

**Implementation framework for the European
platform for the exchange of balancing energy
from frequency restoration reserves with
manual activation**

in accordance with Article 20 of Commission Regulation (EU) 2017/2195
of 23 November 2017 establishing a guideline on electricity balancing

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Whereas

- (1) This document describes the implementation framework for the European platform for the exchange of balancing energy from frequency restoration reserves with manual activation (hereafter referred to as the “mFRR-Platform”) pursuant to Article 20(1) of the Regulation (EU) 2017/2195 establishing a guideline on electricity balancing (hereafter referred to as the “EB Regulation”). This methodology is hereafter referred to as the “mFRRIF”.
- (2) The mFRRIF takes into account the general principles, goals and other methodologies set in the EB Regulation, the Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation (hereafter referred to as the “SO Regulation”), the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (hereafter referred to as the “Electricity Regulation”) as well as the Regulation (EC) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council (hereafter referred to as the “Transparency Regulation”).
- (3) The goal of the EB Regulation is the integration of electricity balancing markets. The integration of balancing energy markets should be facilitated with the establishment of common European platforms for the exchange of balancing energy from frequency restoration reserves and replacement reserves, and for operating the imbalance netting process (hereafter referred to as “INP”). To facilitate this goal, it is necessary to develop implementation frameworks for European platforms for balancing energy exchange from frequency restoration reserves with automatic and manual activation (hereafter referred to as “aFRR” and “mFRR” respectively), replacement reserves (hereafter referred to as “RR”) and the INP. The Articles 20(1) and 20(2) of the EB Regulation constitute the legal basis for this methodology.
- (4) This mFRRIF lays down the design, functional requirements, governance and cost sharing of the mFRR-Platform, which should be able to perform among others the activation optimisation function (hereafter referred to as ‘AOF’) as described in the Article 20 of the EB Regulation.
- (5) Article 20(2) of the EB Regulation requires that the mFRR-Platform, “[s]hall be based on common governance principles and business processes and shall consist of at least the activation optimisation function and the TSO-TSO settlement function.” This mFRRIF fulfils these requirements by defining the common business processes of the TSO-TSO model as well as the AOF and the TSO-TSO settlement function. The common governance principles are also set forth by this mFRRIF.
- (6) Article 20(2) of the EB Regulation states further that “[t]his European platform shall apply a multilateral TSO-TSO model with common merit order lists to exchange all balancing energy bids from all standard products for mFRR, except for unavailable bids pursuant to Article 29(14).” These common merit order lists as well as the possibility to declare bids as unavailable are defined in this mFRRIF.
- (7) This mFRRIF defines the application of the TSO-TSO model and the high-level design of the mFRR-Platform required by Article 20(3)(a) of the EB Regulation. The high-level design includes basic principles of the AOF including the constraints.
- (8) This mFRRIF defines specific requirements for the calculation of the capacity limits on mFRR balancing borders. Where mFRR balancing border does not correspond to bidding zone border the capacity limits should be infinite and where it does correspond to a bidding zone border the capacity limits should be the cross-zonal capacities. In the first step, the cross-zonal capacities should be based on the cross-zonal capacities remaining after the end of the single intraday coupling and updated, where relevant, for emerging operational security issues during balancing timeframe and to take into account electricity

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exchanges within the balancing timeframe, inter alia, the replacement power interchange and the manual frequency restoration power interchange. In the second step, once the methodology for cross-zonal capacity calculation within the balancing timeframe in accordance with Article 37(3) of the EB Regulation will be adopted and implemented, the cross-zonal capacities resulting from such methodology should be used instead of the cross-zonal capacity remaining after the end of single intraday coupling. Moreover, this mFRRIF may require an amendment if the methodology in accordance with Article 37(3) of the EB Regulation would also have an impact on the updating process or introduces other changes to the approach defined in this mFRRIF.

- (9) Article 20(3)(b) of the EB Regulation requires that the mFRRIF determines the roadmap and timeline for the implementation of the mFRR-Platform which should be consistent with the deadlines for making the mFRR-Platform operational as defined in Article 20(6) of the EB Regulation. Implementation of the mFRR-Platform means implementing all necessary IT systems in order to operate the frequency restoration process for the exchange of balancing energy from mFRR. This mFRRIF adopts the establishment of mFRR-Platform with the dedicated implementation project, which will draw experience and achievements from existing implementation projects and initiatives.
- (10) Article 20(3)(c) of the EB Regulation requires the determination of functions required to operate the mFRR-Platform. This mFRRIF fulfils this requirement by defining the AOF, the TSO-TSO settlement function and the capacity management function ('CMF'). The AOF takes, among others, mFRR demands, the common merit order lists and mFRR cross-zonal capacities as input and determines the amount of manual frequency restoration power interchange between LFC areas, which aims to ensure the activation of the most cost efficient mFRR balancing energy bids, pursuant to Article 31 of the EB Regulation. The TSO-TSO settlement function implements the settlement of intended energy exchanges as a result of the cross-border FRR activation process for the frequency restoration process with manual activation (hereafter referred to as "mFRP ") between the TSOs. The CMF implements the continuous updating of cross-zonal capacities that are available for the manual frequency restoration power interchanges on bidding zone borders and can be implemented as a common function for all balancing platforms established pursuant to EB Regulation.
- (11) This mFRRIF defines the governance and the decision-making process for the implementation and operation of the mFRR platform as required by Article 20(3)(d) of the EB Regulation. A steering committee should be established to make decisions regarding the mFRR-Platform, in accordance with the principles of the decision-making process defined in Article 4 of the EB Regulation.
- (12) Article 20(3)(e) of the EB Regulation requires to determine the designation of the entity or entities that will operate the functions of the mFRR platform. This mFRRIF determines the designation of a single entity established by TSOs to operate the AOF and the TSO-TSO settlement function, whereas the designation of the entity to operate the CMF is postponed, as this function is not required to be implemented at the beginning of the operation of the aFRR-Platform. This designation ensures that the governance and operation of the European platform is based on the principle of non-discrimination and ensures equitable treatment of all member TSOs, and that no TSO benefits from unjustified economic advantages through the participation in the functions of the European platform as required by Article 20(3)(d) of the EB Regulation. It also facilitates the objectives of the EB Regulation as referred to in Article 3(b) and (d) therein.
- (13) Article 20(3)(f) of the EB Regulation requires that the mFRRIF includes a framework for harmonisation of terms and conditions related to balancing. This mFRRIF sets out a process to identify, consult, adopt and implement the necessary harmonisation.
- (14) Article 20(3)(h) of the EB Regulation requires that the mFRRIF includes the balancing energy gate closure time for all standard mFRR balancing energy product bids and Article 20(3)(j) of the EB

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Regulation requires that mFRRIF includes the TSO energy bid submission gate closure time. The respective gate closure times are defined in this mFRRIF. The gate closure times also apply to bids for specific products converted into standard mFRR balancing energy products according to Article 26(1)(d) of the EB Regulation. For avoidance of doubt, the gate closure times specified in this mFRRIF do not apply for specific products which are activated only locally.

- (15) Article 20(3)(i) of the EB Regulation requires the definition of standard mFRR balancing energy products in accordance with Article 25 of the EB Regulation. This mFRRIF defines all characteristics of a standard mFRR balancing energy product in accordance with Article 25(5) of the EB Regulation as well as several variable characteristics of a standard mFRR balancing energy product which should be determined during the prequalification or when submitting the standard mFRR balancing energy product bid in accordance with Article 25(4) of the EB Regulation. This implementation framework further clarifies the possible specifications of the characteristics of the mFRR standard product to be defined in terms and conditions for balancing service providers (hereafter 'BSPs').
- (16) Article 20(3)(k) of the EB Regulation requires the organisation of the common merit order lists by the AOF pursuant to Article 31 of the EB Regulation. This mFRRIF describes the creation of the two common merit order lists from the standard mFRR balancing energy product bids for positive and negative balancing energy, pursuant to Article 31(2) and (3) of the EB Regulation.
- (17) Article 20(3)(l) of the EB Regulation requires a description of the algorithm for the operation of the AOF for the standard mFRR balancing energy product bids in accordance with Article 58 of the EB Regulation. This mFRRIF provides this description including the objective functions and the constraints of the algorithm. This mFRRIF adopts an integrated algorithm that optimises activation and cross-zonal exchanges of standard mFRR balancing energy product bids.
- (18) This mFRRIF shall aim at explicitly taking into account the cross-zonal capacity that has been allocated for the exchange of balancing capacity or sharing of reserves according to Article 38(1) of the EB Regulation into the AOF in order to give a priority access to the allocated cross-zonal capacity to the TSOs that have allocated this cross-zonal capacity.
- (19) This mFRRIF fulfils the objectives stated in Article 3 of the EB Regulation as follows:
 - (a) The mFRRIF contributes to fostering effective competition as required by Article 3(1)(a) of the EB Regulation, by defining a standard mFRR balancing energy product, including the respective bid parameters, and striving for further harmonisation during the operation of the mFRR platform.
 - (b) This mFRRIF is non-discriminatory as required by Article 3(1)(a) of the EB Regulation, as it applies the same rules for all TSOs and balancing service providers (hereafter referred to as "BSPs"). In particular, the standard mFRR balancing energy product is defined based on the TSOs' need and not on the technical characteristics of the providers, and it does not differ between technologies. Moreover, the operation of the mFRR platform by a single entity, being a single TSO or a company owned by all TSOs, and the rules set out in this mFRRIF for the governance and the decision-making process of the mFRR-Platform ensures the non-discrimination among them.
 - (c) This mFRRIF contributes to the transparency in balancing markets, as required by Article 3(1)(a) of the EB Regulation, by specifying extensive requirements on publication and monitoring with respect to (a) the operation of the mFRR platform, e.g. on fall-back procedures, (b) the AOF, e.g. regarding the outputs, the length of the market time unit, (c) TSOs actions, e.g. on changing bids and (d) the impact on the market, e.g. on the efficiency of the pricing methodology.

