LFC Block operational agreement

April 19, 2023

Content

1. Introduction

Elia launched a public consultation of the stakeholders on the LFC block operational agreement. In accordance with article 119(1) of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (SOGL), the LFC block operational agreement specifies the dimensioning rules for the "Frequency Restoration Reserves" or "FRR" (also referred to as aFRR and mFRR) and the methods for fulfilling the obligations regarding the balancing of the Belgian control area.

Elia has developed a proposal for amendment to the LFC block operational agreement in which a new methodology for the calculation of the aFRR needs has been integrated as well as a few modifications including :

- The impact of imbalance netting in FRR dimensioning
- The implementation of a technology-neutral framework in the exceptional balancing measures

This consultation aimed to receive any comments from market participants and stakeholders regarding the consulted document and the consultation period was set **from Friday February 24, 2023 to Friday March 24, 2023**. In total, Elia received four answers to the public consultation:

- ➤ **FEBEG**
- ➤ **FEBELIEC**
- ➤ **BSTOR**
- ➤ **CENTRICA**

All relevant information to this consultation can be found on Elia's webpage (**link**). The feedback received during the consultation did result in two modifications of Elia's proposal.

- A reformulation of the implementation planning to clarify the relation with the implementation of the modification of the T&C BSP aFRR in which the auction calendar is adapted to 9 AM D-1. The implementation remains foreseen for October 1, 2024.
- An improvement of the yearly correction factor in the FRCE feedback loop by applying a rolling 12-month window to reduce the lag between the dimensioning date and the historic performance observed.

The request for amendment is submitted for approval to CREG on Wednesday April 19, 2023.

2. Answers to the feedback of FEBELIEC

- Febeliec would like to thank Elia for this consultation on the LFC Block Operational Agreement (LFC BOA). In the framework of this consultation, Febeliec wants to refer to its answers in other balancing consultations (e.g. on the mFRR and aFRR design) as well as the discussions during the numerous workshops on balancing products.

  On the modification of full activation time of aFRR and mFRR to respectively 5 and 12,5 minutes, Febeliec wants to repeat its position that this makes the standard balancing products much more difficult for grid users, in particular demand side response, and that this could lead to less instead of more liquidity. Febeliec thus

reiterates its request for a local balancing product, that allows better participation of all flexibility, such as the existing mFRR Flex product.

Elia notes the concern of Febeliec on a potential loss of liquidity due to the shortening of the full activation time of aFRR and mFRR according to the European legislation, and its request to introduce a specific product to facilitate the participation of slower assets. However, it is not the purpose of the LFC BOA to establish or suppress specific balancing products.

- On the adaptation of the aFRR capacity volume to be procured via a dynamic probabilistic methodology with feedback loop for the determination of the aFRR needs, Febeliec wants to give this mechanism the benefit of the doubt, as it could lead to a better alignment between the system needs and the contracted volumes, but insists on a very close monitoring to ensure that this would not lead to perverse effects or unwanted and unwarranted contracting of much bigger aFRR volumes in the future, to avoid repeating some design errors made in this in the past. Febeliec remains very strongly of the opinion that exceptional data points should be filtered out in the analysis, in order to avoid that these negatively impact the volume determination during several years, directly negatively impacting costs for consumers. This should for example, but not limited to, be the case for imbalances resulting from the aforementioned design flaws or data points related to assets that no longer remain in the system or where additional measures have been taken to address the impact of outages on the overall system. Febeliec also insists that all imbalance netting potential should be taken into account for FRR need dimension, firstly on aFRR and any extra available capacity on mFRR.

  Febeliec also insists on a thorough analysis of the differences in outcome between the different applied methodologies, as big discrepancies between them (as also observed I the past) could indicate flaws in reasoning and could lead to the contracting of unnecessarily high volumes of balancing capacity, at the detriment of costs for consumers.

Elia agrees that a follow-up on the results of the probabilistic method, as well as the impact of the feedback loop is desirable. It puts in place a parallel run of three months between 1/07/2024 to 30/09/2024 to follow-up on the results before the actual reserve dimensioning and balancing capacity procurement is impacted. The follow-up will be organized as specified in Article 6(7) of the LFC Means: "*Elia will carry out a yearly ex-post analysis in the first quarter of each year based on historical data from the precedent year on and assess whether the positive and negative FRR needs have been sufficiently covered by the resources available. For the purposes of this analysis, Elia will compare the results of the positive and negative FRR needs based on the methodology in the LFCBOA and compare this with the available resources of aFRR (contracted aFRR balancing capacity) and mFRR (non-contracted balancing energy offers and sharing of FRR reserves).*".

Elia clarifies it foresees to filter out exceptional events such as market decoupling as it is done in the FRR dimensioning. Elia recognizes the possibility to filter out periods of observations for the machine learning data, but this solution should be approached with utmost caution. It is important to ensure a sufficiently large dataset and one should be careful to exclude long periods or frequent events. It is also important to check first if the event, if happening sufficiently frequently, can be recognized by the machine learning algorithms. Elia also wants to clarify that forced outages are filtered out from the time series for the aFRR dimensioning as these are considered outside the objectives of the aFRR dimensioning study.

