can be accepted) is not allowed. The minimum bid size is 1 MW and bid resolution is 1 MW (the result of dividing a bid should be a whole number) in all participating countries.
2. As of 1 July 2019 (delivery day), the FCR Procurement will allow divisible bids together with indivisible bids. Indivisible bids will have a maximum bid size of 25 MW in the FCR Procurement. Furthermore, exclusive bids won't be allowed in the FCR Procurement, which applies also for Switzerland. The minimum bid size will be 1 MW and bid resolution will be 1 MW (the result of dividing a bid should be a whole number) in the FCR Procurement.

Article 7 - Auction Allocation Algorithm

1. Pursuant to Articles 33 and 58(3) of EBGL, The algorithm for the capacity procurement optimisation function shall be based on the following principles:
 - (a) The input to the optimisation algorithm is:
 - (i) The balancing capacity bids received from the BSPs containing information about volume (divisible and indivisible), price, time of submission and connecting TSO;
 - (ii) The demand of each country.
 - (b) The objective function of the allocation algorithm is:
 - (i) Minimise the overall procurement costs.
 - (c) The constraints of the optimisation algorithm are to:
 - (i) Apply the import and export limit for a country pursuant to SOGL Article 33 (2) EBGL providing that TSOs take into account in their proposal the "operational limits defined in Chapters 1 and 2 Part IV Title VIII of Commission Regulation (EU) 2017/1485";
 - (ii) Ensure that the total amount of procured balancing capacity must be equal or greater than the total amount of FCR demand (overprocurement in terms of volume is possible if it minimises the total procurement costs pursuant to Article 58 (3) and (4)

EBGL. Indivisible bids are accepted if the acceptance reduces the overall procurement cost and does not lead to paradoxically rejected divisible bids;

- (iii) Respects indivisibility of bids;
 - (iv) Ensure that if there are bids with identical prices, a bid submitted earlier has priority;
 - (v) If there is a set of equally optimal solutions to cover the demand of an area, the bids belonging to that area have a priority to the bids from other areas in order to avoid excessive cross-border exchange under consideration of condition (iv);
 - (vi) After considering all these conditions and preferences, if there are still more than one optimal solution (e.g., two bids with the same volume, cost, and timestamp), what first comes out as a result of the algorithm will be accepted.
2. Until (and including) 30 June 2019, in case a divisible bid in Switzerland offered by BSPs from Germany or The Netherlands would be paradoxically rejected because of an indivisible bid, Switzerland is decoupled from the FCR Procurement and simple price ranking is applied in the remaining FCR Procurement.
 3. As of 1 July 2019 (delivery day), indivisible bids will be allowed and there will be no paradoxically rejected divisible bids in the whole FCR Procurement meaning that any outcome that leads to paradoxically rejected divisible bids will be rejected.

Article 8 - TSO-BSP settlement

1. Until (and including) 30 June 2019 (delivery day), the TSO-BSP settlement of the FCR Procurement is based on a Pay-as-bid model.
2. As of 1 July 2019 (delivery day), the TSO-BSP settlement will be based on Marginal Pricing. There are two limitations in the FCR market:
 - (a) Core shares, also called import limits (which are mandatory according to ANNEX VI SOGL);
 - (b) Maximum transfer of capacities, also called export limits (which are mandatory according to ANNEX VI SOGL).
3. The major features of a Marginal Pricing scheme will be outlined as follows:
 - (a) Determination of a marginal price for each country:
 - (i) For all the countries where the import and export limits are not hit, the marginal prices of all these countries are equal. The marginal price of all these countries is the maximum price of the accepted offers over all these countries where no limitation applies (Cross Border Marginal Price – CBMP).
 - (ii) If the import limit of a country is hit, then the marginal price of this country is the maximum price of the accepted offers of this country (Local Marginal Price for an importing country i - LMPi). This LMPi is always greater than or equal to the CBMP; If there are no offers at all for a country, then the marginal price of this country is set to the CBMP.
 - (iii) If the export limit of a country is hit, then the marginal price of this country is the maximum price of the accepted offers of this country (Local Marginal Price for an exporting country e - LMPe). This LMPe is always less than or equal to the CBMP.
 - (b) BSP remuneration:
 - (i) Each awarded offer of a BSP is remunerated by its connecting TSO at the corresponding marginal price of its country.

Article 9 - TSO-TSO settlement

1. Until (and including) 30 June 2019 (delivery day), exporting TSOs bear the costs that they would incur if they would procure on a national level, hence they pay for the cheapest local bids to cover their demand. The costs of the more expensive bids that were procured additionally are then passed on to the importing TSOs using an "exported bid average price".
2. As of 1 July 2019 (delivery day), the TSO-TSO settlement will be:
 - (a) The compensation between TSOs for imported/exported volumes is at first calculated by using the CBMP. Each importing TSO country has to pay to the exporting TSOs countries the CBMP for the imported volume of FCR. Similarly, the exporting TSOs countries will receive the CBMP for the amount of the volumes they export.
 - (b) If the import limit of a country is hit, the country has to pay a higher or equal price (LMPi) to BSPs than it has to pay for compensation to the other (exporting) TSOs (CBMP).
 - (c) If the export limit of a country is hit, the country has to pay a lower or equal price (LMPe) to BSPs than it will get for compensation from the other (importing) TSOs (CBMP).
 - (i) In both cases the difference between the payment to the BSPs and the compensation from TSOs is summed up.
 - (ii) This summed amount will be distributed among the importing/exporting countries proportionally to the absolute value of their net position (awarded volume – demand).

Article 10 - Accession of new parties

1. The joint FCR Procurement performed by the FCR Cooperation may be extended to include new Parties.
2. All TSOs that have signed the FCR Cooperation contract are considered as equal parties of the FCR Cooperation. Parties of the FCR cooperation might be asked to implement a phase of limited operation for a limited period of time when joining the FCR Procurement. This phase may be defined in a coordinated manner with the relevant national regulatory authorities. Stakeholders will be timely informed about changes in the FCR Procurement.

Article 11 - Implementation roadmap

1. In accordance with Article 5 (5) of EBGL, the proposed common and harmonised rules and processes will be implemented in three independent consistent steps as follows:
 - (a) As of 26 November 2018 (delivery day): The introduction of daily auctions on working days only with D-2 GCT and daily products;
 - (b) As of 1 July 2019 (delivery day): Introducing indivisible bids in all countries of the FCR Procurement, removing exclusive bids in Switzerland, changing the TSO-BSP settlement to Marginal Pricing and make the TSO-TSO settlement compliant with the TSO-BSP settlement.
 - (c) As of 1 July 2020 (delivery day): Implementing daily auctions all days with D-1 GCT and 4h products.
2. All entry into force dates are based on the provisioning of approval of the FCR Proposal latest by 26 October 2018. In case of later approval, all entry into force dates will be postponed with the same delay time. The implementation periods include the time needed to adapt national contracts

and rules, in cooperation with NRAs, where applicable. All NRAs will be asked to commit explicitly to the extended implementation timeline pursuant to Article 5(5) of EBGL.

3. All rules that have no future implementation date are effective immediately.

Article 12 - Language

The reference language for this Proposal for common and common and harmonised rules and processes shall be English. For the avoidance of doubt, where TSOs need to translate this Proposal into their national language(s), in the event of inconsistencies between the English version published by TSOs in accordance with Article 7 of EBGL and any version in another language, the English version shall prevail and the relevant TSOs shall, in accordance with national legislation, provide the relevant NRA(s) with an updated translation of the Proposal.