- (d) This mFRRIF enhances the efficiency of balancing as well as the efficiency of the European and national balancing markets, as required by Article 3(1)(b) of the EB Regulation, by establishing a function for the consistent and transparent update of the available cross-zonal capacities, by organising common merit order lists, and by ensuring that usage of the available cross-zonal capacity is the output of an optimisation algorithm which aims to activate the most cost-efficient standard mFRR balancing energy product bids to cover the mFRR demand.
- (e) This mFRRIF as required by Article 3(1)(c) of the EB Regulation, contributes to integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security, by establishing a common platform for the exchange of balancing energy from the activation of mFRR. The definition of the standard mFRR balancing energy product, accommodating all TSOs needs, promotes the usage of this product, limiting the need for introducing specific products, thus increasing the possibilities for exchanges of balancing energy. The rules described in this mFRRIF for the operation of the platform, with respect to the cross-border mFRR activation process, and to the TSOs flexibility to request adjustments to the available cross-zonal capacities or change the status or volume of bids, take into account the requirements of the SO Regulation, contributing to operational security..
- (f) This mFRRIF, as required by Article 3(1)(d) of the EB Regulation, contributes to the efficient long-term operation and development of the electricity transmission system by promoting the efficient use of the available cross-zonal capacities through the optimisation of the balancing energy exchanges as a result of the mFRP, achieved by the mFRR platform, as described in (d) above. Additionally, as required also by Article 3(1)(d), the mFRRIF facilitates the efficient and consistent functioning of day-ahead, intraday and balancing markets, by clearly separating the timeframes. Setting the balancing energy gate closure time for the mFRR platform later than the gate closure time for the cross-border intraday market, provides the possibility for market participants to balance themselves.
- (g) This mFRRIF, as required by Article 3(1)(e) of the EB Regulation, contributes to fair, objective, transparent and market-based procurement of balancing energy for the mFRP, by specifying non-discriminatory rules for TSOs and BSPs, regarding the operation of the mFRR platform. Additionally, as also required by Article 3(1)(e) of the EB Regulation, this mFRRIF avoids undue barriers to entry for new entrants and fosters the liquidity of balancing markets by specifying the characteristics of the standard mFRR balancing energy product, based on the TSOs needs and not on the BSPs characteristics, and by establishing a framework for further harmonisation.
- (h) This mFRRIF, as required by Articles 3(1)(f) and (g) of the EB Regulation, facilitates the participation of demand response including aggregation facilities, energy storage and renewable energy sources, by establishing a level-playing field for all BSPs, through the non-discriminatory and transparent rules for the operation of the mFRR platform, and the harmonisation of the standard mFRR balancing energy product characteristics.

Article 1

Subject matter and scope

1. This mFRRIF is the methodology developed in accordance with Article 20(1) of the EB Regulation and establishes a conceptual and legal framework for the implementation of the European platform for the exchange of frequency restoration reserves with manual activation.

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2. The implementation, operation and usage of the mFRR-Platform is mandatory for all TSOs. Where an LFC area consists of more than one monitoring area, only the TSO appointed in the LFC area operational agreement as responsible for the implementation and operation of the mFRP according to Article 143(4) of the SO Regulation (hereafter referred to as “appointed TSO”) shall use the mFRR-Platform. For avoidance of doubt, all TSOs shall become participating TSOs in accordance with the implementation process set out in Article 5, except where an LFC area consists of more than one monitoring area, in which case only the appointed TSO shall become a participating TSO.
3. This methodology applies solely for the exchange of standard mFRR balancing energy products. The European platforms for the INP, exchange of balancing energy from aFRR and exchange of balancing energy from RR are out of the scope of this mFRRIF.
4. The classification of the activation purposes of balancing energy bids is out of the scope of this mFRRIF and shall be treated in a methodology pursuant to Article 29 of the EB Regulation.
5. The pricing of balancing energy that results from the activation of balancing energy bids and cross-zonal capacity used for the exchange of balancing energy or for operating the INP is out of the scope of this mFRRIF and shall be treated in a methodology pursuant to Article 30 of the EB Regulation.
6. The common TSO-TSO settlement rules applicable to the mFRR-Platform is out of the scope of this mFRRIF and shall be treated in a methodology pursuant to Article 50 of the EB Regulation.

Article 2

Definitions and interpretation

1. For the purposes of this mFRRIF, the terms used shall have the meaning given to them in Article 2 of the Electricity Regulation, Article 2 of the Transparency Regulation, Articles 3 of the SO Regulation and Article 2 of the EB Regulation. In addition, in this mFRRIF the following terms shall apply:
 - (a) ‘availability status’ means the condition of a bid being available or unavailable for cross-border activation pursuant to Article 29(9) and (14) of the EB Regulation;
 - (b) ‘available standard mFRR balancing energy product bid’ means a standard mFRR balancing energy product bid which was not declared as unavailable by the participating TSO;
 - (c) ‘cross-border marginal price’ means a single clearing price for each uncongested area as determined in accordance with the methodology pursuant to Article 30 of the EB Regulation;
 - (d) ‘direct activatable bid’ means a standard mFRR balancing energy product bid that can be activated at any point of time following the point of scheduled activation of the quarter hour for which the bid is submitted and until the point of scheduled activation of the subsequent quarter hour. Every direct activatable bid is scheduled activatable bid as well;
 - (e) ‘divisible bid’ means a standard mFRR balancing energy product bid, which can be activated partially in terms of power activation according to the bid activation granularity pursuant to Article 6(5);
 - (f) ‘economic linking’ means links between bids of a BSP with the purpose of economic optimization, allowing BSPs to offer more flexibility, to reflect efficiently their underlying cost structure in their offered bids, and to maximize the opportunity of being activated;

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- (g) ‘economic surplus’ means, in the context of the AOF, the sum of (i) the BSPs surplus for the mFRR-Platform for the relevant mFRR MTU, (ii) the TSOs surplus for the mFRR-Platform, (iii) the congestion income and optionally (iv) other related costs and benefits where these increase economic efficiency for the relevant mFRR MTU. BSPs’ surplus is the sum of products between the selected volume of standard mFRR balancing energy bids and the corresponding differences between the price of these bids and the balancing energy price pursuant to Article 30(1) of the EB Regulation. TSOs’ surplus is the sum of products between the satisfied mFRR demands and the corresponding differences between the price of these demands (maximum price in case of inelastic demand) and the balancing energy price pursuant to Article 30(1) of the EB Regulation;
- (h) ‘elastic mFRR demand’ is a TSO demand for activation of standard mFRR balancing energy product bid of which the satisfaction depends on the price of standard mFRR balancing energy product bids;
- (i) ‘exclusive group order’ is a type of economic linking, where only one bid can be accepted from the list of bids part of the exclusive group order;
- (j) ‘expert group’ means the body composed of nominated experts of all member TSOs of the mFRR-Platform;
- (k) ‘granularity’ means the smallest increment in volume of a standard mFRR balancing energy product bid;
- (l) ‘indivisible bid’ means a standard mFRR balancing energy product bid, which cannot be activated partially in terms of power activation according to the bid activation granularity pursuant to Article 7(2). Therefore, the volume of an indivisible bid is always activated altogether;
- (m) ‘inelastic mFRR demand’ is a TSO demand for activation of standard mFRR balancing energy product bid, which needs to be satisfied irrespective of the price of the activation of standard mFRR balancing energy product and therefore the price limit is set at the value of the technical price limit defined in the methodology pursuant to Article 30(1) of the EB Regulation;
- (n) ‘MARI’ means “Manually Activated Reserves Initiative” and is the implementation project that shall evolve into the mFRR-Platform;
- (o) ‘member TSO’ means any TSO who has joined the mFRR-Platform, including TSOs from multi-TSO LFC areas that are not appointed via their LFC area operational agreement to be responsible for implementing and operating the mFRP pursuant to Part IV of the SO Regulation, and in particular Articles 141 and 143 therein;
- (p) ‘mFRR balancing border’ means a set of physical transmission lines linking adjacent LFC areas of participating TSOs. In case an LFC area consists of more than one bidding zone, the mFRR balancing border means a set of physical transmission lines linking adjacent bidding zones;
- (q) ‘mFRR balancing border capacity limits ’ means the limits for the manual frequency restoration power interchange in import or positive direction and export or negative direction for an mFRR balancing border or a set of mFRR balancing borders and serving as constraints for the optimisation algorithm;

