EXPLANATORY NOTE - PUBLIC CONSULTATION

PROPOSAL OF AMENDMENTS OF THE T&C BRP IN THE CONTEXT OF THE CONNECTION TO BALANCING PLATFORMS

ELIA

12 July 2023

CONTENT TABLE

PRACTICAL INFORMATION

This note serves as an explanation for the current consultation on the **proposal of amendment to the Terms and Conditions for Balance Responsible Parties** (hereafter referred to as "T&C BRP"). The purpose of this consultation is to obtain comments from the market parties. At the end of the public consultation, Elia will provide a consultation report that will be available to all market parties.

All responses to this public consultation will be made public on Elia's website, except those responses for which market parties ask to treat their contribution as confidential. However, all responses to this public consultation will be submitted to the relevant regulatory authorities in the context of the official approval procedure for the rules organizing the T&C BRP[1].

Elia invites all stakeholders to submit any comment and suggestion they may have on the documents submitted for consultation. The consultation period runs from **12 July to 28 August 2023**. All responses must be submitted via the online form on the Elia website. The draft proposal for the changes to the T&C BRP is available for consultation on the Elia website.

Questions regarding these documents can be sent to the following email address: BMMconsult@elia.be.

[1] Article 6(3) of Regulation 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

1. Introduction

1.1. Context

The amendments of the T&C BRP that are consulted with the present note concern the evolutions of the different components serving for the calculation of the Imbalance price. The reasons to amend the T&C BRP are twofold:

- On the one hand, they relate to the future participation of Elia to the EU balancing platforms for the exchange of mFRR and aFRR balancing energy (first MARI for mFRR and then PICASSO for aFRR), for which the formula for the calculation of the Imbalance price has to be reviewed;
- And on the other hand, they follow CREG's request in decision (B) 2554 if 17 May 2023 to describe the components for the calculation of the Imbalance price (IP) in the T&C BRP. Therefore on on hand, the formulas of the main imbalance price components (MIP/MDP) that are currently described in Balancing rules are moved in the T&C BRP, and on the other hand, the formula of the imbalance price additional component (i.e. the "alpha parameter") that is set by the Tariffs is been copied in this T&C BRP to provide a complete view of the imbalance pricing formula.

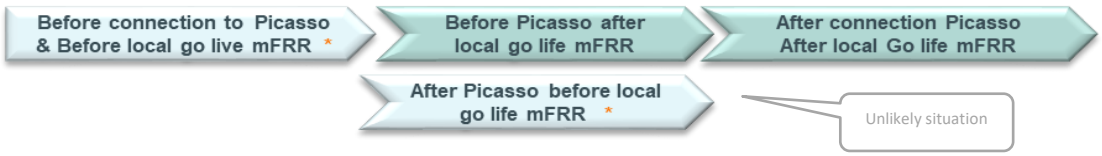
In practice, the **amendments proposed** to **this T&C BRP concern the introduction of a new Article 30** describing the different components serving for the calculation of the Imbalance price. In order to be complete and consider all possible cases, the article 30 describes the following situations

i. Art. 30.2: Before local mFRR Technical Go-Live[2] and before connection to PICASSO (currently expected to last until February 24)

ii. Art. 30.3: Before local mFRR Technical Go-Live but after connection to PICASSO (note that this situation is not expected in current planning and is described for the sake of completeness and to anticipate possible changes in planning).

iii. Art. 30.4: After local mFRR Technical Go-Live but before connection to PICASSO (currently expected to last from February 2024 until June 2024)

iv. Art. 30.5: After local mFRR Technical Go-Live and after connection to PICASSO (currently expected to start in June 2024)



[2] This is a key preparatory step for the connection to MARI, where all the local adaptations are made and where mFRR is activated similarly as if Elia is connected to MARI with all ATCs set to zero.

1.1. Links with other documents

The proposed changes are relative to the current version of the T&C BRP that entered into force on 1 December 2021. In parallel to the proposed amendments to the T&C BRP, Elia also proposed adapting the Balancing Rules where the description of the main imbalance price components is being removed. These changes are subject to a separate consultation that is concomitant to the present one.

The proposed amendments to the T&C BRP are coherent with the following documents:

- the applicable Tariffs (currently submitted to the CREG for the tariff period 2024-27 conform the Tariff methodology and after a public consultation) and the Tariff methodology for 2024-27 ,
- the currently applicable Balancing Rules (dated 28/05/2020) for the description of the situation targeted in point (i) above,
- the Balancing Rules modified in the context of the connection to the EU aFRR balancing platform (submitted by Elia on 13/05/2022 and approved by CREG decision (B)2433 of 19/07/2022 and CREG decision (B)2554 of 17/05/2023) for the situations targeted in point (ii) and (iv)

Finally, the proposed amendments are aligned with, on one hand, the European applicable legislation and more particularly, the Regulation 2019/943 (hereafter "CEP"), the European guideline on electricity balancing (Regulation (EU) 2017/2195) hereafter ("EBGL") and the and resulting methodologies (such as the "Methodology for harmonising the main features of Imbalance settlement" fixed by ACER decision of 15 July 2020, here after "ISH") and , on the other hand, the Belgian applicable legislation and resulting methodologies, more especially the Belgian Electricity Act[3] and the resulting Tariff methodology.

