

**NON-PAPER OF ALL REGULATORY AUTHORITIES
AGREED AT THE ENERGY REGULATORS' FORUM**

ON

**All TSOs' proposal for the implementation framework
for the exchange of balancing energy from frequency
restoration reserves with automatic activation in
accordance with Article 21 of Commission Regulation
(EU) 2017/2195 of 23 November 2017 establishing a
guideline on electricity balancing**

23 July 2019

I. Introduction and legal context

This document elaborates the position of all Regulatory Authorities, agreed at the Energy Regulators' Forum on 23 July 2019, on the all TSOs' proposal regarding the development of an implementation framework for a European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation (hereafter referred to as the “**aFRR-Platform**”) pursuant to Article 21(1) of the Regulation (EC) 2017/2195 establishing a guideline on electricity balancing (hereafter referred to as the “**EBGL**”). This proposal is hereafter referred to as the “**aFRR IF**”.

Through this document, and the accompanying letter of the ERF Chair to the ACER Director, all Regulatory Authorities wish to inform ACER of their positions with regards to the aFRR IF. All Regulatory Authorities request ACER to take a decision, following the provisions in Article 5(7) of the EBGL, on the aFRR IF. This document is intended to identify the positions of the Regulatory Authorities and the reasons preventing the Regulatory Authorities from approving the aFRR IF.

The legal provisions relevant to the submission and approval of the aFRR IF and this All Regulatory Authority agreement on the aFRR IF can be found in Article 21(1) of the EBGL. In their assessment of the aFRR IF, Regulatory Authorities also consider articles 3, 21, 23, 29, 31 and 58 of the EBGL to be relevant. They are quoted below for reference.

In addition, the legal provisions stemming from Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation (hereafter referred to as the “**SOGL**”) are also relevant to the aFRR IF.

Article 3: Objectives and regulatory aspects

1. *This Regulation aims at:*
 - (a) *fostering effective competition, non-discrimination and transparency in balancing markets;*
 - (b) *enhancing efficiency of balancing as well as efficiency of European and national balancing markets;*
 - (c) *integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security;*
 - (d) *contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union while facilitating the efficient and consistent functioning of day-ahead, intraday and balancing markets;*
 - (e) *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;*
 - (f) *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;*
 - (g) *facilitating the participation of renewable energy sources and support the achievement of the European Union target for the penetration of renewable generation.*
2. *When applying this Regulation, Member States, relevant regulatory authorities, and system operators shall:*
 - (a) *apply the principles of proportionality and non-discrimination;*
 - (b) *ensure transparency;*
 - (c) *apply the principle of optimisation between the highest overall efficiency and lowest total costs for all parties involved;*
 - (d) *ensure that TSOs make use of market-based mechanisms, as far as possible, in order to ensure network security and stability;*
 - (e) *ensure that the development of the forward, day-ahead and intraday markets is not compromised;*
 - (f) *respect the responsibility assigned to the relevant TSO in order to ensure system security, including as required by national legislation;*
 - (g) *consult with relevant DSOs and take account of potential impacts on their system;*
 - (h) *take into consideration agreed European standards and technical specifications.*

Article 21: European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation

1. *By one year after entry into force of this Regulation, all TSOs shall develop a proposal for the implementation framework for a European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation.*
2. *The European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation, operated by TSOs or by means of an entity the TSOs would create themselves, shall 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 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 frequency restoration reserves with automatic activation, except for unavailable bids pursuant to Article 29(14).*
3. *The proposal in paragraph 1 shall include at least:*
 - (a) *the high level design of the European platform;*
 - (b) *the roadmap and timelines for the implementation of the European platform;*
 - (c) *the definition of the functions required to operate the European platform;*
 - (d) *the proposed rules concerning the governance and operation of the European platform, based on the principle of non-discrimination and ensuring 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;*
 - (e) *the proposed designation of the entity or entities that will perform the functions defined in the proposal. Where the TSOs propose to designate more than one entity, the proposal shall demonstrate and ensure:*
 - (f) *a coherent allocation of the functions to the entities operating the European platform. The proposal shall take full account of the need to coordinate the different functions allocated to the entities operating the European platform;*
 - (g) *that the proposed setup of the European platform and allocation of functions ensures efficient and effective governance, operation and regulatory oversight of the European platform as well as supports the objectives of this Regulation;*
 - (h) *an effective coordination and decision making process to resolve any conflicting positions between entities operating the European platform;*
 - (i) *the framework for harmonisation of the terms and conditions related to balancing set up pursuant to Article 18;*
 - (j) *the detailed principles for sharing the common costs, including the detailed categorisation of common costs, in accordance with Article 23;*
 - (k) *the balancing energy gate closure time for all standard products for frequency restoration reserves with automatic activation in accordance with Article 24;*
 - (l) *the definition of standard products for balancing energy from frequency restoration reserves with automatic activation in accordance with Article 25;*
 - (m) *the TSO energy bid submission gate closure time in accordance with Article 29(13);*
 - (n) *the common merit order lists to be organised by the common activation optimisation function pursuant to Article 31;*
 - (o) *the description of the algorithm for the operation of the activation optimisation function for the balancing energy bids from all standard products for frequency restoration reserves with automatic activation in accordance with Article 58.*
4. *By six months after the approval of the proposal for the implementation framework for a European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation, all TSOs shall designate the proposed entity or entities entrusted with operating the European platform pursuant to paragraph 3(e).*
5. *By eighteen months after the approval of the proposal for the implementation framework for a European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation, all TSOs may develop a proposal for modification of the European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation pursuant to paragraph 1 and of the principles set in paragraph 2. Proposed modifications shall be supported by a cost-benefit analysis performed by the all TSOs pursuant to Article 61. The proposal shall be notified to the Commission.*

