

Case Study Germany: Timeline, Decisions and Lessons learned

ENTSOG-ENC Joint Workshop on
The Implementation of the Balancing Network Code



Agenda

- Market Area Manager – *Who?, Where? ...*
- Implementation phases – *When?, How long?! ...*
- Case studies on decisions – *Why?, If you say so ...*
 - Case 1: Non daily metered offtakes – “Variant 2”
 - Case 2: Information provision for intraday metered offtakes
 - Case 3: Within day obligations
 - Case 4: Imbalance pricing
- Q’n’A – *What?, Why?, But ...*

Market Area Manager (MAM)



**NetConnect
Germany**

simply gas

According to the BAL NC the regulation may apply to an entity other than the TSO

Chapter II Balancing system

Article 4 General principles

1. The network users shall be responsible to balance their balancing portfolios in order to minimise the need for transmission system operators to undertake balancing actions set out under this Regulation.
2. Balancing rules established in accordance with this Regulation shall reflect genuine system needs, taking into account the resources available to transmission system operators and shall provide incentives for network users to balance their balancing portfolios efficiently.

3. Network users shall have the possibility to enter into a legally binding agreement with a transmission system operator which enables them to submit trade notifications irrespective of whether they have contracted transport capacity or not.

4. ***In a balancing zone where more than one transmission system operator is active, this Regulation shall apply to all the transmission system operators within that balancing zone. In case the responsibility of keeping their transmission networks in balance has been transferred to an entity, this Regulation shall apply to that entity to the extent defined under the applicable national rules.***

Composition of Market Area

bayernets
erdgas transport system

FLUXYS

GRTgaz
Deutschland

Open Grid Europe
The Gas Wheel

terrannets bw




Thyssengas



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NetConnect Germany at a glance

Entity	NetConnect Germany GmbH & Co. KG
	Shareholder Open Grid Europe GmbH 35%, bayernets GmbH 18%, Thyssengas GmbH 17%, Fluxys TENP GmbH 10%, GRTgaz Deutschland GmbH 10%, terranets bw GmbH 10%
	Head office Ratingen
	Management Dr. Thomas Becker, Torsten Frank
	CoB October, 1st 2008
	Staff around 50 (as of 2019)
	Main business <ul style="list-style-type: none">■ Balancing group management■ Provision and operating of VTP “NCG”■ Balancing gas management

Duties and responsibilities by market role

– market area manager and transmission system operators

■ Market area manager (MAM)

- Management of energy balancing accounts (shippers/network operators)
- System imbalance management (procurement of balancing gas/services)
- Provision and operation of the virtual trading point

■ Transmission system operators (TSO)

- Operation of the physical system
 - Network maintenance/development
- Capacity management
 - Contracting, Dispatching, Billing