Elia does not agree with FEBELIEC's position that imbalance netting needs to be taken into account in FRR dimensioning:

- From a legal perspective: the possibility of taking into account imbalance netting in FRR dimensioning is to be analyzed, as this was according to Elia not foreseen when drafting EU legislation (SO Regulation);
- From a technical perspective: imbalance netting cannot be considered 'firm'. Being subject to large variability and uncertainty, it is difficult to predict;
- From an operational perspective: cross-border synergies are already taken into account via reserve sharing framework, currently constrained by available ATC after the intra-day time frame. Accounting 'firm' capacity via imbalance netting will reduce the amount of reserve sharing which can be taken into account to reduce the mFRR balancing capacity procurement.

Taking into account the above-mentioned considerations, Elia does propose to take into account imbalance netting in aFRR dimensioning. As it has put forward a method which is based on the expected (simulated) aFRR activations, imbalance netting is taken into account as it has a large impact on the aFRR activation volumes. Nevertheless, as mentioned in the technical perspective above, the variability and predictability may be limited and the impact on the dimensioned needs are therefore expected to be limited as well. The legal framework (Article 157 of SO Regulation) allows much more freedom in determining the split between aFRR and mFRR needs, compared to the FRR needs. Also from an operational perspective, the unavailability of the imbalance netting would not impact the ability of Elia to cover imbalance after 15 minutes (as the total FRR needs is not impacted).

- Febeliec also insists that units which do not provide MW schedules, in particular demand facilities, should only offer their available active power on a voluntary basis, as any alternative would be unwanted and lead to unwarranted curtailment with corresponding loss of production and potentially even important damage to installations.

Elia takes note of this remark but does not see how it relates to the scope of this consultation. The obligation for certain units to provide available power to the TSO is not specified in the LFC block operational agreement but in the Code of Conduct (cf. Article 130). In addition, it is not currently considered by Elia to request making it mandatory for demand facilities to offer all available flexibility to the TSO.

- On FRR means, Febeliec most strongly want to refer to its previous as well as above comments on the extension of the Belgian mFRR Flex product and its regret on the abolishing of this product. Febeliec considers such evolution not to be in the interest of consumers and the overall cost of the system in light of a.o. the ever-smaller margin of total mFRR capacity offered versus capacity procured that can be observed at times as well as the increased needs for FRR capacity indicated by Elia in various studies. Febeliec considers it to be unwise and imprudent to abolish the mFRR Flex product, as this could already in the (near) future lead to insufficient liquidity in the balancing market, as market actors might leave the market altogether and could in the long run lead to insufficient balancing assets still available to help the system.

Elia notes the concern of Febeliec and refers to its response above reiterating itis not the purpose of the LFC BOA to create specific balancing products.

3. Answers to the feedback of FEBEG

- As a general comment, FEBEG is disappointed with the proposed modifications. We always pleaded for the fast implementation of a dynamic procurement as it was proposed by ELIA in 2020. We are now in 2023 and we can only observe that very few steps towards dynamic aFRR procurement have been made, only the steps towards a fixed procurement were instead implemented. The current fixed procurement of 117 MW is applicable until further notice and is not the outcome of an appropriate methodology but is rather the result of an arbitrary choice. The most disappointing element in the proposal under consultation is the idea to add a feedback loop – relying on past year and month performances – which will add a static nature to the reserves dimensioning exercise. It will prevent a rapid increase/decrease of reserves when needed, and therefore dampen and minimize the potential advantages of a dynamic procurement approach. We find this approach very surprising because ELIA seemed to be rather convinced about the need to implement a dynamic dimensioning in 2020.

Elia understands FEBEG's regret on the delay on the initial implementation planning presented in its aFRR dimensioning study in 2020[1]. Elia already explained to the stakeholders that this was due to discussions with CREG on the role of FRCE quality in aFRR dimensioning. These discussions could only be finalized in Q4 2022 after getting a better view on the foreseen evolution of the calculation of the FRCE target parameters by ENTSO-E. The outcome of these discussions with CREG resulted in a new implementation planning towards October 2024 (1/10/2024, after a parallel run starting on 1/7/2024). The lead time between the current proposal and implementation is related to the need of IT developments, as well as the choice to organize a parallel run to provide visibility on the methodology's results before the actual implementation.

Until the implementation of the new method, the aFRR needs are indeed foreseen to remain fixed at 117 MW (symmetrically in up- and downward direction). This calculation was updated in July 2021 after a request from CREG to modify the methodology in place in view of elevated procurement costs. While Elia opposed to an approach which trades off reserve needs and operational security against costs, Elia decided to already implement imbalance netting in the 'old' the static methodology in line with the foreseen 'new' dynamic methodology (cf. also the clarifications given on the questions of FEBELIEC on imbalance netting). This improvement could be implemented by Elia in the short term (without need of IT developments), i.e., as a temporary solution while awaiting the implementation of the new methodology.

Elia clarifies that the feedback loop is the result of discussions with CREG and will calibrate the outcome of the probabilistic method based on the legal minimum requirements for FRCE quality. Elia insists however that these minimum requirement cannot be considered as (the unique) dimensioning criteria for aFRR dimensioning. Elia believes that the method remains dynamic in the sense that the initial aFRR needs are calculated with the probabilistic method; the historical FRCE performance is then only used as a correction to ensure compliance with SO Regulation. The final

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[1] **https://www.elia.be/en/public-consultation/20200602_public-consultation-on-the-methodology-for-the-dimensioning-of-the-afrr-needs**

results therefore remain dynamic and can still vary from day to day. Elia refers to the specific answers given below on the design of the FRCE feedback loop.