6. *By thirty months from the approval of the proposal for the implementation framework for a European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation, or where all TSOs submit a proposal for modification of the European platform pursuant to paragraph 5, by 12 months after the approval of the proposal for modification of the European platform, all TSOs performing the automatic frequency restoration process pursuant to Part IV of Regulation (EU) 2017/1485 shall implement and make operational the European platform for the exchange of balancing energy from frequency restoration reserves with automatic activation and they shall use the European platform to:*
 - (a) *submit all balancing energy bids from all standard products for frequency restoration reserves with automatic activation;*
 - (b) *exchange all balancing energy bids from all standard products for frequency restoration reserves with automatic activation, except for unavailable bids pursuant to Article 29(14);*
 - (c) *strive to fulfil all their needs for balancing energy from the frequency restoration reserves with automatic activation.*

Article 23: Cost sharing between TSOs in different Member States

1. *All TSOs shall provide a yearly report to the relevant regulatory authorities in accordance with Article 37 of Directive 2009/72/EC in which the costs of establishing, amending and operating the European platforms pursuant to Articles 19, 20, 21 and 22 are explained in detail. This report shall be published by the Agency taking due account of sensitive commercial information.*
2. *The costs referred to in paragraph 1 shall be broken down into:*
 - (a) *common costs resulting from coordinated activities of all TSOs participating in the respective platforms;*
 - (b) *regional costs resulting from activities of several but not all TSOs participating in the respective platforms;*
 - (c) *national costs resulting from activities of the TSOs in that Member State participating in the respective platforms.*
3. *Common costs referred to in paragraph 2(a) shall be shared among the TSOs in the Member States and third countries participating in the European platforms. To calculate the amount to be paid by the TSOs in each Member State and, if applicable, third country, one eighth of the common cost shall be divided equally between each Member State and third country, five eighths shall be divided between each Member State and third country proportionally to their consumption, and two eighths shall be divided equally between the participating TSOs pursuant to paragraph 2(a). The Member State's share of the costs shall be borne by the TSO or TSOs operating in a territory of that Member State. In case several TSOs are operating in a Member State, the Member State's share of the costs shall be distributed among those TSOs proportionally to the consumption in the TSOs control areas.*
4. *To take into account changes in the common costs or changes in the participating TSOs, the calculation of common costs shall be regularly adapted.*
5. *TSOs cooperating in a certain region shall jointly agree on a proposal for the sharing of regional costs in accordance with paragraph 2(b). The proposal shall then be individually approved by the relevant regulatory authorities of each of the Member States and, if applicable, third country in the region. TSOs cooperating in a certain region may alternatively use the cost sharing arrangements set out in paragraph 3.*
6. *The cost sharing principles shall apply to costs contributing to the establishing, amending and operating the European platforms from the approval of the proposal for the relevant implementation frameworks pursuant to Articles 19(1), 20(1), 21(1) and 22(1). In case the implementation frameworks propose that existing projects shall evolve into a European platform, all TSOs participating in the existing projects may propose that a share of the costs incurred before the approval of the proposal for the implementation frameworks directly related to the development and implementation of this project and assessed as reasonable, efficient and proportionate is considered as part of the common costs pursuant to paragraph 2(a).*

Article 29: Activation of balancing energy bids from common merit order list

1. *In order to maintain the system's balance in accordance with Article 127, Article 157 and Article 160 of Regulation (EU) 2017/1485, each TSO shall use cost-effective balancing energy bids available for delivery in its control area based on common merit order lists or another model as set with the proposal by all TSOs pursuant to paragraph 5 of Article 21.*
2. *TSOs shall not activate balancing energy bids before the corresponding balancing energy gate closure time, except in the alert state or the emergency state when such activations help alleviate the severity of these system states and except when the bids serve purposes other than balancing pursuant to paragraph 3.*
3. *By one year after the entry into force of this Regulation, all TSOs shall develop a proposal for a methodology for classifying the activation purposes of balancing energy bids. This methodology shall:*
 - (a) *describe all possible purposes for the activation of balancing energy bids;*
 - (b) *define classification criteria for each possible activation purpose.*
4. *For each balancing energy bid activated from the common merit order list, the TSO activating the bid shall define the activation purpose based on the methodology pursuant to paragraph 3. The activation purpose shall be notified and visible to all TSOs through the activation optimisation function.*
5. *In the event that the activation of balancing energy bids deviates from the results of the activation optimisation function, the TSO shall publish the information about the reasons for the occurrence of such deviation in a timely manner.*
6. *The request for activation of a balancing energy bid from the activation optimisation function shall oblige the requesting TSO and connecting TSO to accept the firm exchange of balancing energy. Each connecting TSO shall ensure the activation of the balancing energy bid selected by the activation optimisation function. The balancing energy shall be settled pursuant to Article 50 and between the connecting TSO and the balancing service provider pursuant to Chapter 2 of Title V.*
7. *The activation of balancing energy bids shall be based on a TSO-TSO model with a common merit order list.*
8. *Each TSO shall submit all necessary data for the operation of the algorithm in paragraphs 1 and 2 of Article 58 to the activation optimisation function in accordance with the rules established pursuant to Article 31(1).*
9. *Each connecting TSO shall submit, prior to the TSO energy bid submission gate closure time, all balancing energy bids received from balancing service providers to the activation optimisation function, taking into account the requirements in Articles 26 and 27. The connecting TSOs shall not modify or withhold balancing energy bids, except for:*
 - (a) *balancing energy bids related to Articles 26 and 27;*
 - (b) *balancing energy bids that are manifestly erroneous and include an unfeasible delivery volume;*
 - (c) *balancing energy bids that are not forwarded to the European platforms in accordance with paragraph 10.*
10. *Each TSO applying a self-dispatching model and operating within a scheduling area with a local intraday gate closure time after the balancing energy gate closure time pursuant to Article 24 may develop a proposal to limit the amount of bids that is forwarded to the European platforms pursuant to Articles 19 to 21. The bids forwarded to the European platforms shall always be the cheapest bids. This proposal shall include:*
 - (a) *the definition of the minimum volume that shall be forwarded to the European platforms. The minimum volume of bids submitted by the TSO shall be equal to or higher than the sum of the reserve capacity requirements for its LFC block according to Articles 157 and 160 of Regulation (EU) 2017/1485 and the obligations arising from the exchange of balancing capacity or sharing of reserves;*
 - (b) *the rules to release the bids that are not submitted to the European platforms and the definition of the point in time at which the concerned balancing service providers shall be informed of the release of its bids.*
11. *At least once every two years after the approval of the proposal in paragraph 10 by the respective regulatory authority, all TSOs shall assess the impact of limiting the volume of bids sent to the European platforms and the functioning of the intraday market. This assessment shall include:*

