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2nd Technical Workshop: Gas Market Design and Natural Gas Transmission Grid Codes

Practices for Grid Code Harmonization – Examining Allocation and Balancing

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AGENDA

- Overview of balancing regime
- Approaches for balancing actions performed by the TSO
- Interim measures applied for development of the balancing regime
- Key elements for implementing the balancing rules
- The role of the regulator



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Overview

Key elements for applying the balancing rules

Balancing actions of the TSO

Application of interim measures

Role of the Regulator



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Evolving landscape of balancing regime

- In the EU's new balancing regime, commercial balancing of the market should be **driven by shippers** by providing appropriate incentives
- **TSO retains the overall responsibility** for the safe, secure, economic and efficient operation of its system and therefore should retain **a residual role** to maintain physical balance of the system (balancing actions)
- Effective implementation requires **development of within-day markets** where all shippers have the opportunity to trade in an unhindered manner
- **Flexibility is allowed** to accommodate characteristics of each national market, but the overarching principles and the end-goal are the same for all
- As a subsequent step, emergence of **regional balancing platforms** is encouraged, together with alignment and coordination of activities across borders (e.g. PEGAS platform)



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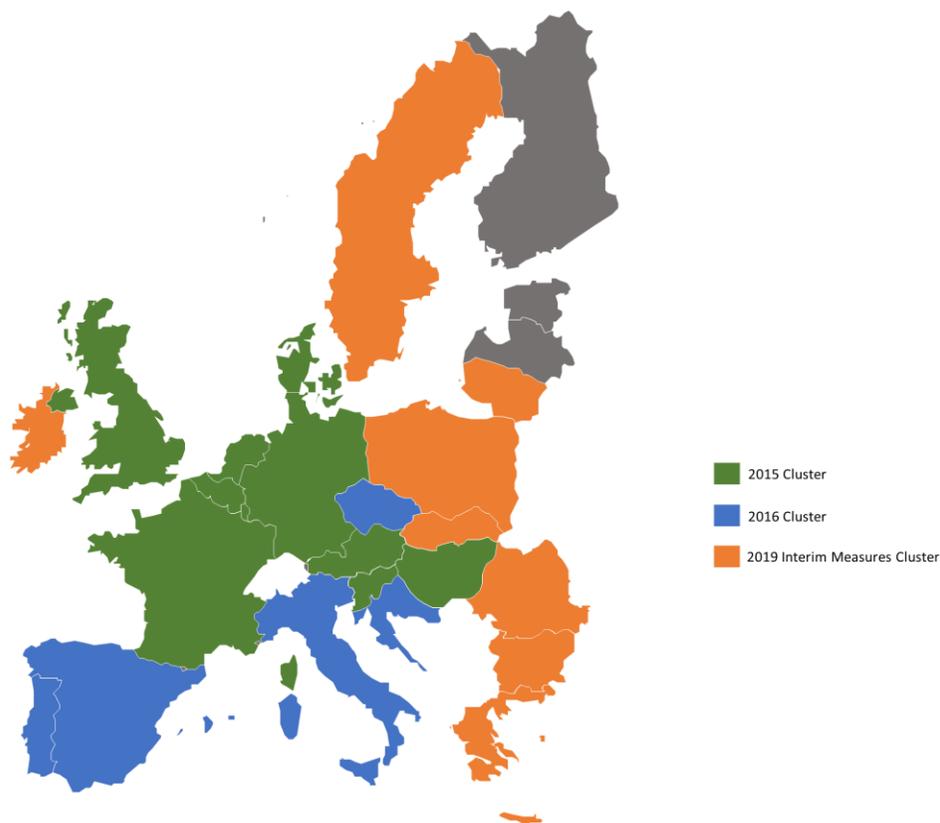


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Flexibility in the design of the balancing regime

- The EC Balancing Code offers alternative options that pieced together are expected to allow implementation of the targeted EU balancing model:
 - 3 possible types of **information models** for forecasting non daily metered off takes (base case, variant 1, 2)
 - 4 possible types of **interim measures**
 - 4 possible types of **short term standardised products** (title, locational, temporal, temporal locational) offered at virtual trading points
 - The possibility to continue procuring **balancing services**
 - The possibility to provide additional **linepack flexibility** service
 - The possibility to choose whether or not to apply **within day obligations** with 3 possible types of within day obligations (system wide, portfolio based, entry-exit)
- The selection of the appropriate alternatives depends on the **characteristics of the market**, its **current condition**, as well as the **technical aspects** of the system