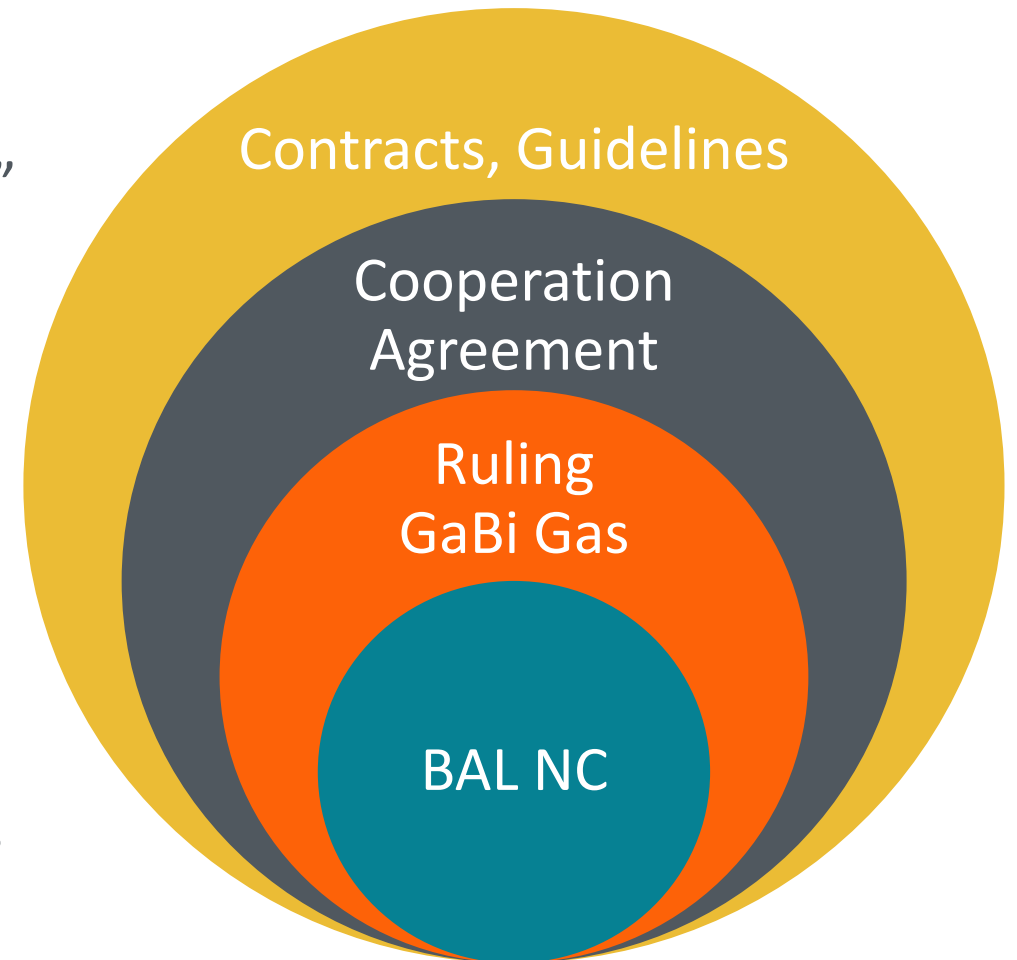


Implementation phases

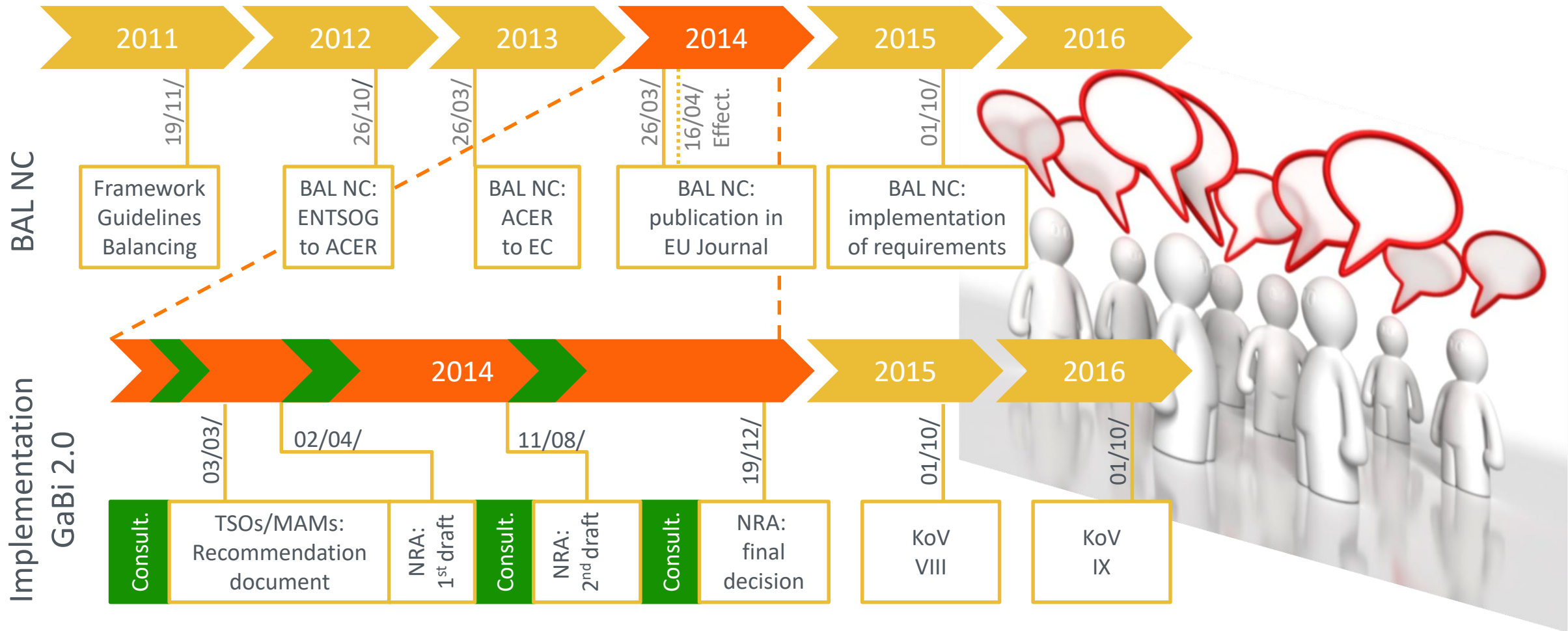


Multi-layered legal framework

- As an EU regulation BAL NC is directly applicable in member states
- The German federal regulator “Bundesnetzagentur” issued a formal administrative decision modifying the existing legal framework for balancing (the “GABi Gas” ruling) based on provisions set out in BAL NC: “GaBi Gas 2.0”
- Provisions are implemented and detailed rules defined as part of the modification process for the German gas industry’s third-party access code (“Cooperation Agreement”, so-called “KoV”) and its associated best practice guidelines



Implementing BAL NC / GaBi Gas 2.0 – a look back



Implementation phases (1/2)

■ Step 1: **Recommendation document** (about 3 months)

- After final version of BAL NC was known to ENTSOG/ACER the German federal regulator “Bundesnetzagentur” instructed both MAMs to submit a recommendation document setting out applications, proposals and recommendations relating to the MAMs’ responsibilities in compliance with the provisions of BAL NC
- **TSO/MAM consultation phase** started after the first draft of the recommendation document is published: 20 responses (11 international traders, 5 associations, 3 distribution system operators (incl. 1 foreign), 1 exchange) included in the final version of the document