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- (r) ‘mFRR demand’ means a TSO demand representing the activation request for standard mFRR balancing energy product bids in the context of Article 145(5) of the SO Regulation;
 - (s) ‘mFRR market time unit’ (hereafter “mFRR MTU”) means a period of 15 minutes length. The first mFRR MTU starts at 00:00 market time. The mFRR MTUs shall be consecutive and not overlapping;
 - (t) ‘parent-child linking’ is a type of economic linking, where a bid (the child) can only be activated if another specific bid (the parent) is activated as well, not vice-versa;
 - (u) ‘participating TSO’ means any member TSO using the mFRR-Platform in order to exchange standard mFRR balancing energy products. For avoidance of doubt, where an LFC area consists of more than one monitoring area, only the TSO appointed in the LFC area operational agreement as responsible for the implementation and operation of the mFRP according to Article 143(4) of the SO Regulation shall become participating TSO;
 - (v) ‘point of scheduled activation’ means the point in time from which full activation time is measured for the scheduled activation and is 7.5 minutes before beginning of the quarter hour for which the BSPs place the respective standard mFRR balancing energy product bid. The BSP receives activation request 12.5 minutes before expected full activation;
 - (w) ‘scheduled activatable bid’ means a standard mFRR balancing energy product bid that can only be activated at one specific point in time, i.e. the point of scheduled activation, with respect to the period of time for which the balancing energy bid is submitted;
 - (x) ‘standard mFRR balancing energy product’ means the standard product for balancing energy from mFRR, pursuant to Article 25(1) of the EB Regulation;
 - (y) ‘standard mFRR balancing energy product bid’ means the balancing energy bid for a standard mFRR balancing energy product;
 - (z) ‘steering committee’ means the decision-making body of the mFRR-Platform consisting of nominated representatives from all member TSOs and is the superior body to the expert group;
 - (aa) ‘technical exchange limit’ means an artificial cap of the balancing energy exchange between two adjacent LFC areas, which are not separated by a bidding zone border, that is needed only for functioning of the optimisation algorithm;
 - (bb) ‘technical linking’ means links between bids of a BSP in consecutive quarter hours or in the same quarter hour, needed to avoid the underlying asset performing unfeasible activations; and
 - (cc) ‘usage of the mFRR-Platform’ means exchanging standard mFRR balancing energy product bids between two or more LFC areas or bidding zones via the mFRR-Platform, in order to operate the frequency restoration process for the exchange of balancing energy from mFRR, where the activation of balancing energy from mFRR follows the principle of a common merit order.
2. ‘ENTSO-E’ stands for ‘ENTSO for electricity’ and ‘HVDC’ stands for ‘high voltage direct current’.
 3. In this mFRRIF, unless the context requires otherwise:
 - (a) the singular indicates the plural and vice versa;

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- (b) the table of contents and headings are inserted for convenience only and do not affect the interpretation of this mFRRIF;
- (c) any reference to cross-zonal capacities shall include also the reference to allocation constraints as defined in the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management ('CACM Regulation');
- (d) 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; and
- (e) any reference to an Article without an indication of the document shall mean a reference to this mFRRIF.

Article 3

High-level design of the mFRR-Platform

1. The mFRR-Platform shall establish a cross-border mFRR activation process in accordance with Article 147 and Article 149 of the SO Regulation.
2. The mFRR-Platform includes all LFC areas or bidding zones of the participating TSOs according to Article 147 of the SO Regulation and the mFRR balancing borders.
3. The mFRR-Platform shall consist of the AOF, the TSO-TSO settlement function and the CMF in accordance with Article 4(6).
4. The TSOs shall not put a price on their demand, except in cases where TSOs, at the time of defining the mFRR demand, have at their disposal alternative ways to meet this demand or to balance the system in general. In such case a TSO may define demand as elastic by respecting the following high level principles :
 - (a) the elastic mFRR demand can be only submitted for scheduled activation. Demand for direct activation shall be always inelastic;
 - (b) a TSO can submit an elastic mFRR demand in a positive or a negative direction with the price it is willing to pay or receive for the activation of standard mFRR balancing energy product bid;
 - (c) the elastic mFRR demand shall not be used in such a way that it imposes a cap on balancing energy prices for all LFC areas or bidding zones;
 - (d) the price for mFRR demand for positive balancing energy shall not be lower than the price of the cheapest alternative bids for positive balancing energy available to the concerned TSO at the time of defining the mFRR demand in that mFRR MTU, and the price for mFRR demand for negative balancing energy shall not be higher than the price of the most expensive alternative bids for negative balancing energy available to the concerned TSO, respectively;
 - (e) the volume of demand which can be submitted as elastic demand to the mFRR-Platform shall be restricted to the volume of alternative bids available to the TSO.

To ensure transparency of using the elastic demand, each TSO using elastic demand shall publish the elastic demand curves as soon as possible after their application.

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5. The inputs to the AOF of the mFRR-Platform shall be:
 - (a) the mFRR demand of every LFC area or bidding zone, in case a LFC area consists of more than one bidding zone, of each participating TSO. Where a common mFRR demand is estimated for all LFC areas of an LFC block, the participating TSO responsible for the estimation of mFRR demand shall send the mFRR demand for the LFC block. The mFRR-Platform shall optimise the activation of standard mFRR balancing energy product bids located in all LFC areas of this LFC block. The sign convention for mFRR demand is: negative value where the LFC area or bidding zone is in power surplus and indicates that negative mFRR balancing energy needs to be activated; and positive value where the LFC area or bidding zone is in power deficit and indicates that positive mFRR balancing energy needs to be activated;
 - (b) the mFRR balancing border capacity limits for the concerned mFRR balancing borders being continuously updated by the CMF in accordance with Article 4;
 - (c) the list of standard mFRR balancing energy product bids for the LFC area or bidding zone, in case an LFC area consists of more than one bidding zone, of each participating TSO, which shall include all available standard mFRR balancing energy product bids from each bidding zone, which belongs to the LFC area of the participating TSO;
 - (d) the availability status of standard mFRR balancing energy product bids that become available or unavailable after the TSO energy bid submission gate closure time according to Article 9(2);
 - (e) other inputs of the AOF include, but are not limited to information that ensures safe and correct communication, the stability of the IT system and monitoring of the working of the systems and publication.
6. Participating TSOs applying a central dispatching model, pursuant to Article 27 of the EB Regulation, shall convert integrated scheduling process bids received from BSPs into standard mFRR balancing energy product bids and then submit them to the mFRR-Platform.
7. The AOF shall merge the lists of standard mFRR balancing energy product bids from each LFC area or bidding zone of each participating TSO, provided in accordance with Article 10, creating common merit order lists.
8. The mFRR balancing border capacity limits shall be determined in accordance with Article 4.
9. The outputs of the AOF shall be:
 - (a) the manual frequency restoration power interchange on the mFRR balancing borders as defined in Article 147 of the SO Regulation;
 - (b) the selected standard mFRR balancing energy product bids that shall be activated by the participating TSO;
 - (c) the volume of satisfied mFRR balancing energy demands;
 - (d) the total manual frequency restoration power interchange of each bidding zone or LFC area, being the sum of the manual frequency restoration power interchange on the mFRR balancing borders of the LFC area, resulting from the mFRR-Platform, pursuant to paragraph (a);

