Annual System Balancing Report pursuant to the GaBi Gas 2.0

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List of abbreviations and acronyms

BH	bank holiday
BGM	balancing group manager
BMWi	German Federal *Ministry for Economic* Affairs *and Energy* (until December 2021)
BMWK	German Federal Ministry for Economic Affairs and Climate Action (*Bundesministerium für Wirtschaft und Klimaschutz*)
DA	day-ahead
EEX	European Energy Exchange
Federal Network Agency	German national regulatory authority (*Bundesnetzagentur – BNetzA*)
GaBi Gas 2.0	administrative ruling on gas balancing handed down by the Federal Network Agency on 19 December 2014 (ref: BK7-14-020)
GTG	Gastransport Nord GmbH
GTS	Gasunie Transport Services B.V.
GUD	Gasunie Deutschland Transport Services GmbH
GY	gas year
IP	interconnection point
LTO	Long-Term Options
MAM	market area manager
MOL	merit order list
NWG	Nowega GmbH
RoD	rest-of-the-day
SA	Saturday
SCB	Short-Call Balancing Services
STB	Short-Term Balancing Services
SU	Sunday
THE	Trading Hub Europe
TSO	transmission system operator
TTF	Title Transfer Facility
VIP	virtual interconnection point
WD	within-day

1 Introduction

Operative part 9(a) of the decision adopted by Ruling Chamber 7 of the Federal Network Agency (BNetzA) on balancing gas of 19 December 2014 (BK7-14-020; GaBi Gas 2.0) obliges the market area manager (MAM) to submit an annual report to Ruling Chamber 7 of the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway (BNetzA) on the procurement and use of internal and external balancing gas.

This System Balancing Report covers gas year (GY) 22/23 and is the second System Balancing Report for the single German market area Trading Hub Europe (THE).

In terms of system balancing actions, GY 22/23 was an exceptional gas year. Balancing gas quantities were 60% higher than in the previous GY, mainly due to net sales on an unprecedented scale. In addition, the flow reversal from an east-west to a west-east direction prompted by the change in sources of supply led to extensive conversion measures (in the direction from low-CV gas to high-CV gas) for the whole of the year. The volume effect is also reflected in the costs and revenues. The price level has fallen compared to the previous gas year but, even with capacity charge-related costs taken into account, there is still a positive balance of EUR 1,188 million for GY 22/23.

2 Internal balancing actions

This chapter describes the internal balancing actions in THE's market area. Internal balancing reduces the need for external balancing transactions that come with a fee and should therefore be prioritised in accordance with regulatory requirements.

The following charts illustrate the positive and negative internal balancing actions taken across both gas qualities (high-CV and low-CV gas) for the individual months of GY 22/23.

The most extensive use of high-CV gas for positive and negative internal balancing actions was recorded in the month of October 2022, while GY 21/22 had seen a peak in January 2022. In total, 48,820 GWh of high-CV gas for positive and 50,839 GWh of high-CV gas for negative internal balancing actions were used in GY 22/23. Compared to GY 21/22, the use of high-CV gas for positive and negative balancing actions fell by 6.6 % and 6.4 %, respectively. This fall is due to the changed supply situation in the German market area prompted by the Russian war of aggression against Ukraine.

The most extensive use of low-CV gas for positive and negative internal balancing actions was also recorded in the month of October 2022, while GY 21/22 had also seen these actions peak in January 2022. In total, 7,148 GWh of low-CV gas for positive and 7,076 GWh of low-CV gas for negative internal balancing actions were used in GY 22/23. Compared to GY 21/22, the use of low-CV gas for positive and negative balancing actions fell by 15.7 % and 18.9 % respectively. This fall is due to the ongoing market area conversion to high-CV gas, which coincides with a reduction in the available low-CV gas linepack.

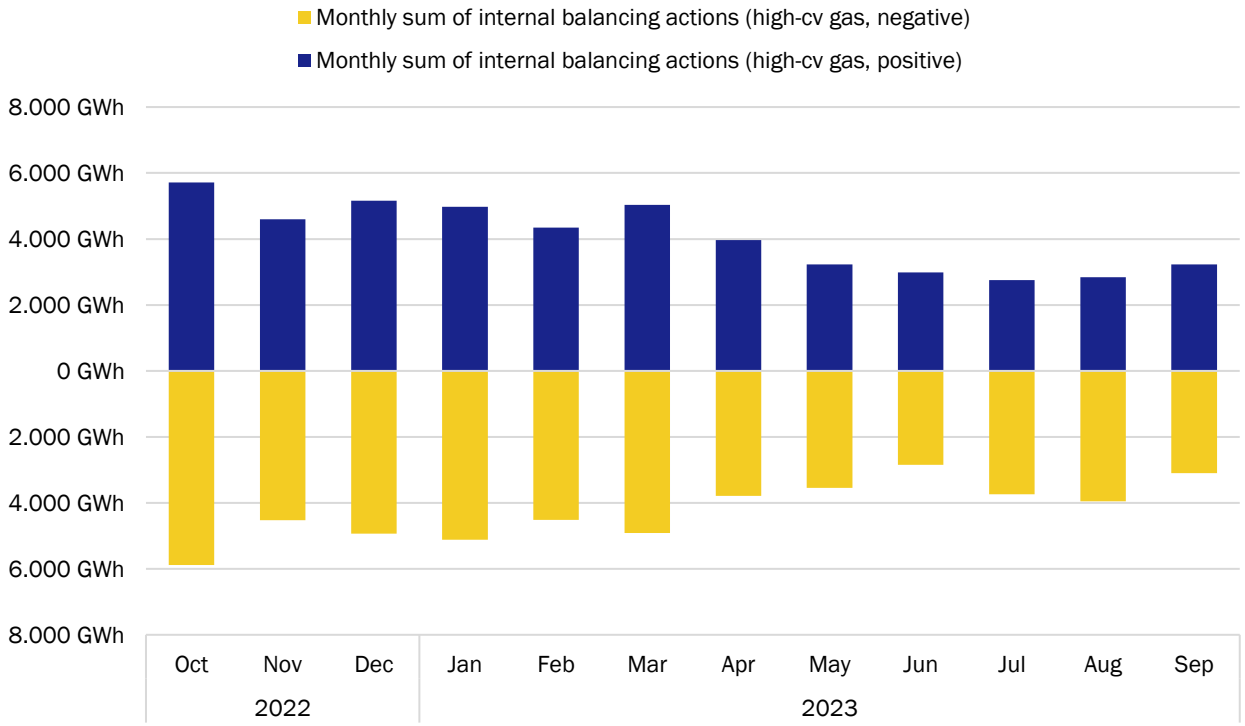

Figure 1: Use of high-CV gas for internal system balancing

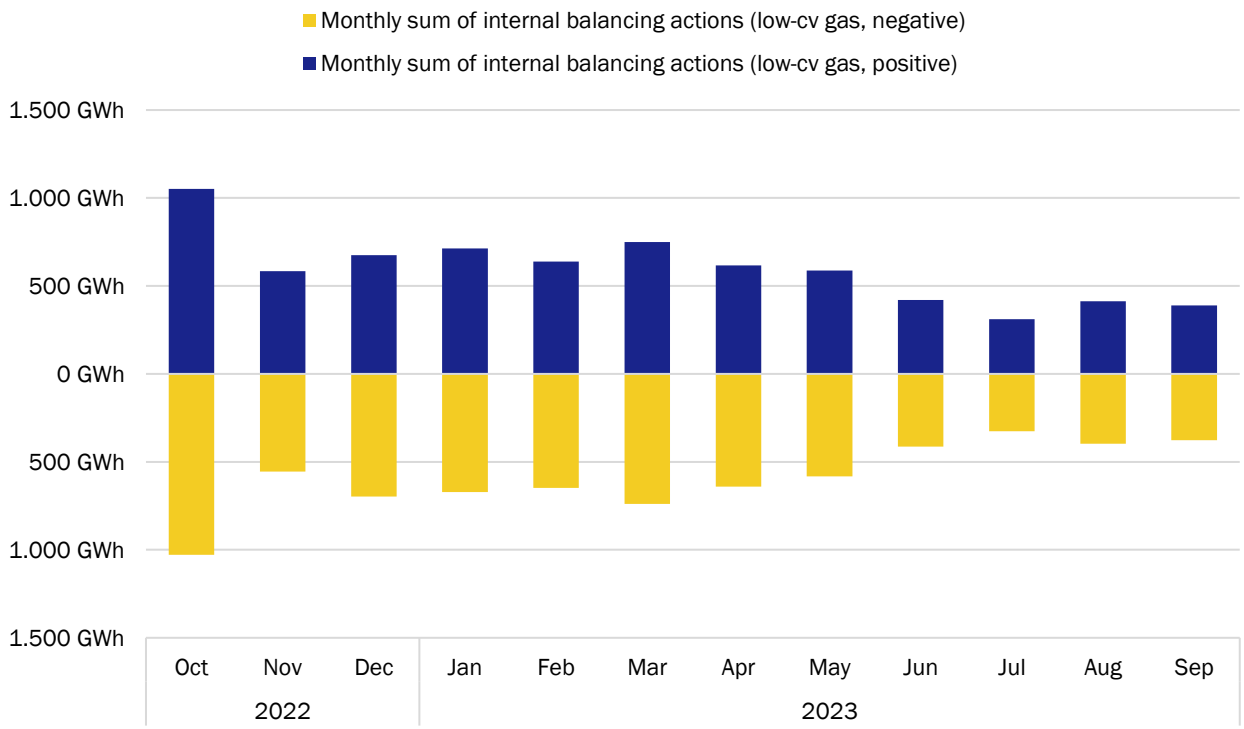

Figure 2: Use of low-CV gas for internal system balancing

3 External balancing actions and related procurement activities

3.1 Overview of SystemBuy and SystemSell transactions by MOL

3.1.1 General overview

Figure 3 provides an overview of external balancing for each of the months of GY 22/23.

A total of 32,243 GWh of balancing gas was bought and a total of 55,383 GWh of balancing gas was sold in GY 22/23, while in GY 21/22 a total of 22,800 GWh of balancing gas had been bought and 29,162 GWh of balancing gas had been sold in the THE market area, which is an increase of about 60 % from GY 21/22 to GY 22/23. This increase is due to a significant rise in SystemSell transactions, particularly on the low-CV gas side.

In monetary terms, GY 22/23 was characterised by an atypical level of net sales, with spending for external system balancing (excluding capacity charges) totalling EUR 2,066 million for the full gas year (vs. EUR 2,659 million in GY 21/22) while income from SystemSell transactions amounted to EUR 3,253 million (vs. EUR 3,980 million in GY 21/22:). Figure 4 provides an overview of the external system balancing costs and revenues for both high-CV and low-CV gas.