1.2. Key guiding principles

The changes proposed to the T&C BRP introduce the calculation of different components of the Imbalance Price in this contract and have been triggered by the upcoming connections to the EU FRR platforms PICASSO (aFRR) and MARI (mFRR). They are guided by the following key principles:

1. **Benefit from EU integration** in accordance with objective set out in article 3.1(b) of EBGL (The main component of Imbalance price is, in first instance, based on the CBMP of FRR activations)
2. **While moderating the price signal when the Belgian System Imbalance is close to zero** in accordance with the general principles for the settlement set out in article 3.1(b) of EBGL (If the Belgian system is close to being balanced, Imbalance Price provides a neutral signal confirming

[3] And more particularly Article 12 of the Belgian law related to the organisation of electricity markets (and especially the stipulations of §5.10)

that BRPs already did their job to balance the system appropriately and that no reaction is expected)

And without jeopardizing grid security in accordance with objective set in article 3.1(b) of EBGL (Imbalance Price doesn't provide incentives for BRPs to aggravate the Belgian system Imbalance and provides incentives for BRPs to reduce large & sustained system imbalances)

2. Components of the Imbalance Price formula

The imbalance price is composed by so-called "main component" and "additional component". The consulted amendments proposed to the T&C BRP describe in detail those components (respectively the MIP/MDP that corresponds to the main component and the alpha that corresponds to the additional component) and necessary steps serving for their calculation. .

As stated in the Tariffs applicable for the BRP:

- The Marginal Incremental Price (MIP) is the main component when the Belgian System Imbalance (SI) is negative or null and is set to the maximum value of various elements. The Marginal Decremental Price (MDP) is the main component when the SI is negative and is set to the minimum value of various elements. In order to define whether the MIP or MDP are used, the calculation of the Belgian SI is also described in the T&C BRP.
- The additional component (i.e. alpha parameter, or α) is added to the MIP in case of negative (or null) SI, and subtracted from the MDP in case of positive imbalance, to form the Imbalance Price. The resulting Imbalance Price applies to the imbalances of the BRPs.

		System Imbalance	
		>0	≤ 0
		Imbalance Price = MDP - α	Imbalance Price = MIP + α
Imbalance of the BRP	Positive	BRP receives Imbalance Price for each MWh of positive imbalance	
	Negative	BRP pays Imbalance Price for each MWh of negative imbalance	

When the SI is within a range of [-25MW, +25MW], then the MIP and the MDP are set to the average VoAA (deadband concept, which is further described in §6). Otherwise,

- the MIP is set to the maximum of the following elements:
  - An element accounting for aFRR activations (which is further described in §3).
  - An element accounting for mFRR activations (which is further described in §4)
  - A floor value (which is further described in §5)
- the MDP is set to the minimum of the following elements:

- An element accounting for aFRR activations (which is further described in §3).
- An element accounting for mFRR activations (which is further described in §4)

A cap value (which is further described in §5)Finally the alpha is described in §7.

3. aFRR Component

Before the connection to PICASSO, the currently applicable formula for the aFRR component (which captures only the prices of aFRR activations in the direction that helps solving the SI) remains applicable.

After the connection PICASSO, the formula becomes the one of the Balancing Rules proposed by ELIA on 13/05/2022 after alignment with stakeholders and approved by by CREG decision (B)2433 of 19/07/2022. This new formula accounts for the prices of all aFRR optimization cycles. Given that an optimization cycle of PICASSO is run every 4 seconds, the platform outputs 225 CBMPs per Imbalance Settlement Period of 15 minutes. To reconcile the difference in the market time unit of aFRR (4 seconds) and the Imbalance Settlement Period (900 seconds), the general principle of the proposed formula for aFRR when Elia is connected to PICASSO is to account for the volume-weighted average cross-border marginal prices (CBMPs) of all satisfied demand for aFRR activations. This proposal reflects the aFRR activation cost born by Elia over the current ISP and tends to attenuate the price signal in case aFRR is activated in both directions during an ISP.

In case Elia is disconnected from PICASSO, a “downgraded fallback” formula that accounts solely for optimization cycles in the direction opposite to the system imbalance is used.