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- (e) the prices for mFRR balancing energy determined using the methodology in accordance with Article 30 of the EB Regulation;
 - (f) the prices for cross-zonal capacity used for the exchange of standard mFRR balancing energy products determined using the methodology in accordance with Article 30 of the EB Regulation; and
 - (g) other outputs of the AOF include, but are not limited to information that ensures safe and correct communication, the stability of the IT system, monitoring of the working of the systems and data relevant for the calculation of the performance indicators in accordance with Article 59(4) of the EB Regulation.
10. Each participating TSO may request the activation of a higher volume of standard mFRR balancing energy product bids from the common merit order lists, than the total volume of balancing energy submitted by this TSO to the mFRR-Platform, in accordance with Article 29(13) of the EB Regulation. In that case the mFRR-Platform will inform all participating TSOs, without undue delay, sending to them the information regarding the additional volume requested.
11. In case the AOF fails to produce outputs either due to algorithm or IT infrastructure issues, or in case a single or multiple TSOs fail to connect to the mFRR-Platform, and the fall-back procedures pursuant to Article 28(3) of the EB Regulation enter into force, the TSOs shall inform the market participants without undue delay. The provided information shall include the reason that triggered the fall-back procedures, the affected TSOs and LFC areas, the start time with the first affected validity period and the first affected mFRR MTU, as well as the estimated end date. Once the normal operation through the mFRR-Platform is restored, the mFRR-Platform shall inform the market participants specifying the start date with the first validity period and the first mFRR MTU, for which the balancing energy exchange is conducted through the mFRR-Platform. Each TSO shall publish this information as early as possible but no later than 30 minutes after end of the first mFRR MTU of the suspension or restoration of the participation.
12. The inputs to the TSO-TSO settlement function shall be:
- (a) the manual frequency restoration power interchange on the mFRR balancing borders in accordance with Article 3(9)(a);
 - (b) the prices required by the methodology for common settlement rules in accordance with Article 50(1) of the EB Regulation and provided by the AOF in accordance with Article 3(9)(e) and 3(9)(f);
 - (c) other inputs of the TSO-TSO settlement function include, but are not limited to information that ensures robust and correct settlement process and financial data for invoicing.
13. The TSO-TSO settlement function shall determine the outputs using the methodology in accordance with Article 50(1) of the EB Regulation. The outputs of the TSO-TSO settlement function shall be:
- (a) the intended exchange of mFRR balancing energy for settlement for each participating TSO;
 - (b) the settlement prices for the intended exchange of mFRR balancing energy as result of mFRP for each participating TSO;
 - (c) the calculation and distribution of the income generated by the exchange of balancing energy between LFC areas with different balancing energy prices and these different balancing energy prices;

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- (d) other outputs of the TSO-TSO settlement function include, but are not limited to information that ensures safe and correct communication, the stability of the IT system, monitoring of the working of the systems and data relevant for the calculation of the performance indicators in accordance with Article 59(4) of the EB Regulation.
14. The mFRR-Platform shall implement:
- (a) the methodology for pricing balancing energy and cross-zonal capacity used for the exchange of balancing energy or operating the imbalance netting process in accordance with Article 30 of the EB Regulation;
 - (b) the classification methodology for the activation purposes of balancing energy bids in accordance with Article 29 of the EB Regulation;
 - (c) the TSO-TSO settlement rules for the intended exchange of energy in accordance with Article 50 of the EB Regulation.
15. Each participating TSO shall implement and carry out the procedures for the settlement of intended exchange of energy from the cross-border mFRP in a proper and timely manner.
16. The mFRR-Platform shall be implemented via a TSO-TSO model, which means in particular:
- (a) the BSP submits standard mFRR balancing energy product bids to its participating TSO;
 - (b) the participating TSO verifies, amends if applicable pursuant to Articles 29(9), 29(10) and 29(14) of the EB Regulation, and submits the bids to the AOF;
 - (c) the AOF defines the optimal activation of bids and exchange between the TSOs, by requesting the activation of the selected bids from the participating TSO, while the request for activation of bids from the AOF shall oblige the requesting and participating TSOs to accept the firm exchange of mFRR balancing energy, in the context of the cross border FRR activation process, in accordance with Articles 147(4)(b), 147(4)(c) and 147(5) of the SO Regulation;
 - (d) the participating TSO ensures the activation of the standard mFRR balancing energy product bids selected by the AOF in accordance with Article 145(4);
 - (e) the connecting TSO or appointed TSO as described in Article 1(2) is responsible for prequalification, TSO-BSP settlement, monitoring and other obligations related to procurement or activation of standard mFRR balancing energy product bids in accordance with the EB Regulation and the SO Regulation.
17. Each participating TSO shall publish the exchange of volumes and prices provided by the AOF as soon as possible and no later than 30 minutes after the relevant end of the relevant mFRR MTU.
18. The mFRR-Platform has a two-level governance structure: the steering committee as the decision-making body of the mFRR-Platform and the expert group as the expert body of the mFRR-Platform.

Article 4

Determination of the mFRR balancing border capacity limits as input to the optimisation algorithm

1. All participating TSOs shall determine for each mFRR balancing border the mFRR balancing border capacity limits. When the mFRR balancing border corresponds to a bidding zone border these limits shall be determined in accordance with paragraphs 2 to 4. When the mFRR balancing border does not correspond to a bidding zone border, the mFRR balancing border capacity limit shall be set to the technical exchange limit, which shall be equal to 99,999 MW in both directions.
2. All TSOs and the mFRR-Platform shall continuously update the mFRR cross-zonal capacities for each of the relevant bidding zone borders or set of bidding zone borders such that at any time the cross-zonal capacities available for mFRR exchanges represent:
 - (a) the initial cross-zonal capacities which shall be either the cross-zonal capacities remaining after the single intraday coupling or cross-zonal capacities calculated in accordance with the methodologies pursuant to Article 37(3) of the EB Regulation;
 - (b) the additional cross-zonal capacities allocated to the RR and mFRR process pursuant to Article 38(1) of the EB Regulation;
 - (c) the already allocated cross-zonal capacities in the balancing timeframe:
 - (i) the already confirmed cross-zonal replacement and manual frequency restoration power interchanges;
 - (ii) cross-zonal exchanges resulting from other non-balancing processes notified by TSOs to the mFRR-Platform;
 - (d) the adjustments of cross-zonal capacities pursuant to the SO Regulation:
 - (i) adjustments requested for operational security reasons by participating or affected TSOs in accordance with Articles 147(3)(c), 148 (3)(c), 149(3) and 150(3)(b) of the SO Regulation;
 - (ii) limitations imposed due to technical inability to facilitate cross-zonal manual frequency restoration power interchange on HVDC interconnectors in accordance with Articles 171(1), 146(3)(a), 147(3)(a) and 147(3)(b) of the SO Regulation.
3. The adjustments pursuant to paragraph 2(d) may also be applied to mFRR balancing borders that do not correspond to a bidding zone border. The adjustment pursuant to 2(d)(i) may only apply to operational security reasons which could not be addressed with the latest cross-zonal capacity calculation and coordinated regional operational security analysis and such adjustment shall be made and published as soon as the need is identified.
4. The participating or affected TSOs imposing adjustments pursuant to paragraph 2(d)(i) shall publish the request for these limitations, together with a justification for the request, no later than 30 minutes after the end of the relevant mFRR MTU in which the additional limitations have been requested.
5. The limitations pursuant to paragraph 2(d)(ii) may disable any exchange on mFRR balancing border that is constituted only of HVDC interconnectors. The limitation of a given mFRR balancing border is allowed when duly justified by the relevant TSOs concerned by the mFRR balancing border. The concerned regulatory authorities shall be notified of this limitation. The technical justification shall be published by the concerned TSOs.

6. No later than two years after the deadline for the implementation of the mFRR-Platform pursuant to Article 5(3)(b) all TSOs shall establish a CMF, which shall implement the continuous process described in paragraph 2. In case other balancing platforms have such function, the CMF shall be the same across these platforms, if the same obligation is imposed in the relevant implementation framework for these platforms.