- In the study on aFRR dimensioning published by ELIA in 2020, a 'dynamic' methodology was recommended which dimensions the aFRR needs on a daily basis, for every block of 4 hours, based on expected aFRR activations of the next day. This new methodology aimed to be more accurate and robust, and less based on historic empirical observations. IGCC netting was foreseen to be taken into account in this dimensioning, and thanks to its dynamic nature, a better judgement could be made on system evolutions. FEBEG supported and still supports these evolutions. Unfortunately, the timeline for implementation presented by ELIA at the time is no longer valid as a go-live was initially foreseen in 2022.

Elia takes note of FEBEG's support for the probabilistic method presented in 2020. Elia does want to clarify that the machine learning method in the proposed dynamic probabilistic methodology was to some extent already based on historical 'empirical' records of LFC block imbalances and imbalance netting. Elia also wants to stress that the current probabilistic method, before application of the FRCE feedback loop, remains identical to the method proposed in 2020. On the implementation planning, Elia refers to the answer given above on the implementation planning.

- While FEBEG still supports the dynamic dimensioning approach, some new elements of the methodology are deviating from the initial purpose. By adding a feedback loop, ELIA will apply a correction factor on the aFRR activation probability. This raises several major concerns as (i) the methodology proposed by ELIA will result in a more static exercise, (ii) the dataset used to make the computation might not be a representative sample of data to rely on and (iii) ELIA would be in situation where arbitrages could be made between reserve dimensioning and grid security. The latter is in our view not acceptable.

On the first bullet point (i), Elia refers to the elements given in previous answers. It stresses that the final results remain dynamic and can still vary from day to day. Nevertheless, it recognizes that the correction factor itself is not related to expected system conditions, in contrast with the probabilistic part of the method).

On the second bullet point (ii), Elia agrees that the calculated performance of the previous year and month implies a certain 'lag'. It is nevertheless to be remarked that the probabilistic method, as every machine learning method, implies such a lag when trained on historical data. Potential undesired effects are partially mitigated by using the two thresholds (yearly and monthly) together, while applying a margin on the minimum legal thresholds.

On the third bullet point (iii), Elia refers to the specific answers given below. Elia clarifies it builds the method on legal requirements and operational security and does not consider to trade-off reserve needs against cost.

- aFRR needs are determined by multiplying aFRR activation probability with a correction factor. This correction factor takes as inputs the yearly and monthly performances, each of them being floored/ capped at respectively 80% or 120%. The multiplication of yearly and monthly performance with floor and caps means that the correction factor cannot be lower than 64% (0.8 x 0.8= 64%) and greater than 144% (1.2 x 1.2 = 144%). FEBEG considers that:

  o The multiplication of yearly and monthly performance does not seem to make sense. It can lead to a correction factor that has nothing to do with the real performance. Take a fictive example where yearly performance is 0.9 and monthly is 0.9, then the result of the correction factor is 0.9 x 0.9 =

0.81. This 0.81 has nothing to do with the realized performance. This multiplication will inflate dimensioning if L1 & L2 are greater than 1 and deflate when smaller. This is not a fair representation of the performance. An average (i.e. (0.9+0.9)/2 = 0.9) would make more sense;

The reasoning followed by Elia is that a structural overperformance or underperformance compared to the legal minimum requirements observed during the previous year should be fortified or dampened by looking at the performance of the previous month (capturing seasonal trends). Note that the potential effect of this overreaction is managed through the 'margin' taken on the minimum legal thresholds, but also by the fact that potential FRCE deteriorations following the aFRR needs reductions shall be captured in the next iterations.

- o The caps and the floors are set artificially at resp. 80% or 120% and are not explained. We understand that safeguards can be needed but how have those cap and floor have been defined?

The caps and floors are determined based on the impact assessment for 2024, presented in the workshop of 15/01/2023. The caps and floors are set to mitigate large reductions / increase / variations following the FRCE feedback loop (particularly in view of foreseen revisions by ENTSO-E) in view of market stability. While these caps and floors are hardcoded in the LFCBOA, it is not excluded that they are revised upon return of experience.

- o Relying on yearly performance will not catch the trend nor the seasonality of the ACE and it will not address the evolutions the grid is facing. It seems to be an indicator too far in the past (certainly with recent game changers such as fixed procurement on 117 MW).

Elia clarifies that seasonality is captured by means of the dynamic probabilistic method. The yearly performance indicator complements the monthly performance indicator (which should capture the seasonality) to capture structural under- or overperformance. The monthly performance indicator together with the 'margin' (determining performance on 24% target (L1), 4% target (L1) instead of using the legal minimum criteria, respectively 30% and 5%, in order to avoid exceeding legal thresholds when performance would suddenly reduce from one month to another) should reduce the impact of the 'lag' of one year.

- o Using past performance is actually in contradiction with dynamic procurement which aims at dimensioning the reserves according to the needs of a given day. It is as such a step backwards from the principles of dynamic procurement.

Elia refers to the previous answers on the dynamic nature of the method.

- o The yearly and monthly performance are defined based on 5% and 30% criteria. If ELIA ever intends to use those performance indicators, it should at the very least update them based on the L1 & L2 criteria's that ENTSOE is about to publish in May 2023. Needless to say that a performance indicator relying on old loose criteria does not make sense at the moment European guidelines invite TSO's to tighten those criteria.

The FRCE target parameters are not foreseen to be hardcoded in the LFCBOA and will be updated based on the latest values communicated by ENTSO-E.