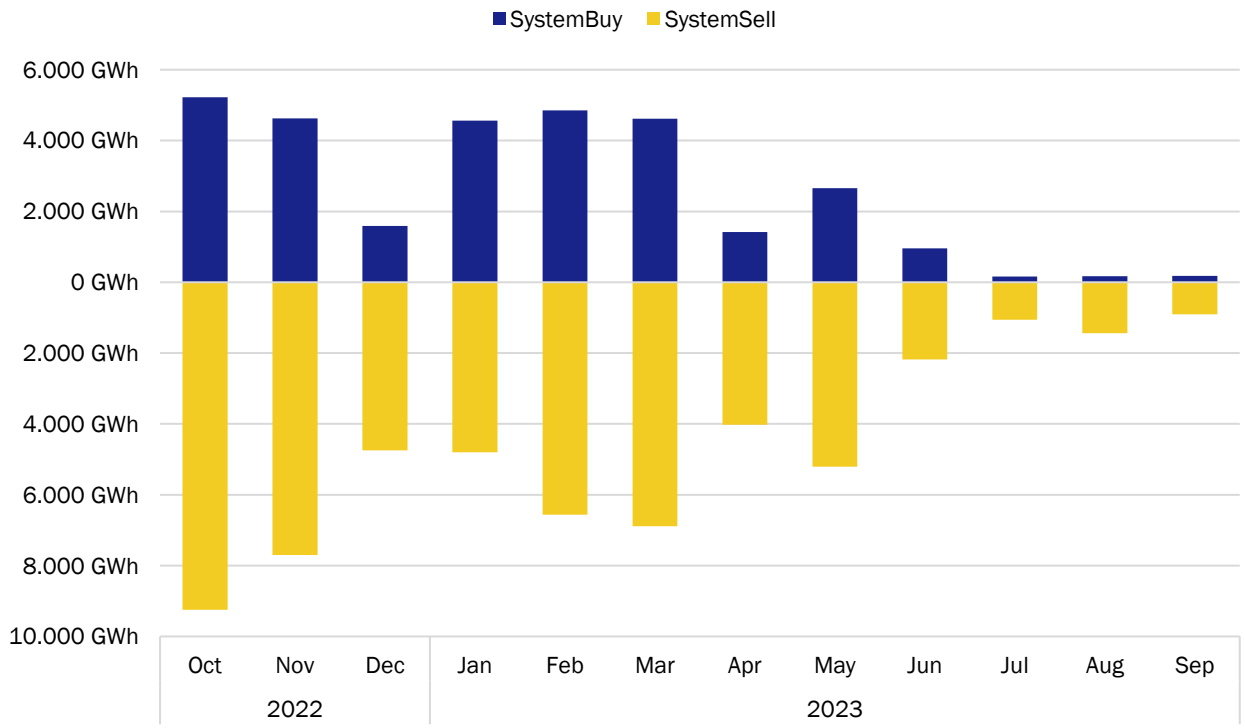

Figure 3: Use of high-CV and low-CV gas for external system balancing

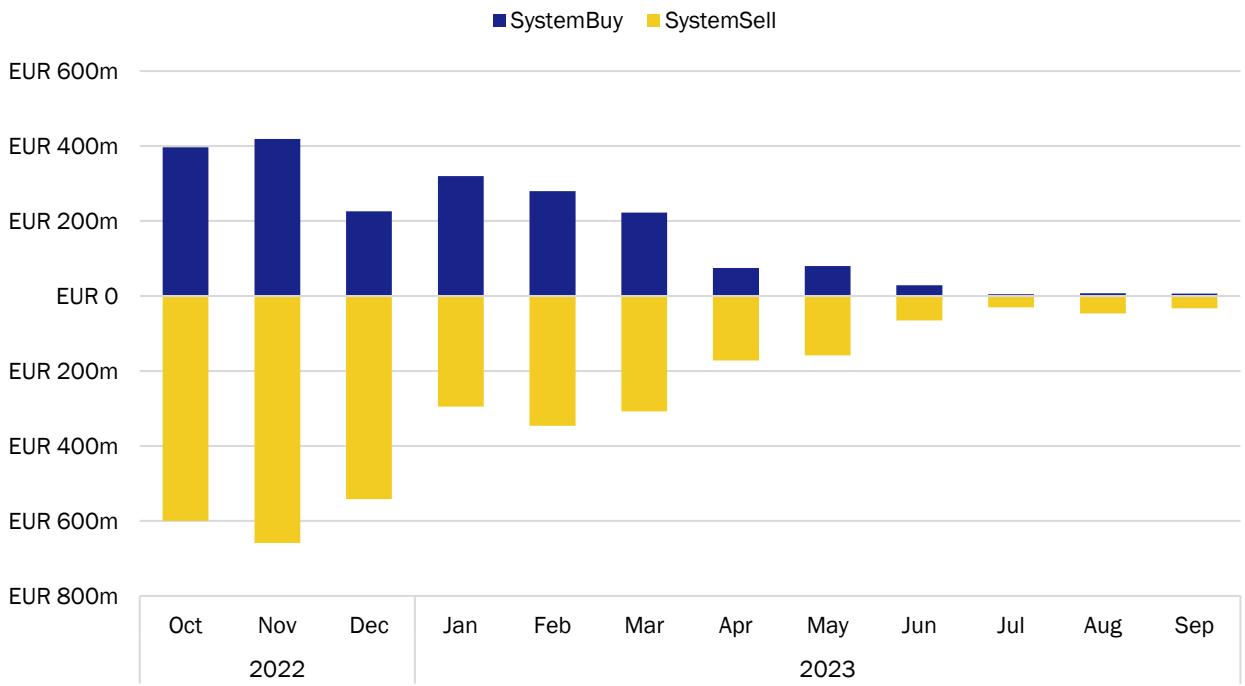

Figure 4: External system balancing costs and revenues for high-CV and low-CV gas

Given the high level of SystemSell transactions especially in October, November and December, the cumulative revenue exceeded the costs incurred over the full gas year. Even with the capacity charges taken into consideration, there is a positive cost/revenue balance of EUR 1,188 million (vs. EUR -888.1 million in GY 21/22).

3.1.2 Areas and zones in THE market area

THE's market area is divided into the following areas and zones:

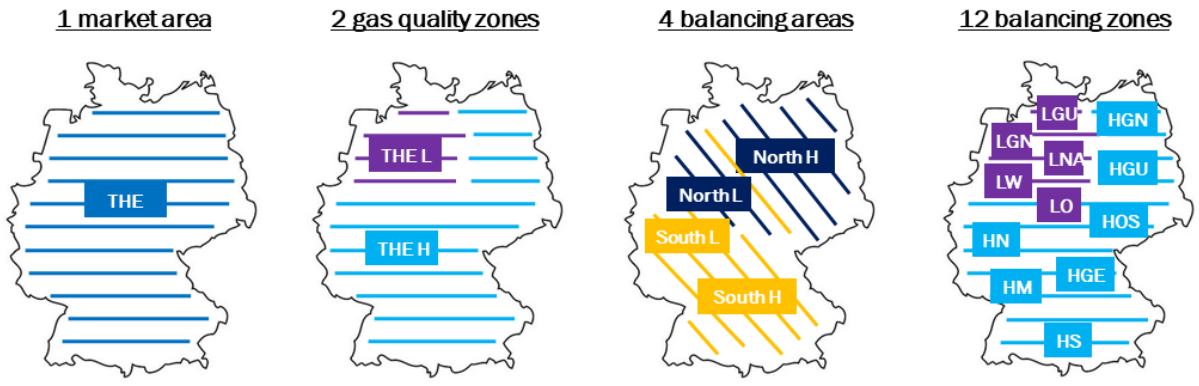

Figure 5: Areas and zones in the market area

The layout of the individual areas and zones is based on the list of points published on the THE website.

3.1.3 Product portfolio available for balancing actions

Our balancing actions and related procurement activities are conducted in accordance with regulatory requirements according to a defined merit order list (MOL) which focuses on the short-term, exchange-based procurement of the balancing gas quantities needed. In addition to the use of exchange-traded products, the MAM also concludes contracts for bilateral balancing products.

Figure 6 shows the products used in the THE market area in GY 22/23 as arranged by MOL and balancing criterion.

As regards the exchange-traded products, it should be noted that different order books are used for "day-ahead" (DA), "within-day" (WD), "Saturday" (SA), "Sunday" (SU) and "bank holiday" (BH), depending on the trading time or the delivery period. This differentiation is not made for the remainder of this report. The report only distinguishes between the product variants "day-ahead" (DA) and "rest of the day" (RoD) for daily products and "Hour" for hourly products. The DA product variant also includes all SA, SU and BH contracts for exchange-based transactions, while WD contracts are always allocated to the RoD product variant.

In merit order ranks 1 and 2, the MAM trades directly on the exchange. The MAM is authorised to use the EEX as a trading platform. So far, THE has only used the TTF to procure balancing gas in an adjacent market area. It is also authorised to use the ICE trading platform. All information on system balancing actions is published on the THE website.

For the products in merit order rank 4, tenders are organised via THE GmbH's "Balancing Services Portal". These tenders are open to all pre-qualified providers. All tender invitations are announced on the THE website and the tender results are published. The prequalification rules, product descriptions and other

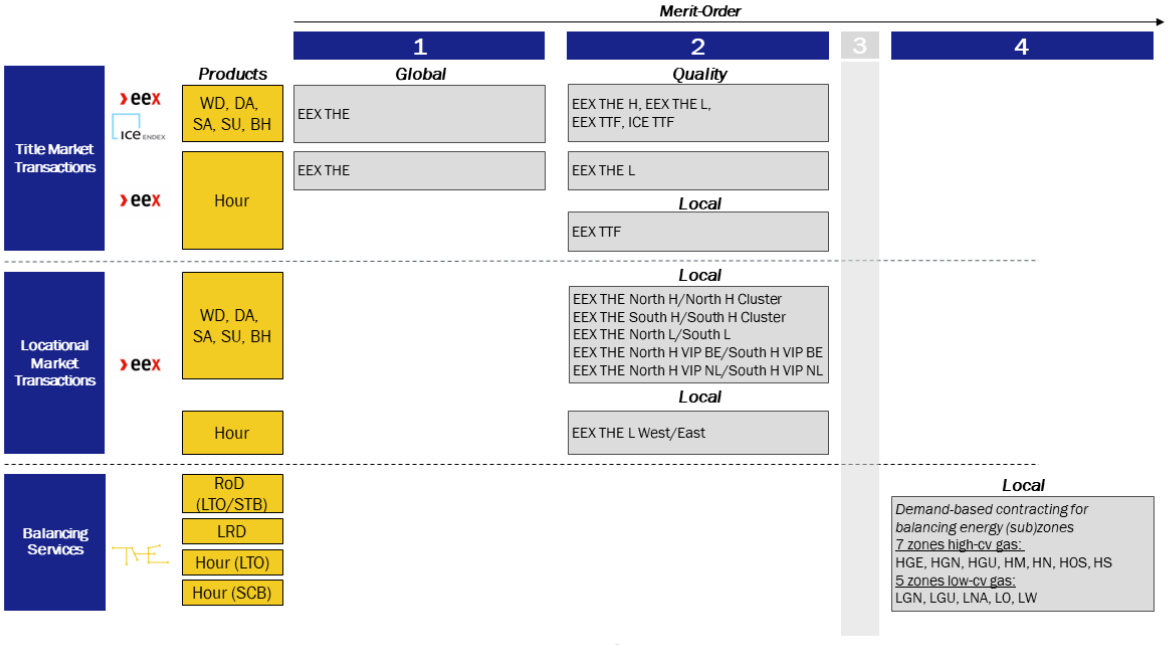

Figure 6: Overview of balancing products

contract documents can also be found on the THE website. The LRD product was newly introduced in merit order rank 4 with effect from 1 October 2022 (see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**).

The "North L (Hour)" product originally planned for structuring purposes has not been introduced as yet. THE GmbH will inform market participants in good time of any changes in this regard.

3.1.4 Quantities supplied/received and associated costs by MOL

Below we describe the gas quantities supplied and received in the course of our external balancing actions in the THE market area in GY 22/23 as well as the associated costs and revenues, with the corresponding information being provided separately for SystemBuy balancing actions (purchases of gas for system balancing purposes) and SystemSell balancing actions (sales of gas for system balancing purposes) as well as by MOL. A tabular overview of all merit order ranks can be found in the appendix to this document.

Figure 7 shows the balancing gas quantities we procured on a day-ahead and rest-of-day basis (product variants “DA” and “RoD“) by MOL, month and direction (SystemBuy/SystemSell) along with the associated costs and revenues[1].

99.99% of the balancing gas quantities in the RoD/DA segment were procured on the exchange, with 2.1% procured globally within MOL 1. External system balancing actions within MOL 1 are only an option if there is sufficient capacity for technical conversion between the high-CV gas and low-CV gas quality zones and if there are no conflicting quality-specific requirements. The proportion MOL 2 quantities procured was 97.9 %.

Due to the adequate availability of MOL 1 and MOL 2 balancing products, long-term MOL 4 balancing products (LTO in the "RoD" product variant, see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**) did not have to be used as part of regular RoD and DA procurement practice. There was only one call order for test purposes in March 2023 (see details on MOL deviations in this chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** and on LTO test call orders in chapter 5.2.6).

Figure 7 shows that the balancing gas was primarily deployed via merit order rank 2, with most of the quantities recorded on the sales side as low-CV gas (51,390 GWh) and high-CV gas quantities dominating on the procurement side (29,090 GWh). A comparison of the quantities deployed in rank 2 shows that 36.2% of the total rank 2 quantities were purchased and 63.8% were sold.

[1] Since DA quantities are normally procured between 02:00 and 03:00 hrs. in the morning and since trading between the 24-hour intra-day order book and the DA order book is purely price-optimised, this report largely dispenses with separate presentation of the quantities and costs/revenues for the DA and RoD product variants.

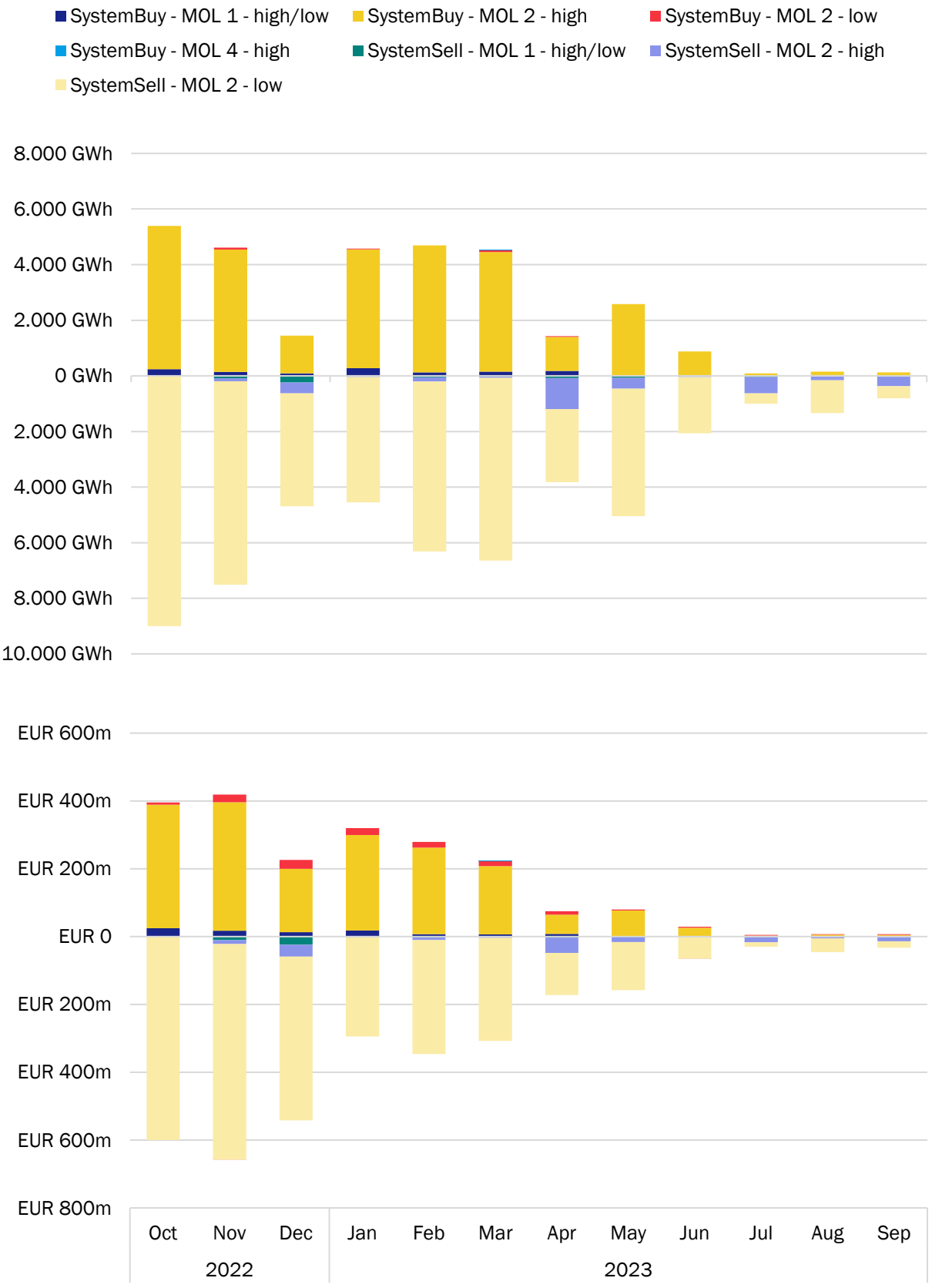

Figure 7: External balancing actions: quantities and costs/revenues by MOL (DA and RoD, by month)

What is particularly striking are the high SystemSell quantities of low-CV gas in the months of October 2022, November 2022, February 2023 and March 2023 of GY 22/23, which are a continuation of the sales seen in August and September 2022 (cf. System Balancing Report for GY 21/22[2]). One explanation for the high SystemSell quantities of low-CV gas in the summer months of GY 21/22 and at the beginning of GY 22/23 are the savings effects in the SLP segment where changes in consumption are not immediately reflected in the allocation data, especially where the widely used synthetic load profile method is applied. This observation is supported by analyses of the aggregated NBA balances which show an over-allocation, i.e. on average the allocated quantities were higher than the consumed quantities (cf. third SLP Evaluation Report[3], chapter 3.3.3.3). Further evidence of the savings effects in the SLP segment can be seen in the BNetzA indicator 2[4] (the indicator for temperature-adjusted gas consumption). Given the development of prices on the exchange, another explanation for the high SystemSell quantities of low-CV gas throughout GY 22/23 could be the increased need to comply with obligations under existing import contracts (low-CV gas) and the associated (free-of-charge) virtual conversion in the low to high-CV gas direction (cf. Evaluation Report on the Gas Quality Conversion Mechanism for GY 22/23).[5]

Figure 8 shows the external system balancing actions used to meet **hourly structuring requirements (product variant "Hour")** and the resulting costs and revenues. The quantities procured via products designed to meet hourly requirements in GY 22/23 totalled 1,733 GWh. During the same period, 2,586 GWh were sold via the Hour product. Given the ongoing market area conversion, it can be assumed that structuring requirements will decrease in the future. On the monetary side, EUR 114.9 million in costs for the use of Hour balancing products in the THE market area were more than offset by EUR 149.7 million in revenues in GY 22/23, resulting in a net surplus of EUR 34.8 million.