Article 5

The roadmap and timeline for the implementation of the mFRR-Platform

1. By thirty months after the approval of this mFRRIF, all member TSOs shall implement and make operational the mFRR-Platform that fulfils every requirement defined in this mFRRIF (unless specific deadlines are provided in this mFRRIF) and further requirements according to Articles 29, 30 and 50 of the EB Regulation.
2. To fulfil the requirement pursuant to paragraph 1, all member TSOs shall establish the mFRR-Platform implementation project, which shall be based on the implementation project MARI that shall be transformed into the mFRR-Platform implementation project after the approval of this mFRRIF. As a consequence, all TSOs that are members of the implementation project MARI before the transformation may propose to all member TSOs that a share of the costs incurred in the implementation project MARI before the approval of this mFRRIF, but not before 1st January 2018, be considered as common costs in accordance with Article 23(6) of the EB Regulation. The decision on the proposal shall be made pursuant to Article 14(4).
3. All member TSOs shall ensure that the mFRR-Platform implementation project fulfils the deadlines pursuant to Articles 20(4) to (6) of the EB Regulation as follows:
 - (a) by six months after the approval of this mFRRIF, all member TSOs shall designate the entity responsible for performing the activation optimisation function and the TSO-TSO settlement function of the mFRR-Platform;
 - (b) by thirty months after the approval of this mFRRIF, the mFRR-Platform shall be implemented and become operational and all TSOs shall use the mFRR-Platform;
 - (c) before the deadline pursuant to point (b), all member TSOs shall gradually adapt the terms and conditions related to balancing in accordance with Article 18 of the EB Regulation and in line with their national legislation to make possible their early and timely accession to the mFRR-Platform;
 - (d) the implementation project for the mFRR-Platform may allow for gradual implementation of the mFRRIF requirements and gradual accession of TSOs.
4. All member TSOs shall establish and update regularly and at least twice per year the roadmap for the implementation of the mFRR-Platform, which shall consist of the following elements:
 - (a) development of new processes and amending existing ones related to mFRR exchange, activation purposes, pricing and settlement in accordance with this mFRRIF within thirty months after the approval of this mFRRIF;

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- (b) development and regular update of an mFRR-Platform accession roadmap within three months after the approval of this mFRRIF, for all member TSOs that will become participating ones. The accession roadmap shall define for these TSOs timelines for:
 - (i) the adaptation and implementation of terms and conditions for BSPs by each member TSO;
 - (ii) the development of the functions of the mFRR-Platform;
 - (iii) the interoperability tests between each TSO and the mFRR-Platform;
 - (iv) the operational tests;
 - (v) the connection of each TSO to the mFRR-Platform;
 - (vi) making the mFRR-Platform operational;
 - (vii) the connection of all TSOs that have been granted a derogation by their respective regulatory authorities in accordance with Article 62 of the EB Regulation.
 - (c) the accession roadmap shall start after its finalisation by all participating TSOs and end no later than the mFRR-Platform is used by all participating TSOs.
5. All member TSOs shall publish the accession roadmap and in particular any information on national derogations shall be updated when new information becomes available.

Article 6 **Functions of the mFRR-Platform**

1. The mFRR-Platform shall consist of the AOF, the TSO-TSO settlement function and the CMF in accordance with Article 4(6). If deemed efficient when implementing the methodology for cross-zonal capacity (hereafter referred to as 'CZC') calculation within the balancing timeframe in accordance with Article 37(3) of the EB Regulation, a cross-zonal capacity calculation function may be added.
2. The purpose of the AOF shall be to coordinate the mFRP of the participating TSOs in accordance with the high-level design of the mFRR-Platform in Article 3 and the principles of the optimisation algorithm in accordance with Article 11.
3. The main purpose of the TSO-TSO settlement function shall be the calculation of the settlement amount that each participating TSO has to bear for the intended exchange of energy from the cross-border mFRP in accordance with the high-level design of the mFRR-Platform in Article 3.
4. The purpose of the CMF shall be to update continuously the mFRR cross-zonal capacities for each of the relevant bidding zone borders or set of bidding zone borders such that at any time the cross-zonal capacities reflect the actually available cross-zonal capacities for manual frequency restoration power interchanges. The CMF shall be considered as a function required to operate the mFRR-Platform from the deadline referred to in Article 4(6).
5. If and when relevant, the purpose of the CZC calculation function shall be to implement the methodology for CZC calculation within the balancing timeframe in accordance with Article 37(3) of the EB Regulation. In case other balancing platforms have such function, the CZC calculation function shall be

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the same across these platforms, if the same obligation is imposed in the relevant implementation framework for these platforms.

Article 7

Definition of the standard mFRR balancing energy product

1. Each standard mFRR balancing energy product bid shall fulfil the following static characteristics:

Mode of activation	Manual
Activation type	Direct or scheduled
Full activation time (“FAT”)	12.5 minutes
Minimum quantity	1 MW
Bid granularity	1 MW
Maximum quantity	9,999 MW
Minimum duration of delivery period	5 minutes
Price resolution	0.01 €/MWh
Validity Period	A scheduled activation can take place at the point of scheduled activation only. A direct activation can take place at any time during the 15 minutes after the point of scheduled activation.

Table 1: Standard mFRR balancing energy product bid characteristics

2. The delivery of a direct activatable bid shall include the mFRR MTU following the one the bid refers to.
3. The variable characteristics of the standard mFRR balancing energy product bid to be determined by the BSPs, during prequalification or when submitting the standard mFRR balancing energy product bid shall be:

- (a) defined by the following parameters:

Price	in €/MWh
Location	At least the smallest of LFC area or bidding zone.
Divisibility	BSPs are allowed to submit divisible bids with an activation granularity of 1 MW. BSPs are allowed to submit indivisible bids pursuant to Article 7(4)
Technical linking between bids	BSPs are required to provide information on technical linking between bids submitted in consecutive quarter hours and within the same quarter hour
Economic link	parent-child linking and exclusive group orders will be allowed

Table 2 : Standard mFRR balancing energy product bid variable characteristics

- (b) the volume of the bid;
- (c) the direction of the bid: positive or negative balancing energy;

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- (d) the price of the bid, be it positive, zero or negative, shall be defined in accordance with Table 1 of the EB Regulation;
 - (e) the mFRR MTU the standard mFRR balancing energy product bid refers to;
 - (f) other characteristics in accordance with national terms and conditions for BSPs pursuant to Article 18(5) of the EB Regulation;
4. The following standard mFRR balancing energy product bid characteristics shall be defined in the terms and conditions for BSPs, including, but not limited to:

Location	More detailed locational information, compared to what stated in Article 6(4), is defined in terms and conditions for BSPs
Preparation Period	Defined in terms and conditions for BSPs as long as it is compliant with the requirements set on the FAT in Article 7(1)
Ramping Period	Defined in terms and conditions for BSPs as long as it is compliant with the requirements set on the FAT in Article 7(1)
Deactivation Period	Defined in terms and conditions for BSPs as long as it is compliant with the requirements set on the FAT and on the minimum duration of delivery period in Article 7(1)
Maximum duration of delivery period	Defined in terms and conditions for BSPs due to different requirements on preparation period, ramping period and deactivation period
Indivisible Bids	Maximum size of indivisible bids is defined according to terms & conditions for BSPs
Minimum duration between the end of deactivation and the following activation	Defined in terms and conditions for BSPs

Table 3: Standard mFRR balancing energy product bid characteristics defined in terms and conditions for BSPs

- 5. The maximum size of indivisible bids shall be defined in the national terms and conditions for balancing and shall not be higher than the largest technical minimum production or consumption of the pre-qualified generation or load unit of the BSP.
- 6. In case of a central dispatching model, the variable characteristics of the standard mFRR balancing energy product bid may be determined by the connecting TSO based on integrated scheduling process bids submitted by BSPs following the rules for converting bids in a central dispatching model into standard mFRR balancing energy product bids pursuant to Article 27 of the EB Regulation.

Article 8

Balancing energy gate opening and gate closure times for the standard mFRR balancing energy product bids

1. The balancing energy gate opening time for the submission of a standard mFRR balancing energy product bid by BSPs to the participating TSO shall be no later than 12:00 market time for all mFRR MTUs of the next day.
2. The balancing energy gate closure time for the submission of a standard mFRR balancing energy product bid by BSPs to the participating TSO shall be 25 minutes before the beginning of the mFRR MTU of the respective standard mFRR balancing energy product bid. The same balancing energy gate closure time applies for specific product bids converted into standard mFRR balancing energy product bids.
3. For TSOs applying a central dispatching model, the balancing energy gate closure time for integrated scheduling process bids shall be defined pursuant to Articles 24(5) and 24(6) of the EB Regulation.