- (a) *an evaluation by the relevant TSOs on the minimum volume of bids that shall be forwarded to the European platforms pursuant to paragraph 10(a);*
- (b) *a recommendation to the relevant TSOs limiting balancing energy bids.*

Based on this assessment, all TSOs shall make a proposal to all regulatory authorities to review the minimum volume of balancing energy bids that shall be forwarded to the European platforms pursuant to paragraph 10(a).

12. *Each requesting TSO may request the activation of balancing energy bids from the common merit order lists up to the total volume of balancing energy. The total volume of balancing energy that can be activated by the requesting TSO from balancing energy bids from the common merit order lists is calculated as a sum of volumes of:*
 - (a) *balancing energy bids submitted by the requesting TSO not resulting from sharing of reserves or exchange of balancing capacity;*
 - (b) *balancing energy bids submitted by other TSOs as a result of balancing capacity procured on behalf of the requesting TSO;*
 - (c) *balancing energy bids resulting from the sharing of reserves under the condition that the other TSOs participating in the sharing of reserves have not already requested the activation of those shared volumes.*
13. *All TSOs may establish in the proposals for the implementation frameworks for the European platforms pursuant to Articles 19, 20 and 21 the conditions or situations in which the limits set out in paragraph 12 shall not apply. When a TSO requests balancing energy bids beyond the limit set out in paragraph 12, all other TSOs shall be informed.*
14. *Each TSO may declare the balancing energy bids submitted to the activation optimisation function unavailable for the activation by other TSOs because they are restricted due to internal congestion or due to operational security constraints within the connecting TSO scheduling area.*

Article 31: Activation optimisation function

1. *All TSOs shall establish an activation optimisation function in accordance with Article 29 and this Article for the optimisation of the activation of balancing energy bids from different common merit order lists. This function shall take into account at least:*
 - (a) *activation processes and technical constraints from different balancing energy products;*
 - (b) *operational security;*
 - (c) *all balancing energy bids included in the compatible common merit order lists;*
 - (d) *the possibility to net the counteracting activation requests from TSOs;*
 - (e) *submitted activation requests of all TSOs;*
 - (f) *available cross-zonal capacity.*
2. *Common merit order lists shall consist of balancing energy bids from standard products. All TSOs shall establish the necessary common merit order lists for the standard products. Upward and downward balancing energy bids shall be separated in different common merit order lists.*
3. *Each activation optimisation function shall use at least one common merit order list for upward balancing energy bids and one common merit order list for downward balancing energy bids.*
4. *TSOs shall ensure that the balancing energy bids submitted to the common merit order lists are expressed in euros and make reference to the market time unit.*
5. *Depending on the requirement for standard products for balancing energy, TSOs may create more common merit order lists.*
6. *Each TSO shall submit its activation requests for balancing energy bids to the activation optimisation function.*
7. *The activation optimisation function shall select balancing energy bids and request the activation of selected balancing energy bids from the connecting TSOs where the balancing service provider, associated with the selected balancing energy bid, is connected.*

8. *The activation optimisation function shall submit the confirmation of the activated balancing energy bids to the TSO requesting the activation of the balancing energy bids. The activated balancing service providers shall be responsible for delivering the requested volume until the end of the delivery period.*
9. *All TSOs that operate the frequency restoration process and the reserve replacement process to balance their LFC area shall strive to use all balancing energy bids from relevant common merit order lists to balance the system in the most efficient way, taking into account operational security.*
10. *TSOs that do not use the reserve replacement process to balance their LFC area shall strive to use all balancing energy bids from relevant common merit order lists for frequency restoration reserves to balance the system in the most efficient way, taking into account operational security.*
11. *Except in the normal state, TSOs may decide to balance the system using only the balancing energy bids from balancing service providers in its own control area if such decision helps alleviate the severity of the current system state. The TSO shall publish a justification for such decision without undue delay.*

Article 58: Balancing algorithms

1. *In the proposals pursuant to Articles 19, 20 and 21, all TSOs shall develop algorithms to be operated by the activation optimisation functions for the activation of balancing energy bids. Those algorithms shall:
 - (a) *respect the activation method of balancing energy bids pursuant to Article 29;*
 - (b) *respect the pricing method for balancing energy pursuant to Article 30;*
 - (c) *take into account the process descriptions for imbalance netting and cross-border activation pursuant to Part IV Title III of Regulation (EU) 2017/1485.**
2. *In the proposal pursuant to Article 22, all TSOs shall develop an algorithm to be operated by the imbalance netting process function. This algorithm shall minimise the counter activation of balancing resources by performing the imbalance netting process pursuant to Part IV of Regulation (EU) 2017/1485.*
3. *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;*
 - (b) *if applicable, take into account the availability of cross-zonal capacity including possible costs for its provision.**
4. *All algorithms developed in accordance with this Article shall:
 - (a) *respect operational security constraints;*
 - (b) *take into account technical and network constraints;*
 - (c) *if applicable, take into account the available cross-zonal capacity.**

II. The aFRR IF

A draft version of the aFRR IF was consulted by all TSOs from 26 April 2018 to 29 June 2018 in line with Article 10 of the EBGL. Along with the draft proposal, all TSOs published an explanatory document. In the public consultation, all TSOs were seeking input from stakeholders and market participants on the draft proposal. All Regulatory Authorities closely observed, analysed and continuously provided feedback and guidance to all TSOs during various meetings and through a shadow opinion of All Regulatory Authorities (dated: 25 June 2018).