■ Step 2: **NRA ruling** (about 9 months)

- First **NRA consultation phase** after publication of official notice announcing the launch of a formal administrative proceeding to determine gas balancing rules: 34 responses (incl. associations, MAMs/TSOs, DSOs, traders, foreign regulators and exchanges)

Implementation phases (2/2)

- Step 2 (cont.): **NRA ruling** (about 9 months)
 - Second NRA-consultation phase after publication of draft decision: **100 responses** (incl. associations, MAMs/TSOs, DSOs, traders, foreign regulators and exchanges)
 - Publication of final decision
- Step 3: **Cooperation agreement and guidelines** (about 1 year)
 - Drafted by German market associations including the definition of market processes based on regulator's decision – **involvement of all market participants in the drafting process**
 - In the course of this process all required contracts and relevant process descriptions are developed and drafted
 - Final versions of Cooperation Agreement and best practice guidelines are submitted to the regulator for review
- Step 4: **IT implementation** (about 1-2 years; parallel to at least step 3)

Timeline implementation of regulatory framework “GaBi Gas 2.0”

■ Implemented by the start of **GY 2015/16**:

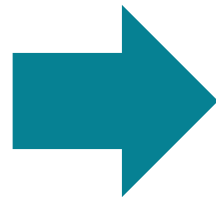
- New imbalance pricing model
- Changes to current allocation rules for some intra-day metered customers (so-called RLM customers)
- Shorter nomination lead times at VTP
- Adjustments to the currently applied model for harmonised procurement of balancing gas and balancing services
- Different neutrality arrangements for costs/revenues attributable to intra-day metered RLM and non-daily metered SLP exit points
- Financial settlement of CV adjustments (RLM quantity reconciliation)
- Annual and continuous reporting and disclosure obligations for MAMs

■ Implemented by the start of **GY 2016/17**:

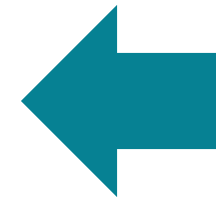
- Modification of within day obligations (WDOs)
- Information provision for IM/RLM exit points (2 times during the day)
- Incentive mechanism for accuracy of NDM/SLP demand forecasts (daily financial settlement of network operators' balancing accounts)

Lessons learned

- Given the essential function of the processes affected (e.g. procurement of balancing gas/services to maintain the networks within their operational limits) it is of key importance that an **in-depth analysis** is carried out and that a **coherent overall concept** is developed
- Process requires very **close coordination with the regulator**
- **All market actors must be involved**, e.g. through consultations
- Time-consuming and labor-intensive process in all aspects (e.g. due to the need to ultimately develop and implement a complex IT system)



Start as early as possible!



Decisions – Case 1: Information Provision on Non Daily Metered Off-takes



Information Provision on Non Daily Metered Off-takes

– NC BAL excerpt

■ Chapter I Definitions

- Art. 3 (21): ‘**Variant 2**’ means the model for information provision where the information on non daily metered off-takes is a **day ahead forecast**

■ Chapter VII Neutrality Arrangements

- Art. 30 (5): Where the information model variant 2 is applied and thus the neutrality charge for balancing may be based on forecasted costs and revenues, the transmission system operator's methodology for the calculation of neutrality charge for balancing shall provide rules for a **separate neutrality charge for balancing in respect of non daily metered off-takes.**

■ Chapter VIII Information Provision

- Art. 36 (5): Where the information model variant 2 is applied, on gas day D-1, **the transmission system operator shall provide network users with a forecast** of their non daily metered off-takes for gas day D *[in Germany calculated by the distribution system operator]*

Information provision in Germany

– Non daily metered: Variant 2

	Forecast	Metering	Allocation
Intra Day Metered	Not provided (to be calculated by shipper)	Provided by DSO via MAM* on D (6h, 9h) and D+1 (24h)	Final Metering
Non Daily Metered	Provided by DSO via MAM* on D-1 until 1 PM	Not provided	Forecast