Article 9

TSO energy bid submission gate closure time and changes of the standard mFRR balancing energy product bids

1. The TSO energy bid submission gate closure time for the submission of the standard mFRR balancing energy product bids to the AOF of the mFRR-Platform by the participating TSO shall be 12 minutes before the beginning of the mFRR MTU of the respective standard mFRR balancing energy product bid.
2. Any time before the TSO energy bid submission gate closure time, the participating TSO may modify the bids in accordance with Article 29(9) of the EB Regulation or change the availability status of the bid in accordance with Article 29(14) of the EB Regulation. Only when, after the TSO energy bid submission gate closure time, new information becomes available to a participating TSO that affects the possibility to activate the standard mFRR balancing energy product bids, the participating TSO may apply these changes after the TSO energy bid submission gate closure time. To avoid the impact on the implementation and functioning of the mFRR platform, all TSOs shall define the latest possible time until such changes of bids shall be allowed.
3. Standard mFRR balancing energy product bids affected by the changes pursuant to paragraph 2 shall also be submitted to the mFRR platform. TSOs shall provide the explanation of the changes of the standard mFRR balancing energy product bids pursuant to paragraph 2 no later than 30 minutes after the relevant mFRR MTU. The changes of bids shall be expressed as changes to their available volume or availability status.
4. The changes pursuant to paragraph 2 shall be limited to the following two cases:
 - a) where the connecting TSO, or the appointed TSO as described in Article 1(2) reasonably expects that in the absence of these changes the activation of such bids would lead to violations of operational security limits or specifically frequency limits, when the expected violation would be caused by insufficiency of required reserve capacity or by technical unavailability of specific reserve providing unit(s) within the TSO or DSO control areas; and
 - b) where the bid is conditional on the bids submitted outside the mFRR-Platform and needs to be changed at the request of the BSP, who submitted it, in order to reflect the activation(s) of

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conditional bid(s) outside of the mFRR-Platform, which have occurred after the mFRR balancing energy gate closure time.

5. In case of frequency limits and the required reserve capacity referred to in paragraph 4 where frequency limits are expected to be violated, only if these bids would be activated by TSOs other than connecting TSOs, the connecting TSOs or the appointed TSO as described in Article 1(2) may apply the changes pursuant to paragraph 4(a) only with respect to activation by other TSOs.
6. Following the requirement of Article 3(2)(a) of the EB Regulation, the national terms and conditions on balancing shall ensure non-discrimination between standard mFRR balancing energy product bids that are declared as unavailable by TSOs. Pursuant to Article 16(7) of the EB Regulation, there shall be no discrimination between standard mFRR balancing energy product bids submitted pursuant to the requirements of balancing capacity contracts and other standard mFRR balancing energy product bids.
7. When changing the bids pursuant to paragraph 2, the connecting TSO or the appointed TSO as described in Article 1(2) shall provide to the mFRR platform the reasons for such changes, which shall include at least:
 - a) the party requesting the change, i.e. a TSO, a DSO or a BSP;
 - b) in case of changes requested by a TSO or a DSO pursuant to paragraph (4)(a), the name of the TSO or a DSO and the exact operational security limit expected to be violated;
 - c) in case of changes requested by a TSO pursuant to paragraph (4)(a):
 - (i) in case of thermal limits the concerned network element(s); and
 - (ii) in case of frequency limits, whether the expected violation would be caused by insufficiency of required reserve capacity or by technical unavailability of specific reserve providing unit(s);
 - d) in case of changes requested by a BSP, the information that the bid has been modified due to activation(s) of conditional bid(s) pursuant to paragraph (4)(b).
8. Changes of bids to respect operational security limits as referred to in paragraph 7(c) shall only be possible for the most expensive standard mFRR balancing energy product bids of the connecting TSO having an impact on the concerned operational security limit(s) and taking into account their relative impact on the concerned operational security limit(s).
9. The information pursuant to paragraph 7 shall become available to all other TSOs, communicated to the affected BSP(s) by 30 minutes after the end of the relevant mFRR MTU and published in accordance with Article 12(3)(b)(v) of the EB Regulation. The information pursuant to paragraph 7 shall be reported in an aggregated form in the report referred to in Article 13.

Article 10

Common merit order lists to be organised by the AOF

1. Each BSP shall submit the standard mFRR balancing energy product bids to the participating TSO in accordance with Article 8.
2. Each BSP connected to a TSO applying a central dispatching model shall submit integrated scheduling process bids to the connecting TSO.
3. The participating TSO shall submit the standard mFRR balancing energy product bids to the mFRR-Platform in accordance with Article 9.

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4. TSOs applying a central dispatching model, pursuant to Article 27 of the EB Regulation, shall convert integrated scheduling bids received from the BSPs into standard mFRR balancing energy product bids and then submit these bids to the mFRR-Platform.
5. The mFRR-Platform shall create two common merit order lists (one for bids for positive balancing energy and one for bids for negative balancing energy) for each mFRR MTU, that shall contain all the available standard mFRR balancing energy product bids submitted by the participating TSOs:
 - (a) the positive common merit order list shall contain all the available standard mFRR balancing energy product bids for positive balancing energy submitted by the participating TSOs and shall be sorted in ascending order of price;
 - (b) the negative common merit order list shall contain all the available standard mFRR balancing energy product bids for negative balancing energy submitted by the participating TSOs and shall be sorted in descending order of price.
6. The two common merit order lists described in Article 10(5) shall be used for scheduled activation.
7. For the direct activation, the two common merit order lists of Article 10(5) remain with all the available and not yet activated direct activatable bids submitted by each participating TSO.
8. The common merit order lists of Article 10(5) shall be used in the direct activation, continuously updated and sorted based on the following criteria:
 - (a) the positive common merit order list shall contain all the available direct activatable bids for positive balancing energy submitted by the participating TSOs and sorted in ascending order of price;
 - (b) the negative common merit order list shall contain all the available direct activatable bids for negative balancing energy submitted by the participating TSOs and sorted in descending order of price.
9. All available standard mFRR balancing energy product bids submitted to the mFRR-Platform by the participating TSOs shall be used in the common merit order lists for the activation.

Article 11

Description of the optimisation algorithm

1. The inputs to the optimisation algorithm for the scheduled activation are:
 - (a) the two common merit order lists in accordance with Article 10(5);
 - (b) the mFRR demands to be satisfied by scheduled activation in accordance with Article 3(5);
 - (c) the mFRR balancing border capacity limits, as output of the CMF, determined in accordance with Article 4(2).
2. The inputs to the optimisation algorithm for the direct activation are:
 - (a) in case of positive mFRR demand, the upward common merit order list in accordance with Articles 10(8) and 10(9)(a) and the mFRR positive demands to be satisfied by the direct activation;

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- (b) in case of negative mFRR demand, the downward common merit order list in accordance with Articles 10(8) and 10(9)(b) and the mFRR negative demands to be satisfied by the direct activation;
 - (c) the mFRR balancing border capacity limits, as output of the CMF, determined in accordance with Article 4(2).
- 3. The objective functions of the optimisation algorithm are:
 - (a) First priority: maximise the economic surplus for a given set of standard mFRR balancing energy product bids and mFRR balancing energy needs;
 - (b) Second priority: minimise the amount of manual frequency restoration power exchange on each mFRR balancing border.
- 4. The constraints of the optimisation algorithm are:
 - (a) the mFRR power balance equation of each bidding zone or LFC area must be satisfied, meaning that the sum of cross-zonal manual frequency restoration power interchanges, the standard mFRR balancing energy product bids activated and the satisfied mFRR demand is equal to zero;
 - (b) the sum of all manual frequency restoration power interchanges of all bidding zones or LFC areas of the participating TSOs must be zero;
 - (c) the mFRR balancing border capacity limits determined in accordance with Article 4;
 - (d) constraints related to indivisibility, technical and economic links between bids as defined in Article 7(2)(a).
- 5. The outputs of the optimisation algorithm are:
 - (a) the manual frequency restoration power interchange on each mFRR balancing border as defined in Article 147 of the SO Regulation;
 - (b) the selected standard mFRR balancing energy product bids that shall be activated by the TSO;
 - (c) the volume of satisfied mFRR balancing energy demands;
 - (d) the total manual frequency restoration power interchange of each LFC area or bidding zone, being the sum of the manual frequency restoration power interchange on the mFRR balancing borders of the LFC area or bidding zone resulting from the mFRR-Platform, pursuant to paragraph (a);
 - (e) the prices for mFRR balancing energy determined using the methodology developed in accordance with Article 30(1) of the EB Regulation;
 - (f) the prices for cross-zonal capacity used for the exchange of standard mFRR balancing energy products determined using the methodology developed in accordance with Article 30(3) of the EB Regulation.
- 6. For the purposes of the optimisation, each mFRR balancing border has a mathematically defined negative and positive direction for the manual frequency restoration power interchange.

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7. Participating TSOs may apply in the algorithm the rule for paradoxical rejection of bids, which are the bids whose bid price is equal or below/above the cross-border marginal price, but are fully or partly rejected, if such rejection is necessary on the following grounds:
 - (a) acceptance of such bid would increase/decrease the cross-border marginal price above/below the bid price;
 - (b) paradoxical rejection of such bid is necessary for the algorithm to find a feasible solution;
 - (c) paradoxical rejection of such bid is necessary for the algorithm to satisfy more inelastic mFRR demand.

