

All TSOs' Public Consultation Webinar | Imbalance Settlement Harmonisation Methodology (ISHM) Assessment

8 July 2026



Housekeeping Rules

- Please submit your questions **via the Microsoft Teams Q&A panel**.
- Questions may be submitted at any time during the webinar. We will address as many questions as possible during the two dedicated Q&A sessions, which will take place in the middle and at the end of the webinar.
- Comments submitted during the webinar do not replace formal responses to [the public consultation](#). Stakeholders are asked to submit their official feedback through the consultation platform before the consultation deadline of **7 September**.
- This webinar will be recorded. The recording and presentation materials will be published on the ENTSO-E YouTube channel. A link to the recording will also be made available on the public consultation webpage.
- **We will now begin recording.**

Outline

1. **Introduction** [5 min]
2. **Compass Lexecon assessment results** [20 min]
 - First Q&A session [10 min]
3. **TSOs' ISHM Assessment for Public Consultation** [40 min]
4. **Next Steps** [5 min]
5. **Main Q&A session** [10 min]

1. Introduction

- In accordance with EB Regulation, the **Imbalance Settlement Harmonisation Methodology** ([ISHM](#)) pursuant to Article 52(2) aims to **further specify and harmonise the rules for imbalance settlement**. Pursuant to the EB Regulation, all TSOs were required to implement this Methodology by January 2022.
- Pursuant to Article 12(3) of the ISHM, **two years after the implementation deadlines** of the European platforms for the exchange of balancing energy pursuant to Articles 20(6) and 21(6) of the EB Regulation, all TSOs are required to **assess the need for further harmonisation of imbalance settlement**, in line with the objectives set out in Article 3 of the EB Regulation.
- However, according to ACER Opinion No 03/2025 of 16 April 2025 on the [1st amendment of the ENTSO-E Monitoring Plan](#), adopted in accordance with Article 63(2) of EB Regulation, **the assessment of the need for further harmonisation of the imbalance settlement shall include an initial report to be submitted to ACER and the NRAs by July 2026** and a final report to be submitted by July 2027.
- The assessment is based on the evaluation of the consequences and possible distortions resulting from non-harmonisation, pursuant to Article 59(3)(i) of the EB Regulation. This assessment has been prepared by All TSOs with the support of an external consultant.
- **On 26 June 2026**, the All TSOs published this assessment for [public consultation](#) and invited stakeholders to submit their comments **by 7 September 2026**.

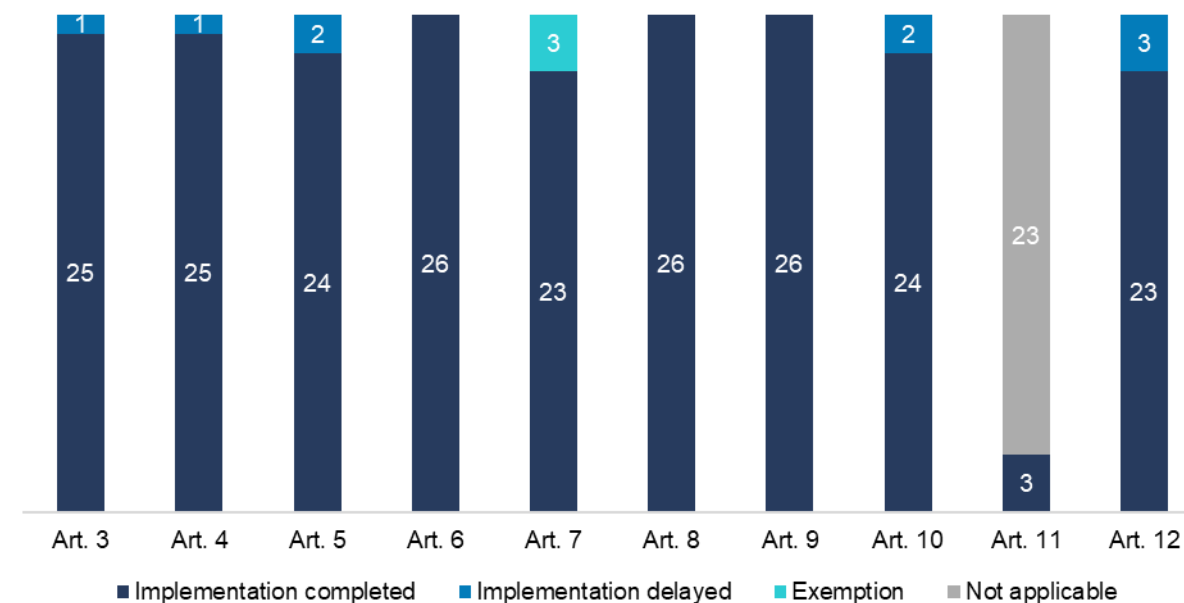
2. Compass Lexecon ISHM Assessment results

The ISHM has been largely implemented across Europe, although TSOs are continuously working on imbalance settlement to further improve its efficiency

The analysis shows an almost complete implementation of ISHM over the different Member States

- **ACER approved the ISHM on 15 July 2020**, requiring TSOs to implement it by **January 2022** (18 months after approval).
- As of June 2026, the ISHM has been **fully or largely implemented in most of the countries/by most TSOs**.
- Except three countries applying dual pricing, **most countries have now implemented single pricing**.
- The vast majority of EU countries have **implemented additional components, and TSOs rely on different components to ensure proper incentives for BRPs**.