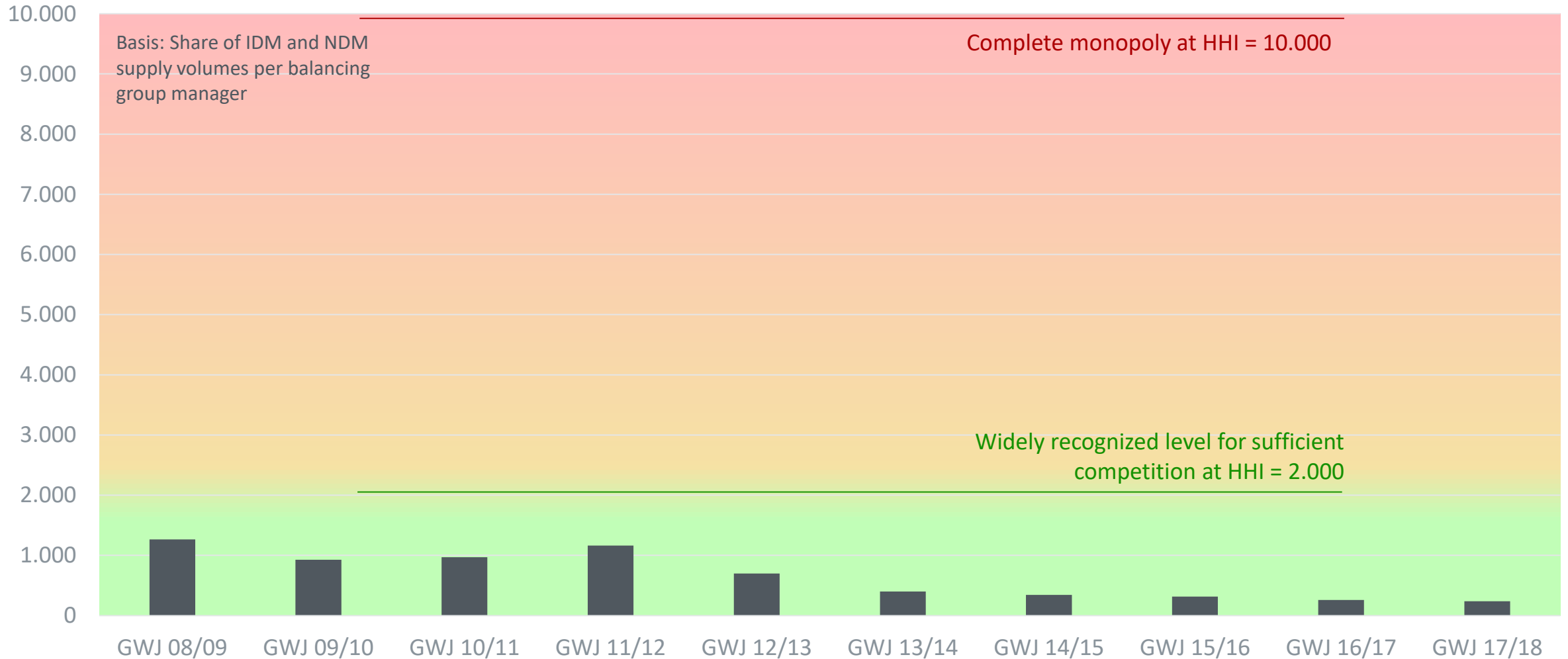
- NDM forecast is provided to the shipper by the DSO as final allocation data on D-1
- Differences between forecast and actual consumption of NDM do not cause portfolio imbalances for shippers – quantity reconciliation process between MAM ↔ network operator ↔ network user
- Consumption of IDM needs to be forecasted by the shippers themselves

Effects of Variant 2

- Balancing against a forecast enables shippers to supply NDMs (in particular household consumers) **without any imbalance risk** in their portfolio
- Thus, the **market entry barrier is lowered** for suppliers of household customers
- Accordingly, the **concentration** of gas suppliers and **competition** between them is very high in Germany
- At the moment, there are more than 450 active balancing group managers in the Market Area NCG, of which about 250 are supplying NDMs
- Depending on the accuracy of the DSO forecast, Variant 2 can however lead to **physical imbalances** in the network which need to be balanced by the MAM
- Since there is no equivalent imbalance charge compensation from/to shippers, the costs/revenues related to such balancing activities need to be covered by the neutrality charge for NDM offtakes

Herfindahl-Hirschman-Index

– for end consumer supplies in the market area NCG



GWJ = Gas Year

Decisions – Case 2: Information Provision on Intra Day Metered Off-takes



Information Provision on Intra Day Metered Off-takes

– NC BAL excerpt

■ Chapter VIII Information Provision

- Art. 34 (2): For intraday metered inputs to and off-takes from the balancing zone, where a network user's allocation does not equal its confirmed quantity, on gas day D the transmission system operator shall provide network users with **a minimum of two updates** of their measured flows for at least the aggregate intraday metered inputs and off-takes according to either of the following two options, as decided by the transmission system operator:
 - (a) each update covers gas flows from the beginning of this gas day D; or
 - (b) each update covers incremental gas flows after that reported in the previous update.
- Art. 34 (3): The **first updates shall cover at least four hours** of gas flow within gas day D. These updates shall be provided without undue delay and within four hours after the gas flow and **no later than 17:00 UTC** (winter time) or 16:00 UTC (daylight saving).
- Art. 34 (4): The **time of the second update provision shall be defined upon approval by the national regulatory authority** and published by the transmission system operator.