All TSOs submitted the final version of the aFRR IF in accordance with Article 5(2)(a) of the EBGL to the last Regulatory Authority on 11 February 2019, together with an updated explanatory document giving background information and rationale for the all TSOs' proposal.

The aFRR IF consists of the recitals and 18 articles. The aFRR IF sets out that the aFRR-Platform will be based on a TSO-TSO model with common merit order lists to exchange balancing energy bids from standard product for aFRR. This means that balancing service providers (hereafter: BSPs) can place balancing energy bids for standard products at their local TSO. These standard product bids are then forwarded to the aFRR-Platform, where they are merged into a common merit order list (hereafter: CMOL) for activation by all TSOs through a common activation optimisation function (hereafter: AOF).

The aFRR IF contains, as required by Article 5(5) of the Regulation 2017/2195, a description of the timeline for implementation as well as a description of the expected impact on the objectives of the EBGL as listed in Article 3 of the EBGL. Following the requirements in Article 10(6) of Regulation 2017/2195 on the transparency of the outcome of the public consultation, a consultation report including the views of the stakeholders and the assessment of TSOs' has been sent along, for information, with the approval document.

Article 5(6) of Regulation 2017/2195 requires all Regulatory Authorities to consult and closely cooperate and coordinate with each other in order to reach an agreement, and make a decision within six months following receipt of submissions to the last Regulatory Authority. A decision was therefore required by each Regulatory Authority by 11 August 2019.

All Regulatory Authorities were not able to reach an agreement on the TSO proposal. Therefore, they jointly request ACER to adopt a decision concerning the aFRR IF according to Article 5(7) of the EBGL, in accordance to Article 8(1) of Regulation 713/2009.

This document elaborates the different Regulatory Authority positions which have triggered the referral of the aFRR IF to the Agency as well as amendments Regulatory Authorities agree on.

III. Topics of disagreement between Regulatory Authorities

The disagreements between Regulatory Authorities on the aFRR IF are rooted both in diverging understandings of the technical functioning of the aFRP and the market implications of the proposed control model for the aFRR platform, in the light of the proposal concerning the pricing of balancing energy. Rather crudely, these elements can be brought back to compliance with the SOGL and the EBGL respectively. However, since the technical and economic elements underpinning regulatory authorities' discussions on the aFRR IF are heavily intertwined, it is unpractical to strictly differentiate between the elements related to SOGL on the one hand, and EBGL on the other. Therefore, this chapter presents the two main topics of disagreement between Regulatory Authorities and includes in the description of these topics arguments related to both the SOGL and the EBGL.

The first topic of disagreement centres around varying interpretations about the proposed definition of aFRR demand, and more specifically how it relates to the closed loop control model of the automatic frequency restoration process (hereafter: aFRP) as explained to Regulatory Authorities by TSOs. The second topic of disagreement is the choice of the "control demand" model instead of a "control request" model as the basis for the high level design of the aFRR platform.

These two topics are further elaborated below.

a) Definition of aFRR demand (article 2 of the aFRR IF)

Based on the explanation provided by TSOs, the frequency restoration control error (FRCE) - which is defined in article 3(2)(19) of the SOGL as the ACE of an LFC area, where there is more than one LFC area in a synchronous area – is the input for each load-frequency controller. The SOGL defines the ACE as the sum of the power control error and the frequency control error ($K * \Delta f$) and the power control error as the real time difference between the measured actual real time power interchange and the control program (equalling the

setpoints for the netted power interchange). The frequency control error is added to the power control error so that the action of frequency containment reserve in the LFC area is not offset by the aFRP.

Following the definition of the frequency restoration process, which aims at restoring the power balance to the scheduled value in each synchronously connected LFC area, it means that the objective of the controller is to regulate the FRCE in the above definition back to zero within the time to restore frequency so that the measured interchange is again equal to the control program.

Regulatory Authorities believe that the control model proposed by the TSOs and explained more in depth in the explanatory document largely corresponds to the model described in SOGL article 143 and 145:

- FRCE is measured using the difference between actual power interchanges (including virtual tie-lines interchanges due to the cross border FRR activation process) and control programs;
- local LFC controllers regulate FRCE to zero;
- the aFRR platform calculates “frequency restoration power interchange” correction values to be included in each FRCE calculation.

Some Regulatory Authorities have come to the conclusion that TSOs have not been able to provide a complete description of all the local and cross-border LFC processes in a way that is fully consistent in terms and setup with the SOGL and subsequent methodologies.

One example is the use of the term “ACE open loop”. In the TSO proposed setup under the control demand model the aFRR Platform uses as an input the so called “ACE open-loop”, which is the hypothetical ACE that would have been incurred in the absence of aFRR activation and without the correction of the frequency restoration power interchange. However, the concept of “ACE open-loop” is not defined in the SOGL because article 147 does not prescribe how the economic optimization of aFRR balancing energy bids should be carried out. As a consequence, Regulatory Authorities acknowledge the need for a definition of “aFRR demand” in the aFRR IF.

Other Regulatory Authorities consider that although activated aFRR is to be used in the proposed design, TSOs apply various inputs to determine this value depending on data available in real time. These Regulatory Authorities request ACER to look into this and assess what the best approach is to consistently determine as accurately as possible the “imbalance caused by market participants” as input to the EU platforms. This definition should at least include the real time measured power interchange compared with the control program between LFC Areas.

