



First results on the deadband and the aFRR component

Interactive info session on imbalance price #2

13/11/2025 | Elise AULANIER

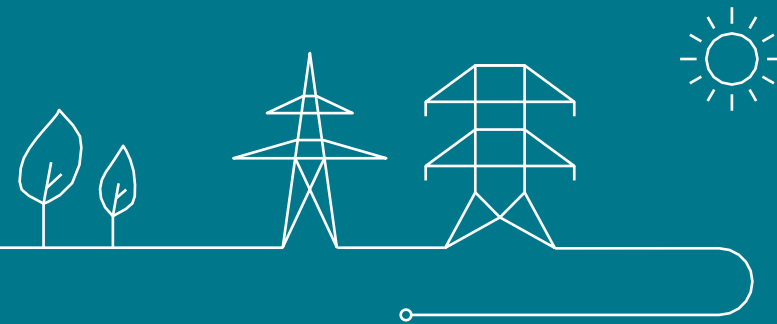
Recall: these information sessions are intended to provide initial insights and stimulate reflection by sharing early results from ongoing analyses and possible openings. At this stage, Elia is not making recommendations or conclusions.

Agenda

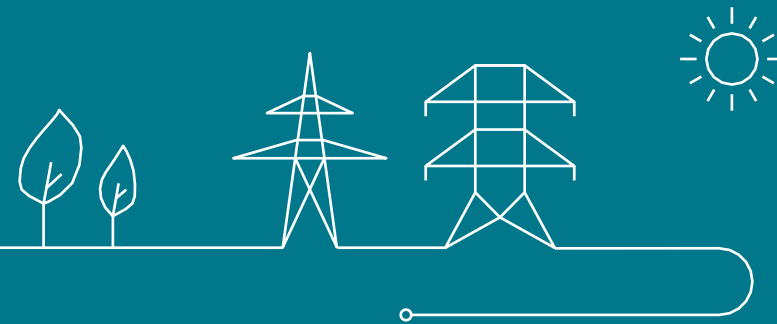
1. First results from ongoing analyses on the deadband component
 - a. Recall: what is the deadband?
 - b. Update: what has happened since the deadband is in use?
 - c. Opening: evolution of the deadband value?
2. First results from ongoing analyses on the current aFRR component
 - a. Recall: what is the current aFRR component?
 - b. Update: what has happened since the current aFRR component are in use?
 - c. Opening: evolution of the current aFRR component value?
3. Focus: why looking at the 1-min imbalance price publication “stability”?
4. Next steps



First results from ongoing analyses on the deadband



Recall: what is the deadband?



Today's focus is on the deadband component

➤ $IP = \pm\alpha + \begin{cases} \text{deadband value} \\ \max(\text{floor}, \text{aFRR component}, \text{mFRR component}) \\ \min(\text{cap}, \text{aFRR component}, \text{mFRR component}) \end{cases}$

if $-25 \text{ MW} < SI(ISP) < 25 \text{ MW}$

if $SI(ISP) \leq -25 \text{ MW}$

if $SI(ISP) \geq 25 \text{ MW}$

- ✓ IP formula should not incentivize to aggravate the local SI → cap & floor with

$$\text{floor} = \max(VoAA_{up}, VoAA_{down})$$

$$\text{cap} = \min(VoAA_{down}, VoAA_{up})$$

- ✓ aFRR compo., as a volume-weighted avg. of aFRR Marginal Prices of all OCs, reflects the value of aFRR → $\frac{\sum_{oc} [(abs(aFRR SD_{oc}, j)) \times CBMP_{oc, j}]}{\sum_{oc} (abs(aFRR SD_{oc}, j))}$

- ✓ mFRR component reflects the marginal value of mFRR → Proposal: max (res. Min) CBMP of mFRR satisfied demand in the relevant direction during the ISP

$$\text{mFRR component for MIP} = \max(CBMP_{SA}, CBMP_{upward DA in previous ISP}, CBMP_{upward DA in current ISP})$$

$$\text{mFRR component for MDP} = \min(CBMP_{SA}, CBMP_{downward DA in previous ISP}, CBMP_{downward DA in current ISP})$$

- ✓ IP formula should provide a neutral price signal in case Belgium is close to balance ($|SI| < 25 \text{ MW}$) → $\text{deadband} = \frac{\text{cap} + \text{floor}}{2}$ ← **TODAY**
 $= \frac{VoAA_{up} + VoAA_{down}}{2}$

- ✓ The additional component α adds to the main IP component persisting SI → if $|SI| > 150 \text{ MW}$, $\alpha = \left(a + \frac{b}{1 + e^{-\frac{(c-x)}{d}}}\right) * CP$

with:

$$VoAA_{up} = \min(\text{price } 1^{st} \text{ local bid } aFRR_{up}, \text{price } 1^{st} \text{ local bid } mFRR_{up})$$

$$VoAA_{down} = \max(\text{price } 1^{st} \text{ local bid } aFRR_{down}, \text{price } 1^{st} \text{ local bid } mFRR_{down})$$



What were the opinions on this deadband? (1/2)



BOP

From a theoretical perspective, BOP therefore opposes the excessive price caps on the new platforms but **can support measures such as the dead band that would smoothen price formation**. For a more informed positioning however, BOP would require monitoring of actual (price) data.

- Answer to the public consultation T&C BRP (summer 2023)

The imbalance price formula outlined in the T&C BRP, reflecting a lengthy and debated compromise, seeks an equilibrium between coupling with European platforms, **mitigation measures for both TSOs (cap and floor, deadband) and BRPs (price cap and deadband)** thereby **circumventing undesirable effects due to still-incomplete market integration** (including insufficient cross-border capacities within the balancing timeframe and the lack of liquidity of the Belgian FRR markets)

- Answer to the public consultation T&C BRP (summer 2023)



Febeg



febeliec
federation of belgian industrial energy consumers

Febeliec **fully supports** the reasoning behind [...] **the deadband concept (which it considers an essential component to ensure that no over/undershooting is taking place by BRPs and that the Belgian system imbalance would result in wild oscillations around a balanced position in some cases)**

- Answer to the public consultation T&C BRP (summer 2023)

What were the opinions on this deadband? (2/2)

La dead band **perturbe** en d'autres mots **les incitations que les responsables d'équilibre devraient recevoir afin d'être en équilibre et afin de maintenir le système en équilibre ou l'aider à se rétablir**

[...] De plus, la dead band donne aux fournisseurs de services d'équilibrage **une incitation à ne pas fournir l'énergie d'équilibrage demandée en réponse à un besoin d'équilibrage à l'étranger.**

[...] Puisque la dead band ajoute une différence supplémentaire entre le prix de déséquilibre et les prix marginaux transfrontaliers, **la dead band accroît la différence dans les résultats financiers des processus de règlement.**

- Décision (B)2688 (Nov 2023)

C R E G

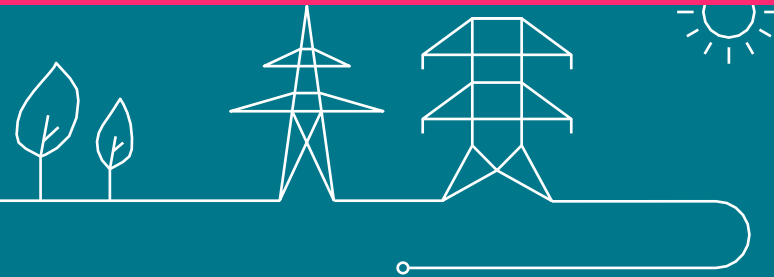
According to Elia, this "dead band" presents several advantages:

- 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.

- Explanatory note of the public consultation T&C BRP (summer 2023)

Update: what has happened since the deadband is in use?