As with the RoD and DA balancing requirements, the structuring requirements were also almost completely met by exchange-based products (GY 22/23: 99.86%). With the exception of test call orders, balancing gas is only traded “over the counter” (products in merit order rank 4) if the products in merit order ranks 1 and 2 are not available or not sufficiently available (in practice, particularly if the exchange is unavailable) or are not suitable for meeting demand (see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**). The SCB product with a particularly short lead time used for structuring purposes is also treated as an "Hour" product in the general analyses in this chapter (for details on the product design and the use of the SCB product, please refer to chapter 5.4).

[2] System Balancing Report for GY 21/22 | THE (www.tradinghub.eu)
[3] Evaluation Report on the Gas Standard Load Profile Procedure *("Evaluierungsbericht zum Standardlastprofilverfahren Gas")* | BDEW (https://www.bdew.de/service/anwendungshilfen/evaluierungsbericht-der-verteilnetzbetreiber-zu-der-prognoseguete-der-standardlastprofile-gas/)
[4] The indicator shows the 14-day moving average of the total gas consumption of residential and industrial customers (https://www.bundesnetzagentur.de/DE/Gasversorgung/aktuelle_gasversorgung/start.html). A reference consumption based on gas consumption data for the years 2018-2021 is shown as a comparison. The reference consumption indicates what gas consumption would have been expected without any savings (based on consumption from 2018-2021) at the current daily temperature (i.e. temperature-adjusted). The difference between the actual consumption and the reference consumption results in the temperature-adjusted gas savings, which are evaluated using the indicator.
[5] Evaluation report on the conversion system | THE (www.tradinghub.eu)

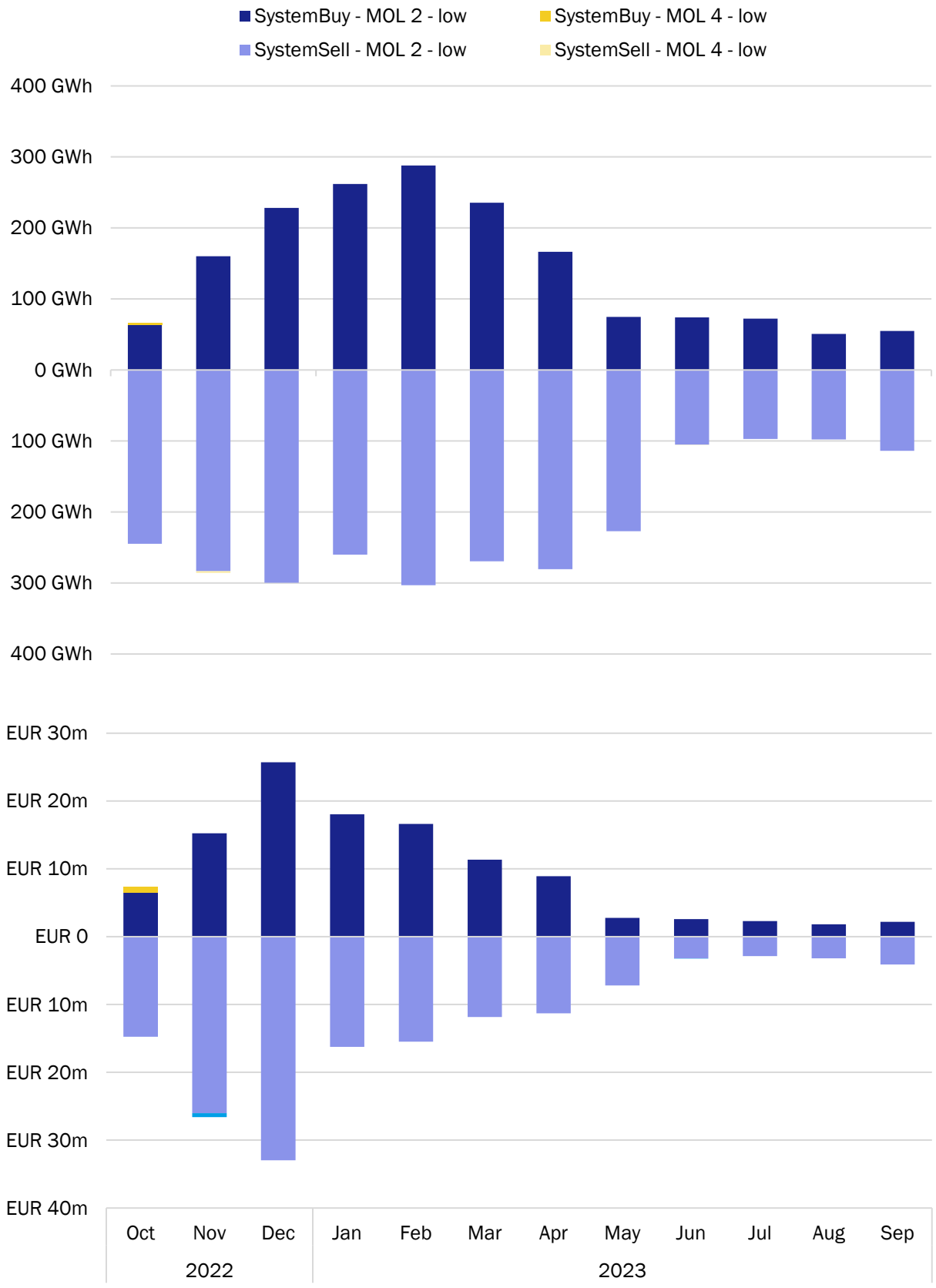

Figure 8: External balancing actions: quantities and costs/revenues by MOL (Hour, by month)

Figure 9 shows the delivery rate called in relation to the duration of the balancing action. The highest delivery rate is called in the "day ahead" segment, a "day ahead" trading is possible until 02:00 hrs. In the "rest of the day" segment, the highest delivery rate is called at 19:00 hrs.

A tabular overview of the costs and revenues per merit order rank can be found in the appendix.

3.1.5 Development of SystemBuy and SystemSell prices by MOL

In this chapter we provide information on the lowest (“min”), highest (“max”) and average (“mean”) monthly procurement prices we paid and received within each merit order rank to meet our respective SystemBuy and SystemSell balancing requirements.

At the start of GY 22/23, the average daily VTP price was just under EUR 165/MWh, falling to just under EUR 33/MWh during October before rising again to over EUR 130/MWh in November 2022. Prices stabilised at this level until mid-December 2022 after which they began to fall again. At the end of December 2022, the average daily VTP price was just under EUR 74/MWh, remaining at this level throughout January 2023. In February 2023, prices fell to just under EUR 50/MWh before dropping further to just under EUR 40/MWh in March. Prices stabilised at this level in April 2023. At the end of May 2023, the average VTP price was just under EUR 25/MWh. In June, the price rose above the EUR 30/MWh mark again and remained above or just at this threshold for most of July before rising again to just over EUR 40/MWh at the end of September. The average VTP price in GY 22/23 was EUR 55.43/MWh which is lower than in the previous gas year (EUR 123.24/MWh).

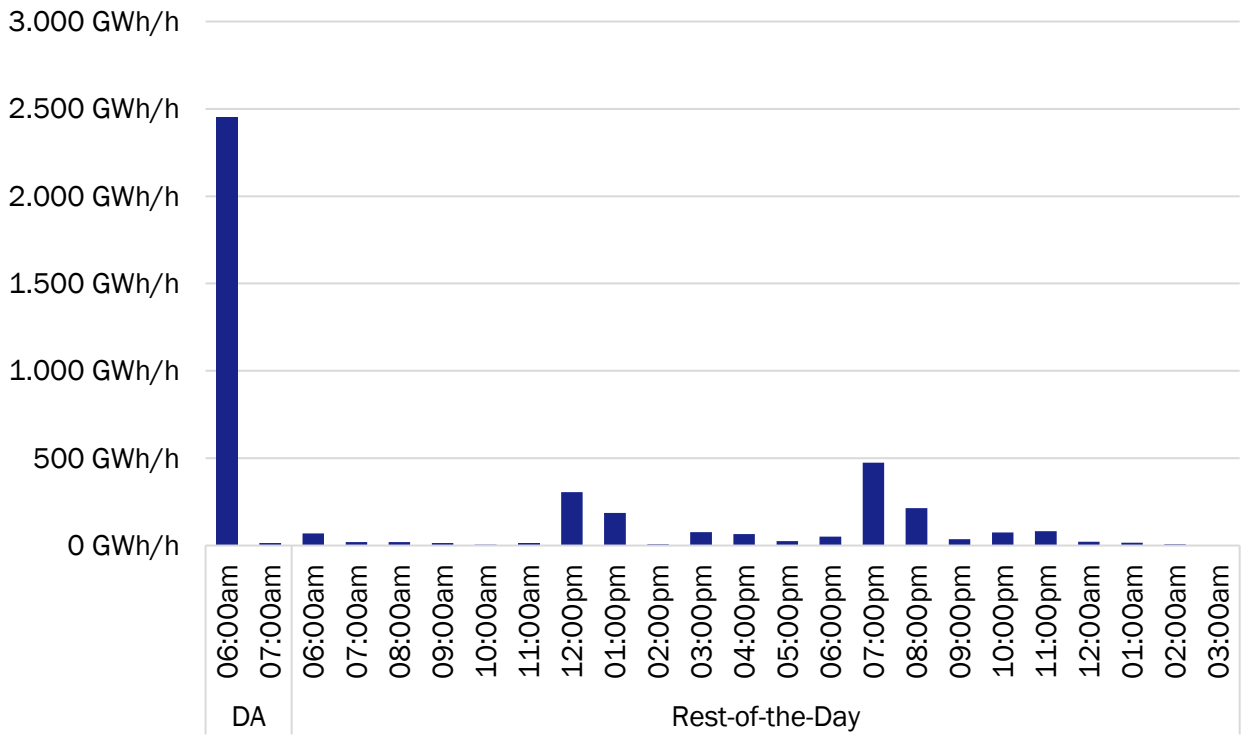

Figure 9: External balancing actions: Delivery rate in relation to duration of balancing action (DA and RoD)

Figure 10 and Figure 11 show the procurement prices we paid and received for RoD, DA and Hour balancing actions separately for the high-CV gas and low-CV gas network areas (MOL 1, MOL 2 and MOL 4[6]) in GY 22/23. Hourly balancing in GY 18/19 occasionally saw higher deviations from the average prices, in some procurement situations even with high outlier prices.