Information Provision in Germany

– Intra day metered

	Forecast	Metering	Allocation
Intra Day Metered	Not provided (to be calculated by shipper)	Provided by DSO via MAM* on D (6h, 9h) and D+1 (24h)	Final Metering
Non Daily Metered	Provided by DSO via MAM* on D-1 until 1 PM	Not provided	Forecast

- NDM forecast is provided to the shipper by the DSO as final allocation data on D-1
- Differences between forecast and actual consumption of NDM do not cause portfolio imbalances for shippers – quantity reconciliation process between MAM ↔ network operator ↔ network user
- Consumption of IDM needs to be forecasted by the shippers themselves

Cost/Benefit Analysis on Frequency of Information Provision

- There is always a **trade-off** between the costs of timely and accurate information provision and the economic benefits of correct offtake-predictions and input nominations thus avoiding procurement of balancing gas
- Main tweaking options are ...
 -  ... the **accuracy** of the intra day values
 -  ... the **frequency** of information provision during the gas day
 -  ... the **delay** between measurement and delivery to the shipper
- Consultation between all involved parties is highly recommended – expect very different opinions on the costs and benefits ...

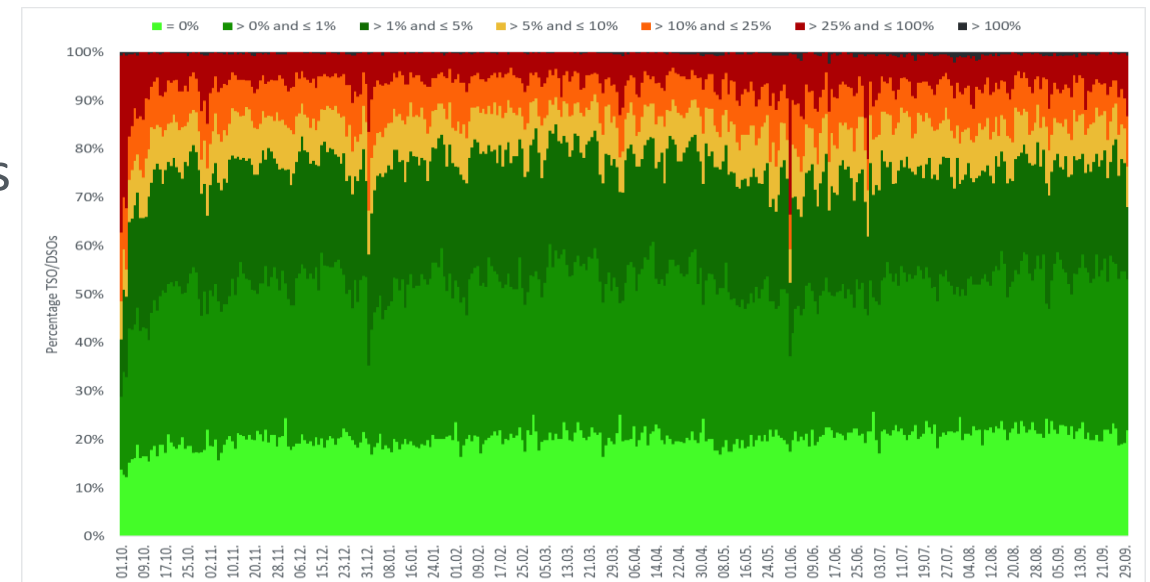
Current model in Germany and Possible Scenario

Information frequency and delay:

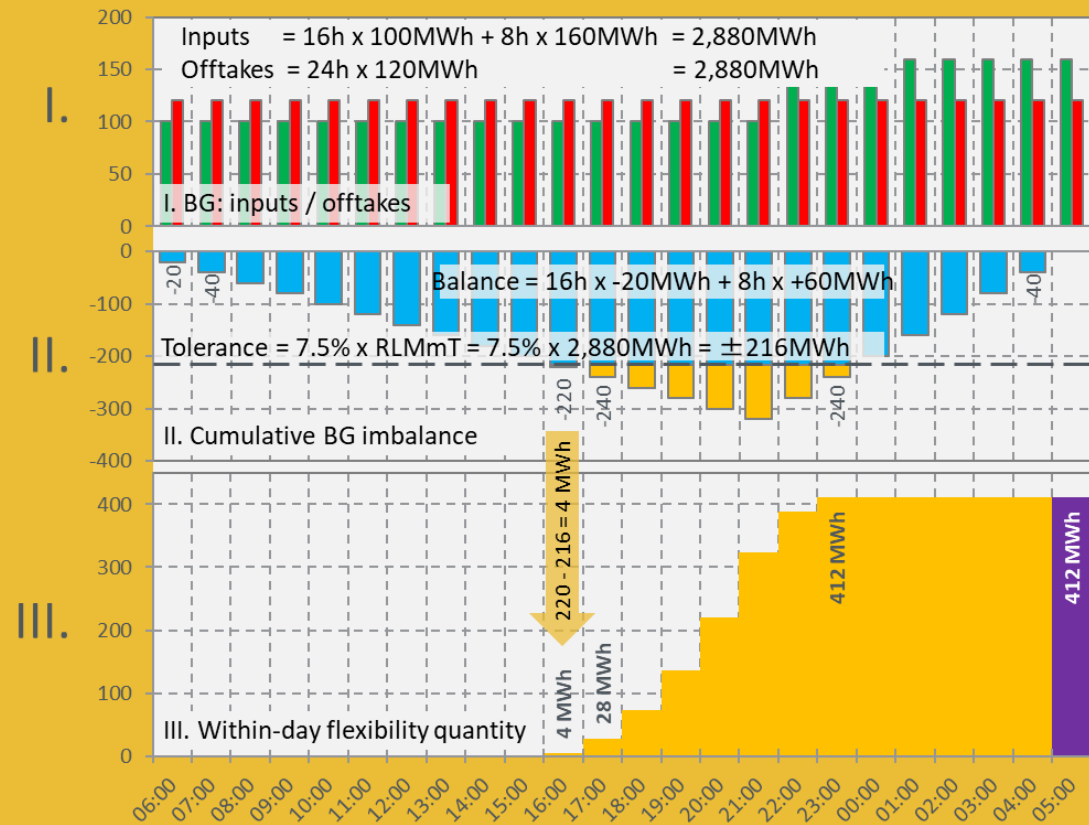
Hours		6:00 to 7:00 7:00 to 8:00 8:00 to 9:00 9:00 to 10:00 10:00 to 11:00 11:00 to 12:00 12:00 to 13:00 13:00 to 14:00 14:00 to 15:00 15:00 to 16:00 16:00 to 17:00 17:00 to 18:00 18:00 to 19:00 19:00 to 20:00 20:00 to 21:00 21:00 to 22:00 22:00 to 23:00 23:00 to 00:00 00:00 to 01:00 01:00 to 02:00 02:00 to 03:00 03:00 to 04:00 04:00 to 05:00 05:00 to 06:00																							
		Status quo						Possible Scenario																	
Status quo	NO → MAM	15:00						18:00						D+1 12:00											
	MAM → Shipper	16:00						19:00						D+1 13:00											
Possible Scenario	NO → MAM	12:00				16:00				20:00				D+1 0:00				D+1 12:00							
	MAM → Shipper	12:30				16:30				20:30				D+1 0:30				D+1 13:00							