Disclaimer: we share preliminary results from ongoing analyses, to open early discussions given the tight planning. This does not replace the analyses required for the Assessment plan, which will be completed according to the legal timeline.



The deadband sets the imbalance price during ~1/5 of all quarter-hours since our connection to PICASSO

Among the ~20% QHs where the deadband set the imbalance price:

	% of qh
Main component = dead band	19%

Positive SI	
Imbalance price set by deadband	Spread [€/MWh]
Mean	52,10
MEDIAN	33,28
Max	1189,17
Std deviation	68,39
75th percentile	61,54
90th percentile	112,33
95th percentile	174,09
99th percentile	297,56

Negative SI	
Imbalance price set by deadband	Spread [€/MWh]
Mean	49,41
MEDIAN	32,64
Max	438,96
Std deviation	52,89
75th percentile	60,14
90th percentile	119,30
95th percentile	168,61
99th percentile	245,30

- On average, the spread of the imbalance price with/without deadband is ~ 50 €/MWh
- 10% of time (when the imbalance price is set by deadband), the spread is > 110 €/MWh

Today's first insights on the assessment of the deadband:

BRP portfolios impact

**Variable Renewable Energy (VRE)
integration**

1-min publication stability

Impact of the deadband on BRPs' invoices is limited

Price impact on BRPs' invoices			
Data since PICASSO from end 11/2024 until 09/2025			
	Applying the IP spread to the system imbalance by QH [k€]	BRP costs [k€]	Financial impact [%]
Per month	98	10,500	-1%

- The deadband has a **negligible impact on the financial settlement of BRPs**
- **With the deadband:** (→ see illustration on next slide)
 - BRPs **helping** the Belgian system are **less remunerated**
 - BRPs **aggravating** the Belgian system are **less penalized**
- Overall, because the system imbalance consists of more BRPs that aggravate the imbalance than those that help correcting it, **removing the deadband** from the imbalance price formula would generally provide a **negative financial effect for BRPs** (and an increase on the balancing margin)



Methodology

- Same methodology as introduced for info session #1 on the cap&floor, i.e.:
 - IP spread = imbalance price without deadband - actual imbalance price,
 - The IP spread is then applied to the total system imbalance of the QH,
 - The ratio with the imbalance invoices of BRPs is calculated, which gives the financial impact the IP spread would have had on the invoices. (NB. BRP settlements are influenced by more factors than just the imbalance price formula)

Examples illustrating the financial impact of removing the deadband on BRPs helping vs. BRPs aggravating the BE system

when the price would have been set by the cap&floor or the a/mFRR component

QH: 2025-08-27 T02:00:00

- SI BE: -6 MW

IP = ~~deadband~~ → max (floor*, aFRR component, mFRR component)

127€/MWh — 72€/MWh — N/A

IP increase by removing the deadband = 39 €/MWh

€/MWh

IP_{w/o deadband} = floor = 127€/MWh

IP_{actual} = deadband = 88€/MWh

QH: 2025-09-04 T07:30:00

- SI BE: -18 MW

IP = ~~deadband~~ → max (floor*, aFRR component, mFRR component)

69€/MWh — 86€/MWh — N/A

IP increase by removing the deadband = 34 €/MWh

€/MWh

IP_{w/o deadband} = aFRR comp = 86€/MWh

IP_{actual} = deadband = 52€/MWh

*By definition, floor ≥ deadband

Similar impact in both cases. If the deadband was removed:

- BRP₁ : Imbalance = 10 MW (helping Belgian system)
 - IP increase leads to higher remuneration of BRP₁
- BRP₂ : Imbalance = -20 MW (aggravating Belgian system)
 - IP increase leads to higher penalty of BRP₂

The deadband is beneficial for BRP with high VRE-shares

Correlations between system imbalance caused by VRE deviation and system imbalance

Data since PICASSO from end 11/2024 until 09/2025

	Within deadband (SI < 25 MW)	Outside deadband (SI ≥ 25 MW)
Pearson correlation coefficient <i>r</i>	-0.06	-0.48

For comparison: larger system imbalance reflects more VRE deviation

Impact of the deadband on “VRE imbalance costs”

Data since PICASSO from end 11/2024 until 09/2025

	VRE deviation x IP spread [k€]	BRP costs [k€]	Ratio [%]
Per month	1,150	10,200	11.3%

Global BRP impact : 1%

- **Small system imbalances, which fall within the deadband, are very little correlated to VRE forecast error:** a nearly balanced system simply means that Belgian BRPs have effectively managed their portfolios and does not reflect the size of renewable energy deviation → although this aspect was included in the legal assessment, it does not appear to be particularly relevant in practice
- **Having a deadband has significant positive impact on the VRE imbalance costs:** the deadband helps BRPs with significant VRE generation



Calculation of:

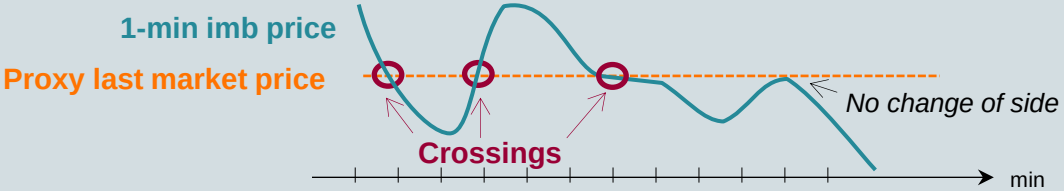
- For each QH, **VRE deviation** = *measured_{wind}* + *measured_{solar}* - (*last forecast_{wind}* + *last forecast_{solar}*), where *measured_x* includes direct measurements and homothetic upscaling for the unmeasured units) and *last forecast_x* is made 1hr before real-time (NB. In practice, BRPs are still able to take actions to balance their portfolio during the last hour before real-time)
- On the full dataset, **Pearson correlation coefficient *r***, which measures the strength of a linear association between 2 variables
- For each QH, **IP spread** = imbalance price without deadband - actual imbalance price

Current deadband is not supporting efficiently the stabilization of the imbalance price signal

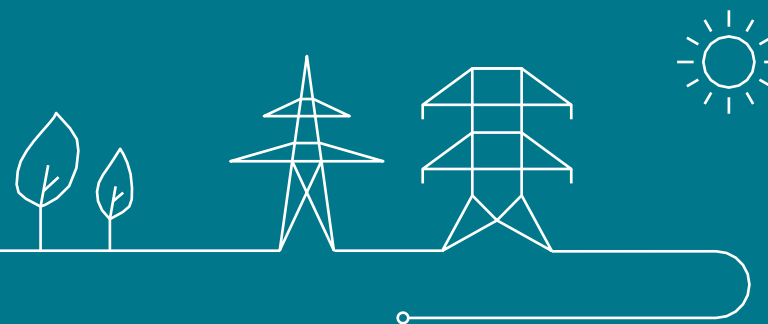
Stability of the 1-min imbalance price publication			
Data since PICASSO from end 11/2024 until 09/2025			
Only QHs where the deadband set at least one 1-min imbalance price			
	Avg 1-min price variation [€/MWh]	Sum 1-min variation vs. total variation	# change of direction in implicit opportunity
Actual IP	9,9	26	0,39
IP w/o deadband	8,9	22	0,35

➤ Removing the deadband would **improve** the stability of the 1-min publication

- For the 1-min cumulative imbalance price w/o deadband and the actual imbalance price, calculated for each QH:
 - **Average absolute 1-minute imbalance price variation within the QH.** Quantifies the magnitude of the variation of the 1-min price signal per QH
 - **Ratio of the sum of absolute 1-min price variation to the total price variation within the QH.** Quantifies how the cumulative effect of all 1-min variations contributes to the overall price variation between the first and last price of the QH (NB: *(1+total_variation_over_qh)* is actually used as the denominator to avoid division by (close-to) 0 while keeping the relative importance intact for the comparison)
 - **Number of crossings of the last market value by the 1-min imbalance price within the QH.** Quantifies the frequency of direction changes in implicit opportunities during the QH, using the Day-Ahead Market price as a proxy for the last market price. (NB: *price thresholds for reacting implicitly typically include a premium over the market price, which varies by BRP/asset*)



Opening: evolution of the deadband?