- o Finally, ELIA expects that aFRR volumes will increase over time (towards 2026). FRCE target parameters will be tightened by ENTSO-E to the benefits of frequency quality. In such case the feedback loop will lead to a smaller decrease (or potentially even an increase) of the volumes. FEBEG is

wondering – if such a conclusion is made – what is the need to implement this feedback loop in October 2024.

The calculation of the FRCE target parameters is currently under discussion within ENTSO-E and indeed expected by Elia to be gradually tightened, with a first revision already foreseen as from May 2023. But at this point, it is not certain to which extent and at which time the next revisions will be implemented. In any case, the feedback loop will remain relevant also in such case to monitor performance against FRCE quality and ensure thereby compliance with SO Regulation.

- FEBEG also question the timing of the daily FRR dimensioning process. We read that the FRR needs will be published before 7 AM D-1 on ELIA's website. How will this work in practice given that aFRR capacity auction is in D-2 at 4:00 pm. Will the aFRR auction be done before the dimensioning process?

Based on market analysis done during the auction design in 2021, Elia concluded that (see stakeholder workshop of 2nd of April 2021):

- in the market conditions during the time of the study, having the FCR auction organized before the aFRR auction would lead to a risk of cost increase, as thermal units might have to cover their fixed costs in the FCR auction, which is less efficient
- the liquidity development in the FCR auction will be monitored, with the target to move the aFRR capacity auction in D-1 at 9 AM when the risk on the FCR auction is considered to be sufficiently mitigated

With the current market conditions and the expected short-term evolutions, Elia is confident that the aFRR capacity auctions will evolve towards D-1 at 9 AM by the implementation date of the aFRR dimensioning method, 1/10/2024, the latest. Elia foresees to discuss this with stakeholders after Summer of this year.

In order to clarify the relation with the auction design, Elia proposes to adapt Article 5(8)a of the Project for Amandment as : *"The modifications in Article 8, Article 9 and Article 10 will enter into force on October 1, 2024 after the approval of the CREG. The modifications will not enter into force before the implementation of the aFRR balancing capacity gate closure time at 9 AM D-1 after approval in a next version of the Terms and Conditions for balancing service providers for Frequency Restoration Reserve with automatic activation (aFRR), hereafter referred to as T&C BSP aFRR."*

- The aFRR activation risk will be identified by means of an algorithm trained on a set of simulated aFRR activations. However:
  - The duration of this dataset corresponds to the last 2 years ▪ The period where Elia downsized the aFRR procurement to 117 MW (i.e. August 22 till now) should have a larger weight as it is the most recent data;
  - 'Exceptional events' are filtered out of this dataset ▪ FEBEG is lacking visibility on the events that will be filtered out by ELIA. As a matter of principle, removing events should be very limited and duly justified.
  - For the sake of clarity, Market decoupling occurrences excluded from the dataset should not refer to the moments where ELIA cannot count on ATC's leftover to the balancing timeframe. FEBEG wants to remind that one reason to delay the connection to PICASSO was because Belgium was 'too often' isolated from other connected countries (read too low ATCs). We can hence conclude that too low ATCs is not an exceptional event.

At the implementation date, the algorithm will be trained based on data from September 2022 to August 2024 which means the full period taken into account will be based on a dimensioning of 117 MW. Exceptional events are filtered out in an identical way as with the FRR dimensioning algorithms and concerns at this moment only the periods with market decoupling, being very rare events in which the day-ahead market algorithm faces a technical problem and Belgian market players needed to resort to explicit capacity auctions. Elia clarifies that market decoupling does not relate to periods where ATCs are zero, which are terminology-wise generally referred to as periods with price divergence.

- As a matter of principle, a TSO should strive to achieve the best possible quality of FRCE level 1 & 2. Introducing a feedback loop based on past FRCE performance is a step towards arbitrating procurement costs and grid security. In this perspective, ELIA should compare the potential costs associated with a FRCE reduction versus the gain of procurement costs. FEBEG is worried that a deteriorating FRCE quality combined with an arbitrage 'price vs quality' would be much more costly to grid users than procuring 'additional' aFRR (hence not making an arbitrage).

  Furthermore, ENTSO-E recommends not to use current FRCE target parameters as dimensioning criteria and ELIA mentions that "these are included in the method as an automatic correction rather than a dimensioning criterion". FRCE parameter being used in the dimensioning criterion or in the correction factor will impact in both cases the final outcome according to FEBEG.

The FRCE feedback loop aims to calibrate the probabilistic result on the current minimum legal requirement on the 15' FRCE target parameter. Elia clarified that the feedback loop is the result of discussions with CREG. After discussions with CREG, Elia acknowledges that these minimum requirements should be considered to comply with SO Regulation but considers they cannot not be the (unique) dimensioning criteria for aFRR dimensioning. It is for this reason these are implemented as an automatic correction rather than a dimensioning criteria, while implementing pre-defined caps and floors.

As such, the 15' FRCE target parameters do impact the results but it is also recognized that these are not the unique dimensioning criteria. On the longer term, if the current caps and floors would be revised, Elia believes that also other criteria related to operational security like Deterministic Frequency Deviations, 5' FRCE variations,… are to be considered. Indeed, sudden or extreme variations of the aFRR needs are to be avoided in view of maintaining market stability but also for ensuring a fair contribution to the European frequency stability.