Quality goals:

- Shippers claim, they need data with deviations (compared to the final allocations) smaller than 5% to make use of the intra day readings
- Larger deviations supposedly lead to worse predictions for the rest of the day than none



Decisions – Case 3: Within Day Obligations



Within Day Obligations

– NC BAL excerpt

■ Chapter VII Within Day Obligations

- Art. 24 (1): A transmission system operator is only entitled to apply within day obligations in order to incentivise network users to manage their within day position in view of ensuring the **system integrity of its transmission network** and **minimising its need to undertake balancing actions**.
- Art. 25 (3): There are three types of within day obligations, [...]:
 - System-wide within day obligation
 - Balancing portfolio within day obligation
 - Entry-exit point within day obligation
- Art. 26 (4): The transmission system operator **shall consult** stakeholders, including the national regulatory authorities, the affected distribution system operators and transmission system operators in adjacent balancing zones, on any within day obligation it intends to introduce [...]

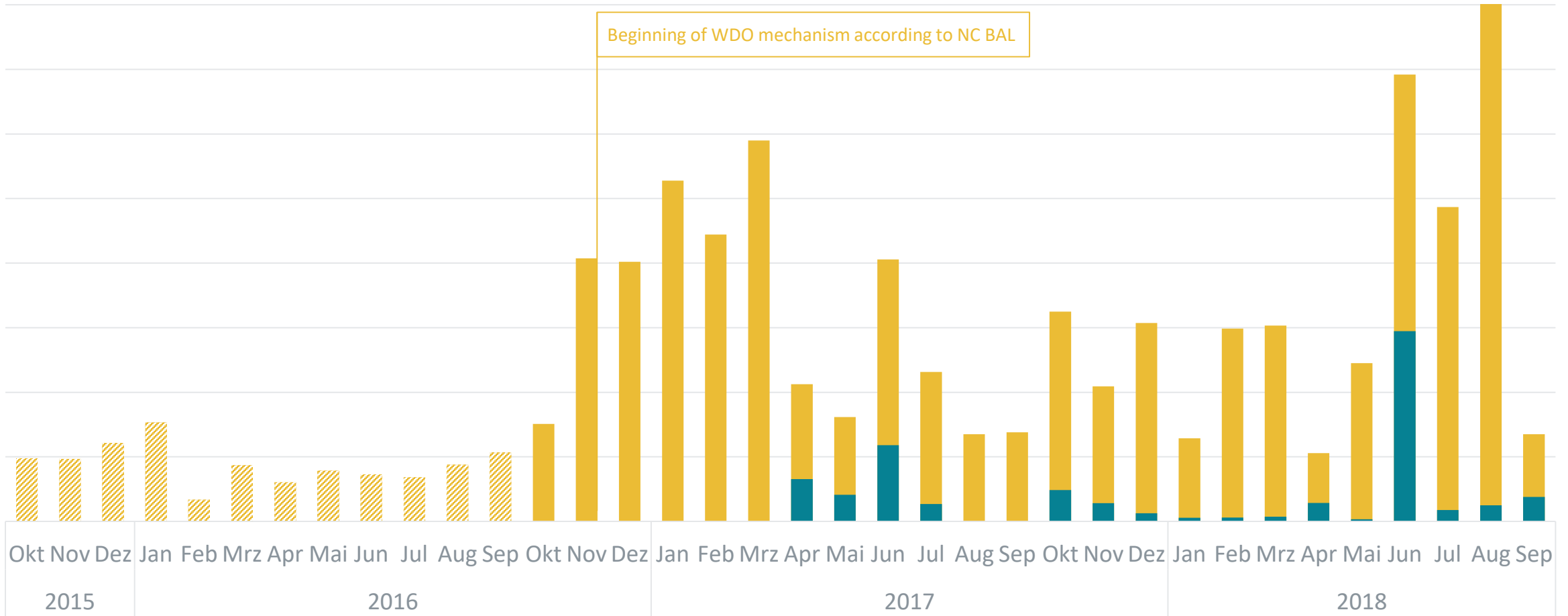