If we aim to achieve the initial objectives of the deadband, smoothing and enlarging it could be beneficial

For instance, illustration with a change consisting in smoothing and extending [-150,150MW] the deadband value:

$$IP = (1 - w_{deadband}) \times current_IP_{w/o\ deadband} + w_{deadband} \times \frac{VoAA_{up} + VoAA_{down}}{2}$$

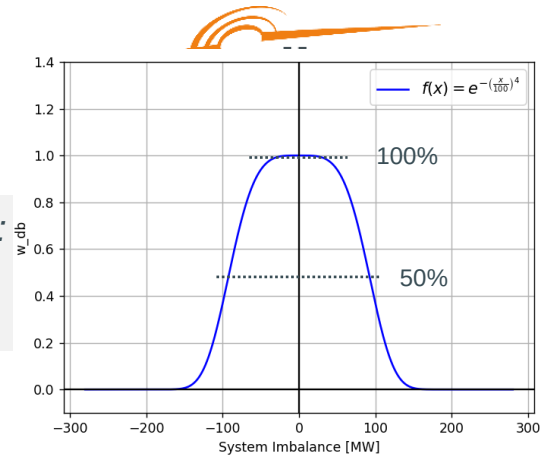
- Increased positive impact on BRPs' invoices compared to current deadband

Price impact on BRPs' invoices	
Current deadband vs. removing	Smoothed deadband vs. current deadband
1%	9%

BRP portfolios impact

- Zone with higher VRE forecast errors is more covered by extending the range

VRE integration



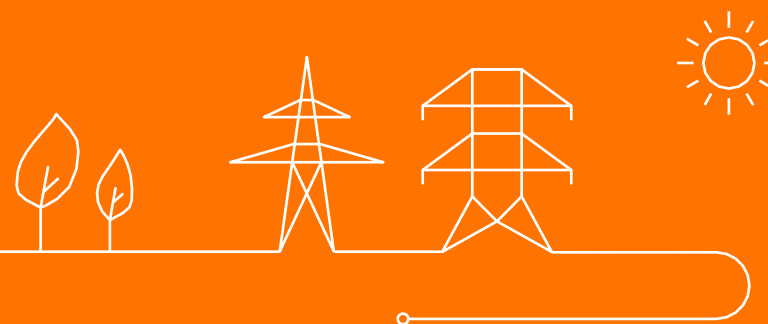
1-min publication stability

- Help achieve effective price signal stabilization

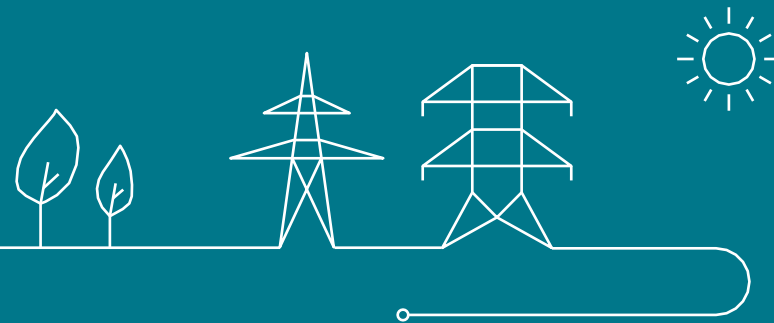
Stability of the 1-min imbalance price publication
Only QHs where current deadband set at least one 1-min imb price

	Avg 1-min price variation [€/MWh]	Sum 1-min variation vs. total variation	# change of direction in implicit opportunity
Actual IP	9,8	26	0,39
IP w/o deadband	8,9	22	0,35
IP smoothed deadband	4,3	7	0,17

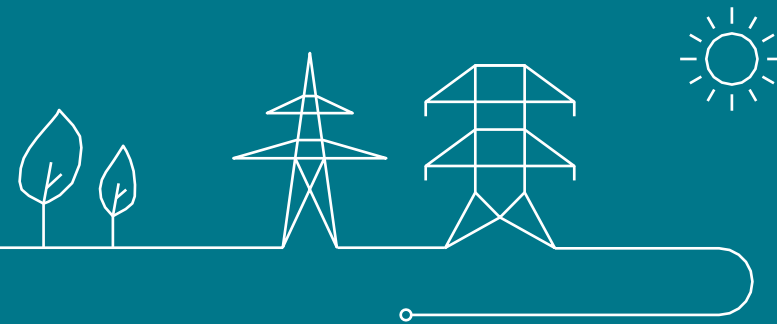
Q&A



First results from ongoing analyses on the current aFRR component



Recall: what is the current aFRR component?



Today's focus is on the aFRR component

➤ $IP = \pm\alpha + \begin{cases} \text{deadband value} \\ \max(\text{floor}, \text{aFRR component}, \text{mFRR component}) \\ \min(\text{cap}, \text{aFRR component}, \text{mFRR component}) \end{cases}$

if $-25 \text{ MW} < SI(ISP) < 25 \text{ MW}$

if $SI(ISP) \leq -25 \text{ MW}$

if $SI(ISP) \geq 25 \text{ MW}$

- ✓ IP formula should not incentivize to aggravate the local SI → cap & floor with

$$\text{floor} = \max(VoAA_{up}, VoAA_{down})$$

$$\text{cap} = \min(VoAA_{down}, VoAA_{up})$$

TODAY

- ✓ aFRR compo., as a volume-weighted avg. of aFRR Marginal Prices of all OCs, reflects the value of aFRR → $\frac{\sum_{oc} [(abs(aFRR SD_{oc}, j)) \times CBMP_{oc}, j]}{\sum_{oc} (abs(aFRR SD_{oc}, j))}$

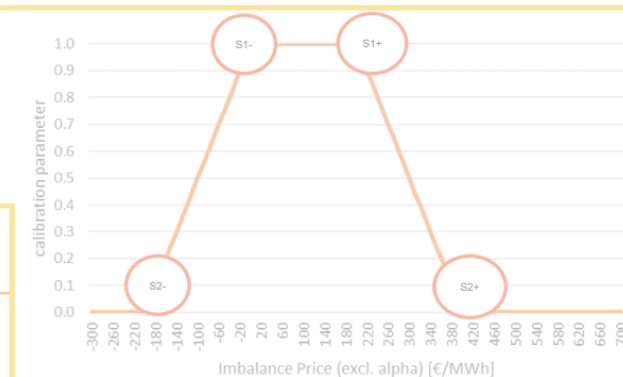
- ✓ mFRR component reflects the marginal value of mFRR → Proposal: max (res. Min) CBMP of mFRR satisfied demand in the relevant direction during the ISP

$$\text{mFRR component for MIP} = \max(CBMP_{SA}, CBMP_{upward DA in previous ISP}, CBMP_{upward DA in current ISP})$$

$$\text{mFRR component for MDP} = \min(CBMP_{SA}, CBMP_{downward DA in previous ISP}, CBMP_{downward DA in current ISP})$$

- ✓ IP formula should provide a neutral price signal in case Belgium is close to balance ($|SI| < 25 \text{ MW}$) → $\text{deadband} = \frac{\text{cap} + \text{floor}}{2} = \frac{VoAA_{up} + VoAA_{down}}{2}$

- ✓ The additional component α adds to the main IP component in case of large and persisting SI → if $|SI| > 150 \text{ MW}$, $\alpha = \left(a + \frac{b}{1 + e^{-\frac{(c-x)}{d}}} \right) * CP$ where $a=0 \text{ €/MWh}$; $b=200 \text{ €/MWh}$; $c=450 \text{ MW}$; $d=65 \text{ MW}$; $x = \text{AVG}(|SI(ISP)|; |SI(ISP-15')|)$ and CP :



What were the opinions on this aFRR component?