As such, Elia does not see where the method makes any arbitrage between aFRR procurement cost and operational needs. In contrast, the method dimensions the aFRR needs on the expected aFRR activations while correcting the result based on the current legal minimum requirement set at European level.

- ELIA already decreased its aFRR procurement in the course of summer 2022 to 117 MW. In its presentation on reserve dimensioning of 15 February, ELIA indicates a deteriorating trend of the FRCE quality. This observation raises some questions:

  o   Is it enough to procure a fixed amount of 117 MW?
  o   Is it a sound approach to procure a fixed amount and does it address sufficiently the evolutive challenges of the grid (new intermittent technology penetration, seasonal volatile pattern of ACE, etc)?

o Can Belgium do without 'freeriding' on the aFRR procurement of surrounding countries? Do we know in which extent ELIA grid variability is solved by means of foreign aFRR activations (read: to which extent do we count on neighbouring countries to solve pure Belgian issues)?

o If ELIA is counting on foreign aFRR activations, are Belgian aFRR activations helping surrounding countries in the same proportion?

FEBEG fears that the answer to each of these question is each time 'No'.

Elia clarified that in July 2022, it updated the aFRR needs following a request for modification of the CREG, and market context (gas crisis impacting price of balancing capacity). During the discussions with stakeholders, it was stressed it would be a temporary, short-term measure, while awaiting implementation of a more enduring method. This new method is now foreseen to be implemented on October 1, 2024.

At this point, Elia still remains under the legal minimum requirements calculated by ENTSO-E. The proposed method allows to adapt the aFRR needs in function of the FRCE performance. This is demonstrated in the projections presented in the workshop of 15 February 2023 where aFRR needs are expected to increase over time when minimum legal requirements are expected to be tightened while system evolutions challenge the system imbalance and FRCE quality.

- FEBEG regrets the planning announced in the workshop held on 15 February. It was confirmed that the fixed procurement (117 MW) would not be modified until the implementation foreseen on 1st October 2024. This is a very unfortunate decision as the current dimensioning does not rely on a valid methodology as pointed out by FEBEG in its answer to the consultation of 22 June, and it does not tackle neither the deteriorating FRCE quality identified by ELIA. As a reminder, ELIA itself claimed this was a temporary measure being the consequence of high procurement costs.

Elia refers to answers given on previous questions and remarks raised by FEBEG.

- In the study published by ELIA in 2020, it was already demonstrated that ELIA only has an average performance in terms of the legal minimum criteria (FRCE level 1 & 2), and that ELIA procures little aFRR in comparison with its neighbouring counties. It concluded therefore to have little margin for average aFRR means reductions as the available aFRR means procured are already relatively low compared to other countries and FRCE-management of individual LFC blocks is important to maintain stable frequency in the European synchronous zone. FEBEG is very concerned with the proposed methodology changes, as it fears ELIA will be less capable of maintaining the Belgian grid balanced.

Elia still endorses its former analysis but also acknowledges an overperformance compared to the FRCE target parameters as currently calculated by ENTSO-E. Therefore taking the FRCE quality, which is one (but not the unique) driver for aFRR volumes is taken into account as well but as an automatic correction factor rather than dimensioning criteria of the probabilistic method. The installation of cap and floor safeguards a fair contribution to the European frequency stability. Elia recognizes that when increasing the weight of FRCE quality in the method (e.g. by revising the caps and floors) also other criteria related to the FRCE are to be taken into account such as Deterministic Frequency Deviations, 5' interval fluctuations,…). Elia will continue to follow-up on important balancing quality criteria in view of maintaining grid security.

- Additionally FEBEG believes that ELIA is giving an incorrect signal to developers as there would not be a stable long-term environment for investments. Those developers are basing their business cases on a stable and well-functioning aFRR market. In view of the large share of new capacities that need to be found to

maintain Belgian's adequacy in the context of the Belgian capacity market, and the high need of existing and new flexibility sources in the Belgian System – as pointed out in the MOG 2 study for offshore - this evolution is most unfortunate.

Elia refers to the FRR/mFRR/aFRR needs and balancing capacity projections presented in the Workshop on February 15, 2023 where it tries to give as much visibility possible to stakeholders on balancing market evolutions and balancing capacity procurement as possible. Note that a lot of attention is put in maintaining market stability when developing the FRCE feedback loop (by means of the caps, floors and margins).

- FEBEG wants to again remind that the dynamic dimensioning as consulted in 2020 should go-live as soon as possible. It will improve the current static methodology and tackle the structural changes (new energy mix, new technologies, …) the grid is exposed to. FEBEG is worried that ELIA's proposal on LFC BOA is very static and does not capture the increasing variability of the grid. Relying on past FRCE performances, applying fixed caps / floors on the yearly + monthly performances + correction factor, filtering out relevant data from the data sets are biased choices that minimize the rapid evolution of energy world. FEBEG does not support the introduction of a feedback loop as it is moving away from the dynamic assessment of reserves needs.

  FEBEG is worried that the proposed approach does not rely on a robust and consistent methodology. There has been a large amount of studies conducted by ELIA on FRR dimensioning on which FEBEG members gave trustworthy feedbacks. In this context, we regret that the efforts made to implement a performing methodology are discarded. We invite ELIA to reconsider them. The identified implementation plan of a dynamic procurement of aFRR as presented in 2020 should be updated. It will ensure at the same time a strong operational grid security and a long-term stable environment for investments.