Timing of balancing implementation



- A major flexibility allowed by EC regulations is the different **timing for implementation** of the balancing rules
- The timing is allowed to accommodate the **maturity differences** among the markets
- The longest period before fully applying the balancing regime is **5 years**, until which interim measures have to be applied
- This period is based on past experience with development of a short-term market in the UK and its migration to other markets as FR or NL



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Key elements for efficient application of balancing rules

- Establishment of an **entry-exit regime**
- Availability of **short-term (daily, intra-day) capacity products** at entry and exit points
- Implementation of the **daily nomination-renomination** procedure in line with the EC Regulations' specifications
- **Efficient provision of information** to shippers for defining their balancing position (Information Models)
- Appropriate **selection between within day and daily balancing** obligations of shippers
- **Engagement of shippers** to take part in the trading activities



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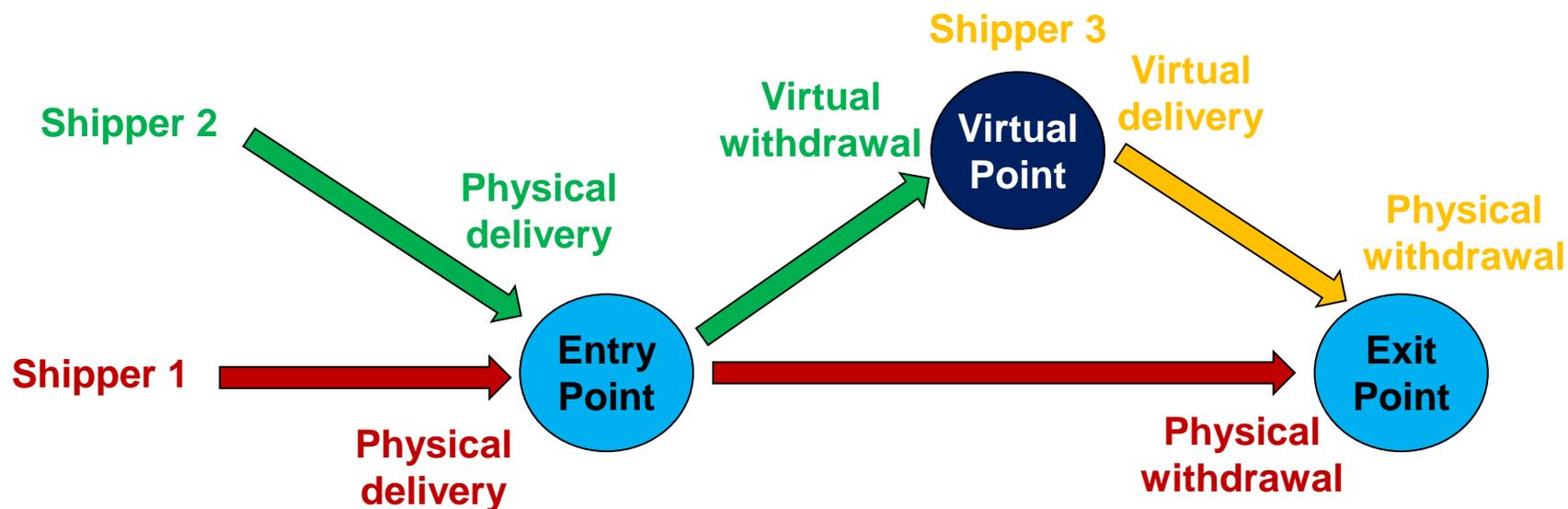
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Rationale of entry – exit regime

- EC Regulation 715/2009 requires TSOs to have a **de-coupled entry-exit system in place**
- Entry-exit system: gas network access model which allows shippers to book capacity rights **independently at entry and exit points**, thereby creating gas transport through zones instead of along contractual paths
- This allows **easier change of gas ownership** enhancing competition and market liquidity
- With a transmission contract the shipper can **book capacity in entry points, exit points or both**
- The deliveries and withdrawal of gas are either **physical or virtual**. The shippers have to ensure that their **deliveries and withdrawals are balanced**



Example of entry-exit system





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Provision of information to shippers for balancing