4. mFRR component

4.1. Implementation steps

The connection to MARI will take place in 2 steps:

- Firstly, a local “mFRR Technical Go-Live” will modify the applicable rules and systems in preparation of the connection to MARI, while mFRR will remain activated through local systems (therefore providing only local marginal prices). Functionally, the system will work identically as for a situation where Elia is connected to MARI but where transmission capacities are persistently equal to zero in both directions. The new formula for the mFRR component proposed in these T&C BRP apply as of the completion of this step (although using local marginal prices instead of cross-border marginal prices).
- Secondly, Elia will connect to the MARI platform. Technically, the mFRR optimization process becomes European and provides Elia with access to mFRR energy bids from abroad, while the mFRR energy bids in Belgium become accessible to neighbouring TSOs (subject to available transmission capacities). Upon this moment, Cross-Border Marginal Prices (CBMPs) are effectively used.
- Note that the same formula remains applicable for what concerns the mFRR component whether Elia is connected to MARI or not (except that – in case Elia is disconnected from MARI

– local marginal prices are used instead of cross-border marginal prices). This includes cases where Elia has been disconnected from MARI for any reason.

4.2. Concept

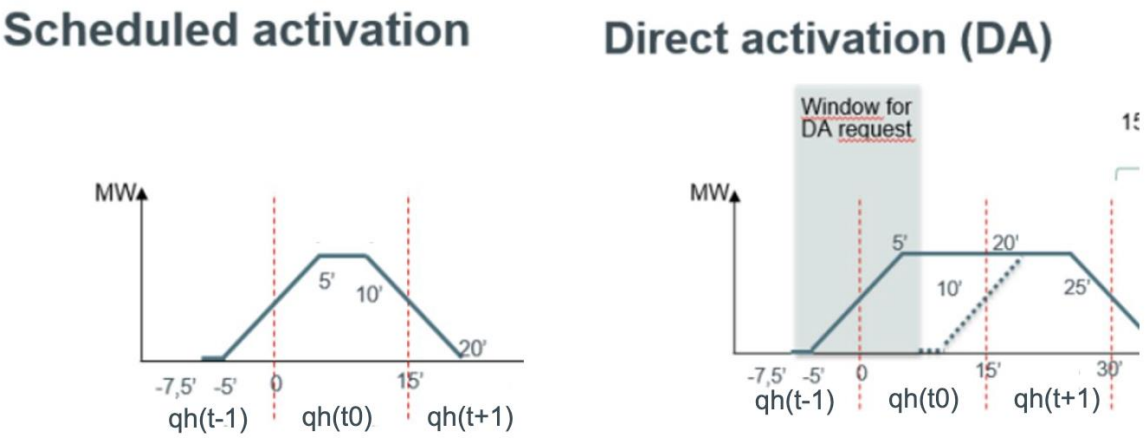
The key principle of the formula for the mFRR element is the one of standard marginal pricing, i.e., the price of the last mFRR energy bid that is activated during a given imbalance settlement period in response to Elia's demand for mFRR is the marginal bid which sets the marginal price. MIP/MDP in the Belgian zone only has an mFRR component in case Elia has demanded the activation of mFRR (i.e. if there is no demand for mFRR activation from Elia, there is no mFRR component that influences the MIP/MDP).

This key principle – which is already currently applied – remains applicable in the new formula. The reason of the change relates to the fact that, with MARI, the way mFRR bids are activated has been standardized and is therefore different to current practice. The new formula hence clarifies how the marginal pricing principle is applied under MARI.

4.3. CBMPs in MARI

MARI has standardized the way mFRR is activated with two types of activations

- "Scheduled Activations" where different TSO's demands for mFRR activations are netted and optimized with the common merit order list of all TSOs participating to MARI through auctions that are run every 15 minutes. A scheduled activation lasts one quarter hour (ISP) (unless a new scheduled activation is requested in the next quarter hour).
- "Direct Activations" where mFRR activations that cannot wait for the next auction can be triggered at any moment between the scheduled auctions (these demands lead to activations that follow the common merit order list but cannot be netted). mFRR bids that are direct activated start their delivery during one ISP and stop at the end of the following ISP.



Consequently, for a given ISP_{t0}, there can exist up to 5 distinct Cross-Border Marginal Prices (CBMPs)[4]:

- 1 Scheduled Activation $CBMP_{SA, t0}$, representing the clearing price within the uncongested area of the Scheduled Activation auction for activation in the current ISP_{t0}.
- 1 Direct Activation $CBMP_{DA, UP, current, t0}$ representing the maximum clearing price of all Direct Activations in the positive direction activated in the uncongested area during the 15 minutes that follow the scheduled activation process of **current** ISP_{t0}. This price applies to ISP_{t0} because Direct Activations triggered after the auction for ISP_{t0} must start their delivery during ISP_{t0}. Conform to the MARI rules, $CBMP_{DA, UP, current, t0} \geq CBMP_{SA, t0}$.
- 1 Direct Activation $CBMP_{DA, DOWN, current, t0}$ representing the minimum clearing price of all Direct Activation in the negative direction price activated in the uncongested area during the 15 minutes that follow the scheduled activation process of **current** ISP_{t0}. This price applies to ISP_{t0} because Direct Activations triggered after the auction for ISP_{t0} must start their delivery during ISP_{t0}. Conform to the MARI rules, $CBMP_{DA, DOWN, current, t0} \leq CBMP_{SA, t0}$
- 1 Direct Activation $CBMP_{DA, UP, previous, t0}$ representing the maximum clearing price of all Direct Activation in the positive direction price activated in the uncongested area during the 15 minutes that precede the scheduled activation process of current ISP_{t0} (or that are activated during the 15 minutes that the scheduled activation process of **previous** ISP). This price applies to ISP_{t0} because Direct Activations triggered before the auction for ISP_{t0} must end their delivery at the end of ISP_{t0}. Conform to MARI rules, $CBMP_{DA, UP, previous, t0} \geq CBMP_{SA, t0}$.
- 1 Direct Activation $CBMP_{DA, DOWN, previous,t0}$ representing the minimum clearing price of all Direct Activation in the negative direction price activated in the uncongested area during the 15 minutes that precede the scheduled activation process of current ISP_{t0} (or that are activated during the 15 minutes that the scheduled activation process of **previous** ISP). This price applies to ISP_{t0} because Direct Activations triggered before the auction for ISP_{t0} must end their delivery at the end of ISP_{t0}. Conform to the MARI rules, $CBMP_{DA, DOWN, previous, t0} \leq CBMP_{SA, t0}$

Elia will submit most of its demand for mFRR using "Scheduled Activations", and to use Direct Activations with parsimony, i.e. only when large imbalances are expected to be sustained and cannot wait for the next scheduled activation to be resolved. Direct Activation requests in opposite directions are also expected to be very infrequent. This is why Elia doesn't expect to observe ISPs with 5 applicable CBMPs frequently.

4.4. Max/min of applicable CBMPs

The mFRR component of the MIP/MDP formula for a given ISP consists in selecting the highest/lowest among the CBMP for which Elia has mFRR satisfied demand among:

- the $CBMP_{SA}$ (if there is mFRR satisfied demand in SA in the corresponding direction for that ISP)

[4] For more information, see Design note mFRR balancing service – ELIA – 7 march 2022.

- the different $CBMP_{DA}$ that are applicable for that ISP in the corresponding direction if there is mFRR satisfied demand DA in that direction for that ISP.

In practice this means that:

- If there is no mFRR satisfied demand for Elia during an ISP, there is no mFRR element that influences the MIP/MDP;
- If the mFRR satisfied demand of Elia for a given ISP $_{t0}$ in a given direction has all been triggered through scheduled activations, then $CBMP_{SA, t0}$ is used as the only mFRR input to calculate the MIP or MDP;
- If the mFRR satisfied demand of Elia for a given ISP in a given direction has all been triggered through direct a activation, then corresponding $CBMP_{DA, \text{concerned direction}, t0, t0}$ and $CBMP_{DA, \text{concerned direction}, t0, t1}$ is used as the mFRR input to calculate the MIP or MDP respectively for ISP $_{t0}$ and ISP_{t1};
- If there are multiple CBMPs applicable to the mFRR satisfied demand of Elia of a given ISP, then the max of all corresponding CBMPs is used for MIP and the min of all corresponding CBMPs is used for MDP;

4.5. Other activations

As of the mFRR Technical go-live, in case a neighbouring TSO that is not connected to MARI requests an mFRR activation from Elia through a reserve sharing agreement, this request will be submitted by Elia through the MARI platform (without however being considered as "satisfied demand for Elia"). Consequently, the CBMP may be influenced by such inter-TSO demands, which could in turn influence the imbalance price in Belgium in case Elia also has concomitant satisfied demand for its own needs. This differs from current practice where the price impact of demands from other TSOs is being neutralized[5].

Upon mFRR Technical go-live, in case Elia requests an mFRR activation from a TSO that is not connected to MARI through inter-TSO mFRR sharing agreements, the price set with this agreement will no longer influence the imbalance price, in conformity with the ISH.

Similarly, and for the same reason, in case Elia activates units with technical limitations for the purpose of restoring the balance, the price of these activations do not influence the imbalance price.

All activations of mFRR for other purposes than balancing (for ex. Redispatching) do not influence the imbalance price.

[5] The logic of this change is that, with the connection to MARI, Elia will operate its balancing in a "cross-border mode" where the requests for mFRR energy in the uncongested area are pooled together – including for the TSOs which are not connected to the platform. In other words, the effects of requests for mFRR to Elia from a TSO not connected to MARI through inter-TSO sharing of balancing capacity agreements are similar to the counterfactual where all TSOs are connected to MARI

5. Cap and floor

5.1. Concept

In preparation of the connection to the balancing platforms, the imbalance price formula introduces a concept of "cap" and "floor", such that the imbalance price does not provide incentives to aggravate the Belgian system imbalance (in particular when the demand for FRR is fully netted and the CBMPs would otherwise provide price signals to aggravate the Belgian system imbalance). In practice, the maximum between the positive and the negative VoAA[6] is used as a floor and the minimum between the negative and positive VoAA is used as a cap.