Number of TSOs implementing ISHM articles as per responses received in TSO survey and ACER 2024 survey



Source: Compass Lexecon analysis based on conducted TSO survey and ACER (2024).

Note: The illustration depicts the implementation status for CZ, AT, CH, NO, FI, SE, IE, SI, LU, DE, PL, GR, HR, PT, ES, FR, NL, DE, BE, SK, LT, LV, EE, RO, IT, HU. The illustration is mainly based on answers as provided by TSOs in the conducted TSO survey. In cases where TSOs have not provided exact information on the date of completion, delay or exemption but indicated that there was no change compared to the ACER (2024) survey, we assume the same implementation status as in the ACER (2024) survey. For Hungary, we assume the same implementation status as in the ACER (2024) survey as they did not respond to our TSO survey. No information is available for Bulgaria as they did not respond to our survey or the ACER (2024) survey.

Different local system conditions may require flexibility in specific aspects of imbalance price designs

As local systems still differ, TSOs follow different balancing philosophies to ensure secure grid operation

- With varying local situations as well as differences in historic developments of electricity systems, **balancing philosophies differ across European TSOs**.
- TSOs can be characterised by their degree of **proactive and reactive** balancing activities:

Proactive balancing: balancing actions that rely on system imbalances forecasts and, depending on the forecasted balancing need, early activation of reserves (typically reserves with longer activation times, e.g. mFRR or even RR)

Reactive balancing: BRPs can typically adjust their positions until real time and the TSO activates reserves only for any residual balancing needs based on actual frequency deviations (typically relying on faster reserves, e.g. aFRR, also mFRR can be used)

- Ultimately, the choice in balancing philosophy depends on:
 - The **electricity generation mixes and available reserves as well as local system conditions**.
 - The **security and costs certainty** brought by each approach.
 - In the **future**, the deployment of **decentral flexible assets**.

... and reflects: (i) **Different local specificities / operational realities and market structures** (ii) **Historical developments** (iii) **Ongoing market and technological developments**, including the degree of interaction with **European balancing platforms**

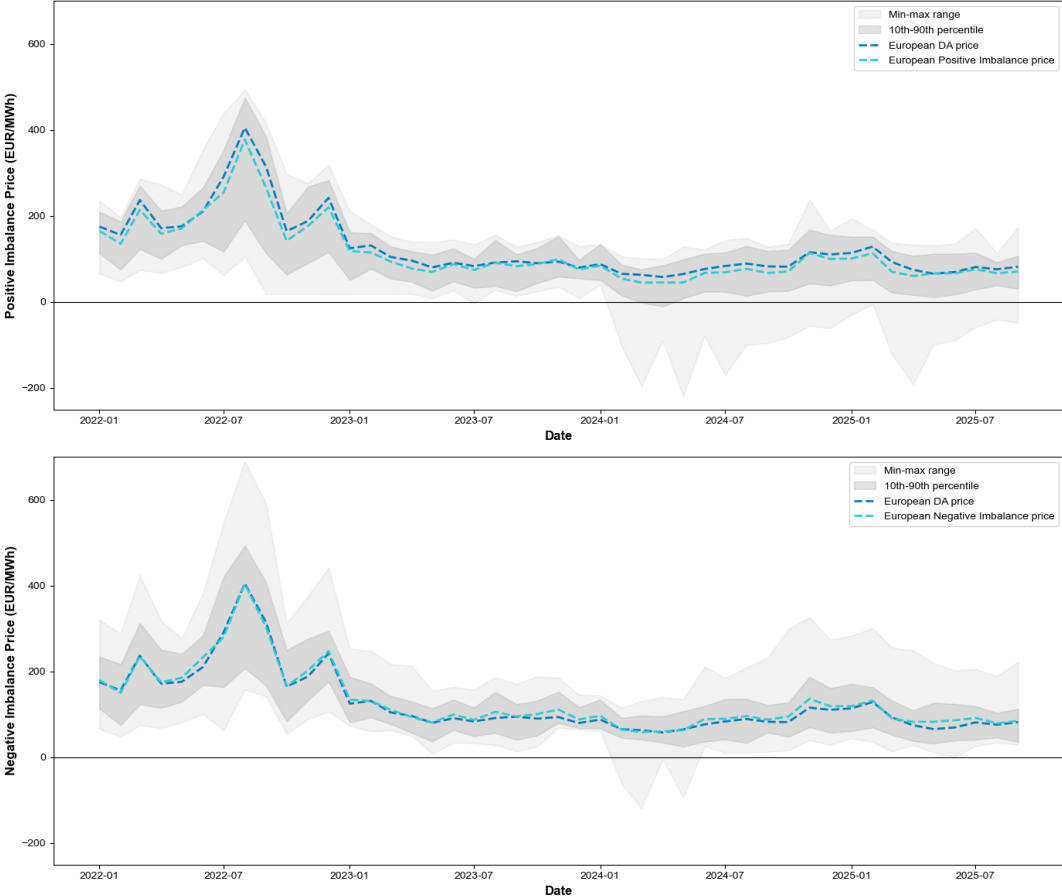
- Through methodological choices in the imbalance settlement, TSOs can set **incentives to steer the desired BRP behaviour for an effective implementation of their philosophy**:
 - To limit system imbalances and frequency deviations, **TSOs with a reactive balancing approach may encourage the support from BRPs in balancing the system through passive balancing** (i.e. implicit balancing). This depends on ability of BRPs to effectively forecast their positions and respond to short-term signals, as well as market developments / regulatory decisions.
 - TSOs may **utilise regulatory flexibility in the ISHM to align BRPs' behaviour with their balancing philosophy: single vs. dual imbalance pricing, maximum/minimum vs. average imbalance pricing** and the **application of additional components** in the computation of the imbalance price.