Regulatory Authorities would like TSOs to provide more clarity on these issues in the following process led by ACER.

b) High-level design of the aFRR-Platform: Control demand vs. control request (article 3 of the aFRR IF)

The TSOs propose throughout the implementation framework and in the explanatory document the “control demand” model as the high level design for the aFRR-Platform. In this design, the platform takes as main inputs:

- the aFRR demand of each TSO, which refers to the Area Control Error of an LFC area, before the aFRP;
- the standard balancing energy bids available to each TSO; and
- the cross-zonal capacities available for the exchange of aFRR.

Then, it optimizes economically the selection of bids to activate in each LFC area, and outputs inter alia a correction value for each LFC area corresponding with the volume of the bids to be activated. This correction value is the automatic frequency restoration power interchange applied to each participating LFC area. This results in “corrections” of the initial aFRR demand of each TSO. Each TSO carries on the frequency restoration

process in its LFC area(s) taking into account the “corrections” resulting from the platform, through the local LFC controller which computes the activation signals to be sent to each BSP.

The TSOs analysed also another design, the “control request” model, in which the aFRR-Platform takes as an input the output of each local LFC controller, i.e. the “request” for activation of aFRR in each LFC area, chooses the most competitive bids from the common merit order list, and sends bid activations to each TSO to be directly forwarded to their respective BSPs.

Put simply, in the control request model the AOF directly activates balancing bids, whereas in the control demand model the AOF sends a correction value to TSOs which subsequently leads to balancing energy volumes being activated. In the latter control model, there are to a certain extent differences between the selection of balancing energy bids by the AOF and actual activation of bids (hereafter referred to as “non-AOF” volumes). The disagreement between Regulatory Authorities boils down to:

- the economic efficiency of the two models and notably the implications of these “non-AOF” volumes on remuneration of balancing energy bids, level playing field for BSPs and the incentives this provides to market parties;
- the ability of the two models to achieve stability of the FRP of each LFC area and operational security.

The case for approving the control demand model

In the explanatory document published alongside the aFRR IF, TSOs have argued that the control demand model, which is the model currently used to operate imbalance netting and aFRR activation between a number of CE TSOs, is the appropriate model for exchanging aFRR on the aFRR-Platform. Regarding the technical functioning of the platform – i.e. the elements mostly related to the SOGL –, TSOs reasoned that the control demand model is mathematically proven to be stable since the functioning of the AOF does not impact the closed loops of the individual LFC controllers, but only their inputs, ensuring the requirement of article 147(3)(b) of the SOGL. Additionally the concept has been proven to function in practice (IGCC since 2008, Austrian-Germany aFRR cooperation since 2016).

Control demand allows each TSO to adapt the functioning of its load-frequency controller setup to the technical characteristics of the balancing service providers (BSPs) in each LFC area. As such, the control demand model accounts for the heterogeneous nature of power generation across Europe. According to TSOs, moving to a control request model would require a harmonization of load-frequency controllers based on the BSPs with the slowest response in order to try to preserve system stability.

The control demand model also features an inherent fall back solution, as the local controller simply continues to work, even in the absence of correction values sent by the AOF. TSOs argue that in a “control request” model a dedicated fall back mechanism would be required.

Taking all this into account, some Regulatory Authorities consider that the setup proposed by the TSOs will allow moving to a quick implementation of the aFRR-Platform, as it allows using the experience gained in the operation of IGCC and existing aFRR exchanges. They consider that this setup will allow a stable operation of platform and limit the costs of further harmonisation of LFC controllers.

Article 147 of the SOGL requires that the cross-border FRR activation process does not affect the stability of the FRP of each LFC area operated by participating or affected TSOs. Evidence presented by the TSOs suggests that the control request model cannot at this stage ensure the stability of the frequency restoration process.

Article 145(4) of the SOGL also requires the aFRP to be operated in a closed-loop manner where the setpoint for aFRR activation shall be calculated by a single frequency restoration controller operated by a TSO within its LFC area. The control demand model clearly fulfils this requirement. On the contrary, there are severe doubts if this is true for the control request model, where the setpoint for the activation would not be calculated by the single frequency restoration controller operated by a TSO within its LFC area but by the AOF.

Regarding the market implications of the control demand model – i.e. the elements mostly related to the EBGL – these Regulatory Authorities consider that the control demand model adheres to the principles set out by article 21(2) of the EBGL which stipulates that the aFRR-Platform shall apply a TSO-TSO model with common merit order lists. Article 31(7) of the EBGL states that the AOF shall select the balancing energy bids and request the activation of selected bids from the connecting TSO. The local merit order list of each TSO and the common MOL are continuously synchronized between AOF and the local LFC controller. So when the AOF sends a volume to be activated to the connecting TSO, it corresponds exactly and explicitly to the request of activation of the selected bids by the AOF. Article 29(6) of the EBGL obliges the requesting TSO and connecting TSO to accept the firm exchange of balancing energy. Article 29(6) of the EBGL further requires that each connecting TSO shall ensure the activation of the bids selected by the AOF. This principle is ensured through the synchronization of the local MOL that the controller uses for activations and the CMOL the AOF uses.

Regarding the matter of non-AOF volumes, Regulatory Authorities in favour of the control demand model note that although there is the requirement in the EBGL to ensure the activation of bids selected by the AOF, there is no requirement to hinder the activation of other bids not selected by the AOF. In other words, the requirement of EBGL is not to activate all and only those bids selected by the AOF, but there could be the case in which the local controller still activates bids no longer selected by the AOF due to local dynamics. Nonetheless the requirements to activate all the bids selected by the AOF is fulfilled.