The notions of cap and floor have already been extensively discussed, and the principles of their implementation has been consensually agreed by stakeholders in the context of the amendment of the Balancing Rules for the connexion to PICASSO submitted on 13/05/2022and approved by CREG decision (B)2433 of 19/07/2022. The next sections reiterate the key rationales of the approach and its implementation details.

5.2. Rationale

On the one hand, the key benefit of the EU balancing platforms is that FRR resources and TSO demands are pooled and optimized altogether, taking cross-border capacities into account. This improves short-term economic efficiency because it enables access for all connected TSOs to a larger set of FRR resources, while TSO demands in opposite directions are netted when transmission capacity allows. An important feature of the EU balancing platform is that the marginal prices that settle FRR activations represent the Cross-Border Marginal Price (CBMP) of the activated FRR energy in the uncongested area.

On the other hand, a key guiding principle of EU balancing management is that the grid is split into "LFC Areas" which cover areas supervised by one or several TSO(s). Each LFC area should aim to be individually balanced such that – as a result of having all LFC areas striving towards individual balance – the EU grid tends be balanced and can thereby operate safely. To better balance its LFC area, Elia implements the so-called "reactive balancing philosophy" where BRPs are incentivized through the imbalance price to reduce the system imbalance. This reactive balancing philosophy is complemented by activations of FRR resources in order to resolve residual system imbalances.

Prior to the connection to the EU balancing platform, Belgian FRR Balancing energy prices have been by construction correlated with the Belgian System Imbalance. Since the imbalance prices are derived from the FRR activation marginal prices, they provide consistent incentives for BRPs to act in the direction that reduces the Belgian System Imbalance. Indeed, in case of large negative (respectively positive) System Imbalances, high demands FRR energy in the positive (resp. negative) direction are triggered,

[6] The positive VoAA (i.e. Value of Avoided Activation) is the price of the cheapest aFRR or mFRR bid in the LMOL for the positive direction, the negative VoAA is the price of the most expensive aFRR or mFRR bid in the LMOL for the negative direction.

which results in high (resp. low) FRR prices, which in turn leads to high (resp. low) imbalance prices. As a result, BRPs are incentivized to reduce their short (resp. long) positions or to take longer (resp. shorter) positions in real-time, therewith reducing the overall Belgian System Imbalance.

With the connection to the EU balancing platforms, such a correlation between the Belgian System Imbalance and the FRR Balancing Energy prices (CBMPs) will no longer be systematically observed. This is because the cross-border marginal prices provided by these platforms are based on the demands for FRR of all connected TSOs, which are aggregated and netted if in opposite directions and if capacity allows. As a result, FRR CBMPs may be completely de-correlated from the Belgian System Imbalance (CBMPs represent the marginal prices of the aggregated demands for aFRR or mFRR of the uncongested area[7]). If Imbalance Prices would be exclusively based on such CBMPs, they could possibly lead to absence of incentives to reduce the Belgian system imbalance, or to counter-productive incentives to aggravate the Belgian System Imbalance.

This is why the imbalance price formula adds a floor (when the system imbalance is negative) and a cap (when the system imbalance is positive) to the imbalance price. Such caps and floors are set at the Value of Avoided Activation (VoAA) which is the first available FRR bid price in the merit order for a given direction. As a result of the cap and floor, financial incentives to aggravate the Belgian system imbalance are avoided.

5.3. Aggravating or not resolving system imbalances

Large System Imbalances have negative consequences, notably because they can lead to

(1) stressed electrical grid due to more congestions in real-time.

(2) increased reservation costs of FRR balancing capacity.

To limit as much as possible these negative consequences, these caps and floors aim at preventing uncontrolled implicit reactions that could jeopardize grid security and inflate costs, while ensuring that the price signal provided to Belgian BRPs is moderate when cheaper flexibility can be imported from abroad. In practice, these cap and floor are applied directly as boundaries to the marginal decremental price and incremental price respectively.

A more thorough justification for the need of a the cap/floor can be found in §1.1 of the Elia answer to CREG public consultation regarding its draft decision (B)2947 proposing amendment of the T&C BRP.

[7] Importantly, CBMPs do NOT reflect the system imbalance of the uncongested area, given that all TSOs have different aFRR/mFRR activation strategies, and that the value of the system imbalance within an uncongested area is unknown. For example, in an uncongested area composed by two zones, if one zone has a system imbalance of -500MW entirely resolved through aFRR, and the other zone has a system imbalance of +450 MW entirely resolved through mFRR, none of the CBMPs reflect the system imbalance of -50MW for the uncongested area (this latter value is actually not even known/computed).