After the surge in prices during the energy crisis, imbalance prices, together with wholesale prices, have followed a downward trend

Imbalance prices broadly follow DA price trends

- Prices for positive imbalance tend to be below DA levels, while prices for negative imbalance are typically higher.
- Country-specific effects persist, driven by temporary regulatory interventions (e.g. Iberian exception in Spain) and distinct pricing designs such as Switzerland's clear dual pricing effect.

General trend of positive and negative imbalance prices as well as DA prices, 2022-2025, selection of countries, EUR/MWh

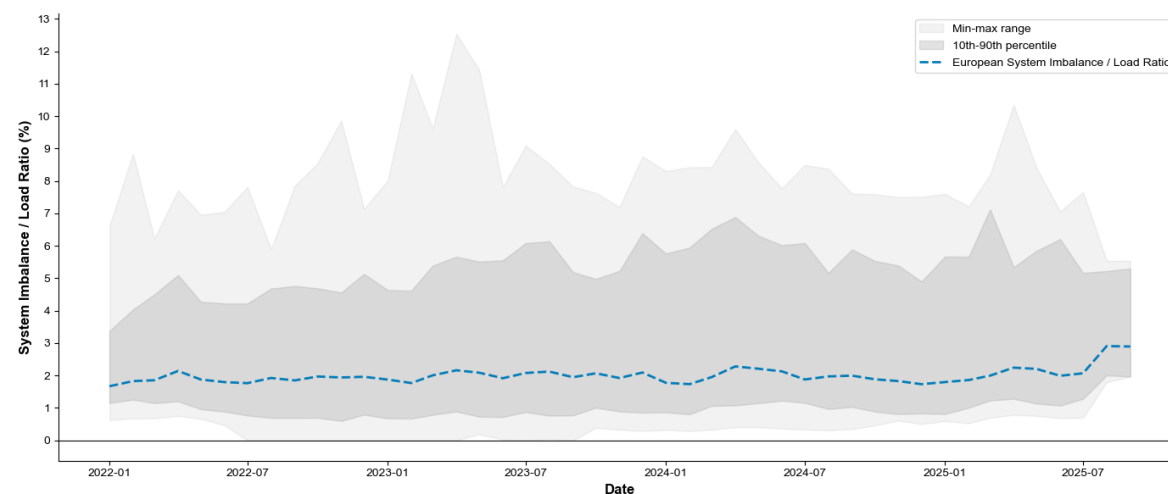


While some countries exhibit strong volatility in their system imbalance, most countries have a relatively stable imbalance volume on a monthly basis

Contrary to imbalance prices, the average system balance at EU level seems to be relatively stable, and less linked to market trends.

- However, **while most countries exhibit relatively flat trends, some countries have had higher and more volatility system imbalances.**
- On a **monthly basis, system imbalances do not exhibit large variations** (deviations can be linked, at the individual level, to methodological and market design changes, or to local fundamentals or conjunctural issues)

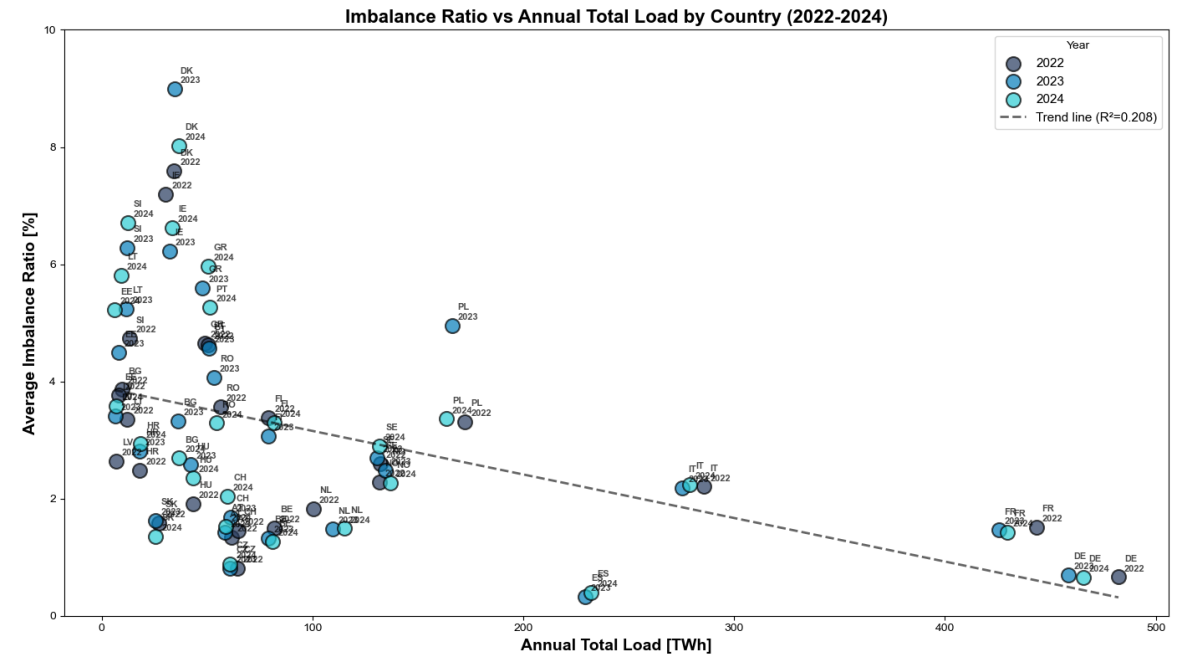
General trend of system imbalance and load ratio, 2022-2025, selection of countries, %