Finally, these note that the general description of the principles in EBGL Art. 29 and 31 do not distinguish between automatic and manual FRR, while due to the different nature of these processes, SOGL clearly distinguishes the two: aFRR shall be operated in a closed loop manner (Art 134.4) and mFRR is operated through instructions (Art 134.5). It cannot be concluded then that EBGL would require a certain model that contradicts SOGL. While acknowledging that the wording of some articles of EBGL is such as that it fits best with mFRR scheduled activations and leaves some uncertainties on the correct meaning in the case of aFRR, these Regulatory Authorities are still of the opinion that the concept of control demand complies with all EBGL requirements.

For the above reasons, these Regulatory Authorities are of the opinion that the concept of control demand fits within the scope of both the SOGL and the EBGL.

The case against approving the control demand model

Other Regulatory Authorities believe the control demand model is not compliant with the EBGL because it does not ensure that balancing energy bids from the common merit order list (CMOL) selected for activation by the activation optimisation algorithm are actually activated by the connecting TSO as is required by EBGL article 29(6). This is because instead of prescribing precisely which balancing energy bids should be activated, the optimisation algorithm (AOF) communicates a correction to each local Frequency Restoration Control Error which constitutes the input to each individual load-frequency controller that subsequently activates balancing energy bids to regulate that FRCE to zero. TSOs have assessed that there is a discrepancy between the volume selected by the AOF and the volume activated by the local controller. In the pricing proposal, the TSOs propose to remunerate all “non-AOF” bids at the maximum value between the cross-border marginal price resulting from the optimisation and the bid price, which in practice means pay as bid when bid price is lower than the cross border marginal price which is usually the case during deactivation of bids. In this pricing scheme and with the activation-cycle balancing energy pricing period proposed by the TSOs, these “non-AOF pay as bid priced volumes” that are not selected by the AOF but activated by the local controller could amount to around 20% of the total volume of activated balancing energy bids.

Regulatory Authorities opposed to the adverse effects of the control demand model under the proposed pricing method note that this discrepancy in AOF and non-AOF volumes would be considerably smaller if the balancing energy price is set over a period equal to the ISP. However, in combination with the TSO proposal to price and settle aFRR balancing energy per “optimisation cycle BEPP, the consequence for market participants is a discrepancy between the economic competitiveness of their bids and the method of reimbursement. This discrepancy provides an incentive for BSPs to provide bid mark-ups above their marginal

costs to ensure equal revenues. Market participants have been vocal in their opposition to the optimisation cycle BEPP and the effect it will have on the transparency of the market platform during the public consultation period.

Regulatory Authorities opposed to the control demand model in its current proposed form consider that it does not apply a common merit order list for the activation of bids, is therefore not compliant with the principle of non-discrimination and creates an un-level playing field for market participants. With a view on the requirements coming from articles 21(2), 29(5), 29(6), 31(7), 31(8) these Regulatory Authorities consider the current proposal not be proposing a CMOL.

For the above reasons of creating an efficient balancing market these Regulatory Authorities consider that a EBGL compliant design can be implemented without conflicting with or deeply affecting the SOGL requirements. The balancing platform design is about market design choices that can be made independently from questions of compliance with load frequency control requirements.

IV. Topics of agreement between Regulatory Authorities

a) Use of positive / negative balancing energy (several articles of the aFRR IF)

The reference to “upward” and “downward” aFRR balancing energy should be replaced by “positive” and “negative” balancing energy in order to align the wording with those applied in discussions on sign convention.

This comment applies to the following articles of the aFRR IF: 2(2)(c), 2(2)(i), 7(2)(b), 7(2)(c), 10(5), 10(5)(a), 10(5)(b).

b) Definition economic surplus (article 2 of the aFRR IF)

The Regulatory Authorities agree that the definition of ‘economic surplus’ needs to be amended. For clarity, we present both the suggested new wording and a version in track changes compared to the wording of the aFRR IF.

Text proposal:

‘economic surplus’ means, in the context of the activation optimisation function, the total surplus of the participating TSOs obtained from satisfying their aFRR demand submitted to the aFRR-Platform and of BSPs resulting from the activation of their associated submitted standard aFRR balancing energy product bids submitted to the aFRR-Platform. The demand curve consists of TSO aFRR demand for positive balancing energy and the common merit order list formed by all bids for negative balancing energy from the standard aFRR product and indicates the maximum price that demand (TSOs and BSPs) is willing to pay for buying aFRR balancing energy. On the other hand, the supply curve consists of TSO aFRR demand for negative balancing energy and the common merit order list formed by all bids for positive balancing energy from the standard aFRR product and shows the minimum price supply is willing to receive for selling aFRR balancing energy. Economic surplus is defined as the total benefit from the aFRR balancing energy transaction between TSOs and BSPs and is equal to the area between the demand curve and the supply curve, where the demand curve is above the supply curve;

Text proposal in track changes from aFRR IF:

'economic surplus' means, in the context of the activation optimisation function, the total surplus of the participating TSOs obtained from satisfying their aFRR demand submitted to the aFRR-Platform and ~~the total surplus~~ of BSPs resulting from the activation of their associated submitted standard aFRR balancing energy product bids. ~~submitted to the aFRR-Platform.~~ The demand curve ~~consisting consists~~ of positive TSO aFRR demand ~~for positive balancing energy~~ and ~~downward-BSP the common merit order list formed by all bids for negative balancing energy from the standard aFRR balancing energy product bids submitted to the aFRR-Platform constitutes the consumer curve,~~ and therefore indicates the maximum price that ~~consumers demand~~ (TSOs and BSPs) ~~are is~~ willing to pay for ~~consuming buying~~ aFRR balancing energy. On the other hand, the supply curve ~~consisting consists~~ of ~~negative~~-TSO aFRR demand ~~for negative balancing energy~~ and ~~upward BSP the common merit order list formed by all bids for positive balancing energy from the standard aFRR balancing energy product bids submitted to the aFRR-Platform constitutes the producer curve,~~ and therefore shows the minimum price ~~they are~~ supply is willing to receive for ~~supplying selling~~ aFRR balancing energy. Economic surplus is ~~defined as~~ the total benefit from the aFRR balancing energy transaction, ~~between TSOs and therefore BSPs and is made up of the area corresponding equal~~ to the ~~sum of consumer area between the demand curve and the producer surplus,~~ supply curve, where the demand curve is above the supply curve.