By using only a part of the optimisation cycles, no distinction is made between an ISP in which all optimisation cycles are in the same direction, and an ISP in which both long and short positions are more balanced. By **integrating all of the optimisation cycles in the formula it becomes more clear when a (strong) implicit reaction is useful, and when it is not.**

- Answer to the public consultation Balancing Rules (Winter 2022)

Febeg

En effet, étant donné que le déséquilibre par période de règlement des déséquilibres est déterminé comme la moyenne des déséquilibres instantanés mesurés pendant la période de règlement des déséquilibres, **la moyenne pondérée des prix marginaux transfrontaliers résultant de la sélection d'offres de produits d'énergie d'équilibrage aFRR standard pour compenser ces déséquilibres instantanés reflète le plus précisément la valeur de l'énergie en temps réel.**

[...] En outre, la CREG est d'avis que la proposition d'Elia, à savoir calculer le prix résultant de l'activation d'offres de produits d'énergie d'équilibrage aFRR standard comme la moyenne des prix marginaux transfrontaliers pondérés par la *satisfied aFRR balancing energy demand*, fournit les signaux de prix les plus précis aux BRP pour équilibrer le système. En effet, **cela permet d'éviter une situation où un prix de déséquilibre élevé est calculé en raison de la conditionnalité susmentionnée alors que le déséquilibre moyen sur la période de règlement des déséquilibres est faible.**

- Décision B2433

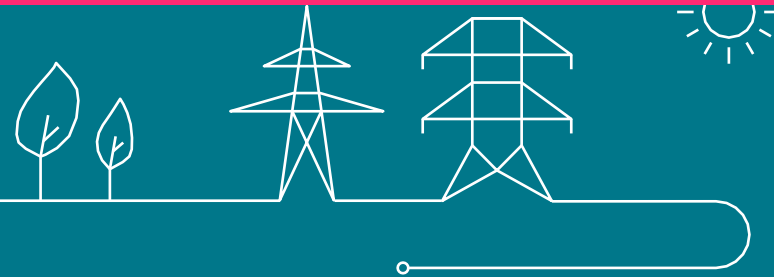
CREG

[The volume-weighted average cross-border marginal prices (CBMPs) of all satisfied demand for aFRR activations] 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.**

- Explanatory note of the public consultation T&C BRP (summer 2023)

Update: what has happened since this aFRR component is in use?

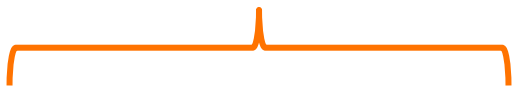
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Since our connection to the aFRR platform, the current component has differed from splitting aFRR component(*) in over half of the QHs, but this has actually impacted the imb price in less than 1/3 of them

(*) The “split aFRR” component is an aFRR volume-weighted price average for activations opposing the average system imbalance, i.e. distinct aFRR components depending on whether the system is long or short.

The current aFRR component would have differed from the “split aFRR” component in ~60% of the QHs



	% of qh
Activations in both directions	57%

NB. The imbalance price is set by aFRR in ~30% of the QHs

Today's first insights on the assessment of the aFRR component:

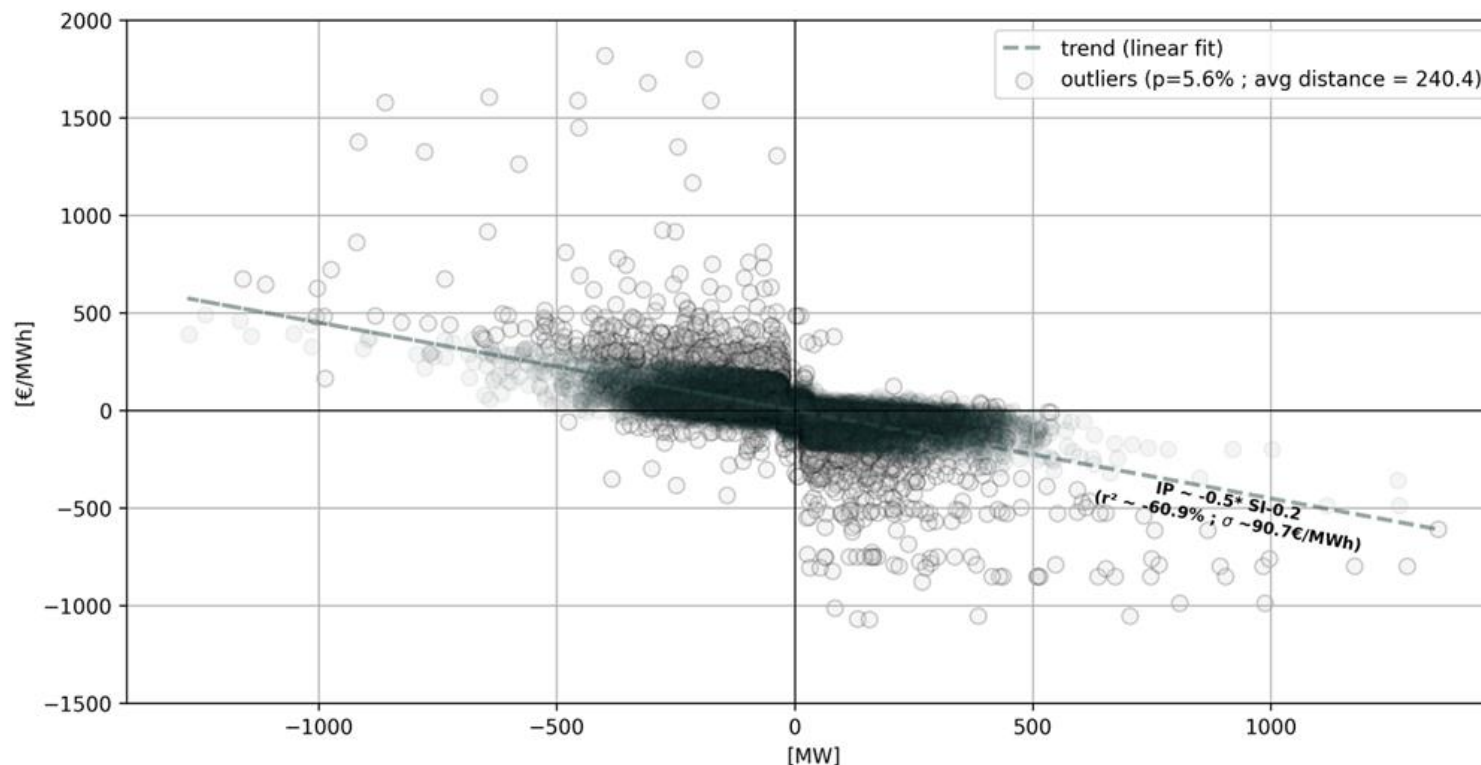
Representativity

Remuneration gap

1-min publication stability

Current formula, coupled with improved liquidity from abroad flex, helped reduce the outliers frequency compared to before PICASSO (but the remaining outliers are more extreme)

System Imbalance vs Imbalance price - Day-Ahead price (27 Nov 2024 - 15 Sep 2025)



For 2023:

- p outliers = 8%
- avg distance = 222.9



Methodo.