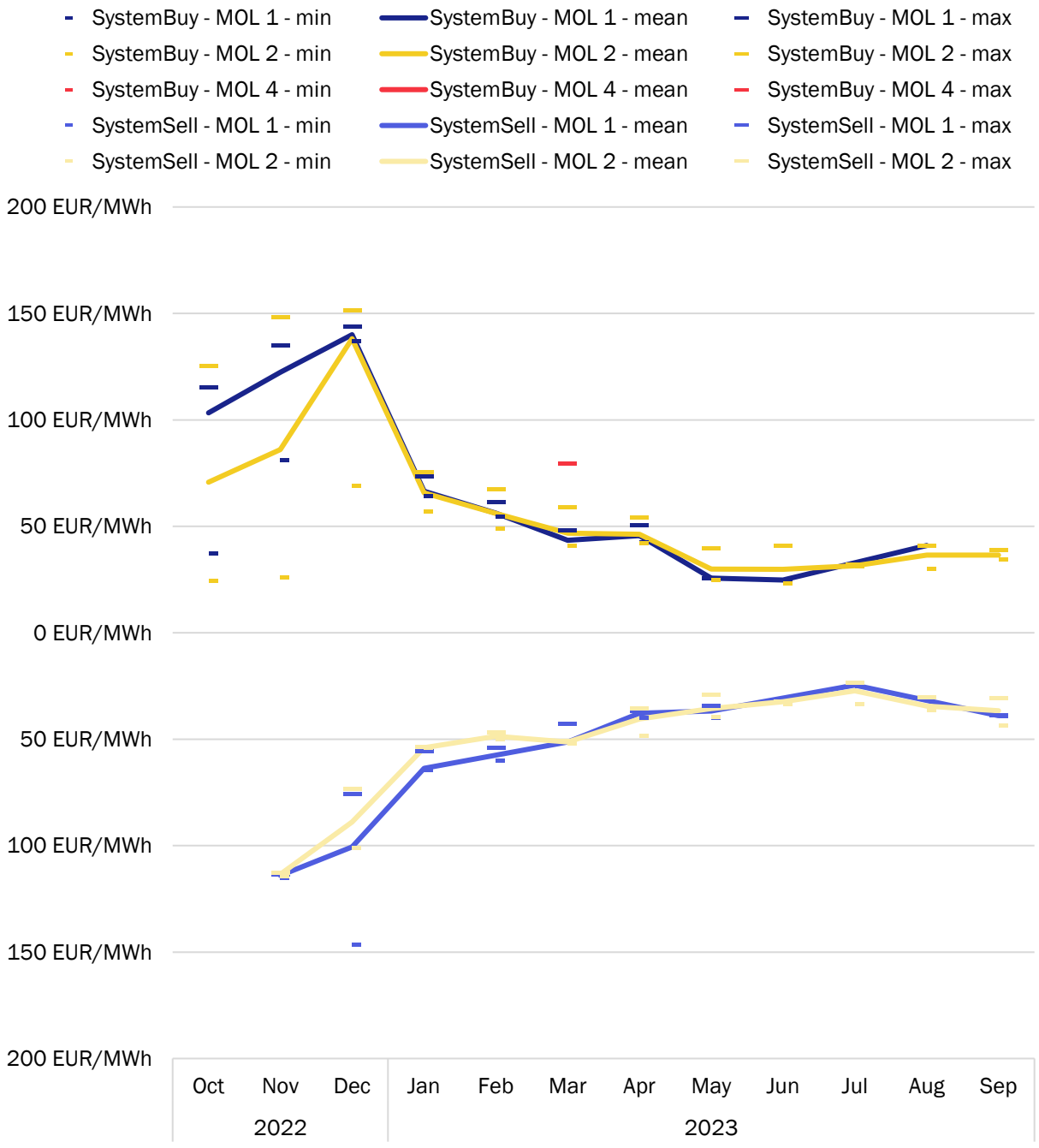

Figure 10: External balancing actions – high-CV gas prices (DA and RoD by MOL and month)

[6] The bilateral short-term balancing gas products in merit order rank 3 were discontinued as of 1 January 2018 (see section 8 of the System Balancing Report for GY 17/18); merit order rank 3 has therefore no longer been listed in the tables since the System Balancing Report for GY 18/19.

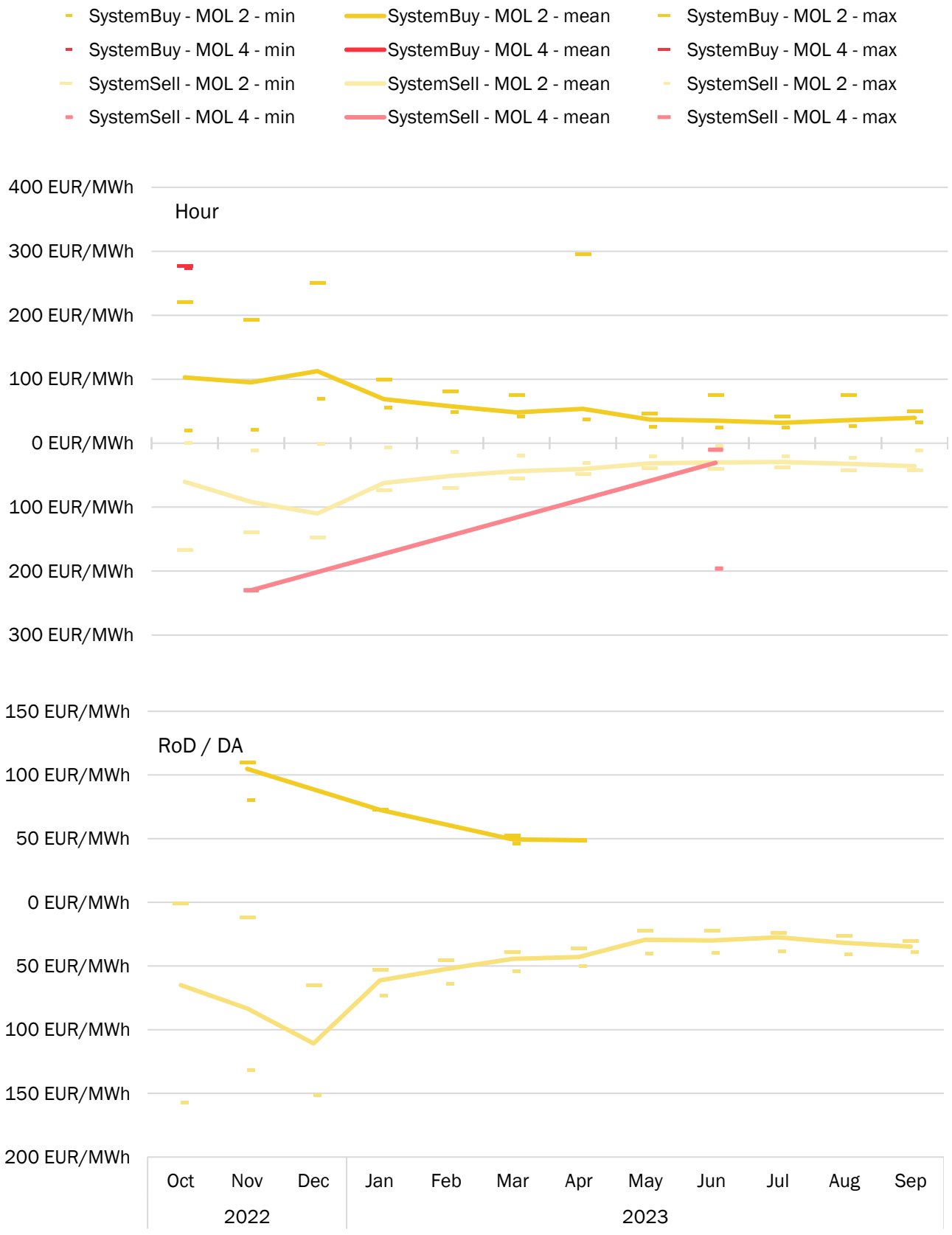

Figure 11: External balancing actions - low-CV gas prices (DA, RoD and Hour by MOL and month)

3.1.6 Deviations from merit order

Our external balancing actions and related procurement activities are carried out in accordance with a pre-defined merit order set out in the GaBi Gas 2.0 ruling. In exceptional circumstances, however, the regulatory framework also permits deviations from this merit order. In particular, these include the issuance of test call orders pursuant to the LTO product description (see chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**). The following table shows the deviations from prescribed merit order ranks that occurred in the THE market area in GY 22/23[7]:

Date	MOL affected	MOL used	Reasons for deviation
7 March 2023	MOL 2 RoD	MOL 4	Based on a test call order, contracted LTOs were called off in the RoD variant
20 June 2023	MOL 2 Hour	MOL 4	Based on two test call orders, contracted LTOs were called off in the Hour variant
28 July 2023	MOL 2 Hour	MOL 4	Based on two test call orders, contracted LTOs were called off in the Hour variant

Table 1: Overview of deviations from merit order

3.2 Procurement of gas for balancing purposes in adjacent market areas

3.2.1 Procurement of gas for balancing purposes in adjacent market areas (pursuant to Article 9(3) of the BAL Code)

The option to procure gas for balancing purposes in adjacent market areas provides an appropriate way for us to balance our market area because it allows us to provide a targeted response, whether globally across our market area, in a specific gas quality and/or locally by trading title products for delivery at the Title Transfer Facility (TTF). We achieve this response by booking the required transportation capacity and nominating the corresponding flows at the relevant cross-border interconnection points (IPs) or virtual interconnection points (VIPs). The option to procure gas for balancing purposes in adjacent market areas therefore represents a suitable additional balancing tool complementing the product portfolio available for balancing actions in our own market area.

Under section 6(b)(bb) of the operative provisions of the GaBi Gas 2.0 ruling, permission has been given to procure gas for balancing purposes in an adjacent market area. This allows EEX or ICE Endex spot contracts for delivery at the Dutch TTF to be used for the THE market area.

3.2.2 Quantities supplied and associated costs

In GY 22/23, external balancing requirements were also met by the MAM in the adjacent market area at the Dutch TTF. The monthly quantities are shown in Figure 12. A total of 90.9 GWh was purchased and

[7] The MOL deviations are also always published on the MGV website.

24.7 GWh was sold. Costs totalling EUR 3.3 million and revenues of EUR 0.95 million were recorded over the entire GY 22/23 (see Figure 13).

Compared to GY 21/22, significantly fewer quantities were procured (-86 %) and sold (- 83.7 %) in the adjacent market area in the period under review. This decline is probably due to the greater decrease in spreads between the price at the TTF trading point and at the THE trading point for MOL 2 balancing products with a clear quality profile and the decrease in available transportation capacity at cross-border IPs.

3.2.3 Contracted transportation capacity and capacity utilisation

Transportation capacities were contracted for the employment of balancing gas in GY 22/23. Table 2 provides an overview of the terms and product type. Firm freely allocable capacity was always booked. The day-ahead term is always 24 hours.

Network point	Direction	DA/WD	Booked capacity (MWh)	Capacity costs (EUR)
VIP TTF-THE-H (GUD/GTS)	Entry	DayAhead	238,592	443,983.26
VIP TTF-THE-H (GUD/GTS)	Entry	WithinDay	56,373	96,546.16
VIP TTF-THE-L (TG/GTS)	Exit	DayAhead	141,708	230,350.51
VIP TTF-THE-L (TG/GTS)	Exit	WithinDay	25,581	49,825.68
Total			**462,254**	**820,705.61**

Table 2: Transportation capacities by product type and transit time

According to Figure 14, the capacity used over the entire period was 348,742 MWh/h. Taking into account the total booked capacity of 462,253 MWh/h, this corresponds to a utilisation rate of 75 % (vs. 90 % in GY 21/22). In February 2023 in particular, but also in April, prices at THE VTP were very volatile on some days, which meant that the use of already booked capacity at the TTF was not price-optimised on some days and was therefore not executed. The costs for the booked capacities are shown in Figure 15. The total costs for the booked capacities were EUR 820,706.

3.2.4 Our approach to contracting transportation capacity

As required under sentence 3 of Article 9(3) of the BAL Code, the MAM reconsiders the terms and conditions applicable to the trading of title products at the TTF on an annual basis. For this purpose, we have reviewed the terms and conditions applicable to trades in the “ICE TTF” and “EEX TTF” order books as well as the relevant provisions governing our corresponding bookings/nominations, and have found them to be in order. In addition, we have reviewed whether the conditions for procuring gas in adjacent market areas are still met. In our view the availability of this option is still necessary and appropriate. The requirements set out in sentence 3 of article 9(3) of the BAL Code are therefore satisfied.

We evaluate the applicable terms and price components relevant to our balancing-related procurement activities in adjacent market areas on an annual basis and adjust our procurement approach to reflect any changes in circumstances.

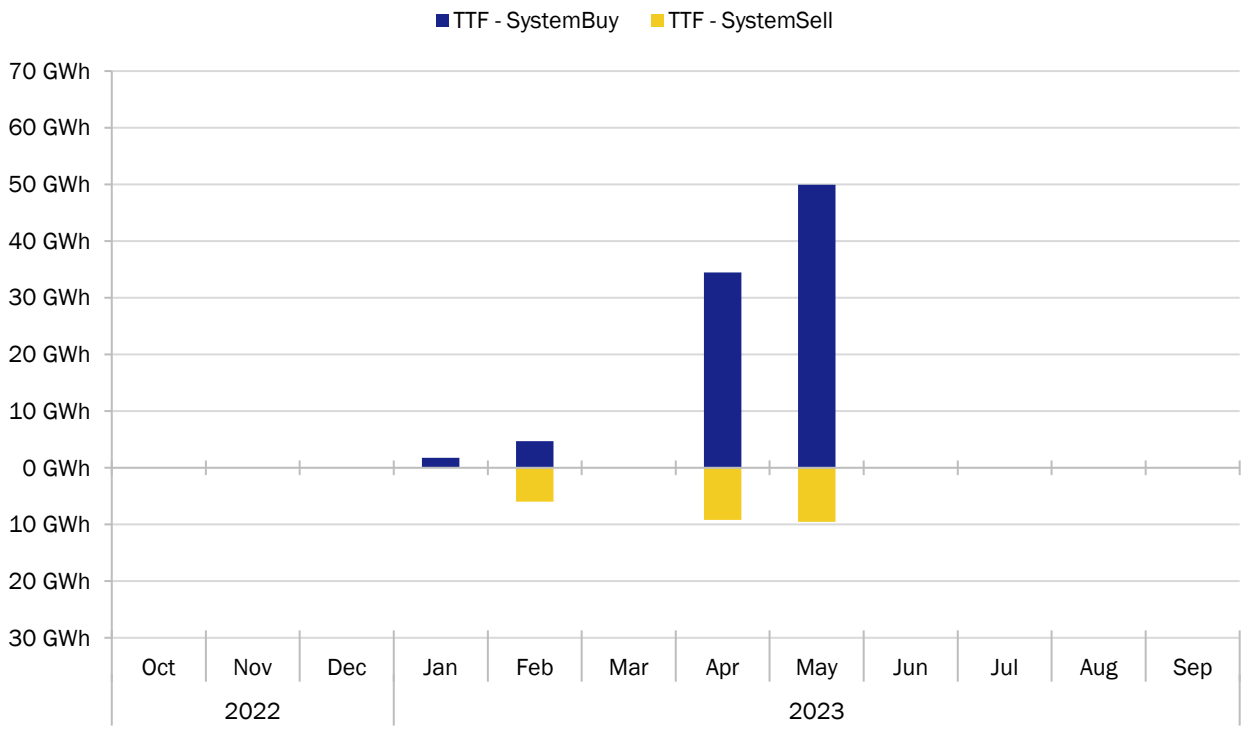

Figure 12: External balancing actions via TTF (quantities, DA and RoD by month)