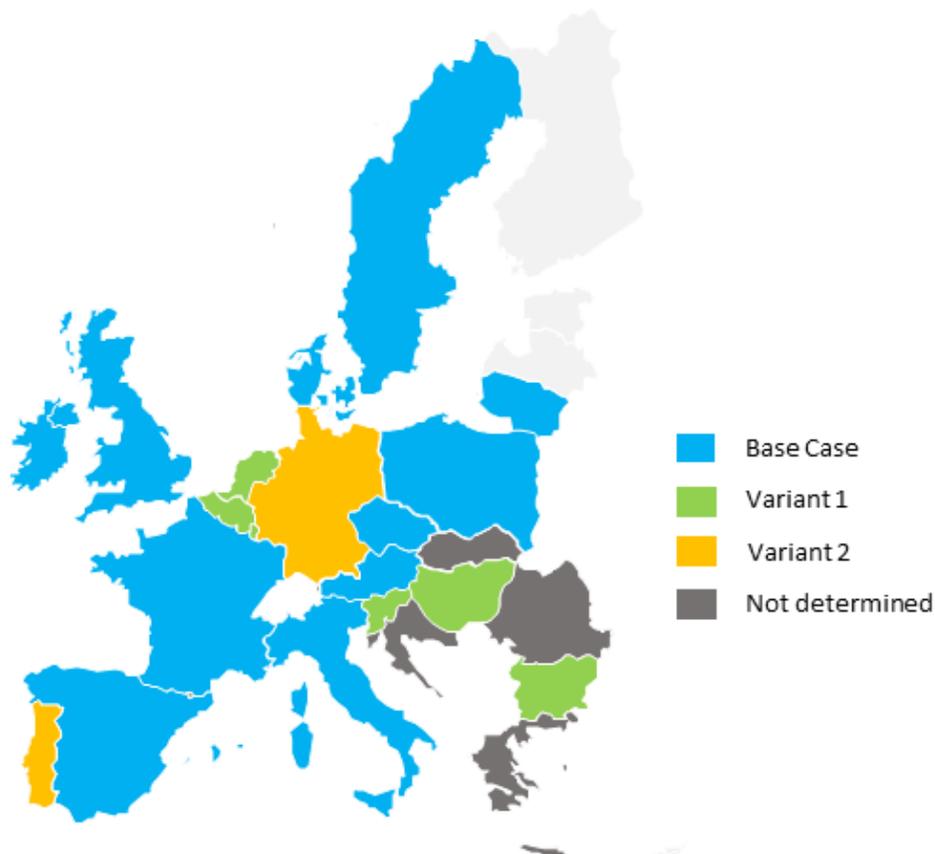
- The EU shippers have indicated that the provision of more comprehensive information to them about the volumes to be allocated to them daily, and the notification of this information in high frequency, will facilitate their decisions on balancing
- The EC Balancing Code includes 3 Information Models, to ensure sufficient information for the shippers, but also allow flexibility of application according to characteristics of each market
- For the decision on the Information Model to be applied, the TSO **has to perform a cost-benefit analysis**, to determine the most beneficial solution for the frequency and the timing of information provision
- In some markets with large liquidity, the TSOs are providing information about the volumes to be allocated to shippers more frequently than foreseen in the EC Code



Overview of EC Regulation Information Models

| | Gas Day D-1 | Gas Day D | | |
|------------------|----------------------|------------------------|----------------------|--|
| | <i>NDM forecasts</i> | <i>DM Measurements</i> | <i>NDM forecasts</i> | |
| Base Case | ✓ | | ✓ | <ul style="list-style-type: none"> On Gas Day D updated forecasts to shippers at least 2 times Some TSOs provide 4-5 forecasts |
| Variant 1 | | ✓ | ✓ | <ul style="list-style-type: none"> On Gas Day D updated info to shippers at least 2 times Some TSOs (BeLux, NL) provide hourly information |
| Variant 2 | ✓ | | | <ul style="list-style-type: none"> Simplest model for information provision Affected by seasonality and can lead to increase of balancing actions by the TSO |