There is a negative relationship between load and relative imbalance volumes across countries, but with significant variations

- **Negative relationship between load and relative imbalance volumes across countries, but significant variations exist.**
 - The **linear trend reveals that larger markets experience proportionally lower imbalances**
 - **Some countries perform significantly better than the trend line**, suggesting lower uncertainties impacting imbalances, efficient forecasting and/or stronger balancing incentives
- Overall, the relationship between imbalance ratio and system size **varies significantly across countries, in particular for countries with smaller load levels.**

Imbalance ratio (%) by system size (TWh), 2022-2025



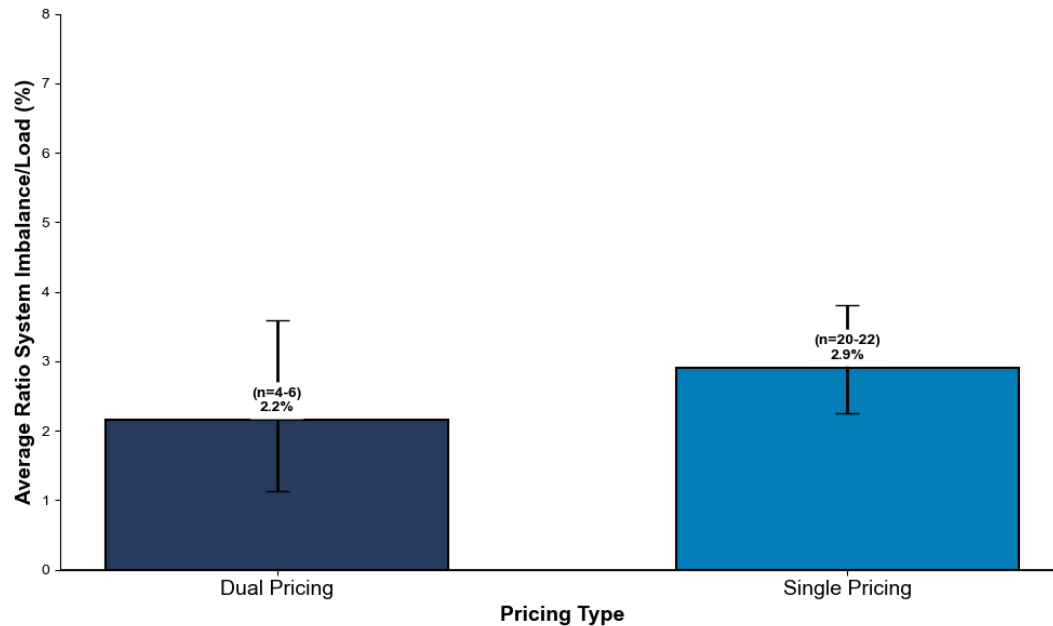
No TSO balancing design stands out as more beneficial for imbalance ratios



Single v. dual pricing → lower system imbalance for dual pricing countries

We observe a **higher imbalance ratio for the group of countries applying single pricing**: the average imbalance ratio is 2.9%, while countries with a dual pricing regime have, on average, an imbalance ratio of 2.2%.

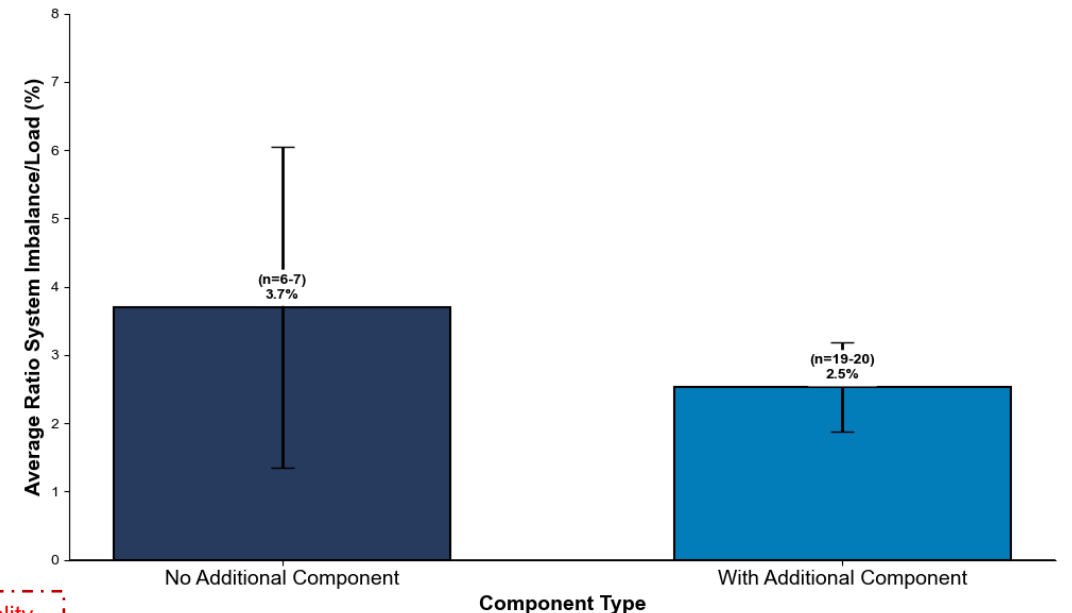
Average annual imbalance ratio by dual vs. single imbalance pricing (with 95% CI), 2022-2025, %



Additional components → lower system imbalance with additional components

We observe a **lower system imbalance ratio for countries implementing additional imbalance pricing components (2.5%)** compared to those that do not (3.7%), aligned with expectations that carefully designed additional components provide the right incentives.