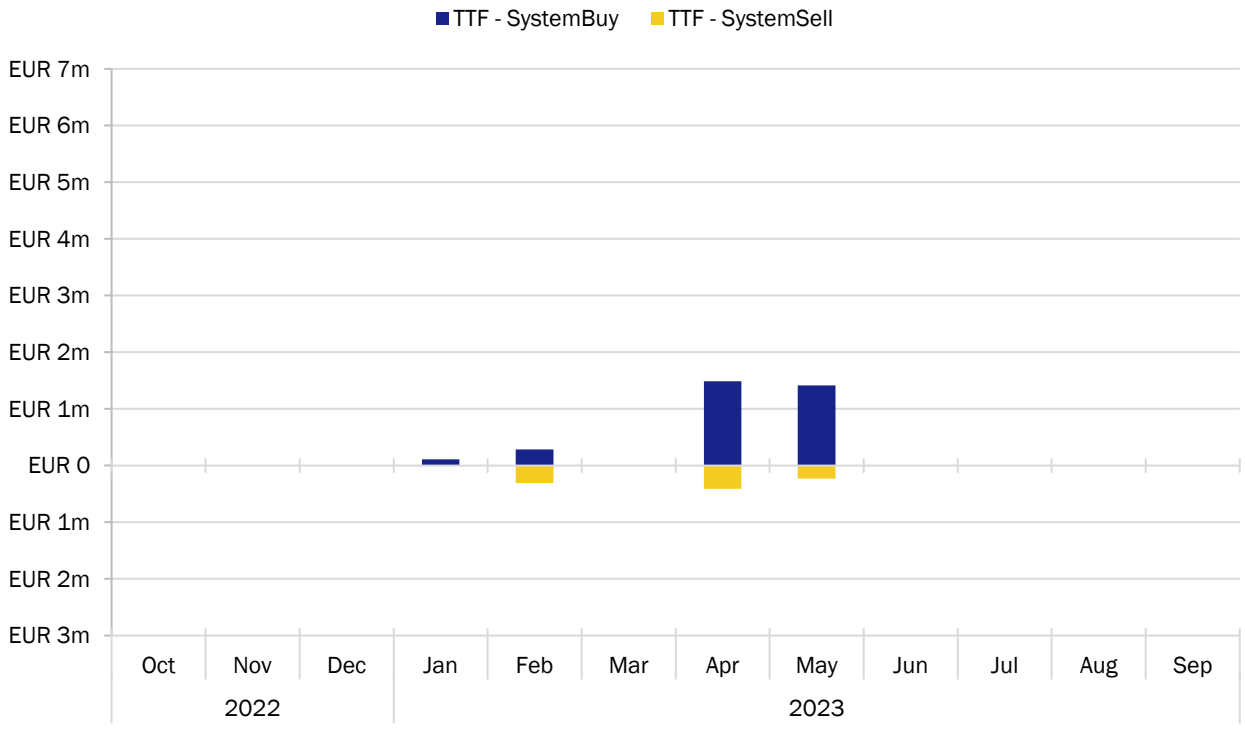

Figure 13: External balancing actions via TTF (costs and revenues; by month)

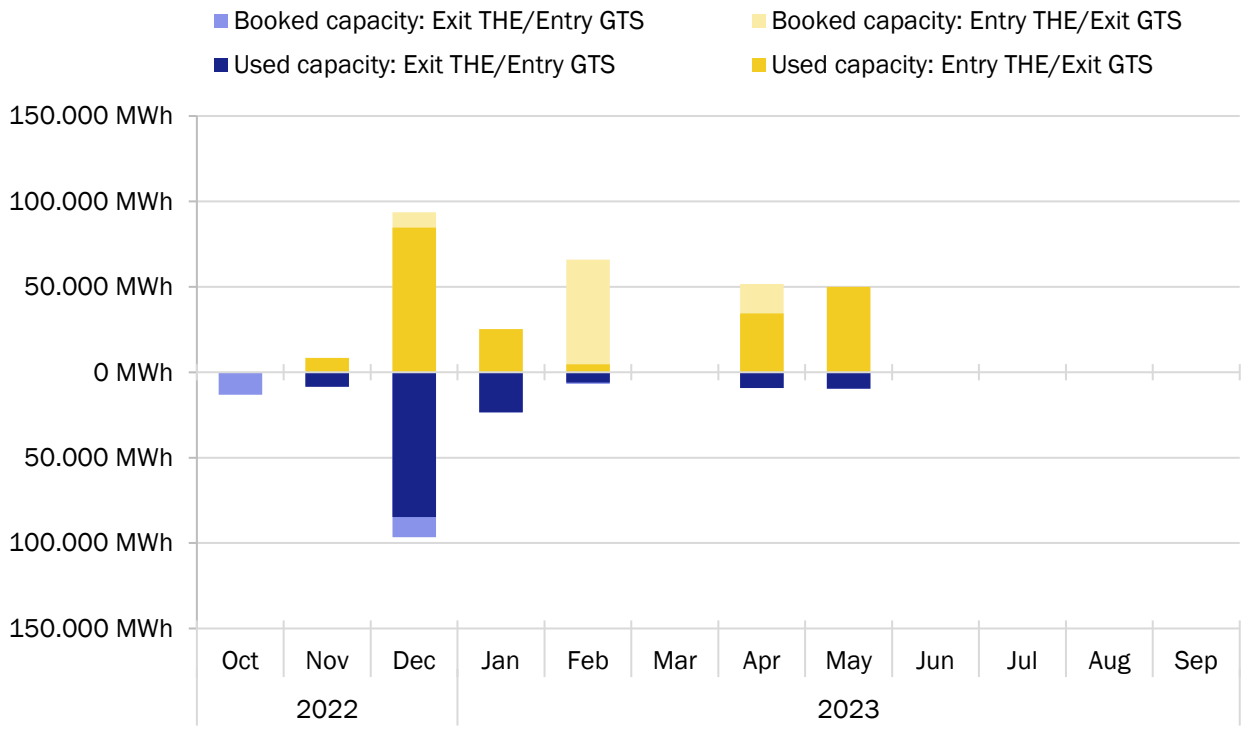

Figure 14: Contracted transportation capacity and capacity utilisation (by direction and day)

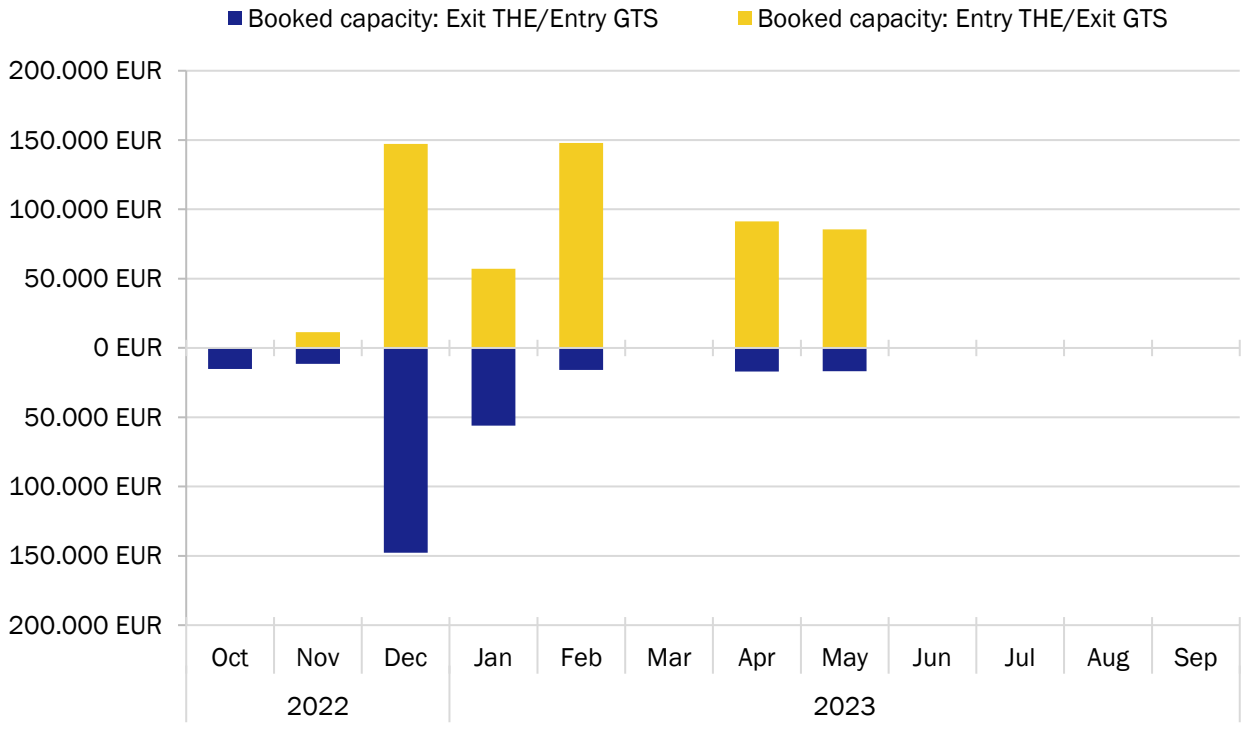

Figure 15: Costs for contracted transportation capacity (by direction and month)

3.2.5 Calculation methodology used to calculate transportation markups and markdowns

According to the last sentence of section 6(b)(bb) of the operative provisions of the GaBi Gas 2.0 ruling, the transportation costs incurred for the receipt or supply of gas from or to an adjacent market area have to be appropriately taken into account by the MAM. The resulting transportation markups and markdowns are included in the MAM's calculations in addition to the commodity costs or revenues incurred or generated in the adjacent market area when determining the applicable positive and negative daily imbalance prices.

Separate monthly transportation markups and markdowns are calculated for SystemBuy and SystemSell balancing transaction directions, respectively. For SystemBuy transactions the MAM applies a transportation markup and for SystemSell transactions a transportation markdown. The calculated markups and markdowns are published on the THE website for the respective delivery months.

The methodology used for calculating the transportation markups and markdowns is described in detail in the document "Calculation methodology of the transportation markups and markdowns", which is available on the THE website[8].

3.3 Number of trades executed for balancing purposes (pursuant to Article 9(4) of the BAL Code)

Below we provide an overview of our monthly trading activities in the THE market area for balancing purposes (in accordance with Article 9(4) of the BAL Code) in GY 22/23 by merit order rank[9]. Within merit order rank 2, trading transactions in the own market area and in the neighbouring market area are also shown separately.

3.3.1 Our approach to determining the number of trades executed for balancing purposes

We have determined the number of trades executed to meet our balancing requirements on the basis of the data published for the THE market area for each hour of each gas day based on defined balancing criteria. Where several trades were entered into for the same term in response to the same balancing criterion, these are shown as a single trade. Where several trades were entered into for the same hour but in response to different balancing criteria, these are treated as individual trades. The trades thus determined are then summed up over the relevant period of analysis. Figure 16 and Figure 17 show the number of call orders for balancing products of the DA/RoD and Hour product types.

[8] Link to document: Berechnungsmethodik Transportkostenaufschlag/Transportkostenabschlag (tradinghub.eu)
[9] For MOL rank 3 see footnote 6

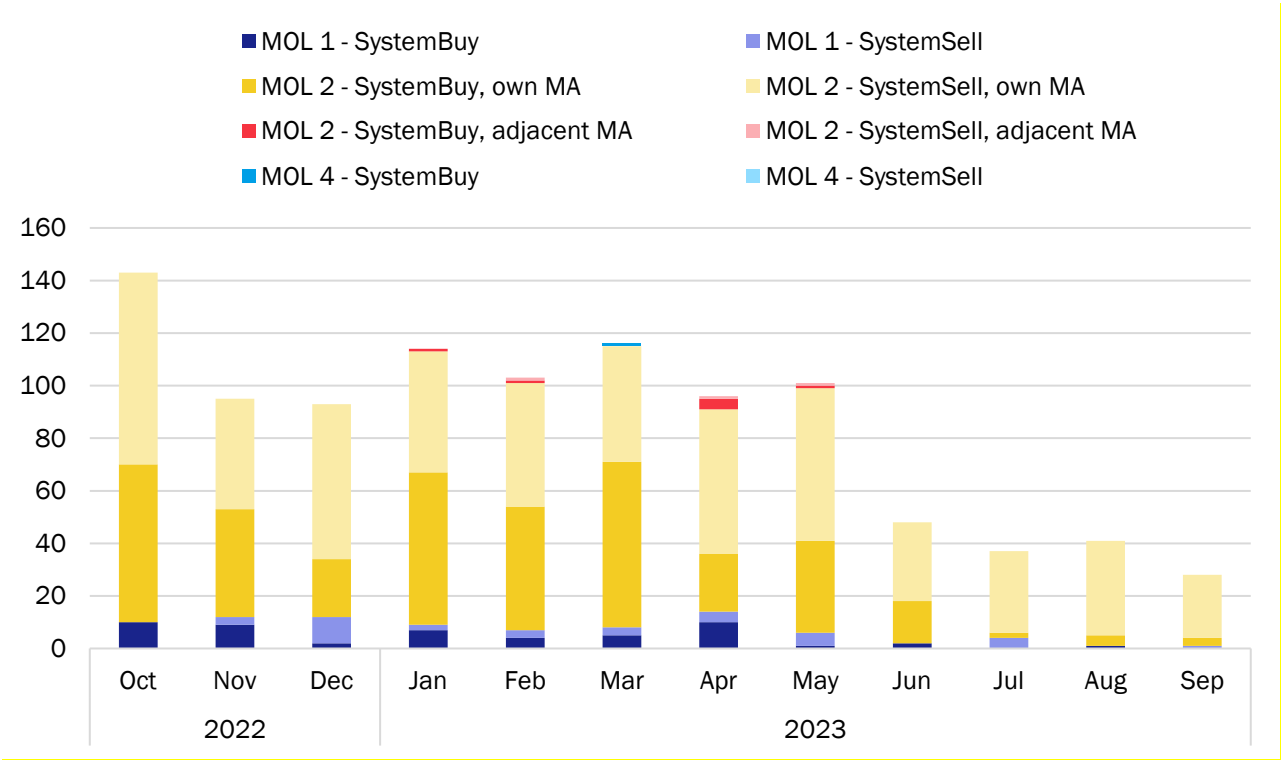

Figure 16: Number of trades (DA and RoD, by month)