Within Day Obligations

– Decision Process in Germany

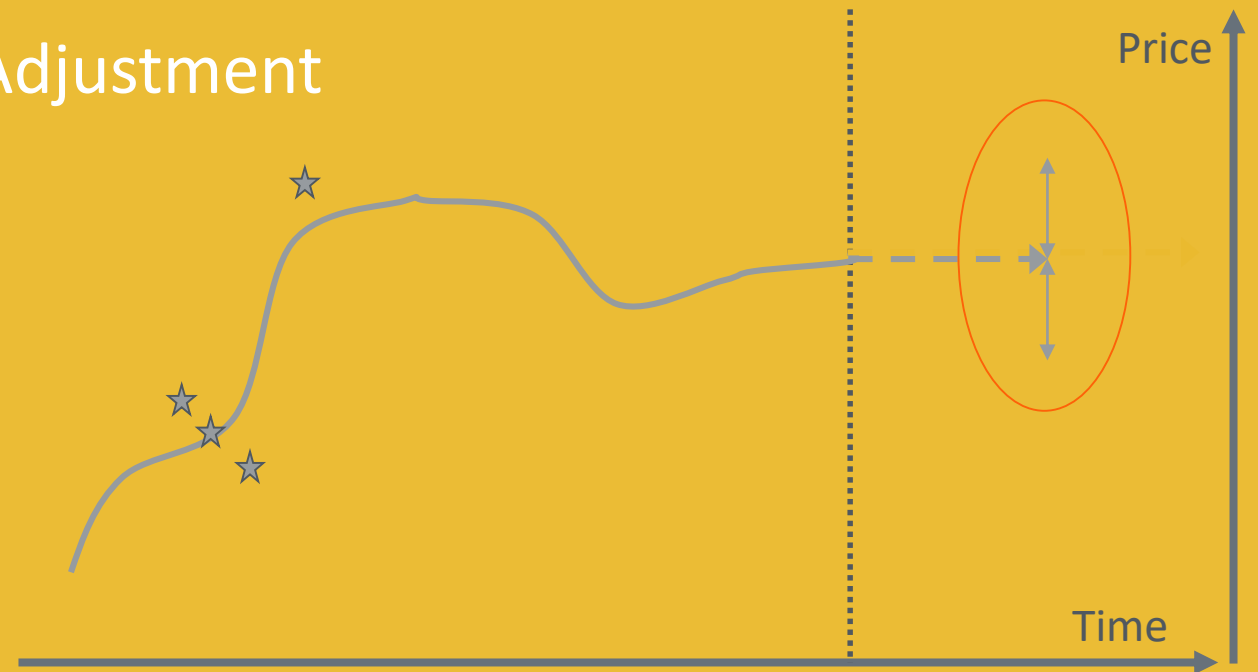
- The TSO identified a **potential high balancing gas requirement**, if physical offtakes and inputs diverged during the gas day for large amounts of gas
 - e.g. power plants use gas during the day and the correspondent shipper (after getting the intra day readings) nominates the required input capacity only within the last 6 hours of the gas day
 - In this case balancing gas would be procured as “SystemBuy” during the consumption hours and during the input hours balancing gas would be sold – the price gap causing expenditures in the neutrality account
- The shippers argued that this is a **hypothetical threat**, because this would not be done
- The solution: a balancing portfolio WDO mechanism with two characteristics:
 - The **amount** of WDO is **dependent on the delay** between causing an hourly imbalance (in the shippers portfolio) and the appropriate counter effect
 - The **charge** is only set other than 0 for days in which the MAM has to procure balancing gas in **opposite directions** during the gas day

Within Day Obligations – were the shippers right ...?