Explanation of the changes made in the definition: Regulatory Authorities suggest to refer to one overall surplus and specify that the surplus is calculated as the difference between the willingness to pay and costs. Regulatory Authorities propose to use the terms “demand curve” and “supply curve” rather than “consumer curve” and “producer curve” to better indicate the dual directionality of balancing energy that “producers” and “consumers” can provide. Regulatory Authorities suggests to clarify the definition of these respective curves by expanding on their constituent elements.

c) Need to coordinate sequential allocation of cross-zonal capacity (article 4 of the aFRR IF)

All Regulatory Authorities are mindful that the sequential allocation of cross-zonal capacity across different balancing energy processes as described in article 4(2) will, if used in the preceding balancing process, reduce the availability of cross-zonal capacity for TSOs in a particular direction for the subsequent process. Areas that structurally rely on aFRR activations for their balancing needs may be particularly affected, and that this may in turn lessen the efficiency of the aFRR-Platform itself given that the aFRR-platform is the last process after the intraday market.

All Regulatory Authorities therefore agree that TSOs should coordinate the steps for the determination of available cross-zonal capacity in article 4 of the aFRR IF with the other platforms. All Regulatory Authorities believe that the aFRR IF should include a provision that, when interchanges resulting from other European platform(s) physically impact borders that are not part of that platform to the extent that it endangers operational security, TSOs shall resolve the issue in a coordinated manner and jointly propose measures to avoid or mitigate the occurrence of similar issues in the future.

All Regulatory Authorities question the efficiency of the TSO choice that the remaining cross-zonal capacity is sent back to TSOs and resubmitted to each platform consecutively. This could mean that different values on each side of the border are submitted whereas the value remaining after IDCZGCT is already coordinated and the same. Instead, all Regulatory Authorities would invite TSOs to explore an alternative where the CZC remaining after IDCZGCT is directly sent to the platforms, with TSOs amending this value pursuant to the rights as proposed in Article 4 of this IF or as allowed within the broader context of SOGL and EBGL. Therefore, all Regulatory Authorities therefore suggest to replace the wording “each TSO” in article 4.2 with “All TSO shall continuously update and provide ...” in order to reflect this centralization.

d) Interaction IN IF & aFRR IF (article 4 of the aFRR IF)

The Regulatory Authorities consider that there is an inconsistency between the aFRR-Platform and the Imbalance Netting Platform. Article 11(6) of the aFRR IF states that “*All participating TSOs using the IN-Platform pursuant to Article 22 of the EBGL and in accordance with the INIF shall form an aFRR optimisation region*” and later that the optimization sequence consist of three steps which include either the aforementioned optimization region, or the participating TSOs of the IN-Platform. Article 22(5) of EBGL states that “[All TSOs performing the automatic frequency restoration process] *shall use the European platform to perform the imbalance netting process, at least for the Continental Europe synchronous area*”, thus implying that TSOs outside the Continental Europe synchronous area may not use the European platform for imbalance netting. All Regulatory Authorities therefore request that article 11(6) of the aFRR IF is amended to take account for

this possibility and allow TSOs that are not using the imbalance netting platform to take part in the aFRR optimization

e) Entity (article 12 of the aFRR IF)

All Regulatory Authorities are not in favor of the proposal by all TSOs for entity or entities elaborated in Article 12 of the aFRR IF.

All Regulatory Authorities therefore request to amend the proposal according to the following reasoning:

Firstly, there are two options in Article 21(2) of the EBGL, namely the operation 'by TSOs' and the operation 'by means of an entity created by the TSOs'.

If all TSOs want to propose that the platform is operated by an entity created by the TSOs, this entity needs to be legally distinct from the TSOs and enjoy full legal capacity.

A consortium does not typically possess full legal capacity as it is not a legal person, and as such cannot be considered as an entity legally distinct from the TSOs. However, the operation of the platform by the TSOs together in a consortium remains possible on the grounds that such operation will be, from a legal point of view, carried out by the TSOs as foreseen by Article 21(2) of the EBGL. As TSOs remain in any case fully responsible for the operation of the platform this can be achieved by proposing a designation of one or more TSOs as the entity or entities that will perform the functions defined in the proposal provided that the requirements of Article 21(3)(e) are fully met and that the proposal makes it clear how the functions are allocated to the entity/entities.

Therefore, Regulatory Authorities request that the content of Article 12 of the aFRR IF is rephrased and unambiguously specifies which of the two options is proposed, i.e. whether the platform will be operated (i) by an entity with full legal capacity created by the TSOs or (ii) by the TSOs themselves acting, as the case may be, in a consortium. In the latter case, the requirements set in Article 21(3)(e) of the EB GL shall be met.

Secondly, Article 21(3)(e) points (i)-(iii) of EBGL explicitly require that the proposal itself demonstrate and ensure all the objectives listed. The proposal must not remain silent or vague on how these objectives will be ensured and therefore it must contain a sufficient amount of detail as regards the operational rules ensuring the fulfilment of these objectives. The operational handbook of the platform can only be considered supplementary to the proposal and cannot replace it for the purpose of establishing whether the requirements of Article 21(3)(e) are met. Nonetheless, the TSOs are of course free to reiterate, in the operational handbook, any operational rules stipulated in the methodology, and/or to set out additional practical arrangements, details and specifications. As long as such more detailed rules are in line with the approved methodology they need not be submitted for approval.