The paradoxical rejection of indivisible bids shall be preferred over the paradoxical rejection of divisible bids. If applied, the rules for paradoxical rejection of bids shall be published in the description of the algorithm by the TSO.

Article 12 **Designation of entity**

1. Each member TSO of the mFRR-Platform is accountable towards its national regulatory authority and its market participants for the execution of the cross-border mFRR activation process in accordance with this mFRRIF.
2. All TSOs shall appoint one entity being a single TSO or a company owned by TSOs that shall be entrusted to operate the activation optimisation function and the TSO-TSO settlement function of the mFRR-Platform. No later than eighteen months before the deadline when the capacity management function shall be considered as a function required to operate the aFRR-Platform pursuant to Article 6(4), all TSOs shall develop a proposal for amendment of this mFRRIF, which shall designate the entity performing the capacity management function in accordance with Article 20(3)(e) of the EB Regulation and clarify whether the mFRR-Platform will be operated by a single entity or multiple entities.
3. The designation of the entity will be done in accordance with Article 20(4) of the EB Regulation.
4. The designated entity shall be acting on behalf of all member TSOs under the supervision of the steering committee of the mFRR-Platform, in accordance with Article 14(2)(a) and in accordance with the operational rules approved by the steering committee.
5. For the avoidance of doubt, the designated entity may contract third parties for executing supporting tasks, subject to the agreement of the steering committee.

Article 13 **Transparency and reporting**

1. All member TSOs shall monitor, evaluate and report the following aspects of implementation and operation of the mFRR-Platform at least on a yearly basis. The common report shall be published by ENTSO-E on its website and reported to regulatory authorities:
 - (a) the implementation progress and roadmap in accordance with Article 5;
 - (b) the usage of elastic mFRR demand pursuant to Article 3(4), including:

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- (i) an assessment by TSOs if the principle in Article 3(4)(d) was complied with;
 - (ii) situations where elastic demand was satisfied and to which degree the elastic demand was fulfilled and the influence of satisfying elastic demand on the CBMP;
 - (iii) the frequency of elastic demands setting the cross-border marginal price;
- (c) the amount of mFRR balancing energy requested by each participating TSO in relation to the total volume of balancing energy pursuant to Article 29(12) of the EB Regulation;
 - (d) the frequency and volume of deviations between the activation of bids by each participating TSO and the selection of bids by the AOF pursuant to Article 29(5) of the EB Regulation;
 - (e) the total volume of paradoxically rejected bids separately for divisible and indivisible bids;
 - (f) aggregated information and detailed statistics on the bids which were declared as unavailable by TSOs in accordance with Article 9;
 - (g) the impact of scheduled counter-activations on balancing energy prices and on the efficient functioning of the mFRR Platform and intraday market;
 - (h) the availability of cross-zonal capacity for the mFRR exchange on the platform;
 - (i) the results of the survey conducted in accordance with Article 16(2)(a).
2. If the above mentioned report identifies inefficiencies or harmfulness, TSOs should include in a report the recommendation on how to deal with identified issues and where relevant, develop a proposal for an amendment to this mFRRIF and submit it for approval.
 3. Three years after the deadline for the implementation of the mFRR-Platform pursuant to Article 5(3)(b), all TSOs shall evaluate the outcome of monitoring the impact of scheduled counter-activations pursuant to paragraph 1(g). This evaluation should lead to a recommendation by TSOs for keeping or preventing scheduled counter-activations. Where the recommendation is to prevent scheduled counter-activations, all TSOs shall develop a proposal for an amendment to this implementation framework and submit it for approval. The amendment shall specify how scheduled counter-activations will be prevented in the mFRR platform.
 4. Three years after the deadline for the implementation of the mFRR-Platform pursuant to Article 5(3)(b), all TSO shall publish a study on rejection of bids in the AOF of the mFRR-Platform focusing on the inefficiencies of rejection of bids due to maximum bid size (e.g. if different maximum bid sizes have an effect on the efficiency of the algorithm).
 5. All member TSOs shall conduct an annual public stakeholder workshop to report on implementation and operation of the mFRR-Platform. The first workshop shall take place at the latest 6 months after approval of this mFRRIF.

Article 14

Governance and decision-making process

1. The rules concerning the governance and operation of the mFRR-Platform shall ensure that no connecting TSO benefits from unjustified economic advantage through the participation in the mFRR-Platform. Each

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- member TSO has a representative in the steering committee and in the expert group. The member TSOs aim to make unanimous decisions. Where unanimity cannot be reached, qualified majority voting according to Article 14 shall apply. The steering committee makes decisions according to Articles 14(3)(a), 14(4) and 14(5).
2. Each member TSO shall carry out the common governance principles of the mFRR-Platform by means of:
 - (a) the steering committee of the mFRR-Platform, which is the decision-making body of the mFRR-Platform with the right to make any binding decision on any matter or question related to the mFRR-Platform and not covered by the Article 14(13)(b). Thereto, each member TSO shall appoint at least one regular representative to the steering committee. It is a superior body to the expert group;
 - (b) the expert group of the mFRR-Platform, which is the expert body of the mFRR-Platform and prepares background materials for the steering committee (including, for example analyses, impact assessments, summaries) and evaluates and proposes concepts in relation to the development, governance and operation of the mFRR-Platform. Thereto, each member TSO shall appoint at least one regular representative to the expert group.
 3. Decisions leading to a proposal for an amendment of this mFRRIF or the amendment of the methodologies submitted by all TSOs in accordance with Articles 29, 30 or 50 of the EB Regulation shall be made according to the following process:
 - (a) member TSOs' decision: all member TSOs shall approve in advance a proposal to be sent to all TSOs for decision;
 - (b) all TSOs' decision: shall be subject to the approval of all TSOs pursuant to the voting principles of Article 4(3) of the EB Regulation, where 'all TSOs' includes both all member TSOs in the framework of the steering committee of the mFRR-Platform and non-member TSOs and this decision-making process is independent from the member TSO's decision-making process.
 4. Decisions concerning the mFRR-Platform not leading to a proposal for an amendment of this mFRRIF or the amendment of the methodologies pursuant to Articles 29, 30 or 50 of the EB Regulation relative to mFRR but affecting all member TSOs shall be subject to approval of all member TSOs.
 5. Decisions concerning the mFRR-Platform not leading to a proposal for an amendment of this mFRRIF and only affecting a geographical area of several member TSOs smaller than the geographical area of all member TSOs shall be subject to approval of the member TSOs of the concerned geographical area.
 6. In case of decisions according to Articles 14(3)(a), 14(4) and 14(5), each member TSO of the concerned region is expected to take part in the decision-making process. The quorum for initiating a decision-making process is a majority (50 % + 1) of the member TSOs that are present or represented through another member TSO participating in the decision-making process.
 7. The member TSOs shall implement a decision-making process, which ensures effective decision making with the aim to make decisions unanimously. Where unanimity cannot be reached, qualified majority voting shall apply.
 8. Decisions according to Articles 14(3)(a) and 14(4) where no consensus is reached shall , pursuant to the voting principles of Article 4(3)of the EB Regulation, require a majority of:

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- (a) member TSOs representing at least 55 % of the TSOs' countries concerned and present or represented in accordance with Article 14(6); and
 - (b) member TSOs representing countries comprising at least 65 % of the population of countries concerned and present or represented in accordance with Article 14(6).
9. Decisions in accordance with Article 14(5) where no consensus is reached shall, pursuant to the voting principles of Article 4(4) of the EB Regulation, require a majority of:
- (a) member TSOs representing at least 72 % of the member TSOs' countries of the concerned region; and present or represented according to Article 14(6); and
 - (b) member TSOs representing countries comprising at least 65 % of the population of member TSOs' countries of the concerned region and present or represented according to Article 14(6).
10. Decisions in accordance with Article 14(5) in relation to regions concerned composed of five member states and third countries or less shall be decided based on consensus.
11. Voting on steering committee decisions can be made in physical meetings, conference calls or by circular resolution via e-mail.