Elia refers for these concluding remarks to the answers given above.

4. Answers to the feedback of CENTRICA

- Centrica kindly ask Elia to provide further clarification on the process timeline We would like to seek clarification from Elia regarding the timing of the FRR dimensioning process. While both the explanatory note and workshop slides indicate that the results of aFRR and mFRR needs, as well as the aFRR and upward mFRR balancing capacity for the next day, will be published before 7 AM D-1 on Elia's website, we find it incompatible with the existing terms and conditions. The current T&C BSP aFRR states that Elia procures each aFRR capacity product for day D by running one capacity auction in D-2 for all CCTUs of day D, with a gate closure time scheduled at 4 PM D-2. We kindly request Elia to provide an updated timeline including the new FRR dimensioning process as well as the capacity auction process to avoid any confusion and ensure transparency in the procurement process.

Elia refers to the answer given to the same question raised by FEBEG.

- Centrica strongly suggests accelerating the transition towards the dynamic methodology We strongly encourage Elia to speed up the transition towards a dynamic methodology, which was initially planned to go live on February 1, 2022. Beyond the delay, we note with regret that Elia proposes to maintain a fixed and reduced aFRR procurement volume for over two years, even though this was presented as a temporary measure (July 2022 - October 2024).

Elia refers to the answers given to the same remarks put forward by FEBEG

- Centrica remains of the view that an analysis should be performed to assess the impact of this volume reduction. We believe this is a way to demonstrate accountability, transparency and a committment to evidence-based decision making. As highlighted during the June 2022 consultation and the Working Group Balancing in December 2022, the decision to reduce aFRR procurement volumes from 145 to 117 MW was not supported by a proper ex-ante cost-benefit analysis. Despite repeated requests from various market parties, to this date no ex-post impact assessment has been presented on the volume reduction. Centrica agrees with Elia that isolating the effect of the volume reduction on procurement costs is not a straightforward exercice, since various parameters influence costs and simulating auction costs for higher procurement volumes is challenging. We however believe that an overall impact assessment comparing the situation before and after the volume reduction should be conducted, taking into account all other factors. This can provide useful information about the effectiveness of the measure, or detect unintended consequences such as negative impacts on stakeholders, market conditions or European balancing projects.

- In the absence of such an assessment, it cannot be excluded that the volume reduction actually had an adverse effect on procurement and activation costs, market liquidity as well as system imbalance quality, which has deteriorated in 2022 as noted by Elia. Furthermore, it cannot be established that lower aFRR procurement volumes have effectively led to less capacity being procured from DPsu such as CCGTs, which was amongst the stated objectives.

Elia dimensions its aFRR needs (as well its FRR / mFRR needs) on operational needs and legal minimum criteria. It does not dimension on a trade-off with the cost of procurement (and activation). This explains why a cost-benefit analysis has never been foreseen, not during the revision of the methodology in 2022 (revision of the needs to 117 MW), nor in the current proposal.

Elia clarifies that procurement costs shouldn't go up when contracted volumes are reduced. There are a lot of parameters affecting the costs that could explain that we don't see a reduction in the costs, but it seems unreasonable that the costs increased because of that.

- We therefore urge Elia to accelerate the introduction of the dynamic dimensioning methodology, which will enable a more efficient and cost-effective procurement process, ultimately benefiting all market parties. This is justified by the absence of a clear rationale for keeping a fixed aFRR procurement volume of 117 MW and the numerous benefits of the new methodology identified by Elia, which include a more stable system reliability during challenging conditions.

Elia takes note of this remark and refers to the answers given on previous questions concerning the implementation planning.

5. Answers to the feedback of BSTOR

- BSTOR SA/NV ("BSTOR") welcomes the opportunity given by Elia to provide feedback and would like to thank Elia for their efforts to provide clarity and transparency on the proposal. Please find below BSTOR contribution to the consultation. This answer can be considered as non-confidential.

- As the IGCC potential is set to decrease and get more difficult to forecast, BSTOR suggests to refrain from taking IGCC netting into account, both in the minimum threshold in FRR dimensioning; as in the 5' aFRR activations simulation in aFRR dimensioning.

The aFRR dimensioning study already explained in Section 3.1.3[1] that "*IGCC largely reduces the activation volumes of aFRR. On the other hand, it is very difficult to model since it relies on a complex optimization over different LFC blocks and since the interconnection capacity is not guaranteed as it can already have been used for long-term, day-ahead, intra-day and soon the regional balancing platforms and reserve sharing. Nevertheless, given the large impact of IGCC, it was proposed to subtract (part of) IGCC activated volumes from the LFC block imbalances. In a dynamic probabilistic methodology with sufficient high reliability level, the risk of taking IGCC into account might be acceptable as results will be adapted if IGCC becomes less available.*" Due to the strong relation with the activation volumes and the final FRCE quality, Elia still endorses its proposal to take into account imbalance netting in aFRR dimensioning.

On taking into account imbalance netting in aFRR dimensioning, Elia refers to answer given below.

- Next to that, applying a cap to the yearly and monthly FRCE feedback loop may fail to capture fast evolutions in imbalance and the FRCE (after connection of large offshore windfarms in Belgium or surrounding countries, or after strengthening of the FRCE criterion). BSTOR therefore suggests to increase this cap (e.g. with 5%) each time it would be reached several months (e.g. 3) in a row for the monthly loop, and each time it would be reached for the annual loop. Furthermore, BSTOR suggests for the yearly feedback loop to work with a rolling period of 12 month instead of a fixed year to allow smoother evolution of the associated correction factor, and avoid instabilities whereby the yearly correction factor would subsequently hit the floor then the cap, then the floor, etc.