Average annual imbalance ratio by application of additional components (95% CI), 2022-2025, %



Not a causality analysis

The assessment of the relationship between wholesale and imbalance prices shows lower convergence for countries with dual pricing and with additional components, revealing stronger incentives to be balanced



Single v. dual pricing shows better convergence for single pricing

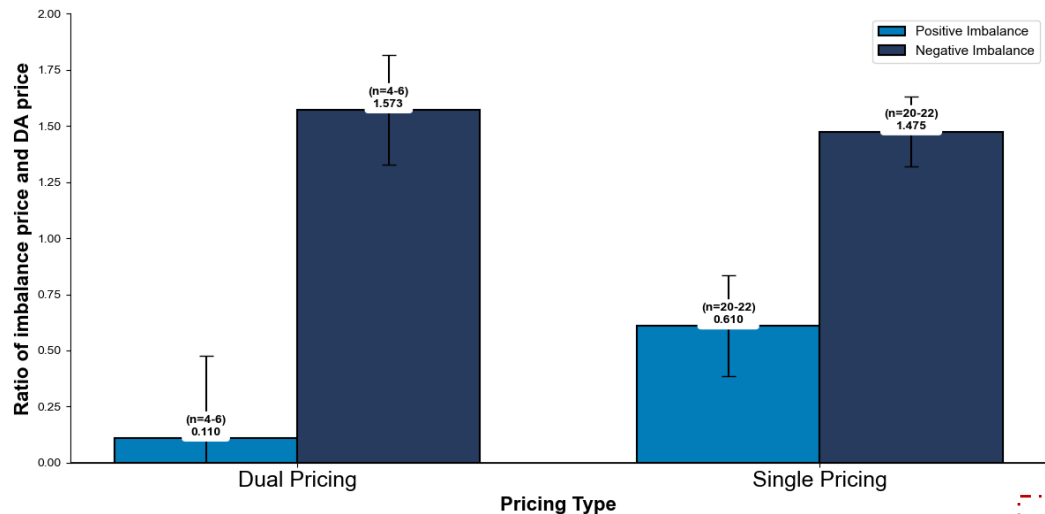


There is no significant impact of additional components on the convergence with DA prices

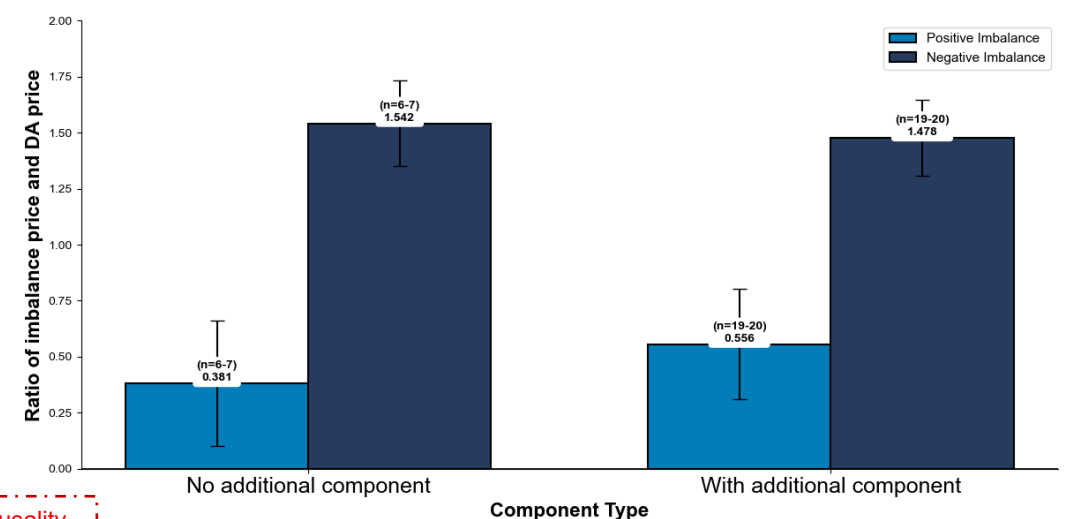
- Relationship between the imbalance price and the DA price depending on the system direction **in line with expected incentives to avoid such imbalances and rather balance in the wholesale market.**
- With **dual pricing**, imbalances contributing to (worsening) the system imbalance are **penalised** even more than for countries with single pricing, compared to the DA price.

- The figure **does not show significant differences** between the two groups of countries.
- In many countries, additional components are activated **only under specific conditions**, resulting in a limited number of hours during which they are applied in practice.