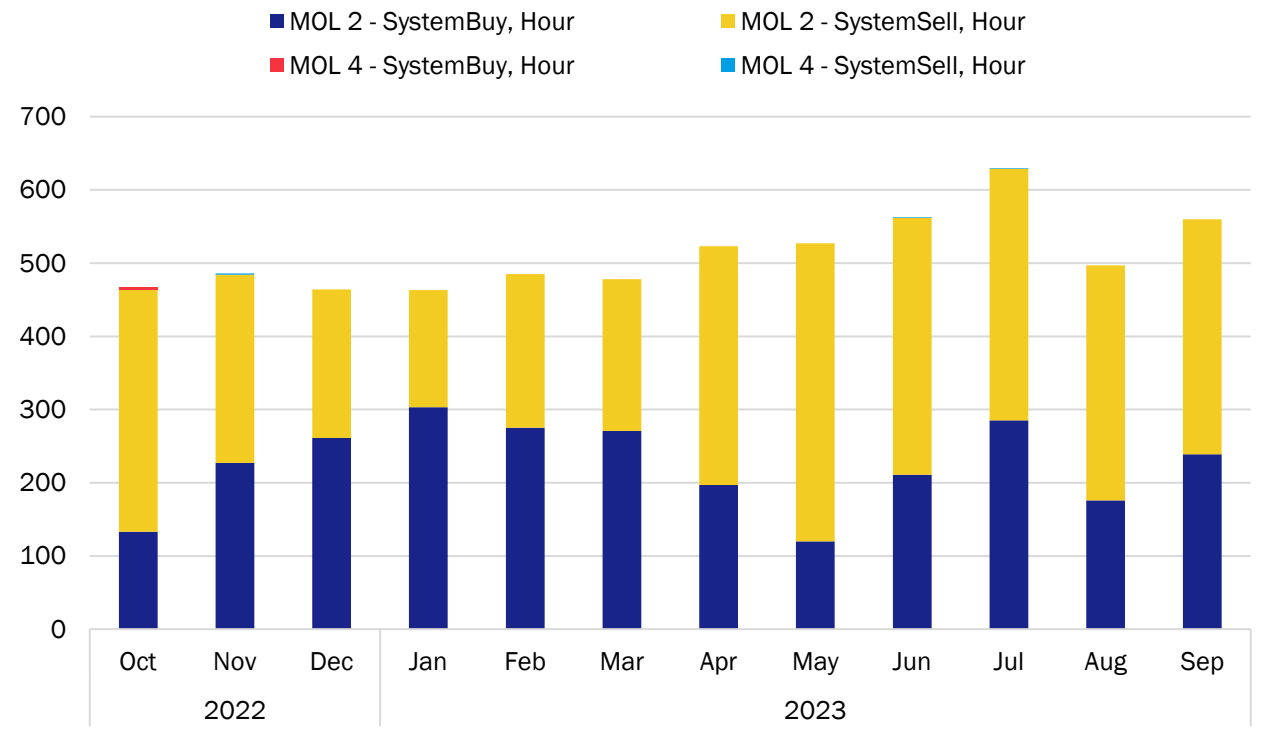

Figure 17: Number of trades (Hour, by month)

4 Effect and application of within-day obligation rules

4.1 Preliminary remark

Pursuant to the GaBi Gas 2.0 ruling, the system of within-day obligations also applies in the THE market area.

This chapter looks at the development of our within-day balancing actions carried out in opposite directions (i.e. gas days on which we have had to act on both sides of the market by both buying and selling gas for balancing purposes) as well as the evolution of the within-day flexibility quantities and within-day flexibility charges.

The instrument of within-day obligations is intended to incentivise the BGMs to strive for a balanced balancing group even during the gas day. For this purpose, hourly deviations between entry and exit quantities in the balancing group are recorded and aggregated over the day. If a defined limit is exceeded, these hourly quantities (referred to as a "flexibility quantity") can be billed. However, billing will only take place if the MAM has also incurred costs on this day due to balancing gas transactions in the opposite direction in merit order rank 1. For all RLM customers, the BGMs receive an hourly tolerance of 7.5% of the daily RLM quantity offtaken, so that not every forecast inaccuracy potentially leads to billing. There is no tolerance for all other data series.

4.2 Within-day balancing actions in opposite directions by MOL

From a cumulative perspective, GY 22/23 is characterised by a significant oversupply of low-CV gas with a simultaneous conversion surplus in the direction from low-CV gas to high-CV gas. As a result, there were no within-day balancing actions in opposite directions in merit order ranks 1 or 2 in this particular GY 22/23.

4.3 Development of aggregate flexibility quantities

The “within-day flexibility quantity” represents the daily sum of the cumulative hourly imbalances outside the applicable tolerance limits as they have been determined for a balancing group. On this quantity the MAM levies a “within-day flexibility charge”, which is determined based on the average price difference between the corresponding balancing transactions effected in opposite directions within MOL 1 on the gas day in question. The within-day flexibility quantities are therefore only invoiced on gas days on which balancing actions have been taken in opposite directions within MOL 1.

Figure 18 shows the aggregate within-day flexibility quantities in GY 22/23 for each month. Compared to the previous GY 21/22, they have increased by 18.6 % (see System Balancing Report for GY 21/22). In GY 22/23, there were no within-day balancing actions in opposite directions in merit order rank 1. As a result, no within-day flexibility charge was levied in GY 22/23.

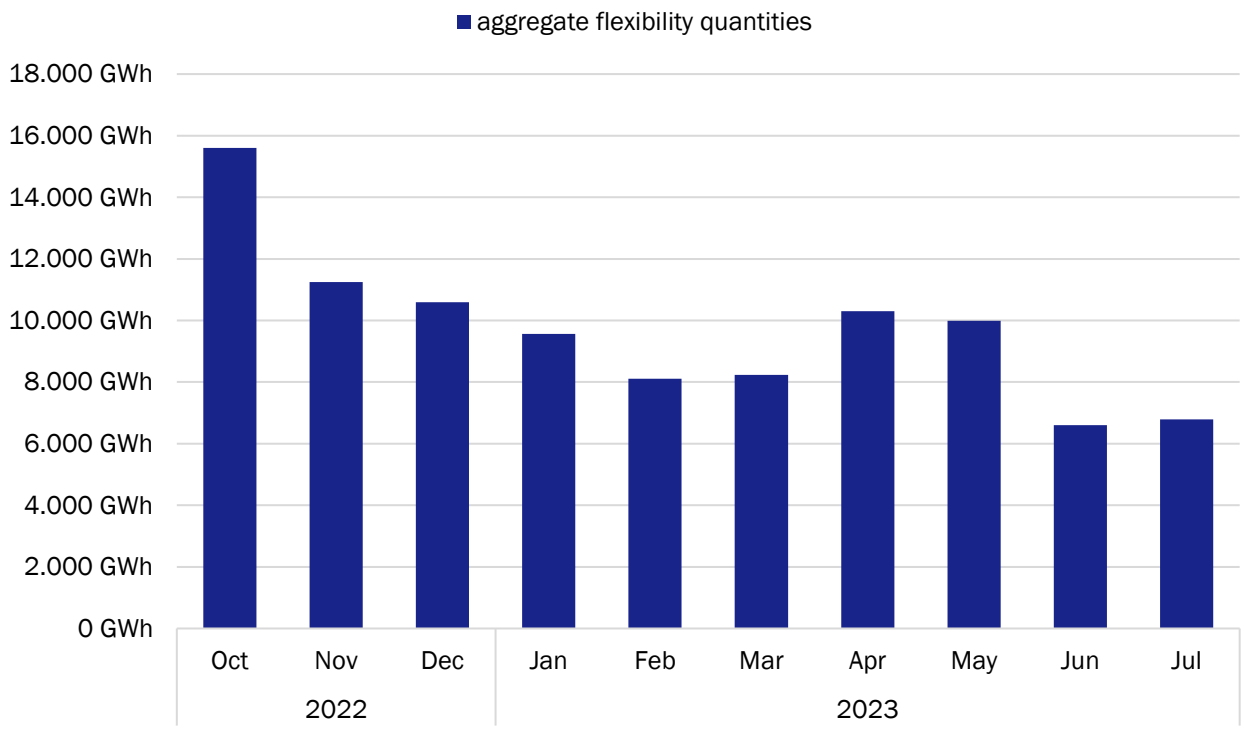

Figure 18: Virtual within-day flexibility quantities

5 Procurement and use of balancing services (MOL 4)

5.1 Introduction

MOL 4 products are used to hedge any balancing requirements in case the relevant requirements cannot be met via the exchange.

The following chapters provide an overview of the design of the different products, the tenders carried out and how the products are used. In addition, the reduction is examined in accordance with Article 8(6) of the BAL Code.

5.2 Long-term options

5.2.1 Product description

The bilateral balancing product Long-Term Options (LTO) serves to procure long-term reserves to help meet our balancing requirements, and it awards the MAM the right to buy or sell (as the case may be) gas to or from the relevant provider at any time throughout the agreed contract period. There are two product variants in the THE market area.

Where an LTO is contracted on an **"RoD" basis**, the relevant provider has an obligation to supply or receive a specified gas quantity at a constant hourly rate on a specified gas day on receiving an instruction to this effect from the MAM (this instruction is referred to as a "call order"), starting from the hour stated in the call order up until the end of the relevant gas day. This product variant is put out to tender on a zone-specific basis and serves to increase supply security in accordance with the BMWK policy paper (see chapter 5.7).

THE has made changes to the contractual basis ("Long-term options" product description / Terms and Conditions for Balancing Actions) for the gas year 2022/23. These became applicable for the first time for contract periods from 1 January 2023. The adjustment made was that the commodity charge is now made up of the day-ahead index price "EEX European Gas Spot Index (EGSI) THE EUR/MWh" and a markup or markdown in euros per MWh on this index price (known as the "Commodity Charge Surcharge") to be quantified by the provider. When submitting a bid, the provider therefore only submits the Commodity Charge Surcharge in relation to the commodity charge.

The following table provides an overview of the current product parameters of the RoD product variant:

LTO parameters	Specifications
Product variant	Rest of the Day (RoD)
Product category	Locational
Bid delivery rate	10 MWh/h per lot (minimum) (thereafter increments of whole numbers up to 1,000 MWh/h max.)
Point of delivery	
Price	Capacity charge and Commodity Charge Surcharge
Required service availability	Every gas day during the entire contract period (up to the maximum number of call days)
Call criterion	Exhaustion/technical unavailability of the higher merit order ranks
Lead time	3 hours

Table 3: LTO RoD product parameters

The **Hour product variant** serves to provide a long-term back-up for balancing purposes to help structure gas flows in the tendered balancing zones, with the option of calling off the delivery rate held by the provider on an hourly basis for the entire contract period.

The following table provides an overview of the current product parameters of the Hour product variant:

LTO parameters	Specifications
Product variant	Hour
Product category	Locational
Bid delivery rate	10 MWh/h per lot
Point of delivery	
Price	Capacity charge and commodity charge
Required service availability	Every hour throughout the entire contract periods
Lead time	3 hours

Table 4: LTO Hour product parameters

The contracting of LTOs – both in the **RoD product variant and** in the **Hour product variant** – takes place as part of a transparent tender process. The gas requirements to be put out to tender in each case are published beforehand as required under the GaBi Gas 2.0 ruling and the BAL Code. Bids for LTO contracts may be submitted by all BGMs who have successfully prequalified as a provider of balancing gas. Each LTO provider may specify a capacity charge that will be applied throughout the relevant contract period so as to remunerate them for procuring their availability to supply (SystemBuy) or receive (SystemSell) gas.

5.2.2 Tendering and use of RoD LTOs

The requirements put out to tender for the various LTO contract periods for the RoD product variant and the associated tender results are listed below[10] .

[10] Any special LTO tenders are described separately in chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**.

The tender results are shown in Table 5.

The evaluation of the bids submitted as part of the initial tender round from 4 to 18 October 2022 prompted THE to initially not award any contracts. The bids submitted were exceptionally high compared to previous tenders, with the cumulative capacity charges well into the three-digit million range.

The next steps were evaluated together with the gas TSOs and the authorities, and a new LTO tender for the RoD product variant and the periods from January up to and including March 2023 was announced on 2 November 2022. Tenders could be submitted in the period from 8 November 2022 to 15 November 2022. For the first time, this tender was subject to the adjusted contractual basis as described in chapter 5.2.1. In addition, the payment deadline for invoicing capacity charges was halved for this tender from 30 working days after the contract period to 15 working days. Following the conclusion of the tender, the bids submitted were analysed by THE in consultation with the German gas transmission system operators and the relevant authorities. Overall, the bid situation had improved compared to the first tender. However, prices remained high in line with the market situation at the time. In order to avoid an unreasonably high burden on the relevant neutrality accounts, it was decided not to accept the offers for the month of January. This was necessary and justifiable in light of the successful filling of the German storage facilities and the high prices. The offers for the months of February and March, however, were accepted in full in order to meet the necessary hedging requirements via the LTO product.

The tendered requirements for the months of February and March were fully met.

Contract period	Balancing zone	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)[11]	Capacity charge (EUR)[12]	Average commodity charge surcharge (EUR/MWh)[13]
January 2023	HN, HM, HS, HOS, LW. LO, LGN, LGU, LNA	14,427	24,889	---	---	---
February 2023	HN, HM, HS, HOS, LW. LO, LGN, LGU, LNA	14,427	26,349	14,500	128,072,917	19.09
March 2023	HN, HM, HS, HOS, LW. LO, LGN, LGU, LNA	14,427	24,204	14,500	147,842,971	20.77

Table 5: THE tender for LTO RoD (SystemBuy)[14]

The contracted LTOs in the RoD product variant were only called off as part of a test call order in GY 22/23. The quantities called off as well as the associated costs and revenues are shown in the table below:

[11] Deviations between the stated requirements and the contracted service are due to the batch sizes offered.
[12] The performance prizes awarded per lot are published on the MGV website.
[13] Due to the large number of offers, each with different labour prices, the individual labour prices per lot have not been presented for the sake of clarity. The contracted labour prices per lot are published on the MGV website.
[14] A breakdown of the requirements and contracted services for the individual RE zones can be found in the appendix.

Month	SystemBuy quantity called [MWh]	SystemBuy amount [EUR]	SystemSell quantity called [MWh]	SystemSell amount [EUR]
March 2023	330	26,197.05	0	0.00

Table 6: LTO RoD: quantities supplied/received

5.2.3 Review of options for reducing our use of LTO RoD pursuant to Article 8(6) of the BAL Code

LTOs in the RoD product variant are a zone-specific balancing product and as such serve to ensure availability of gas in all balancing zones on a long-term basis. The required LTO reserves to be put out to tender are determined on the basis of the measures to improve security of supply as set out by the BMWK in its policy paper of 16 December 2015 (see chapter 5.7). The total supply capacities to be secured via LTOs in the RoD product variant are determined according to a logic agreed with the BMWK on the basis of historical data and are therefore subject to fluctuations.