Elia takes note of the suggestion but wants to, in view of market stability and operational experience, gain experience first with the methodology before revising the caps. Based on the discussions with CREG, Elia recognizes that 15' FRCE target parameters will impact the results of the aFRR dimensioning but also stresses that these are not the unique dimensioning criteria (other criteria like Deterministic Frequency Deviations, 5' interval fluctuations,… are still considered). It was thus clarified during the workshop that the caps and floors can be re-assessed, but only after assessing evolution of the intra-15' FRCE, as well as other criteria such as Elia's contribution to frequency deviations.

On the proposal to work with rolling period for the yearly correction factor, Elia refers to its answer below.

- BSTOR welcomes the aFRR needs projections on the longer term published by Elia, but they may be too optimistic because not capturing evolution such as IGCC potential exhaustion, exhaustion of Belgian fast reserve means by Picasso, FCRE threshold strengthening due to reducing grid inertia, exhaustion of the energy limited assets potential due to longer imbalance schemes, potentially disappointing contribution of CCMD for flex to be delivered within the hour, 15 min, 5 min.

Elia takes note of this remark. Elia tried to work with different scenarios on market performance (contribution of CCMD) but keeps the available imbalance netting constant as it is not clear in which direction this will evolve. Note that the dynamic dimensioning will adjust the aFRR needs on the realized situation (predicting the aFRR activation risk for the

next day) and will capture the limited predictability of imbalance netting if this would be the case. Also the other points mentioned are not taken into account in the projections. Nevertheless, all of these will be captured by the method through observed trends in system imbalance, imbalance netting or 15' FRCE quality.

- In general, BSTOR, supports the methodology and the principle of dynamic dimensioning of the aFRR needs. However, BSTOR believes that the decision of taking the netting potential from the IGCC mechanism into account in the volume definition for FRR and aFRR should be re-evaluated. In theory it makes sense to look at the required "net regulation volume" after such netting, but as the share of solar and especially offshore wind energy in the European mix (and in particular in countries surrounding Belgium) is set to massively increase, BSTOR believes that the IGCC netting potential will decrease, become less forecastable and provide for a "regulation mean" that can no longer be considered as "firm".

  Generation patterns, including the need for close to real time flexibility caused by forecast deviations and volatility of the renewable generation are indeed doomed to homogenize over Belgium and the (much larger) connected LFC-Block (with on the mid-term a much larger share of renewables). Imbalances are likely to occur at more or less the same moment in the same direction, leading to an exhaustion of the IGCC netting potential.

Elia confirms imbalance netting is difficult to predict and can never be considered as firm. It is not clear for Elia on which basis BSTOR thinks that predictability will even be further reduced. Elia argues nevertheless that the available imbalance netting and predictability will be taken into account by the machine learning methods and therefore increase the aFRR needs calculated by the probabilistic method accordingly.

- For the reasons mentioned above, and in order to provide the market with the most accurate and stable signal about the need for FRR, BSTOR suggests to refrain from IGCC netting in both FRR and aFRR dimensioning.

  1. For the FRR dimensioning, CREG requests IGCC to be taken into account in the minimum threshold. However, the principle to count on IGCC seems to BSTOR not consistent with the philosophy of a minimum threshold as IGCC netting can never be guaranteed.

  2. aFRR dimensioning: the simulated 5' aFRR activations are based on IGCC activations observed over a rolling 2 year period of historical data. Taking the IGCC potential observed over the last two years "for granted" for simulations for the day after may lead to failing to capture evolutions of this netting potential which may go faster than two years and can be also subject to sudden evolutions in case of connection of large offshore wind farms in surrounding countries for instance. Such a sudden evolution was for instance observed with connection of Borssele to the grid.

  For all these reasons, BSTOR believes that forecasting the IGCC potential will become more and more complex and that taking this potential into account in these simulations will only lead to a less accurate forecast of the aFRR needs, artificial volatility (not justified by real drivers) in the aFRR volumes and incorrect signals given to the market.

On the first point, it refers to the answer given above.

On the second point, Elia agrees that there is a lag between the observation of new trends and their impact in the training of the machine learning algorithms. There will therefore be a gradual impact of the sudden deterioration of the

imbalance netting. This is inherent characteristic of working with these types of methods and is equally true for a probabilistic method that would not take into account imbalance netting.

- In current design methodology, where there is no FRCE feedback loop, BSTOR understands the justification of including the IGCC potential in the computation (although still believing that it doesn't provide for the appropriate signal on the longer run, which is confirmed by the projection of the future needs provided by Elia) for avoiding over-dimensioning, but in this new methodology, over-dimensioning of the FRR/aFRR needs because of not considering IGCC, which in the end can enable to stay far below the FRCE thresholds should be prevented by the FRCE feedback loops (if necessary with lower floor values than 80% in case of persisting "overshooting" of the threshold resulting in correction factors staying equal to the floor of 80%).