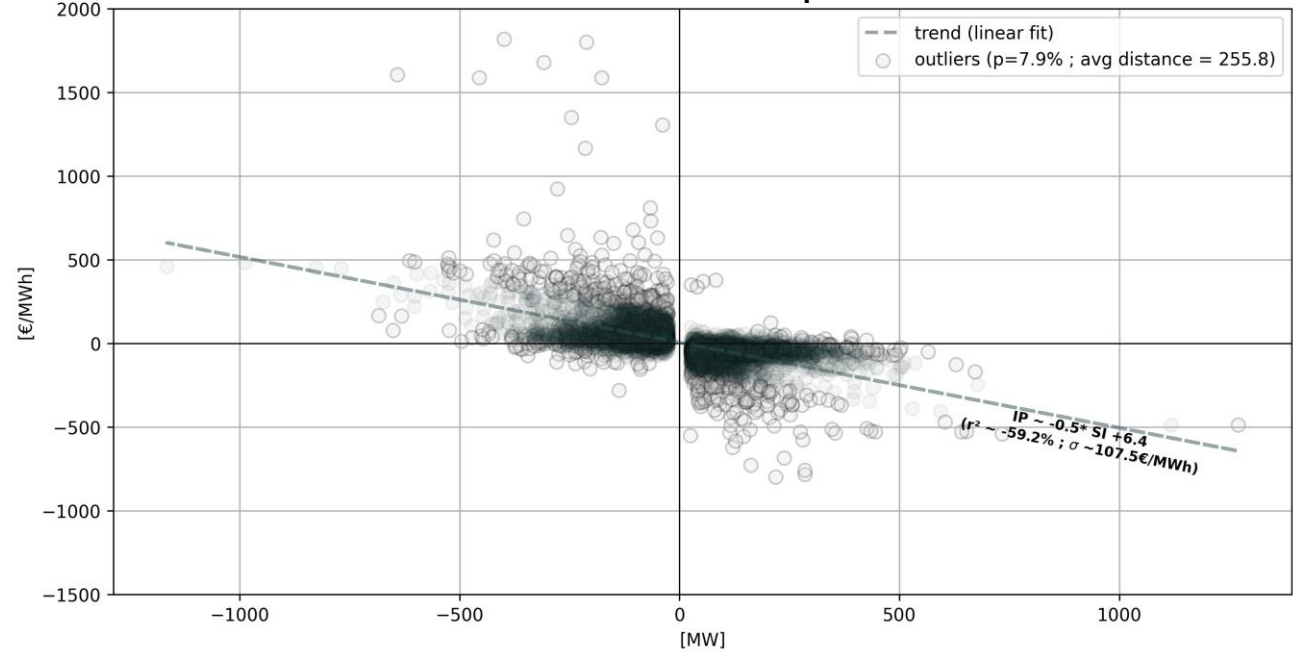
- Calculation of:
 - % of outliers among total QHs, which reflects the frequency of outliers
 - Average distance of outliers from the trend line, which represents the spread of the outliers
- **Imbalance price outliers methodology and previous results** is detailed in the Appendix 2. of ["Real-time price" design note II](#)

Outliers would have been increased if the aFRR component took into account only OCs where activations oppose the SI

Among the QHs where the aFRR component had set the imbalance price:

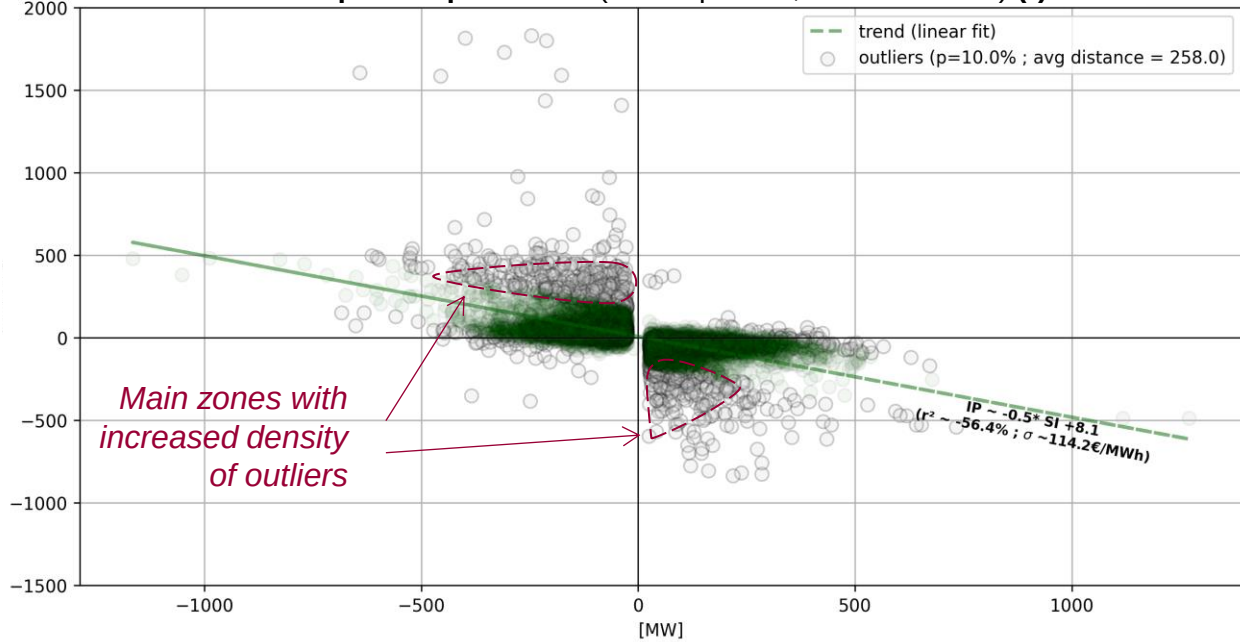
System Imbalance vs Imbalance price - Day-Ahead price (27 Nov 2024 - 15 Sep 2025)

Actual imbalance price



System Imbalance vs Imbalance price - Day-Ahead price (27 Nov 2024 - 15 Sep 2025)

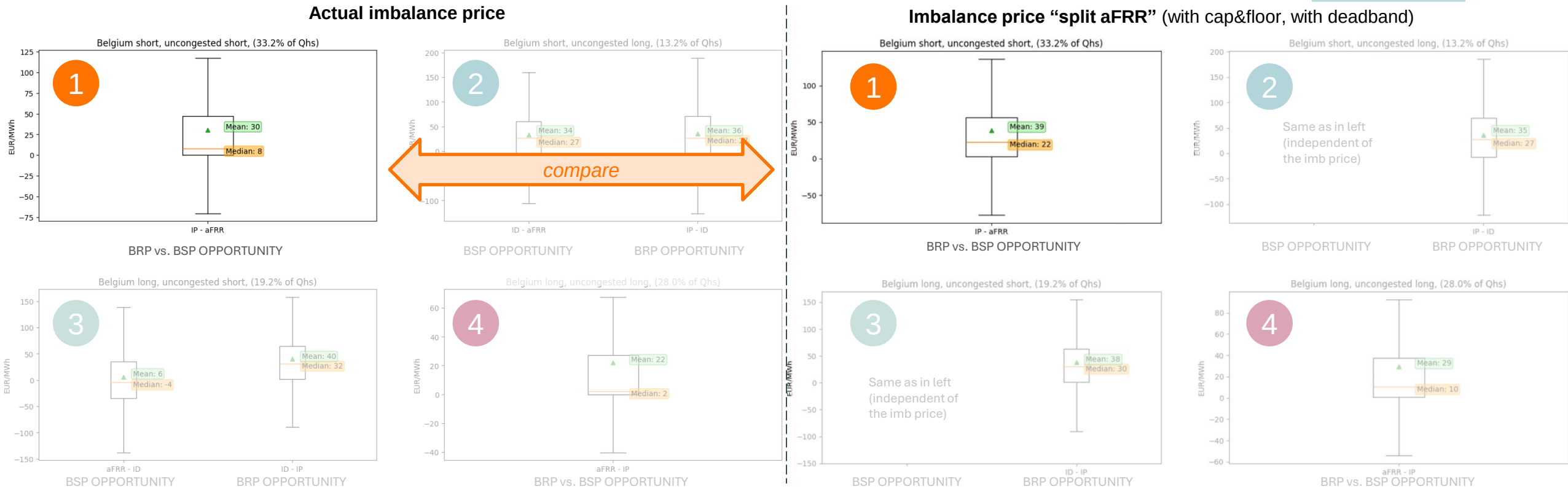
Imbalance price “split aFRR” (with cap&floor, with deadband) (*)