Elia's argumentation that can be found therein is supported by two independent studies carried by international renowned experts (that are appended to Elia answer to CREG):

- Frank Vandenberghe (Onoma, 16/11/2022) concludes that "*Elia proposes a Dead Band, a Cap and Floor to mitigate the detrimental effects of such flawed CBMP approach (…) it is strongly advised not to join the PICASSO project without these minimal precautions*" ()
- Anselm Eicke,Lion Hirth and Ingmar Schlecht (Neon, 25/10/2022) similarly analyse CREG's approach without cap, floor and deadband and "*highlight three major risks resulting from this design. These are (i) an increase in the capacity costs of reserves, (ii) perverse incentives BRPs, which threaten system security in Belgium and cause overload in network elements, and (iii) no stable equilibrium of the Belgian system imbalance (…) One possible mitigation option is to introduce floors and caps to the imbalance price (…)".*

5.4. Cap & floor values

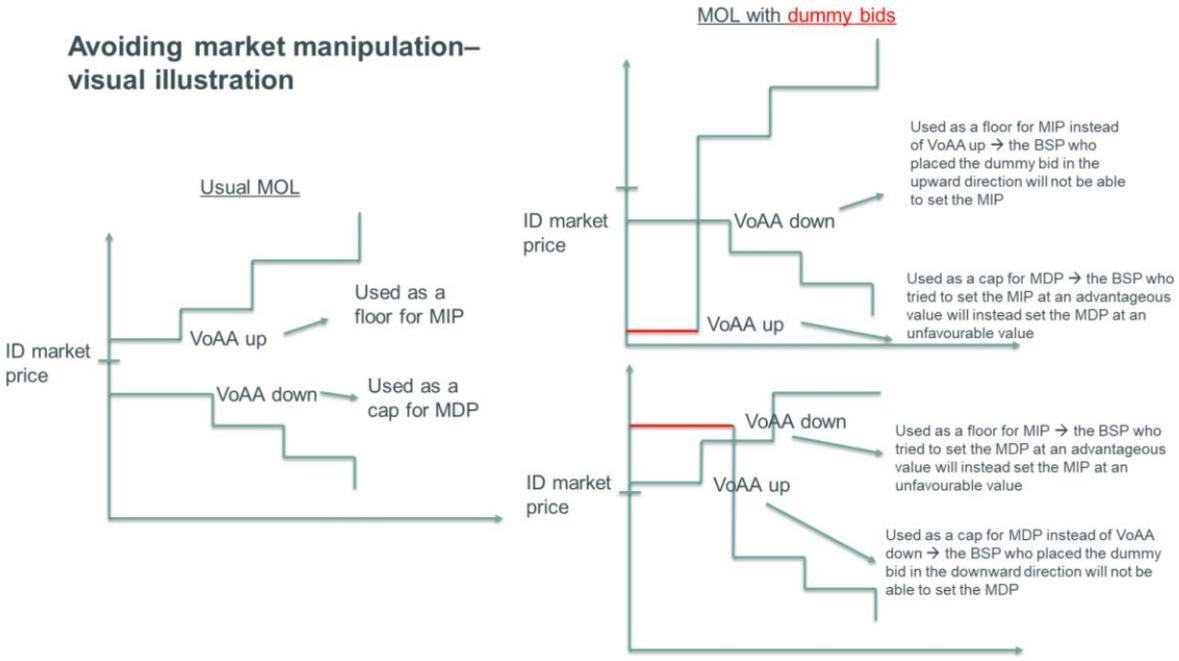
The proposed cap and floor rely on the notion of VoAA (i.e. Value of Avoided Activation) and set boundaries to avoid aggravating the system imbalances. The economic rationale of using VoAA is that it represents a proxy of an equilibrium price before managing imbalances (i.e. in principles, the VoAA should be close to the price of the last intraday trades)

The VoAAs are calculated by using first bid price(s) for aFRR or mFRR available in the local merit order lists (LMOL) for the applicable ISP. In practice, we define the Positive VoAA as to the price of the cheapest aFRR or mFRR bid in the LMOL for the positive direction; and the Negative VoAA as the price of the most expensive aFRR or mFRR bid in the LMOL for the negative direction.

- The floor is equal to the maximum between the Positive VoAA and the Negative VoAA;
- The cap is equal to the minimum between the Negative VoAA and the Positive VoAA.

One could argue that only the price of the cheapest FRR bid in the positive direction should be used to set the MIP (given that this is the avoided value of incremental bid activation); and that only the price of the most expensive FRR bid in the negative direction should be used to set the MDP. On the other hand, however, one can also expect that the bids of the LMOL in the positive direction are anyway priced higher than the bids of the LMOLs in the negative direction, such that including downward bids in the floor and upward bids in the cap should in principle have no effects.