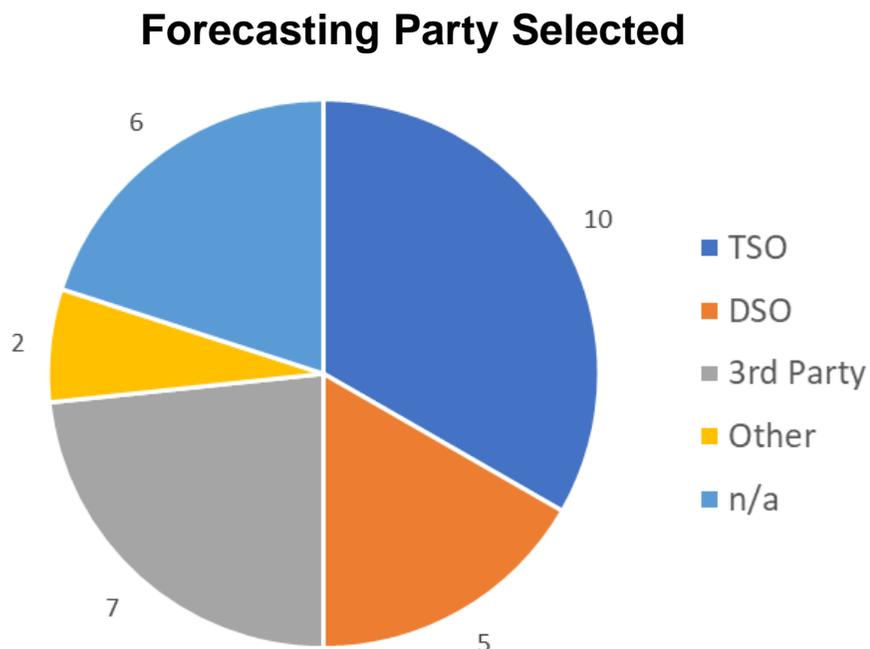
Application of Implementation Models in the EU



- The model that has been mainly applied in the EU is the Base Case
- Some countries have not yet selected a model, while others have not proceeded to actual implementation
- Main reasons for non-selection include:
 - Lack of interest by the users
 - Underdeveloped market or legislation
 - Absence of transmission exits with non-daily metered points

Source: ENTSOG

Selection of forecasting party



Source: ENTSOG

- Selection of the forecasting party is the Regulator's responsibility
- Selection varies depending on the systems, capabilities and experience of stakeholders
- Selection of TSOs is justified if they have data availability, forecasting experience and capabilities
- Selection of DSOs is justified if they have more detailed information to provide



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Within-day balancing vs daily balancing obligations

- The TSO may apply Within-Day Obligations (WDO) that require the shippers to have their portfolio balanced **within a day and not at its end**
- Such WDOs may include obligations applied to all shippers together, to each shipper separately or to those accessing specific entry / exit points
- WDOs should be applied **only in certain circumstances** (e.g. where technically necessary to overcome flow restrictions). Otherwise, they could **restrict within-day commercial freedom** of shippers, as opposed to daily balancing
- **Continued monitoring** of WDOs is required to ensure their performance



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Balancing actions by TSO

- When balancing of the system is required, the TSO shall undertake balancing actions through:
 - purchase and sale of **short-term standardised products** on a trading platform;
 - the use of **balancing services**, in case the market conditions do not allow short-term standardized products to keep the system at its operational limits
- Balancing services are carried out with contracts with third parties (not exceeding a year, unless otherwise decided by the Regulator)
- The EC balancing rules seek to **minimize the balancing actions** performed by the TSO



Residual role of the TSO





TSO involvement in balancing in EU markets



- TSOs have residual role in liquid markets
- More balancing services are observed either due to the balancing model applied (DE) or due to incomplete application of the regime



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Importance of linepack flexibility

- Linepack flexibility is the range of maximum and minimum level of linepack that **the TSO considers** that allows the system to operate in an efficient or operationally efficient manner. Linepack flexibility may change depending on the system conditions
- The decision of the TSO about the level of linepack flexibility **affects the triggering of interventions** of the TSO in balancing
- The extent to which shippers are given access to linepack flexibility is a **critical design element** of the balancing regime, as it affects whether the system may remain without balancing actions of the TSO
- In this respect, the application of WDO has to be carefully designed, so as not to **impose undue restrictions** of shippers' access to linepack flexibility



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Control of balancing actions

- Some markets apply mechanisms to predefine the cases in which the TSO will perform balancing actions (e.g. BeLux, Denmark)
- The TSO sets minimum and maximum levels of commercial imbalance (positive and negative), called “**green zone**”. If imbalances are in the green zone, no balancing action from the TSO is expected. Once the imbalances go upper or lower than the green zone thresholds the TSO takes actions to restore the balance
- ACER has expressed concerns that very low tolerance levels for imbalances when setting the “green zone”, may unduly restrict the shippers’ accessibility to linepack flexibility