(*) The imbalance price “split aFRR” (with cap&floor, with deadband) is similar to the current formula but with, instead of the current aFRR component, the “split aFRR” component is used, as defined in a previous slide

- Splitting the aFRR component with only activations that opposes the system imbalance would have increased the proportion of outliers by more than 25%:
- Most “additional” outliers are concentrated near the normal QHs (colored zone), especially when the system is close to balance

Splitting aFRR component according to system direction would slightly aggravate the remuneration gap implicit vs. aFRR

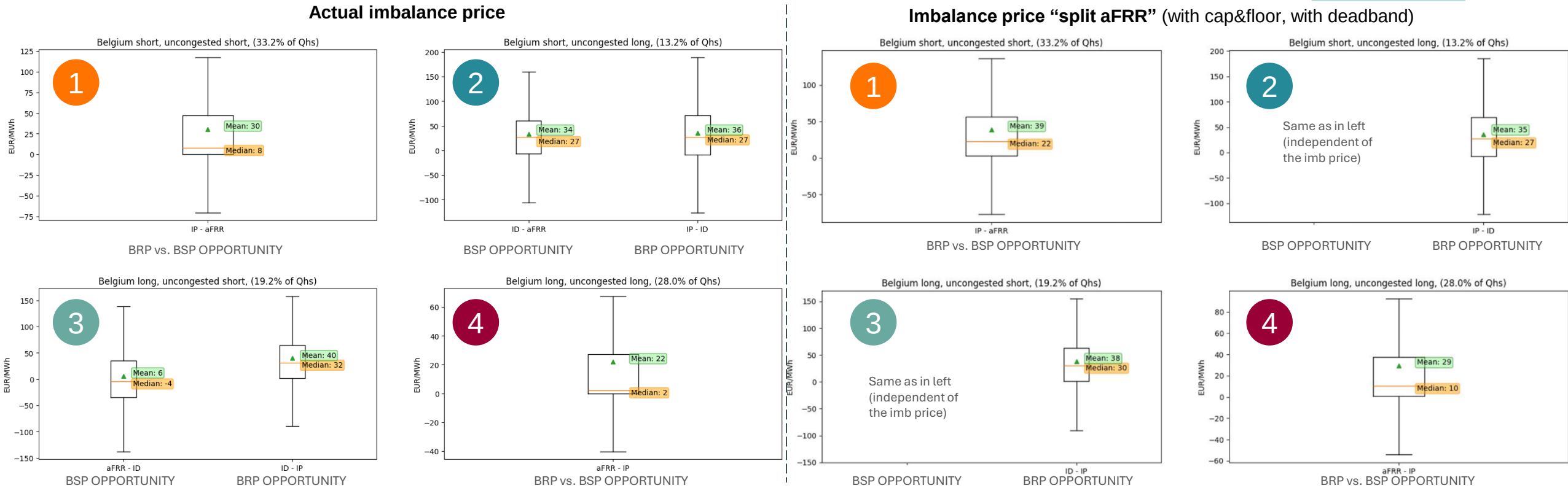


- The difference is limited but remuneration gap slightly worse with split aFRR component (NB. These differences, even if limited, could be significant relative to BSPs margins)
- Quadrants with BE and zone opposed 2 & 3 : → cap&floor effect is dominating
- Quadrants with BE and zone in the same direction 1 & 4 : → the optimization cycles considered differently in the aFRR component slightly impact on the overall outcome



- Same methodology as introduced for info session #1 on the cap&floor
- NB. The classification of QHs into the 4 quadrants is determined by the dominant system state during the 15'. However, the system dynamics can change every 4", so this is an approximation. For QHs where ATCs are limited throughout the entire 15', this approximation is not accurate: these QHs have therefore been excluded

Splitting aFRR component according to system direction would slightly aggravate the remuneration gap implicit vs. aFRR



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Meth.

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Splitting the aFRR compo. by system direction would have had a minor but positive effect on reducing variation in the 1-min price publication

Stability of the published 1-min imbalance price

Data since PICASSO from end 11/2024 until 09/2025

Only QHs where the aFRR component set at least one 1-min imbalance price and with activations in both directions

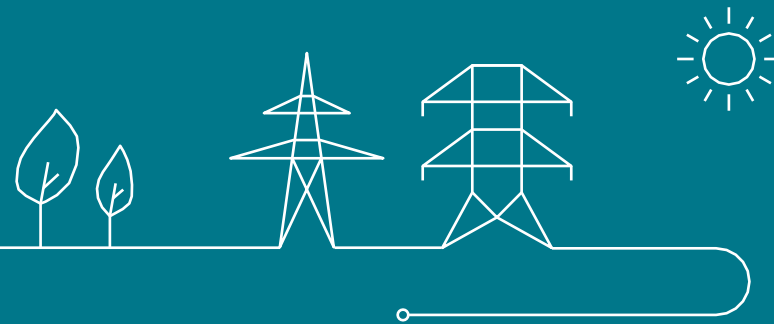
	Avg 1-min price variation [€/MWh]	Sum 1-min variation vs. total variation	# change of direction in implicit opportunity
Actual IP	9,2	13	0,16
IP “split aFRR” (with cap&floor, with deadband)	9,0	12	0,15

- Splitting aFRR ingredient into separate upward (aFRR+) and downward (aFRR-) components **could slightly improve stability in 1-minute price publications**
- The split acts as price boundaries: **when the system is short, aFRR+ acts as a price limit, while aFRR- works similarly when the system is long. This helps to stabilize the price signal**, e.g. in QHs when Belgium is short but the direction of activations in the uncongested zone changes, only aFRR+ is considered into the imbalance price formula. However, aFRR+ is not impacted by aFRR cycles with downward activations, hence varies less than with an aFRR component taking all optimization cycles into account. (NB. The stabilized aFRR+ value could be more significant than the current all-cycles aFRR component)
- Theoretically, splitting aFRR means that when the system imbalance changes direction, price variations may occur between two components (aFRR+ and aFRR-) that are, by design, positioned on either side of the last market price, hence crossing the tipping point for change of direction in implicit opportunities. In practice, however, because of the interplay with other price-setting components, switches between aFRR+ and aFRR- as decisive price setters are relatively rare



- Same methodology as introduced in the deadband section of this session
- “split aFRR” = an aFRR volume-weighted price average of aFRR cycles with activations opposing the average system imbalance (defined in a previous slide in aFRR component section)

Opening: evolution of the aFRR component?