The reason why they have been included is to cover the cases where such a logical expectation is not met. Including the first bids of the positive and negative LMOLs avoids that "dummy bids" can make the cap and the floor become ineffective. By "dummy bid", we here mean a very small FRR bid in the positive direction at an arbitrary very low price (or similarly a very small FRR bid in the negative direction at an arbitrary high price). Such dummy bids could be placed at the beginning of their respective merit order lists. Given that these dummy bids are very small in volume, they can only have very limited financial impacts. Importantly however, because these dummy bids become the first available bids in their relevant direction, they can be used to manipulate the cap or the floor and make them ineffective. To avoid that dummy bids render the cap and/or the floor ineffective, the highest/lowest VoAA in both directions are used to calculate the floor/cap.



As an example, let us suppose a market where the LMOL normally have their first bids in the range of [40, 50€]/MWh. If these efficient market-based bids are complemented with a pair of out-of-market aFRR and mFRR dummy bids in the positive direction at (say) -500€/MWh, and if the floor is set solely based on the Positive VoAA, then the floor has been manipulated towards a largely negative price and becomes ineffective. On the contrary, if the VoAA in both directions are used to set the floor, the lowest possible floor is 40€/MWh, and no supplementary dummy bid can reduce the floor to a lower level.

6. Dead-band

6.1. Concept

In preparation of the connection to the balancing platforms, the imbalance price formula introduces a concept of "dead-band" for small Belgian system imbalances (in practice system imbalances between -25 MW and +25MW). When the Belgian system imbalance belongs to this dead band, the MIP/MDP (and hence the Imbalance Price) is set to a “neutral value” (in practice the average between the positive and the negative VoAA).

6.2. Rationale

The dead-band stabilizes the imbalance price when the Belgian system is well-balanced and hence no implicit reaction is needed. To do so, the signal provided by the imbalance price is 'neutral' (it does not provide any incentive to implicitly react). According to Elia, this "dead band" presents several advantages:

- It ensures that the Imbalance Price is never punitive when Belgian BRPs correctly made their job to balance the Belgian system;
- It disables possible incentives to react implicitly (by using a price signal which does not encourage BRPs to deviate from their program, i.e. from the equilibrium established in the

intraday market) when the Belgian System Imbalance is sufficiently small to be considered as balanced;

- It stabilizes the price signal when the system is close to be balanced. The expected price signal could otherwise oscillate between potentially extremely different values caused by the artificial discontinuity between the MIP value (using a "maximum" function) and the MDP value (using a "minimum" function). A neutral imbalance price signal in-between the values of MIP and MDP facilitates the predictability and effectiveness of the imbalance price;
- It decreases the risk of important system imbalance oscillations that could otherwise occur due to over-reaction of BRPs to potentially extreme price signals while the system is close to be balanced;
- It avoids the occurrence of extreme imbalance prices when there are large RES forecast deviations in the region, which have nonetheless been adequately rebalanced thanks to reactive balancing in Belgium. Avoiding extreme imbalance prices when the Belgian system is balanced reduces entry barriers to RES producers who typically have forecast errors in same direction than as the total imbalance in the uncongested area.

A more thorough justification for the need of a the cap/floor can be found in §1.2 of the Elia answer to CREG public consultation regarding its draft decision (B)2947 proposing amendment of the T&C BRP

6.3. Calibration

Elia believes the dead-band width should be calibrated according to the following criteria:

- it should reflect the range of system imbalances for which implicit reactions from BRPs are not useful.
- System Imbalances for which mFRR bids are usually activated (according to Elia's activation strategy) should not belong to the dead band (in order to give BRPs the chance to react implicitly before activating mFRR).

Elia suggests following a careful and progressive approach and to start with a dead-band width of 50 MW (i.e. system imbalances belonging to the [-25;+25] MW range), while foreseeing to monitor this dead-band and define evaluation moments that could lead to an adaptation (in either direction) of the dead-band parameters in a future revision of the imbalance price formula (see §9).

Within the dead-band, a "neutral" price signal should be provided. While an ideal neutral price signal reflects the existing market equilibrium and would therefore be derived from the latest intraday trades, the average of VoAA in both directions provides a pragmatic proxy thereof[8]. If we assume that this proxy fairly represents the intraday market equilibrium, then the imbalance price when the system imbalance is small reflects the real-time value of energy as anticipated in the intraday market. Given that the

[8] The average of the VoAA in the positive and negative directions has been chosen in order to suppress any discontinuity between small positive and small negative imbalances.

system is balanced, this intraday equilibrium is indeed a reasonably correct anticipation of this value, and the imbalance price reflects the real-time value of energy.