Elia agrees that the FRCE feedback loop, determining the correction factors on the 15' FRCE quality is already taking into account imbalance netting activations as the FRCE is determined by the system Imbalance after activation of reserves (including imbalance netting). This indeed means that available imbalance netting is captured by the FRCE feedback loop through good 15' FRCE quality. As mentioned in previous answers, the 15' FRCE quality cannot be seen as the unique dimensioning criteria for aFRR dimensioning (also FRCE quality within 15' is important, as well as FRCE during European frequency deviations,…). It is clear that very large FRCE values for 4% of the time would remain unacceptable while still meeting minimum legal requirements. It is for this reason that the FRCE feedback loop cannot simply replace the probabilistic method.

- As for the 120% cap on the correction factor defined by the FRCE feedback loops, BSTOR believes that it could prevent the methodology to deliver the needed aFRR capacity to comply with the FRCE criterion in case of significant and/or sudden evolution of the imbalance, or the FRCE itself. As already mentioned, this could be caused by connection of large offshore wind farms in Belgium or abroad and the accelerating development of renewables in general which can lead to higher (and longer) imbalance reducing the liquidity from energy limited assets, the decrease of liquidity on the NRV means due to increasing competition from arbitrage possibilities on the spot and the intraday markets and from aFRR activation in surrounding countries through Picasso, strengthening of the criteria for FRCE due to increasing volatility of the frequency related to the vanishing of grid inertia provided by thermal generators, etc. In particular, situations where the annual feedback-loop correction factor cap would be hit, and/or the monthly one for several months in a row should raise concern. For these reasons, BSTOR recommends considering to work with dynamic caps, that could be increased (by increment of 5% for instance), for the annual loop as soon as the cap would be reached (reaching the annual cap means structural under-dimensioning and high risk of not meeting the FRCE criterion), and for the monthly loop, in case the monthly cap would be reached for several (e.g. 3) months in a row.

Elia takes note of the suggestion of BSTOR but wants to, in view of market stability and operational experience (cf. answers given in this docucment), gain experience first with the methodology before revising caps and floors. Furthermore, short-term trends rather point towards over-performance on the 15' FRCE target parameters which can result in large and sudden reduction of the aFRR needs, and this while Elia expects ENTSO-E to tighten the FRCE target parameters in the future. In view of market stability, Elia wants to avoid a situation where aFRR needs are strongly reduced before being increased again. Elia is not against increasing the caps while maintaining the floors static but thinks such asymmetry is difficult to justify.

- Furthermore, instead of working with a fixed period of 12 month for a complete year, BSTOR suggests that the yearly feed-back loop would be carried out on a 12 month rolling period. This would allow

- o   smoother evolution of the correction factor from month to month;
- o   the yearly correction factor to stay up-to-date with recent evolutions;
- o   avoiding instabilities where from one year to another, the yearly correction factor would be defined by the floor, then the cap, then the floor, etc.

Elia recognizes the advantages of a rolling window for the calculation of the yearly feedback loop and will include this as a modification of its proposal. It will adapt Article 5(8)a of its Proposal for Amendment as :

> a) *The yearly FRCE performance correction which equals the FRCE performance over a rolling period of 12 months ending at the end of the month before the calculation of the aFRR needs. This correction is* ~~of the previous year~~ *calculated as the maximum, corresponding to the lowest performance, of the yearly performance on the level 1 and level 2 range, calculated following Article 128(3) of the SOGL and expressed as percentage of the level 1 and level 2 target parameters specified in the same Article 128(3) of the SOGL, after taking into account a correction of 20% of the target values (i.e. to 24 % and 4% for level 1 and 2 respectively). The yearly performance correction is floored / capped at 80 % / 120%.*

- BSTOR welcomes Elia providing insight in the future (a)FRR needs for giving the right investment signal, but believes that the projections may be too optimistic, considering:

  - o   Exhaustion of the IGCC potential for reasons explained above;
  - o   Picasso leading to exhaustion of flexibility means in Belgium;
  - o   Increasing arbitrage opportunities on the spot and intraday markets, decreasing liquidity on the NRV means;
  - o   Risk/expectation of the FRCE target parameters being tightened as a result of decreasing inertia and increasing frequency deviation (as seen elsewhere such as UK where they needed to introduce faster reserve services than FCR);
  - o   Risk of imbalances taking longer to be compensated leading to an exhaustion of the contribution from energy limited assets;
  - o   Risk of CCMD contribution being less than projected. In particular the share of flex that must be activated last minute, which strongly conflicts with the primary usage of grid users and will lead to increasing opportunity costs for staying available for reactive balancing, considering arbitrage opportunities in spot and (early) intraday markets.

Elia takes note of the valuable input given by BSTOR to improve its future projections. Elia clarifies that the last bullet point on the contribution of CCMD is taken into account in the scenarios related to market performance. A lower contribution of CCMD would correspond to the results of the REA- or No CCMD scenario.

Elia refers to the answers given above on the contribution of imbalance netting.

Elia does not agree that PICASSO exhausts the available flexibility for balancing Belgium imbalances as each country maintains access to its offered flexibility in case of liquidity shortages.

The risk of tightening of FRCE target parameters is recognized by Elia as most likely and taken into account in the projections by assuming a gradual convergence of the aFRR needs towards the full probabilistic result. It is true that a very restrictive policy of ENTSO-E concerning these FRCE target parameters may tighten the parameters in a way that the aFRR needs are determined by the FRCE feedback loop. Elia does not see this trend at the moment but cannot exclude such evolutions either.

The risk of longer imbalances would mainly impact FRR / mFRR dimensioning, rather than aFRR dimensioning.