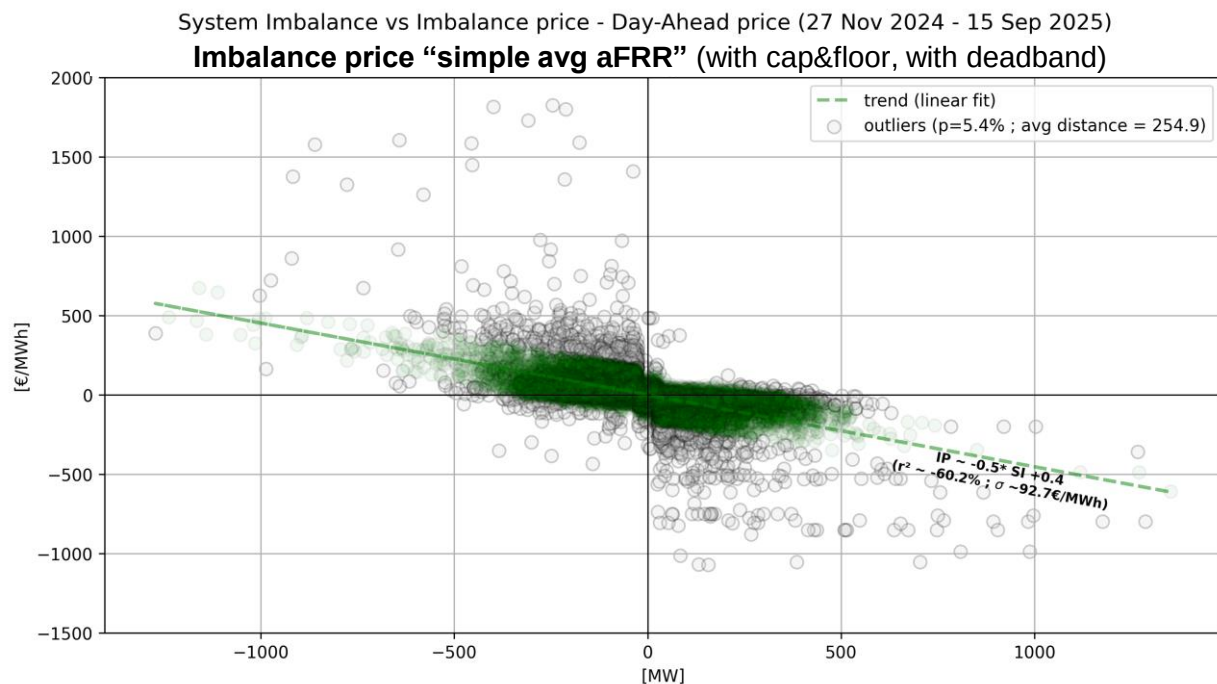


A simple average aFRR price would bring more simplicity while not deteriorate much the outliers or the remuneration gap

For instance, illustration with a change consisting in aFRR simple average price over all OCs: $P_{aFRR,15'} = \frac{\sum_{OC=0}^{225} MP_{aFRR,4}}{225}$ where $MP_{aFRR,4}$ is the 4" CBMP (or LMP if disconnected from the aFRR platform). The average of VoAA in both directions used in case no CBMP/LMP is available

Representativity

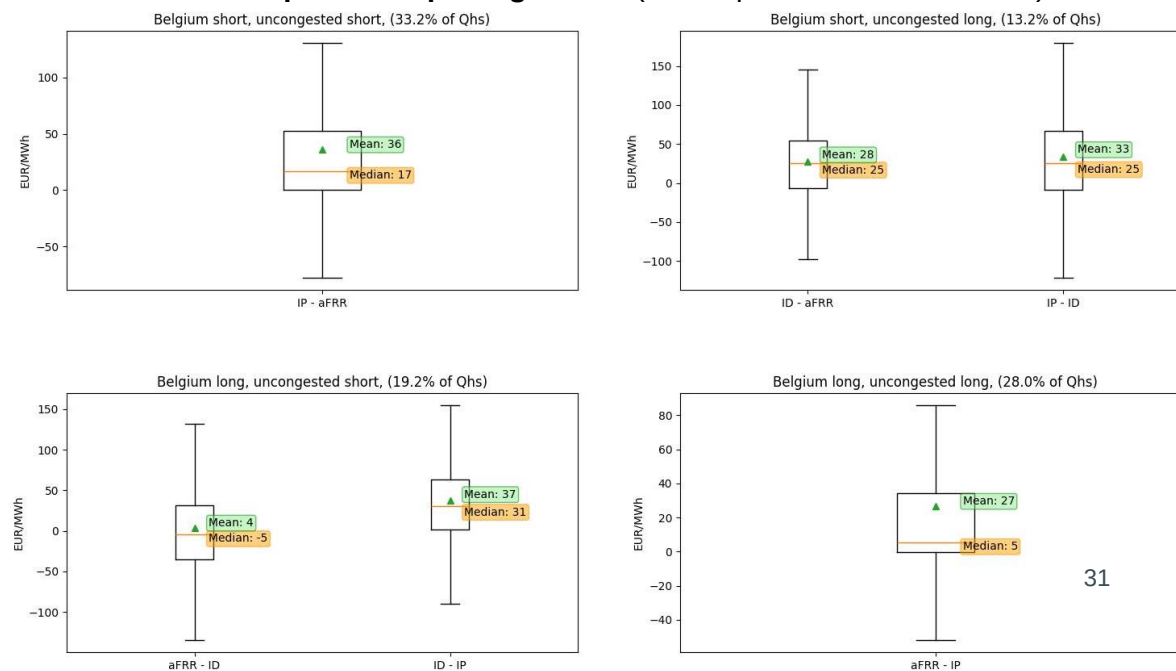
➤ Slight reduction number outliers



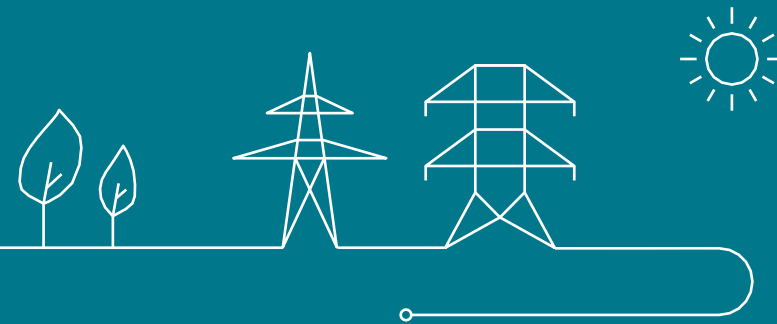
Remuneration gap

➤ Similar impact on the difference between BRP and BSP aFRR opportunities

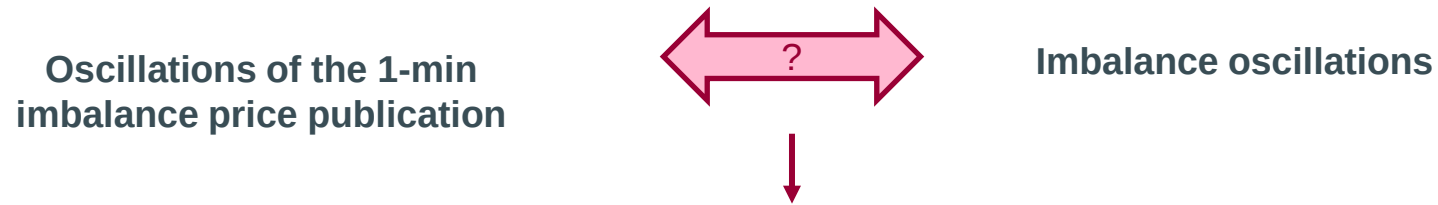
Imbalance price "simple avg aFRR" (with cap&floor, with deadband)



Why looking at the 1-min publication stability?