7. Alpha Component

7.1. Concept

The ISH foresees to complement the imbalance pricing formula with so-called "additional components", notably "*(a) a scarcity component to be used in nationally defined scarcity situations; (b) an incentivising component to be used to fulfil nationally defined boundary conditions; (c) a component related to the financial neutrality of the connecting TSO*" . In Belgium, this translates into the "alpha parameter" which is added to MIP and subtracted from MDP.

This parameter takes its origin in the Tariff methodology which is derived from Article 12 (notably its §1 and §5.10) of the Belgian Electricity law which transposes Article 59 of EU Regulation 2019/44. In order to address CREG's request in its decision (B)2554 of 17 May, the formula of alpha parameter that is described in the Tariffs has now been copied in this T&C BRP.

Its settings have not been changed; hence the currently applicable alpha parameters remain in place.

7.2. Rationale

The alpha parameter constitutes an additional incentive, applicable in the event of large and sustained Belgian system imbalance. In other words, the alpha parameter intends to boost the imbalance price incentive in case of structural imbalances, for which the imbalance price signal would otherwise not be sufficient to trigger implicit reactions.

The alpha parameter notably reinforces the imbalance price signal in a context of increasing renewable energies, and therewith limits the need for costly balancing capacity. Similarly, several studies relating to the integration of offshore production have demonstrated the importance of the alpha parameter, not only under normal conditions, but also during specific events such as storms or strong ramping events, for which the alpha parameter tends to limit or avoid other measures such as preventing curtailment of wind production.

8. Determining the direction of the system imbalance

The rationales for the modified formula to calculate the system imbalance are technical and relate to the fact that FRR activations become cross-border. While the currently applicable formula defines the system imbalance as the difference between the Frequency Restoration Control Error (FRCE) and the Net Regulation Volume (NRV), the new formula distinguishes the cross-border flows stemming from the balancing platforms from the other scheduled cross-border flows. This new formula has been extensively justified in the informative document in support of the public consultation on the proposal for modification of the Rules for the compensation of the quarter-hourly imbalances in preparation of the Balancing Rules submitted on 15/05/2022 and approved by CREG decision (B)2433 of 19/07/2022). The proposed modification hence merely consists of moving the formula from the Balancing Rules to the T&C BRP.

This new formula becomes applicable after either the mFRR technical go-live or the connection to PICASSO.

9. Monitoring and review of the imbalance price formula

The proposed imbalance pricing formula has been established by Elia taking previous stakeholders' feedbacks into account, while focusing on its role of responsible system operator whose main mission is to guarantee grid security. The formula implements some "safeguards" (i.e. caps, floors, and dead-bands) meant to ensure reliability, safety and efficiency of the Belgian grid. Elia nonetheless understands that other stakeholders have other views based on different anticipations. At this stage, no historical data exists to rationalize these "expectations" given that – by definition – no real-life experience can be built prior to the connections to the balancing platforms.

Meanwhile, the cautious approach taken by Elia reasonably mitigates the possible perverse impacts, operational risks and other side effects, while nonetheless benefiting to the largest possible extent from the European integration of the balancing markets.

Undoubtfully, Elia intends to periodically review the structure and parameters of the imbalance pricing formula, in consultation with all involved stakeholders, in order to continuously improve this formula in light of observation and experience, with the objective of striking the right balance between operational risks and overall economic efficiency. Practically, Elia commits to discuss with market parties and CREG in order to propose an evaluation plan by the connection to MARI on how to best execute such periodical reviews. Elia is nonetheless convinced that such a revision plan should be finalized after the connection to the balancing platforms in order to be able to lean on actual experience. This would allow to factually confirm or disprove the relevance of these "safeguards". Given the uncertainties on the actual functioning of balancing after the connection to the EU balancing platforms, Elia indeed believes that it is at this stage premature to already define an exact mechanical process/roadmap for a possible relaxation of the cap, floor and dead-band. In Elia's view, there are multiple ways[9] to reach the same objectives, and it is not possible to have a clear view on which one is the most effective without any experience with the new formula once connected to the EU balancing platforms. Nonetheless, the evaluation plan should already contain the most relevant KPIs, objectives and milestones.

Bottom line, Elia has the strong conviction that real-life experience with the EU Balancing platforms will provide fact-based evidence over this matter, and will help in converging the views of Elia, CREG and other stakeholders with respect to how imbalance pricing should further evolve.

10. Varia

Elia takes the occasion of the above mentioned amendments to adapt some small typos, definitions and/or optimise the wording of the contract. These smaller changes mainly concern the definitions

[9] e.g. reducing the value of the floor vs. increase the size of a bandwidth [SI^-;SI^+] where the cap/floor don't apply

which have either been aligned with other related documents for the sake of consistency, or adapted/added for the better understanding of Article 30.

Article 29 has also been slightly reworded to more clearly link with the new Article 30.