Article 15

Categorisation of costs and detailed principles for sharing the common and regional costs

1. The costs of establishing, amending and operating the mFRR-Platform shall be broken down into:
- (a) common costs resulting from coordinated activities of all member TSOs in the mFRR-Platform;
 - (b) regional costs resulting from activities of several but not all member TSOs in the mFRR-Platform;
 - (c) national costs resulting from activities of the participating TSOs of the mFRR-Platform.
2. Common costs shall include costs resulting from the steering committee decisions on proposals related to:
- (a) common costs for establishing or amending the mFRR-Platform:
 - (i) implementation of the mFRR-Platform or new functionalities in the AOF which have an impact on the intended or unintended exchange of energy and which is for the benefit of all member TSOs;
 - (ii) implementation of new functionalities in the TSO-TSO settlement function which have an impact on the TSO-TSO settlement;
 - (iii) commissioning of joint studies for the benefit of all member TSOs;
 - (iv) costs required for external support to the project and the project management office;
 - (b) common costs for operating the mFRR-Platform:

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- (i) operational costs related to the operation of the AOF which are agreed as common costs by member TSOs in accordance with the decision-making process according to Article 14;
 - (ii) operational costs related to the operation of the TSO-TSO settlement function which are agreed as common costs by member TSOs in accordance with the decision-making process according to Article 14.
3. The common costs for establishing or amending the mFRR-Platform in accordance with Article 15(2)(a) shall be shared among the member TSOs in accordance with Article 15(15) and in accordance with the following principles set out by Article 23 of the EB Regulation:
 - (a) one eighth of common costs shall be divided equally between member states and third countries whose TSOs are member TSOs;
 - (b) five eighths of common costs shall be divided proportionally to the consumption of member states and third countries whose TSOs are member TSOs;
 - (c) two eighths of common costs shall be divided equally between member TSOs.
4. The common costs of operating the mFRR-Platform in accordance with Articles 15(2)(b) and 15(5) shall not be borne by member TSOs that are not participating TSOs in the mFRR-Platform.
5. The common costs for operating the mFRR-Platform in accordance with Article 15(2)(b) shall be shared among the participating TSOs in accordance with Article 15(17) and in accordance with the following principles set out by Article 23 of the EB Regulation:
 - (a) one eighth of common costs shall be divided equally between member states and third countries whose TSOs are participating TSOs;
 - (b) five eighths of common costs shall be divided proportionally to the consumption of member states and third countries whose TSOs are participating TSOs;
 - (c) two eighths of common costs shall be divided equally between participating TSOs.
6. Regional costs shall be borne by member TSOs of the concerned region and consist of:
 - (a) regional costs for establishing or amending the mFRR-Platform:
 - (i) implementation of new functionalities in the AOF which have an impact on the intended or unintended exchange of energy and which are applicable only by the member TSOs of the concerned region;
 - (ii) implementation of new functionalities in the TSO-TSO settlement function which have an impact on the TSO-TSO settlement of the member TSOs of the concerned region;
 - (iii) commissioning of joint studies performed for the member TSOs of a concerned region.
 - (b) regional costs of operating the mFRR-Platform:
 - (i) operational costs related to the operation of the AOF which are agreed as regional costs by member TSOs in accordance with the member TSOs' decision-making process according to Article 14;

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- (ii) operational costs related to the operation of the TSO-TSO settlement function which are agreed as regional costs by member TSOs in accordance with the decision-making process according to Article 14.
- 7. The regional costs for establishing or amending the mFRR-Platform in accordance with Article 15(6)(a) shall be shared among the member TSOs of the concerned region according to the following principles set out by Article 23 of the EB Regulation:
 - (a) one eighth of regional costs shall be divided equally between member states and third countries whose TSOs are member TSOs of the concerned region;
 - (b) five eighths of regional costs shall be divided proportionally to the consumption of member states and third countries whose TSOs are member TSOs of the concerned region;
 - (c) two eighths of regional costs shall be divided equally between member TSOs of the concerned region.
- 8. The regional costs for operating the mFRR-Platform in accordance with Article 15(9) shall not be borne by member TSOs that are not participating TSOs in the mFRR-Platform.
- 9. The regional costs for operating the mFRR-Platform in accordance with Article 15(6)(b) shall be shared among the participating TSOs of the concerned region in accordance with Article 15(17) and in accordance with the following principles set out by Article 23 of the EB Regulation:
 - (a) one eighth of regional costs shall be divided equally between member states and third countries whose TSOs are participating TSOs of the concerned region;
 - (b) five eighths of regional costs shall be divided proportionally to the consumption of member states and third countries whose TSOs are participating TSOs of the concerned region;
 - (c) two eighths of regional costs shall be divided equally between participating TSOs of the concerned region.
- 10. National costs shall be the costs for using the mFRR-Platform, which consist of the costs of development, implementation, operation and maintenance of technical infrastructure and procedures as well as for the settlement process.
- 11. Each member TSO shall bear its own national costs and is solely responsible (i.e. no joint and several liability) for the due payment of all the costs related to the technical infrastructure necessary for the successful usage of the mFRR-Platform.
- 12. The cost sharing principle may apply to costs incurred since 1 January 2018, and shall apply to costs incurred after the approval of this mFRRIF.
- 13. For the avoidance of doubt, any costs incurred before 1 January 2018 shall not be considered as historical costs.
- 14. Each member TSOs shall pay its share of costs pursuant to Articles 15(2)(a)(i) and (ii) also retrospectively in accordance with Article 15(12).
- 15. When sharing the common and regional costs for establishing and amending the mFRR-Platform according to Articles 15(3) and 15(7), the TSO's share of the costs of the member TSOs shall consider only the member TSOs appointed in the LFC area operational agreement as responsible for implementing and operating the mFRP in this LFC area according to Article 143(4) of the SO Regulation. For the

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avoidance of doubt, the member TSOs that are not appointed as responsible for implementing and operating the mFRP shall not have to bear costs related to Articles 15(3)(c) and 15(7)(c).

16. In case several member TSOs are active in a Member State, the Member State's share of the costs shall be distributed among those member TSOs proportionally to the consumption in the member TSOs' monitoring areas.
17. When sharing the common and regional costs for operating the mFRR-Platform in accordance with Articles 15(5) and (9), the consumption share of the costs of a participating TSO shall consider respectively the consumption of the member TSOs which appointed the participating TSO to perform the mFRP according to Article 143(4) of the SO Regulation.

Article 16

Framework for harmonisation of terms and conditions related to the mFRR-Platform

1. Terms and conditions pursuant to Article 18 of the EB Regulation remain a responsibility of each TSO but have to respect a framework for harmonisation pursuant to Article 20(3)(f) of the EB Regulation.
2. The framework for harmonisation shall take into account differences between TSOs applying central and self-dispatching models and respect the following process:
 - (a) all TSOs shall continuously evaluate the terms and conditions for BSPs in order to identify harmonisation needs. A stakeholder survey shall be organised every year, with the first survey occurring during the first operational year of the mFRR-Platform. This survey shall support the identification by all TSOs of a short list of prioritised harmonisation needs with close involvement of all relevant regulatory authorities;
 - (b) all TSOs shall then identify harmonisation options for each prioritised harmonisation need with close involvement of stakeholders and regulatory authorities;
 - (c) all TSOs shall publicly consult the harmonisation options with the stakeholders for a period of two months;
 - (d) all TSOs shall evaluate the public consultation results and develop a common harmonisation proposal for the identified issues. The proposal shall also include the necessary implementation time for the amendment of terms and conditions for BSPs;
 - (e) the mFRRIF shall be amended with the common harmonisation proposal in accordance with Article 6(3) of the EB Regulation;
 - (f) the implementation of changes stemming from an amendment process of the mFRRIF pursuant to (e) shall be handled at national level in the national terms and conditions for BSPs, which shall specify which changes are needed and define the implementation timeline;
 - (g) all TSOs shall submit an amended mFRRIF including the common harmonisation proposal no later than 36 months after the mFRR-Platform becomes operational. The next mFRRIF amendment including the common harmonisation proposal shall be submitted no later than 36 months after the previous mFRRIF amendment.

Article 17

Publication and implementation of this mFRRIF

1. The TSOs shall publish this mFRRIF without undue delay pursuant to Article 7 of the EB Regulation after a decision has been made by the European Union Agency for the Cooperation of Energy Regulators in accordance with Article 5(7) and Article 6(2) of the EB Regulation.
2. The TSOs shall implement the mFRRIF in accordance with Article 5.
3. One month before the deadline for the implementation of the mFRR-Platform pursuant to Article 5(3)(b), all TSOs shall publish a detailed description of the optimisation algorithm pursuant to Article 12(3)(k) of the EB Regulation.

Article 18

Language

The reference language for this mFRRIF shall be English. For the avoidance of doubt, where TSOs need to translate this mFRRIF into their national language(s), in the event of inconsistencies between the English version published by TSOs in accordance with Article 7 of the EB Regulation and any version in another language, the relevant TSOs shall be obliged to dispel any inconsistencies by providing a revised translation of this mFRRIF to their relevant regulatory authorities.