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Identification of interim measures

- Interim measures applied by the TSO may include:
 - Establishment of a **Balancing Platform**, where the TSO is a party to every trade, as an intermediate step to a Trading Platform
 - **Interim imbalance cash-out price**, which may be based on an administrative price or a proxy for a market price (e.g. marginal price of Balancing Platform)
 - Application of **tolerance** levels, where shippers are afforded some protection against full marginal cash-out prices
 - **Alternative to Balancing Platform**, (e.g. balancing services), subject to Regulator approval, applied if a balancing platform cannot increase liquidity
- The TSO must draft a **report defining and justifying the interim measures** to be applied, which is **approved by the Regulator** following a consultation process
- If necessary, subsequent reports with the progress and update of measures have to be prepared annually by the TSO



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Application of interim measures

- The cluster of markets that opted to apply interim measures includes Bulgaria, Greece, Ireland, Lithuania, Poland, Romania, Sweden, Slovakia, Northern Ireland
- The main reasons identified by the TSOs and Regulators of these markets include:
 - **Inexistent liquidity** on the short-term gas market and absence of trading venue, even in neighboring markets
 - **Limited interconnectivity**, coupled with lack of free firm capacity at interconnections and effective application of congestion management and interruptible capacity
 - Heavy reliance on **unidirectional gas flows** or even a single supplier



Selection of interim measures in EU countries

| | Use of trading platform | Balancing Platform | Interim cash-out price | Tolerance levels | Other measures |
|---|---|-----------------------------|-----------------------------------|--------------------------------|--|
|  | - | - | Recovery of balancing cost | +/- 5% | TSO relies on balancing contract |
|  | - | Envisaged Q4 2017 | Recovery of balancing cost | +/- 10% (gradually decreasing) | TSO relies on balancing contract |
|  | Available but not yet used | - | GB system average price | +/- 2% | TSO uses balancing contracts |
|  | Significant buys in Q3 2017 | - | Exchange price & bilateral trades | Two levels +/- 5%, +/-15% | Up to Q2 2017 TSO relied on balancing contract |
|  | Used as primary tool | Backup for trading platform | Within-day market trades | +/- 5% (GY 2016/17) | Limited contracted at IP with CZ |
|  | Study for future joint balancing zone with DK | - | Weekly cash-out price | | Regulated weekly trades |
|  | Use of trading platform by TSO | In operation | Based on Austrian market | | Not in 2017 Market may rely on products of AT |



Rules for procuring balancing services

- Balancing services shall be **procured in a market-based manner**, through a transparent and non-discriminatory public tender procedure in accordance with the applicable national rules
 - The TSO publishes **non-restrictive** call for tender
 - the **results shall be published**
- A transparent and non- discriminatory procedure other than a public tender may be approved by the national regulatory authority
- Duration of a balancing services contract shall **not exceed one year**, unless otherwise decided by the Regulator
- The TSO must **review the use of its balancing services annually** to assess if market conditions **could allow reduction** of these services
- The TSO must **publish annually information** with regard to the balancing services procured and the related costs incurred



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Role of the Regulator

- The Regulator has a **critical role in the development of the quantity allocation** process
 - Designates the forecasting party in cooperation with stakeholders
 - Defines the information model to be applied following proposal by TSO
- The Regulator has a **decisive role in the design of the balancing regime** by deciding on timeframe of the balancing rules establishment, including the application of interim measures potentially proposed by the TSO
- The Regulator also approves the terms for application of the balancing actions to be performed by the TSO, including approval of the trading platform in which the TSO will procure short-term products
- ACER has highlighted the need for **monitoring of the balancing regime's effectiveness** by the Regulator and the enhancement of rules if deemed necessary



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ACER's Balancing Analytical Framework

- To facilitate monitoring of the balancing regimes' operation, ACER developed a Balancing Analytical Framework
- This framework uses data of the market to allow assessment of the effectiveness of individual regime performance, as well as an inter-regime comparison
- The information analysed includes:
 - TSO balancing actions
 - Shippers imbalance cash-out
 - Neutrality
 - Relationship between physical linepack and commercial imbalances