Finally, the expression 'perform the functions' in Article 21(3)(e) EBGL should be interpreted in such a way that when all the functions are performed by one or several entities, the relevant platform is operated. Paragraph 3(c) of Article 21 EBGL requires the functions that are necessary for the operation of the platform to be 'defined in the proposal'. It is therefore up to the TSOs to define the scope of the tasks the performance of which enables the operation of the platform. Keeping in mind that TSOs remain responsible for the implementation and operation of the platforms, TSOs are best placed to propose a delineation of the various technical functions required to operate the platform. The proposal for entity or entities should then clearly allocate those functions to the respective entity or entities, bearing in mind the aforementioned.

f) All other comments (various articles of the aFRR IF)

The definition of Balancing Market Time Unit, article 2(2)(g) of the aFRR IF, seems to refer always to a 15 minutes period. All Regulatory Authorities agree that it should be replaced by this value, in line with the IN IF.

Article 3 - High-level design of the aFRR-Platform

All Regulatory Authorities consider that the term “submitting TSO” used in article 3(4)(c) should be clarified and it should be indicated whether it is equal to the term “connecting TSO”. If the meaning is different, a definition of the term should be included in article 2(2) and when it’s equal it should be amended to “connecting TSO”.

The use of the wording “can be”, currently applied in article 3(4)(g), article 3(8)(h), article 3(10)(c) and article 3(11)(d), should be avoided and replaced with the wording “include, but are not limited to”.

All Regulatory Authorities request to either use the CACM definition for ‘net position’ (which means the netted sum of electricity exports and imports for each market time unit for a bidding zone) or to replace article 3.8(d) with an input that is consistent with the use of the term net position.

Article 4- Calculation of the aFRR cross-border capacity limits as input to the optimisation algorithm

All Regulatory Authorities request that the term “technical IT Limitation” which appears in article 4(2)(a)(ii) is added to the definitions in article 2(2).

All Regulatory Authorities consider that article 4(2)(d) should be rephrased so that “operational security” is referred to as an objective in itself, similar to the phrasing used in the SOGL. All Regulatory Authorities request that this article refers to the articles, but not the sub articles of the SOGL.

All Regulatory Authorities request that it is specified whether article 4(2)(e) applies solely to HVDC connections between synchronous areas, as the reference to article 171 of the SOGL seems to suggest, or also to HVDC connection within synchronous areas. In case the article also applies to connections within synchronous areas, all Regulatory Authorities request that it is specified which procedures applies.

All Regulatory Authorities request that in article 4(5) , the proposal replaces the term “Member TSOs” by the term “participating TSOs”

Article 5- The roadmap and timeline for the implementation of the aFRR-Platform

All Regulatory Authorities request that article 5(1) is complemented with a minimum period following the approval of the aFRR-Platform, in order to allow BSPs and BRPs sufficient time to prepare for the requirements of the aFRR IF. All Regulatory Authorities request article 5(1) to read: “By thirty months, but no less than twelve months after the approval of this aFRR IF, the aFRR-Platform shall fulfill every requirement defined in this aFRR IF and further requirements according to Article 30 and 50 of the EBGL.

All Regulatory Authorities request that the aFRR IF refer to “Participating TSOs” in article 5(4)(c)(iii), 5(4)(c)(v), 5(4)(d).

Article 7 - Definition of standard aFRR balancing energy product

All Regulatory Authorities request that the wording “at least” in article 7(2) should be either removed and the missing characteristics added, or this article should refer explicitly to national terms and conditions.

All Regulatory Authorities believe that article 7(1)(a) must contain a more specific reference to the legal basis for defining the full activation time; currently the aFRR IF reads “in accordance with Article 18 of the EBGL”.

Article 9 - TSO energy bid submission gate closure time for the standard aFRR balancing energy product bids

All Regulatory Authorities express concerns about the influence TSOs have to affect market results and about the lack of transparency provided in article 9(2) of the aFRR IF about the conditions under which TSOs are able to invoke Art. 29(9) and 29(14) of the EBGL. Therefore, all Regulatory Authorities request that the detailed

definitions and methodologies behind Art. 29(9) and 29(14) should be included in the national terms and conditions, as well as the process behind Art. 24(4) and its impact on settlement.

Article 11 - Description of the Activation Optimisation Function (AOF)

All Regulatory Authorities request that article 11(4)(b) specifies that priority access in the process responsibility structure is solely applicable in case of unfulfilled aFRR demand. In addition, all Regulatory Authorities request that article 11(4)(b) specifies that it presents an *order* of priorities, similar to article 11(2).

Transparency to the market in case of fallback procedures

According to Article 28 EBGL “each TSO shall ensure that fall-back solutions are in place”. Paragraph (2) specifies that “where the procurement of balancing services fails, the concerned TSOs shall repeat the procurement process. Paragraph (3) specifies that where the coordinated activation of balancing energy fails, each TSO may deviate from the common merit order list activation and shall inform market participants as soon as possible. TSOs therefore shall inform market participants that fall-back procedures will be used as soon as possible.” Therefore, Regulatory Authorities request that a new article is added to the aFRR IF on the fall-back procedure that will especially address the information requirement of Article 28(2) and (3) EBGL.

V. Conclusions and actions

All Regulatory Authorities have assessed, consulted, closely cooperated and coordinated in order to reach an agreement. All Regulatory Authorities have not been able to reach an agreement within the period of six months following the receipt of the Proposal according to Article 21(1) of the EBGL.

According to Article 5(7) of the EBGL, All Regulatory Authorities hereby jointly request the Agency to adopt a decision concerning the Proposal according to Article 21(1) of the EBGL. The decision shall take into account All Regulatory Authorities' assessment in the topics of agreement stated above. Besides these considerations, All Regulatory Authorities inform the Agency on the topics of disagreement which prevented an agreement to be reached among All Regulatory Authorities. The Agency shall adopt its decision by no later than six months after the day of referral, in accordance with Article 8(1) of Regulation (EC) No 713/2009.