(In)stability of the 1-min publication can participate to maintain imbalance oscillations

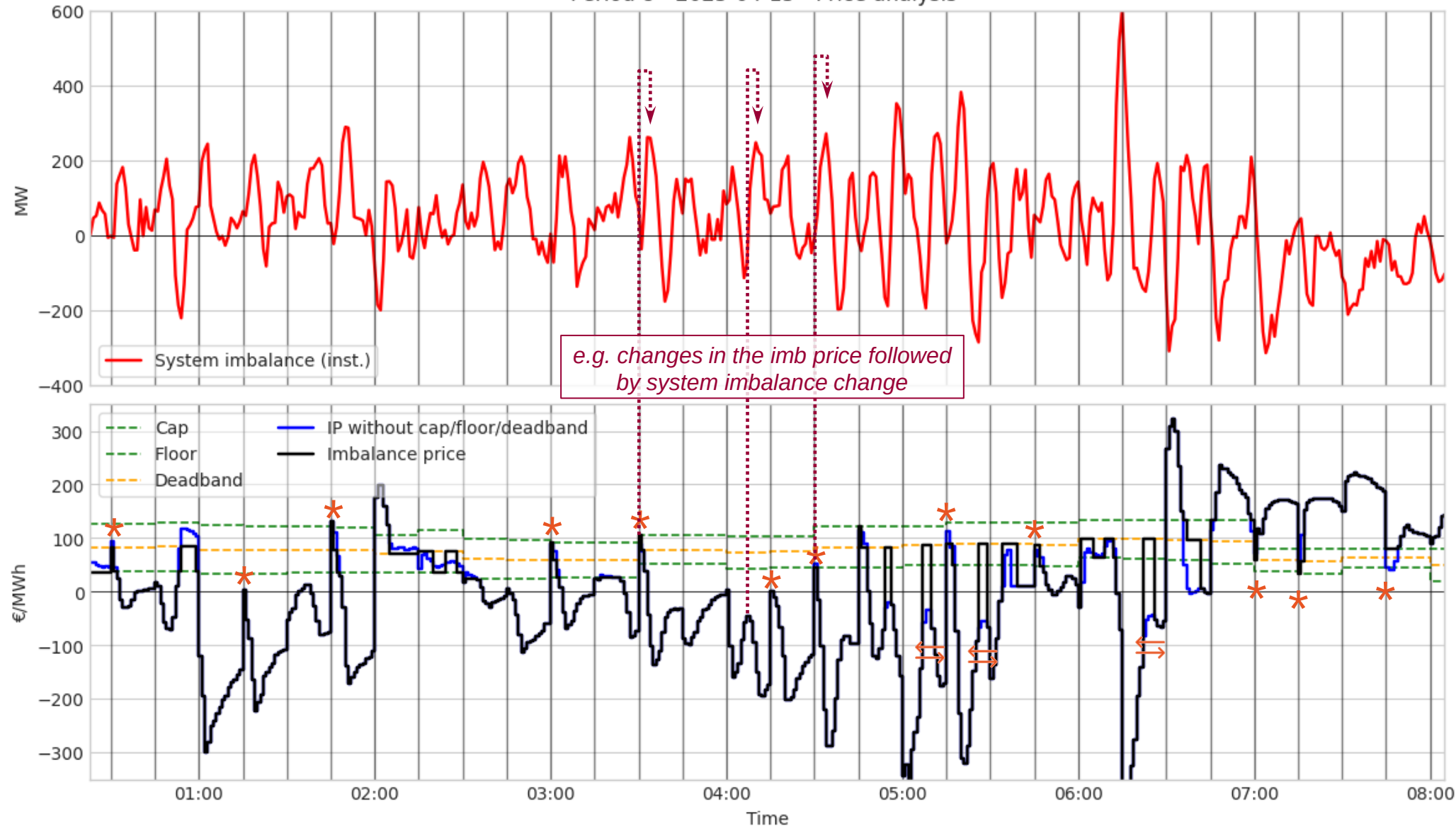


🔍 STUDY OF IMBALANCE OSCILLATIONS

- *Analyzing relevant imbalance oscillation periods and the link with 1-minute imbalance price publications:*
 - **Price oscillations seem to help maintain imbalance oscillations**
 - **Strong variations** in the 1-min imb price publications observed for **two main reasons**: (→ see illustration in next slide)
 - The “**reset**” at the beginning of each QH of the cumulative values used in the imbalance price formula (i.e. aFRR, system imbalance), which can lead to important price jumps, namely in case of important LMP when ATCs are limited or high CBMPs under tense conditions in the uncongested area → how the price is published matters
 - **Sudden switch in the component setting** the imbalance price (aFRR+/aFRR-, mFRR, cap&floor, deadband, etc.) → formulas with too many discontinuities can disturb smooth price signals

Example illustrating 1-min imb price variations due to “reset” of cumulative values at the start of the ISP and switch between components

Period 8 - 2025-04-15 - Price analysis



Context:

- No mFRR activated
- Very limited ATCs

2 mechanisms of 1-min imb price variations:

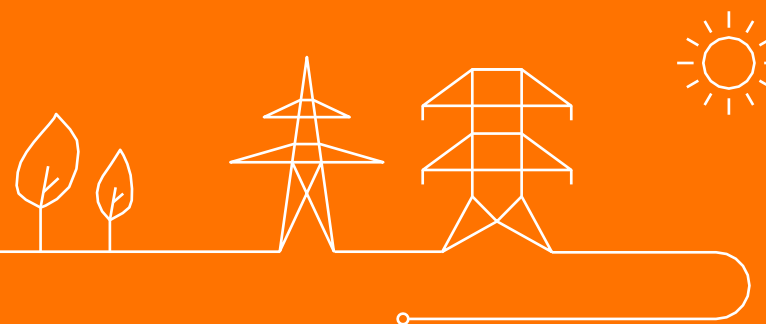
“Reset”:

- * e.g. at the start of the ISP, aFRR cumulative value is reset. Due to limited XB exchange capacity, the first 1-min IP is typically close to the price of the first bids in the LMOL if system imbalance is close to 0 at the start of QH, before it rapidly reflects the actual high prices

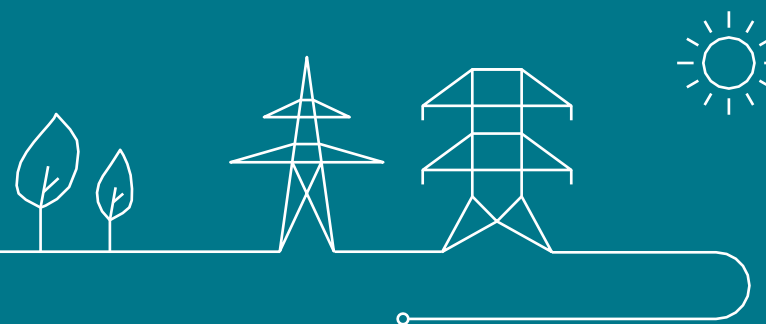
↔ Switch between components:

- e.g. the deadband --- is mechanically triggered when the system imbalance oscillates around 0

Q&A



Next steps



Next interactive info session on 18/12, kick-off of the bilateral meetings

Next *interactive info sessions*

- Proposed topic: **marginal and volume weighted pricing & alpha component**; *the exact topic of the session will be confirmed*
- *Based on feedback from the last info session: a dedicated global session will be organised before the end of the **Assessment phase** to share the main takeaways & explain Elia's recommendation; the exact set-up will be confirmed*

Next *bilaterals*

- First round of bilaterals will start the last week of November, meeting invites have been sent
- Goal = **reflect on the two first info sessions** (cap&floor/deadband/aFRR component), incl.:
 - **Detailed feedback**
 - **Deep-dive in specific concerns**
 - **First opinions**

For any comments / questions, **please do not hesitate to reach out to your KAM**

Thank you