Average annual ratio between imbalance price and DA price by application of dual vs. single pricing when BRPs and system imbalances are in the same direction (95% CI), 2022-2025



Average annual ratio between imbalance price and DA price by application of additional component when BRPs and system imbalances are in the same direction (95% CI), 2022-2025



Not a causality analysis

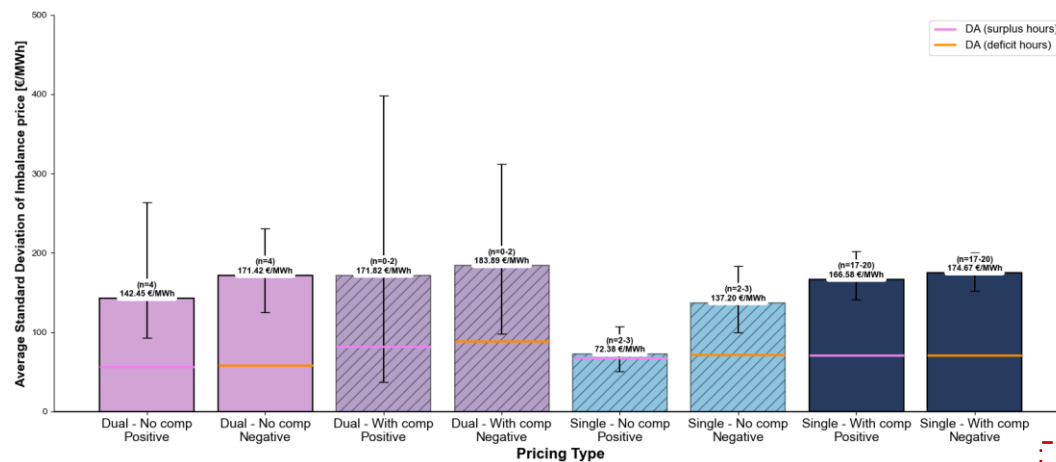


Simple standard deviation shows low volatility for single pricing with no additional components, while the normalised volatility shows extremely larger volatility for single pricing with additional components

Simple standard deviation shows that single pricing countries with no additional component exhibit the lowest volatility

- The group of **single pricing with no additional component is exhibiting the lowest volatility**
- **Single and dual pricing** countries exhibit **slightly higher volatility** with the application of **additional components**
- On average, the **volatility is three to four times higher than the one of the DA price.**

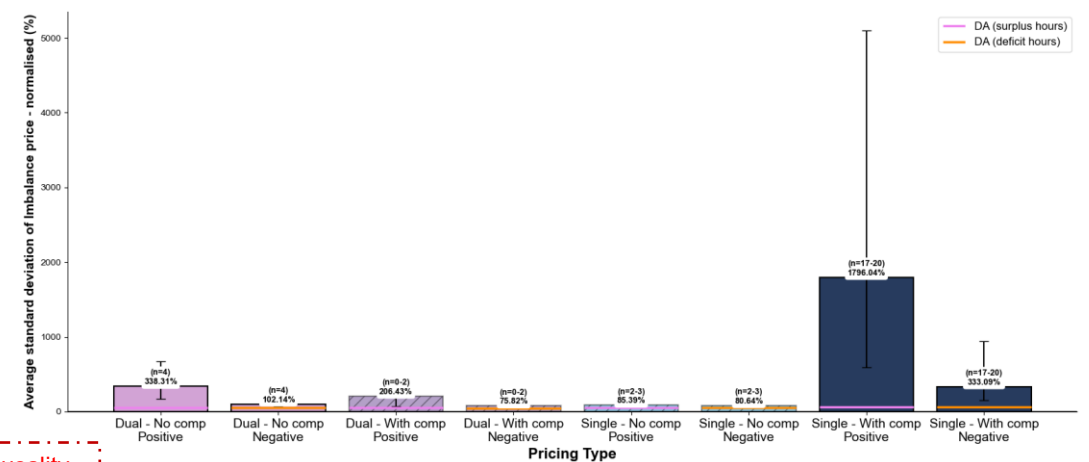
Standard Deviation of Imbalance Prices by Pricing Type (95% CI), 2022-2025



Normalised volatility shows particularly high volatility for single pricing with additional components

- **Higher volatility with additional components, for single pricing countries** (close to 0 mean combined with extreme values can be due to local situations)
- **Opposite observed for dual pricing countries, but very limited number of countries.**

Normalised standard Deviation of Imbalance Prices by Pricing Type (95% CI), 2022-2025