We currently assume that the LTO quantities will continue to be put out to tender in the same way as before. However, against the backdrop of developments in GY 21/22 and GY 22/23 (especially the historical price developments, the ongoing Russian war of aggression against Ukraine and new statutory measures to ensure security of supply), it may be necessary to adjust the quantities put out to tender.

5.2.4 Tendering and use of Hour LTOs

The following provides an overview for the individual contract periods of the hourly balancing requirements LTOs in the Hour product variant and the tender results for each balancing zone.

The Hour product variant is used for hedging structuring requirements over the long term. However, tenders for the Hour product variant were only carried out for the low-CV West balancing zone, as the long-term hedging of structuring requirements in the low-CV East balancing zone is provided by the SCB product (for details, please refer to chapter 5.4).

Contract period	Direction	Balancing zone	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge (EUR/MWh)
Q4 2022	SystemBuy	low-CV West	1,500	5,230	1,500	3,408,942	270.34
Q1 2023	SystemBuy	low-CV West	1,000	3,500	1,000	5,549,600	0.00
Q2 2023	SystemBuy	low-CV West	1,000	4,650	1,000	1,794,956	53.43
Q3 2023	SystemBuy	low-CV West	1,000	5,670	1,000	1,535,532	53.31

Table 7: LTO Hour contracts for low-CV West: SystemBuy (summary)

Contract period	Direction	Balancing zone	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge (EUR/MWh)
Q4 2022	SystemSell	low-CV West	1,500	5,400	1,500	1,040,903	229.96
Q1 2023	SystemSell	low-CV West	1,000	3,950	1,000	3,527,540	241.30
Q2 2023	SystemSell	low-CV West	1,000	4,340	1,000	1,606,661	39.30
Q3 2023	SystemSell	low-CV West	1,000	4,320	1,000	1,479,293	29.70

Table 8: LTO Hour contracts for low-CV West: SystemSell (summary)

In GY 22/23, contracted Hour LTOs were called off in the SystemSell direction in November 2022 during an EEX maintenance window. Test call orders in the SystemSell direction were made in June and July 2023. Table 9 shows the quantities called off in each case and the associated revenues.

Month	SystemBuy quantity called [MWh]	SystemBuy amount [EUR]	SystemSell quantity called [MWh]	SystemSell amount [EUR]
Oct. 2022	0	0.00	0	0.00
Nov. 2022	0	0.00	2,530	581,820,20
Dec, 2022	0	0.00	0	0.00
Jan. 2023	0	0.00	0	0.00
Feb. 2023	0	0.00	0	0.00
Mar. 2023	0	0.00	0	0.00
Apr. 2023	0	0.00	0	0.00
May 2023	0	0.00	0	0.00
Jun. 2023	0	0.00	180	5,515,60
Jul. 2023	0	0.00	240	8,216,80
Aug. 2023	0	0.00	0	0.00
Sep. 2023	0	0.00	0	0.00

Table 9: LTO Hour contracts for low-CV West: quantities supplied/received

5.2.5 Review of options for reducing our use of Long-term Options (Hour) pursuant to Article 8(6) of the BAL Code

The LTOs contracted on an Hour basis are currently the only fallback option in MOL 4 in situations where the exchange is down or the products traded on EEX and used for structuring purposes are available only in insufficient quantities. The lead times specified for the “NextHour” spot contract traded on ICE Endex for delivery at the TTF are so short as to make it impossible to meet the (re)nomination deadlines applicable at the VIPs, which means that the product cannot be used to meet our structuring requirements.

THE could therefore only dispense with securing additional reserves for structuring purposes via MOL 4 if it was ensured that the existing MOL 2 balancing products offered on the exchange for the delivery of gas in individual hours were available at all times under any scenario. Given the maintenance windows that will continue to occur also in GY 22/23 (usually at least one hour) and the unscheduled exchange downtimes that sometimes occur, we cannot currently do without this additional security.

As regards the supply capacities to be secured via MOL 4 to structure gas flows in the low-CV network in our market area, we currently generally expect the requirements to be gradually reduced as the gas quality switchover process progresses.

5.2.6 LTO test call orders

The MAM is entitled to issue test call orders on “RoD” and “Hour” LTO contracts (MOL 4) in accordance with section 9.4 of the "Long Term Options" product description. The purpose of these LTO test call orders is to verify whether balancing providers comply with their contractual communication and fulfilment obligations in order to ensure security of supply and warrant that the contracted balancing services are rendered in conformity with the agreed contracts.

The LTO providers to whom a test call order is to be issued are selected on a non-discriminatory basis according to pre-defined criteria agreed with the Federal Network Operator. A test call order to a provider can be issued in particular where considerable time has passed since an LTO call order was last issued to the provider, if it the provider is a new provider or if there is evidence indicating that the provider may not duly comply with its obligations on receiving a call order. No advance notice of a test call order is given to the providers affected; instead, test call orders are treated as a deviation from the prescribed merit order and are published as such on an ex-post basis on the website. In addition, test call orders are only carried out in situations where we have an actual balancing requirement in the relevant direction.

In GY 22/23, a total of five LTO test call orders were issued with the same number of providers. Four call orders were issued for the LTO Hour product variant in the SystemSell version. One call order was issued as LTO RoD SystemBuy. In this case, an infringement was identified and a contractual penalty was imposed. Apart from this breach, all call orders were duly fulfilled. In GY 22/23, two test call orders from the previous gas year were also penalised due to a breach.

5.2.7 Special LTO tenders

No special LTO tenders were carried out in GY 22/23.

5.3 Short-Term Balancing Services

5.3.1 Product description

The Short-Term Balancing Services (STB) balancing product is a non-standardised, short-term balancing product in MOL 4

The STB product involves the supply of gas quantities to, or the receipt of gas quantities from, the MAM at a constant hourly delivery rate from the specified hour until the end of the gas day[15]. It can only be offered by prequalified providers of balancing gas as part of short-term tenders. The call order is issued in the event of short-term local supply bottlenecks after the previous merit order ranks have been exhausted.

[15] On the days of the time change, it is a maximum of 23 and 25 hours, respectively.

Balancing gas providers can also use the STB product to offer current flexibilities in the consumption of industrial end consumers that they cannot offer securely via the LTO product due to the fixed product parameters of the LTO product (in particular the lead time of 3 hours from call-off). The most important product parameters are summarised in the following table.

STB parameters	Specifications
Product variant	Rest of the Day (RoD)
Product category	Locational
Bid delivery rate	10 MWh/h per lot (minimum) (thereafter in increments of whole numbers up to 1,000 MWh/h max.)
Point of delivery	
Price	Commodity charge
Required service availability	Short-term as per specified period
Call criterion	In case of short-term local supply constraints after exhaustion or technical unavailability of the higher merit order ranks
Call lead time	Flexible, can be selected by provider (1 to 23 hours)

Table 10: STB product parameters

5.3.2 Tendering and use

As a rule, the STB product is only used when there are short-term local supply constraints or when higher merit order ranks are unavailable for technical reasons, and only if it the use of this product is urgently necessary to maintain security of supply. No tender for the STB product was carried out in the THE market area in GY 22/23.

5.4 Short-Call Balancing Services

5.4.1 Product description

The balancing product called "Short-Call Balancing Services" (SCB) is a flexibility service with a particularly short lead time, which is used for structuring purposes. It ranks at MOL 4.

The requirements to be met via the SCB product are put out to tender in the low-CV East balancing zone on a monthly basis. The tender is open to pre-qualified balancing providers who can provide the required delivery rates according to the product specifications at storage points (storage Epe-L) or exit points to industrial customers in the low-CV East balancing zone. The service is be called as and when required with a lead time of no more than 60 minutes in direct coordination between the MAM or (possibly) the network operator involved and the storage operator or industrial customer.

The contractual framework for service provision at storage points is shown in the following chart:

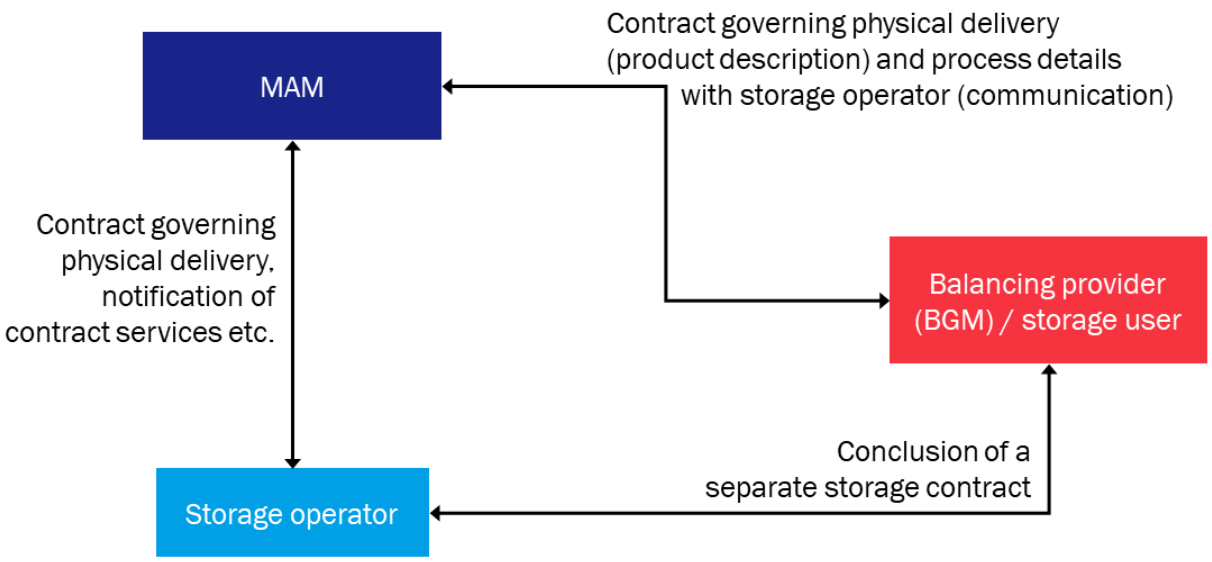

Figure 19: Contractual framework for SCB services offered at storage points

The current product specifications are shown in the following table:

SCB parameters	Characterisation
Product variant	Hourly
Product category	Locational
Bid delivery rate	10 MWh/h per lot
Point of delivery	At storage points (Epe-L) or exit points to industrial customers in the balancing zone low-CV East (LO)
Price	Capacity charges for provision and labour price for call-offs
Required service availability	No more than 4 calls per lot per gas day during the contract period
Call lead time	60 minutes (max.)
Call	Directly coordinated between MAM or (possibility) network operator and storage operator or industrial customer (no nomination process), where applicable taking into account a specified minimum call rate
Call criterion	Structuring needs requiring a lead time of less than 3 hours

Table 11: SCB product parameters

5.4.2 Tendering and use

The capacity costs and commodity charges resulting from the monthly tenders for the SCB product are shown in the following tables for each call direction.

Contract period	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity costs[16] (EUR)	Avg. commodity charge [17] (EUR/MWh)
Oct. 2022	1,500	4,820	1,500	3,914,730.00	281.39
Nov. 2022	1,500	4,350	1,500	3,298,572.00	175.04
Dec. 2022	1,500	4,350	1,500	2,302,508.00	126.51
Jan. 2023	1,500	4,850	1,500	2,294,840.00	141.27
Feb. 2023	1,500	4,740	1,500	2,048,344.00	71.75
Mar. 2023	1,500	5,180	1,500	1,808,309.00	54.54
Apr. 2023	1,500	4,590	1,500	1,713,924.00	47.99
May 2023	1,500	4,500	1,500	1,501,799.00	47.38
Jun. 2023	1,500	5,060	1,500	988,624.00	35.43
Jul. 2023	1,500	5,100	1,500	787,471.00	33.95
Aug. 2023	1,500	3,550	1,500	797,526.00	28.64
Sep. 2023	1,500	3,590	1,500	853,674.00	29.86

Table 12: SCB contracts: SystemBuy (summary)

Contract period	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity costs (EUR)	Avg. commodity charge (EUR/MWh)
Oct. 2022	1,500	1,840	1,500	5,379,727.00	182.99
Nov. 2022	1,500	2,600	1,500	3,879,780.00	136.60
Dec. 2022	1,500	2,600	1,500	3,684,295.00	87.98
Jan. 2023	1,500	2,640	1,500	3,153,964.00	99.68
Feb. 2023	1,500	2,650	1,500	3,415.560.00	54.55
Mar, 2023	1,500	3,050	1,500	2,814,270.00	50.09
Apr. 2023	1,500	1,520	1,500	2,824,531.00	45.16
May 2023	1,500	2,000	1,500	2,666,955.00	41.06
Jun. 2023	1,500	2,070	1,500	2,573,834.00	35.87
Jul. 2023	1,500	2,110	1,500	2,547,152.00	32.34
Aug. 2023	520	520	520	1,130,630.00	30.52
Aug. 2023 (SoA)	980	2,630	980	5,148,632.00	27.18
Sep. 2023	1,500	2,250	1,500	3,923,074.00	29.41

Table 13: SCB contracts: SystemSell (summary)

Since demand could not be fully met by the initial tender for the SystemSell direction at the beginning of July, THE had to issue a special tender at the end of July for the month of August. There were differences in the capacity charges between the individual tender months, with October 2022 and the special tender

[16] The capacity charges per lot are published on the MAM website.
[17] Due to the large number of offers, each with different commodity charges, the individual commodity charges per lot have not been presented for the sake of clarity. The contracted capacity charges per lot are published on the MAM website.

for August 2023 in particular seeing capacity costs of over EUR 5 million for the SystemSell direction. The price development reflects the general development of balancing gas employment.

The SCB product was utilised in the buy direction on a total of one day in GY 22/23. It did not have to be used in the SystemSell direction in GY 22/23.