■ Sum of Within Day Obligations
 ▨ Sum of Within Day Obligations (not in effect)
 ■ Sum of Within Day Obligations (charged)



Decisions – Case 4: Imbalance Price Methodology: Small Adjustment



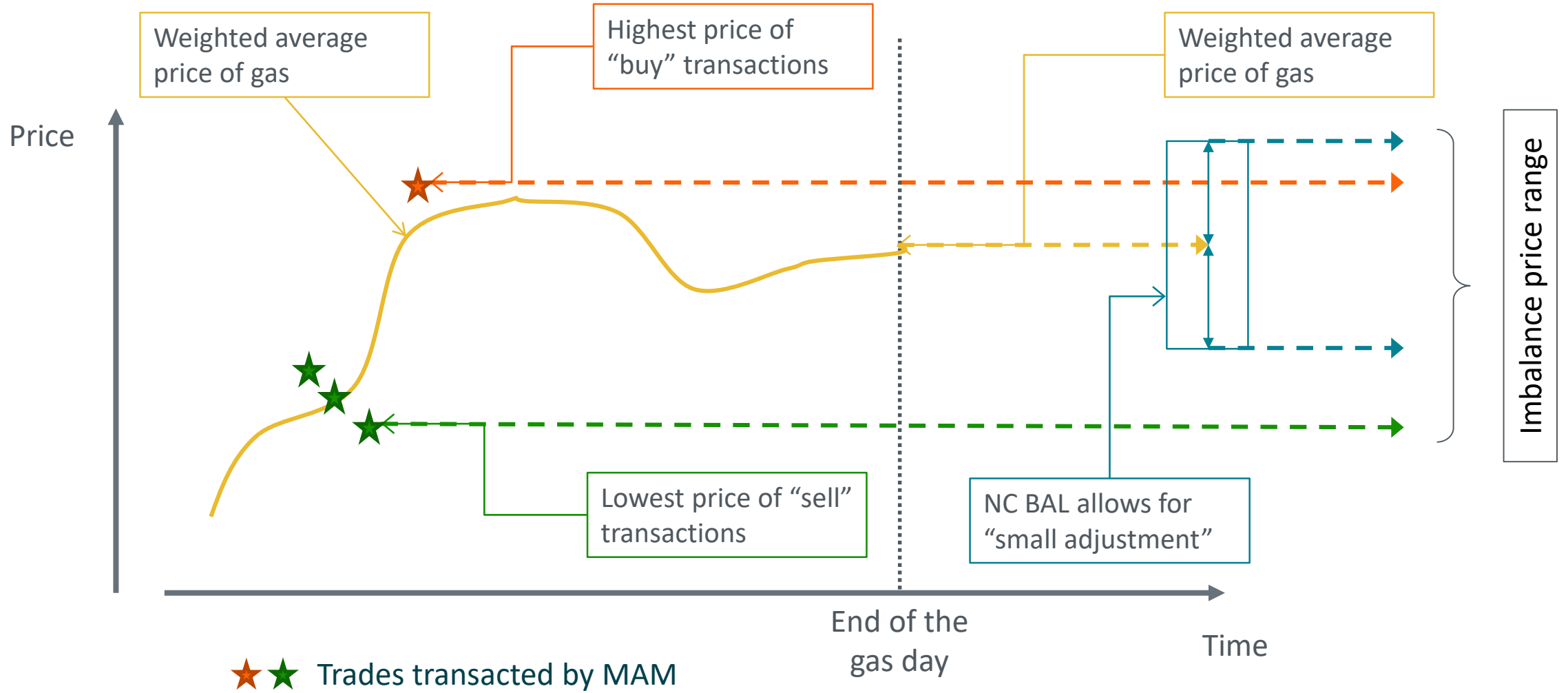
Daily Imbalance Charges

– NC BAL excerpt

■ Chapter V Daily imbalance charges

- Art. 19 (3): The daily imbalance charge shall be cost reflective and shall take account of the prices associated with transmission system operator's balancing actions, if any, and of the **small adjustment** referred to in Article 22(6).
- Art. 22 (2): A marginal sell price and a marginal buy price shall be calculated for each gas day pursuant to the following:
 - (a/b) a marginal sell/buy price is the lower/higher of (i) the lowest/highest price of any sales of title products in which the transmission system operator is involved in respect of the gas day; or (ii) the weighted average price of gas in respect of that gas day, **minus/plus a small adjustment**.
- Art. 22 (6): The small adjustment shall
 - (a) incentivise network users to balance their inputs and off-takes; (b) be designed and applied in a non-discriminatory manner in order to (i) not deter market entry; (ii) not impede the development of competitive markets; (c) not have a detrimental impact on cross-border trade; (d) not result in network users' excessive financial exposure to daily imbalance charges.

Imbalance pricing mechanism



Daily Imbalance Charges

– Reasoning on small adjustment determination

- Recommendation document (by the MAMs/TSOs): small adjustment of 0 %
 - The incentive to keep the shippers portfolio balanced is sufficiently given by the **daily risk of high imbalance prices** due to costly procurement of balancing gas
 - As marginal prices are used to determine the overall price, the revenue from imbalance charges is per day always higher than the costs for the MAM
- First consultation (by NRA): small adjustment of 10 %
 - Balancing procurement occurs only every third day on average – **risk of optimization** by purposefully imbalancing the portfolio to save portfolio manager costs (esp. for small vendors)
- Second consultation/final decision (by NRA): small adjustment of 2 %
 - High percentage generates **revenues not in agreement with required cost reflectiveness** of imbalance charges (§VII 20 (3)) and would later lead to distribution of neutrality account surplus

Thank you for your attention! Any questions and/or remarks?

Now:



... or later:

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