Not a causality analysis

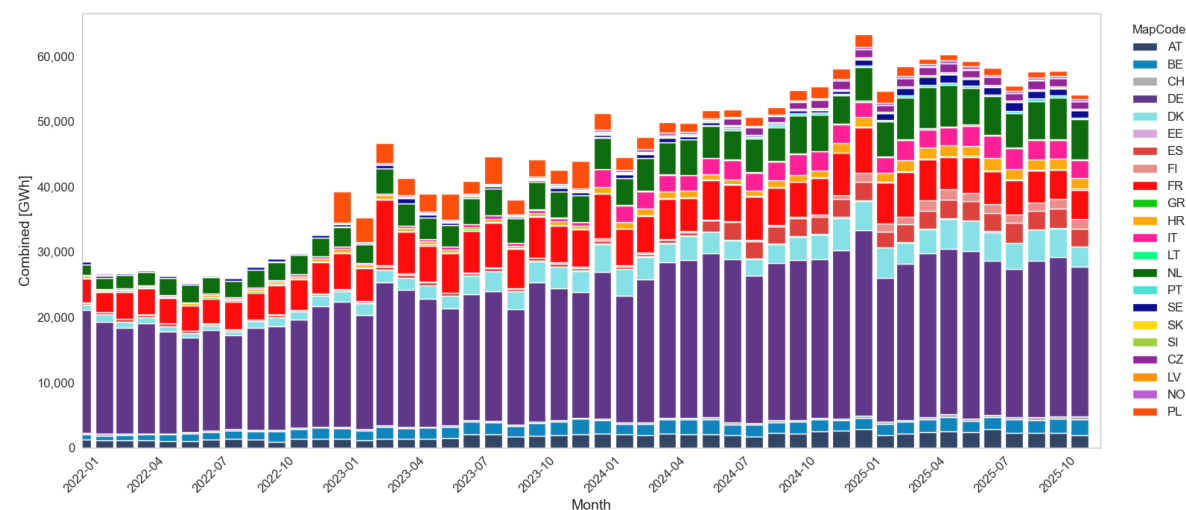
$$\text{Imbalance price}_i = \begin{cases} -\text{Negative Imbalance price, } SI < 0 \\ \text{Positive Imbalance price, } SI \geq 0 \end{cases}$$

$$\text{Imbalance price}_i = \begin{cases} -\text{Negative Imbalance price, } SI < 0 \\ \text{Positive Imbalance price, } SI \geq 0 \end{cases}$$

The liquidity of European intraday markets has gradually increased over the studied period, with no evidence of material upward or downward impact of the imbalance settlement reforms

- Increase of the overall ID liquidity, with **total volume increasing from about 30 TWh in January 2022 to about 55-60 TWh per month in 2025.**
- **Continuous trades represent the large majority of the ID liquidity** as of 2025 (about 50 TWh per month at the European level, compared to 5-8 TWh per month for the pan-European IDAs).
- **Increasing trend of liquidity in the continuous ID market at the European level**, with an increase of about **80%** between 2022 and 2025.
- Regarding **auction volumes**, some countries have seen important **growth** over the past year, while other countries, which already had important volumes at the start of the period, exhibit a **relatively stable trend.**
- Given the increasing trend and the subsequent reforms of the ID market, with the extension and integration of the continuous ID market, the introduction of auctions or the introduction of 15-minute products, there is **no visible or material impact, neither upward nor downward, due to the reforms of imbalance settlement at EU level.**

Evolution of total ID volumes, 2022-2025, GWh



The comparative assessment of the different designs does not support a preferred ISHM design

- TSOs follow different **balancing philosophies** to account for local needs, constraints, and stages of the energy transition
- **Key methodological ISHM choices** include **single vs. dual pricing, maximum/minimum vs. average pricing**, the application of **additional components**, and **boundary conditions**.
- A review of **market developments since the implementation of the ISHM does not suggest significant impacts on system imbalance or imbalance prices at EU level**.
- **Imbalance volumes vary** by pricing design & bidding zone size without a clear causal link **with the IS design**.
Dual pricing gives a stronger incentive to BRP to be balanced & less price volatility while **single pricing** can lead to higher price volatility but **stronger market signals to support the system**.

Market efficiency and operational security

- Stable volumes overall
- Pricing design influences incentives for balancing

Implementation feasibility

- Generally manageable
- Some challenges: IT, processes, complexity

Transparency

- Already improved
- Gradual alignment (e.g. move towards single pricing & more TSOs applying additional components)

Q&A by webinar attendees



3. TSO's ISHM Assessment – Public Consultation

Structure of the TSO Assessment

Introduction & Executive Summary

Assessment methodology

Limits of full meth. harmonisation

Assessment of Art. 7-11

Summary of risks identified

Conclusion

Focus
for
today

TSO Assessment – Focus: Limits of full methodological harmonisation

1. Diverse system conditions across Europe

- Differences in generation mix, RES penetration, grid topology and reserve margins require locally calibrated imbalance incentives.
- A uniform “average” design risks mis-calibrated price signals, weaker incentives and higher operational costs.

2. Imbalance settlement is a local mechanism, not a cross-border market

- Differences do not imply competition distortions.
- Cross-border effects are limited by capacities, gate-closure times and forecast uncertainty.

3. Limited practical risk of strategic imbalance shifting

- Constrained by price uncertainty, gate closure times and cross-zonal capacities.
- The main risk does not stem from imbalance shifting itself, but from BRPs deliberately remaining imbalanced.
- This risk cannot be fully addressed through harmonisation, as systematic price differences linked to local conditions would persist.
- In systems with liquid intraday markets, imbalances can be effectively mitigated by appropriate incentivising components.

4. Cross-border balancing is already harmonised

- European platforms (PICASSO, MARI) harmonise the operational activation layer.
- Imbalance settlement mainly allocates local costs and incentives, limiting impacts on cross-border efficiency.

5. Harmonisation does not lead to uniform prices

- Imbalance prices are inherently linked to local market prices and system conditions.

Full methodological harmonisation does not necessarily reduce risks. Well-justified methodological flexibility is essential to ensure effective incentives and operational reliability under different system conditions

3.1. Assessment Art. 7

Article 7 defines that each TSO shall implement the use of single imbalance pricing for all imbalances, except for the specific or all ISPs where a regulatory authority approves the application of dual imbalance pricing. It also ensures that the imbalance price formation is linked to physically relevant balancing energy volumes. The Article provides a common framework to integrate different balancing processes into the price calculation.

- Implicit differences occur based on the **ambiguity whether imbalance prices should be based on:**
 - **activated balancing energy,**
 - **satisfied balancing energy demand.**

Recommendations:

- **Remove ambiguity regarding “activated volumes” vs. “satisfied demand”.**
- **Ensure consistent volume definitions across Articles 7 and 9 and EB Regulation Article 55.**

3.2. Assessment Art. 8

Article 8 prescribes in which way the direction of the total system imbalance shall be determined. This is especially important to decide which balancing prices and balancing volumes are considered for the calculation of the imbalance settlement price. In addition, the character of a BRP (aggravating or non-aggravating) is defined.

- TSOs in the Nordic synchronous area currently use Art. 8(3), which allows them to determine the direction of the total system imbalance based on a set of imbalance price areas. This will change, however, with their accession to MARI and PICASSO and the adoption of ACE-based balancing. **Regulatory harmonisation is fulfilled**, as all TSOs are in line with the provisions of Article 8.
- Some methodological flexibility exists, as **TSOs can choose which volumes** they include in the calculation. The fact, however, that **all volumes listed in the respective article of ISHM are used** by at least one TSO, clearly shows that this **flexibility is necessary** to respect the specific conditions in different areas.

Recommendations:

- **To enhance clarity in the interpretation of the terms “imbalance area” and “imbalance price area”, it would be advantageous to include references to the corresponding definitions in the relevant legislative texts.**

3.3. Assessment Art. 9

Article 9 ensures explicit harmonisation among TSOs regarding both the incorporation of the different balancing energy products into the imbalance price formation and the boundary conditions with which imbalance settlement must comply.

At the same time, it defines the explicit methodological flexibility TSOs have to construct the imbalance price in different ways via the use of:

- A volume-weighted average price (VWAP), a minimum/maximum approach or a combination of both pricing methods;
- A component for national regulatory requirement concerning to scarcity situations;
- An incentivising component for national boundary conditions;
- A component with regards to financial neutrality.

All flexibility options are applied across TSOs depending on the most appropriate signals to meet local needs.

Recommendations:

- **Articles 9(1) and 9(2) are widely considered to be complex and would benefit from being redrafted to improve clarity.**
- **Volumes referred to in the calculation of the imbalance price (ISHM Articles 7, 9(1), 9(2), and 9(5)), the VoAA (ISHM Article 10), and the boundary conditions (EB Regulation Articles 55(4) and 55(5)) are not defined consistently across these provisions, leading to ambiguity in interpretation - these definitions should therefore be clarified.**
- **References to the phased-out TERRE platform (Articles 9(3)(a) and 9(5)(a)) should be removed.**

3.4. Assessment Art. 10

Article 10 establishes the principles governing the calculation and use of the Value of Avoided Activation (VoAA).

The VoAA ensures that there is an imbalance price reflective of system conditions and in compliance with the principles of imbalance settlement set out in Article 44(1) of the EB regulation in situations when no balancing energy has been activated for an imbalance price area.

VoAA may set the imbalance price when

- the imbalance price area is balanced
- the imbalance price area's demand is netted with balancing energy from the platforms

VoAA must be calculated

- using aFRR, mFRR or RR bid price(s), per direction, available to the TSO, but ISHM does not specify which bids should be used or whether bids should come from local or common merit order lists

VoAA to handle non-representative price signals. An example is when a bidding zone's demand is largely netted but an aFRR activation or last-minute mFRR direct activation results in an (extreme) imbalance price that may not accurately reflect the full ISP.

Recommendations:

- Further assess the use of VoAA for handling corner cases, ensuring imbalance prices that reflect the full ISP.
- Define clear criteria for identifying such situations and applying VoAA.

3.5. Assessment Art. 11

Article 11 establishes the conditions and methodology for applying dual imbalance pricing for all imbalances according to Article 52(d) of the EB Regulation.

- Compass Lexecon Report outlines that the dual pricing approach provides stronger incentives for BRPs to maintain balanced positions.
- Currently applied by the Netherlands, Spain and Portugal, based on the condition set out in Article 11(1)(a).
- Many TSOs, including those applying single pricing, see the need to retain the possibility to apply dual pricing, to incentivise BRPs to be in balance, according to Article 44(1) of the EB Regulation.
- At this stage, all the conditions set out in Article 11(1) must be kept, as at least one TSO meets one of these conditions.

Recommendations

- **No need for further clarification or harmonisation has been identified, but some amendments are recommended:**
 - **Article 11(1)(c): Scarcity component to be different from zero, not only greater than zero.**
 - **Add a new condition to apply dual price in all ISPs, if it is duly justified and approved by the NRA:**
 - **For TSO that run security studies prior to real time based on BRP production schedules.**
 - **For TSO of bidding zones with high level of internal congestion.**

3.6. Final remarks

- **ISHM should remain a flexible toolbox: as methodological combinations are only used by a limited number of countries and results are influenced by multiple country-specific factors, robust cross-country comparisons and causal conclusions are not possible.**
- **Therefore, no single approach can be identified as universally superior.**

4. Next steps

- **By 7 September:** deadline for the public consultation feedback submission.
- **September 2026 – June 2027:** TSOs review and assess the feedback received through the public consultation, prepare responses, and incorporate the feedback into the final report.
- **By 1 July 2027:** Final TSOs' report submitted to ACER, including the TSOs' responses to the public consultation feedback.

5. Q&A by webinar attendees





**Thank you very
much for your
attention!**