Table 14 shows the quantities used in the SCB call orders per month in detail for GY 22/23 and as a year-on-year comparison.

Month	SystemBuy quantity called [MWh]	SystemBuy amount [EUR]	SystemSell quantity called [MWh]	SystemSell amount [EUR]
Oct. 2022	3,000	824,727.00	0	0,00
Nov. 2022	0	0.00	0	0,00
Dec. 2022	0	0.00	0	0.00
Jan. 2023	0	0.00	0	0.00
Feb. 2023	0	0.00	0	0.00
Mar. 2023	0	0.00	0	0.00
Apr. 2023	0	0.00	0	0.00
May 2023	0	0.00	0	0.00
Jun. 2023	0	0.00	0	0.00
Jul. 2023	0	0.00	0	0.00
Aug. 2023	0	0.00	0	0.00
Sep. 2023	0	0.00	0	0.00

Table 14: Use of SCB: quantities supplied/received

5.4.3 Review of options for reducing our use of SCB pursuant to Article 8(6) of the BAL Code

External balancing requirements in the low-CV gas network of the THE market area can only be forecast to a limited extent with the lead time of three hours that applies to the other balancing products. In the past, short-term structuring requirements that require a shorter lead time were largely covered by the linepack of the low-CV gas network and by bilateral agreements between the German gas TSOs and GTS as part of an agreement on network operation. However, the linepack in the low-CV gas network area is not always sufficient to meet such structuring requirements, and structuring requirements can also only be taken into account as part of bilateral arrangements on an availability basis. The SCB product was introduced in May 2020 and has been used regularly since then to ensure that these short-term balancing requirements can be met, even against the backdrop of the ongoing market area conversion. As the market area conversion is still underway, there is still a need for the product.

5.5 Flexibility Services

5.5.1 Product description

The Flexibility Services product is a product allowing surplus/shortfall gas quantities in THE market area to be "parked" and "borrowed" on a short-term basis. Both the MAM and the provider can supply or receive gas quantities. The following directions are available:

- "to THE" means that the MAM temporarily receives gas quantities from the provider and returns the gas quantities received to the provider ("borrowing")
- "from THE" means that the MAM temporarily supplies gas quantities to the provider and takes the supplied gas quantities back from the provider ("parking")

The Flexibility Services product is a combined "borrowing/parking product", i.e. there is no transfer of title to the gas used. The service is used or made available within a few minutes, but at the latest within 90 minutes of the MAM's request. Thanks to this short lead time, the flexibility product can bridge the gap between short-term requirements and the delivery of commodities with a standardised three-hour lead time.

There is no call/nomination process by the MAM. Instead, a call is made directly by the relevant network operator. The gas quantities are supplied/received at specific physical entry or exit points with kWh accuracy and can only be offered for one network area of the market area-wide network operators in the THE market area.

The gas quantities supplied/received by the provider are taken back/returned at the place where they were originally supplied/received.

The period during which the provider must ensure the availability of the service product can be organised on a monthly, quarterly, half-yearly or annual basis. In addition, short periods can also be agreed in specific cases determined by the MAM. Both fixed and interruptible products can be tendered and contracted.

The minimum lot size for the bids corresponds to a capacity of 50 MWh/h, above which the capacity offered can be increased in steps of ten MWh/h. In its offer for a fixed product, the provider can specify a positive constant price for the entire contract period, as well as a positive commodity charge.

5.5.2 Tendering and use of Flexibility Services

Two tenders were held for the Flexibility Services product on a fixed basis exclusively for low-CV gas for GY 22/23, whereby the individual months were tendered separately as contract periods.

The tender for the months of October 2022, November 2022, December 2022, January 2023, February 2023 and March 2023 ("first tender") was announced on 14 June 2022, and the tender for the months of April 2023, May 2023, June 2023, July 2023, August 2023 and September 2023 ("second tender") was announced on 7 February 2023.

The tendered demand (firm availability in the balancing zones GUD-L, GTG-L and NWG) amounted to 2,000 MWh/h for the months of October 2022 and November 2022, 3,000 MWh/h for December 2022 and 3,700 MWh/h for each of the months of January 2023, February 2023 and March 2023.

The tendered demand (firm availability in the balancing zones LGN, LGU and LNA) amounted to 1,500 MWh/h for the month of April 2023, 1,000 MWh/h for each of the months of May 2023 up to and including August 2023 and 1,500 MWh/h for the month of September 2023.

Table 15 shows the details on the flexibility contracts concluded on a fixed basis in GY 22/23.

Contract period	Tendered capacity (MW)	Offered capacity (MW)	Contracted capacity (MW)	Capacity charge costs (EUR)
Oct. 2022	2,000	4,080	2,000	4,119,044
Nov. 2022	2,000	4,670	2,000	4,269,650
Dec. 2022	3,000	5,630	3,000	11,879,272
Jan. 2023	3,700	5,630	3,700	17,341,260
Feb. 2023	3,700	5,630	3,700	21,505,480
Mar. 2023	3,700	5,070	3,700	16,927,515
Apr. 2023	1,500	2,800	1,500	3,062,384
May 2023	1,000	1,790	1,000	1,315,891
Jun. 2023	1,000	1,790	1,000	1,226,159
Jul. 2023	1,000	1,790	1,000	1,274.366
Aug, 2023	1,000	1,240	1,000	1,239,900
Sep. 2023	1,500	1,700	1,500	2,723,600

Table 15: Firm flexibility contracts (low-CV gas only)

The contracted output for the "Flexibility Services" product did not have to be utilised on any day in GY 22/23, meaning that it does not need to be presented in a separate chart.

5.5.3 Review of options for reducing our use of Flexibility Services pursuant to Article 8(6) of the BAL Code

Thanks to their contractual structure and especially the fixed non-standardised short-term availability within 90 minutes of the call order, the contracted flexibility products make a significant contribution to ensuring security of supply, which is why we see a continued need for this type of product. Reasons include

- the reduced linepack following the market area conversion, which reduces the potential for meeting structuring needs,
- deviations in the effectiveness of balancing gas delivery from system balancing transactions,
- more serious effects of forecast inaccuracies for larger low-CV gas purchases, and
- the need to maintain hedging capacity for shortfalls in Germany's own production.

5.6 LRD product

5.6.1 Product description

The "Load Reduction" (LRD) balancing product places a special focus on activating the disconnection potential of industrial consumers for balancing actions and thus enables industrial consumers to offer their demand-side potential to the market area manager at any time. However, the offer is not submitted directly via the industrial consumer, but via the MAM as a pre-qualified provider of balancing gas.

If there is a corresponding demand for balancing gas, it is called up at short notice for the gas day under consideration at any one time. The lot size is variable (from 1 MWh/h). In the event of a call order, the MAM would call the entire quantity offered. The provider can choose the lead time as well as the price model (daily price on call or commodity charge in EUR/MWh).

In addition, the provider can select whether, in the event of a call order for the gas day in question, call orders should also be submitted for subsequent gas days (D+1 to D+7).

The complete product description is available for download on the THE website.

5.6.2 Tendering and use of LRD products

The LRD product was not used in GY 22/23 as there was not such demand.

5.7 Supply security measures in accordance with the BMWK policy paper

On 16 December 2015 the BMWK published a policy paper on measures to improve natural gas supply security in which it called on the MAM to implement two measures aimed at strengthening the balancing market.

One of these measures was to increase the contract volumes for the existing LTO balancing product, the other measure was to launch a demand response balancing product (DSM), also to be contracted on a long-term basis. The separate DSM product was merged with the LTO product with effect from 1 January 2018 and is no longer available as an independent balancing product. Since this date, the BMWK policy paper has been implemented exclusively via the LTO product (RoD product variant).

As in previous years, the tenders issued to ensure implementation of the BMWK policy paper were coordinated with the BMWK and the Federal Network Agency. The total delivery rates to be held available for supply security purposes were calculated according to the logic agreed with the BMWK and the Federal Network Agency. Allocation of the required reserves to the individual balancing zones was carried out by the gas TSOs operating in the market area.

6 Locational balancing products

Zone-specific balancing products are used to meet external balancing requirements that relate to a specific balancing zone. Trading participants and providers trading zone-specific balancing products have an obligation to cause a physical effect in the relevant balancing zone. Zone-specific balancing products used for structuring purposes are delivered on an hourly basis in an exactly specified delivery hour ("Hour" product variant). For other local products, delivery can be arranged on an RoD or DA basis.

Our use of "Hour" balancing products for the purpose of structuring gas flows at the low-CV West and low-CV East balancing zones during the gas day is described in chapter **Fehler! Verweisquelle konnte nicht gefunden werden.**. The quantities called via MOL 4 (LTO and SCB) are shown in chapters **Fehler! Verweisquelle konnte nicht gefunden werden.** and 5.4, respectively.

No balancing products with RoD and/or DA delivery periods were used in the THE market area in merit order rank 2 in GY 22/23. In merit order rank 4, calls were only made for test purposes.

In GY 22/23 no balancing products with RoD and/or DA delivery were used in the THE market area within MOL 2. Call orders issued in MOL 4 were only test calls.

7 Allocation of costs to the balancing neutrality accounts

Below we describe the methodology we use to allocate our balancing costs between the balancing neutrality accounts currently in place; we also provide a review of whether the way in which we determine the applicable annual allocation keys continues to be appropriate, which is an annual requirement under the GaBi Gas 2.0 ruling.

All system balancing costs that can be divided between the balancing neutrality accounts in accordance with the cost causation principle based on the corresponding imbalances determined for network operators' network balancing accounts or BGMs' balancing groups are allocated using the applicable daily allocation key. Annual allocation keys are applied if the relevant cost items (e.g. capacity charges payable under LTO contracts) cannot clearly be allocated according to causation. As a rule, the applicable annual allocation key is calculated as the mean of all daily allocation keys applicable during the relevant gas year. This mean may be calculated using either an arithmetic or a volume-weighted approach.

In the THE market area the arithmetic approach is applied: We consider the determination of an arithmetic mean to be an appropriate approach as the balancing quantities procured for each day cannot directly be related to the cost and revenue items that are allocated to the individual balancing neutrality accounts based on the annual allocation key. Compared with the arithmetic approach, the application of a volume-weighted mean would increase complexity without providing a better measure of causation.

Figure 20 shows the costs and revenues per neutrality charge account resulting from the allocation logic described above.

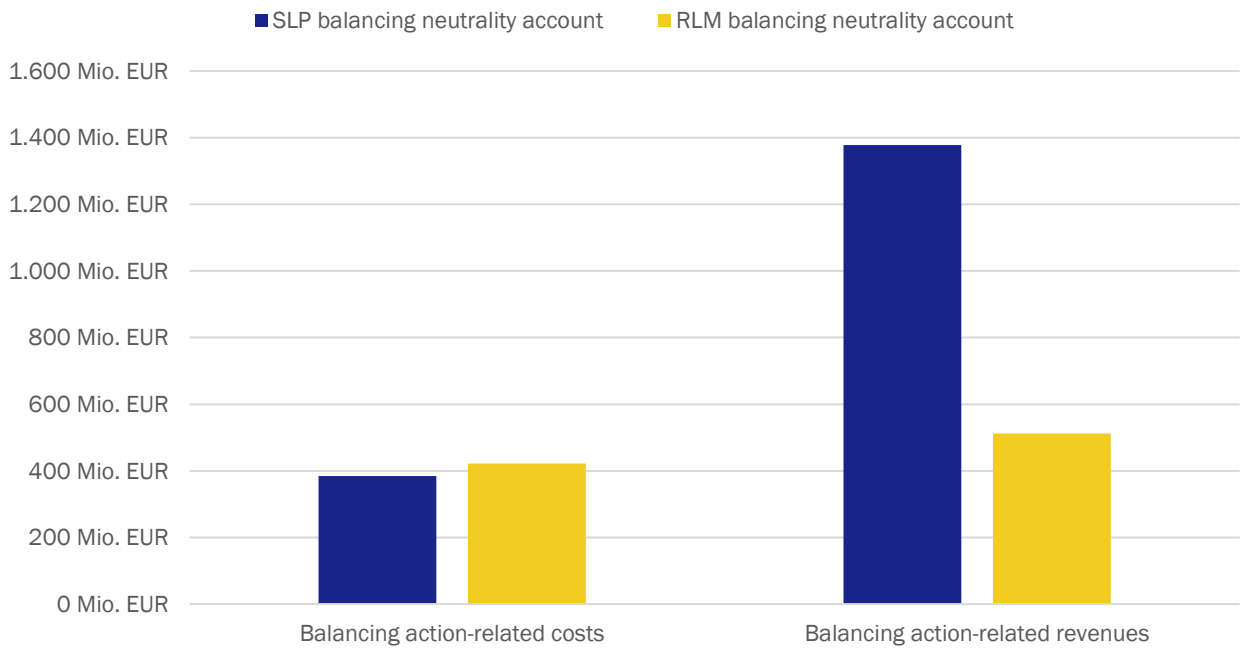

Figure 20: Costs and revenues from balancing gas per neutrality charge account[18]

[18] The costs and revenues shown for the months of July to September 2023 have been calculated on a provisional basis and were not yet finalised at the time this report was drawn up.

8 Development of fees and charges levied in market area

Table 16 shows the fees and neutrality charges in accordance with GaBi Gas 2.0 and Konni Gas in the market area for the periods from 1 October 2022 up to and including 30 September 2023 and from 1 October 2023 up to and including 30 September 2024, respectively.

Fees/neutrality charges	from 1 October 2022	from 1 October 2023
Conversion fee (H->L)	0.45 EUR/MWh	0.21 EUR/MWh
Conversion fee (L->H)	none / no longer applied according to Konni Gas	none / no longer applied according to Konni Gas
Conversion neutrality charge	0.38 EUR/MWh	0 EUR/MWh
RLM balancing neutrality charge	3.90 EUR/MWh	0 EUR/MWh
SLP balancing neutrality charge	5.70 EUR/MWh	0 EUR/MWh

Table 16: Fees and neutrality charges in the market area

More detailed information on how the fees and charges are calculated can be found in the calculation basis documents on the conversion fee and the conversion neutrality charge[19] and on the balancing neutrality charges[20]. More details on the risks related to our external balancing actions and how they are taken into account when calculating the balancing neutrality charges can also be found in the relevant calculation basis document.

[19] Published on the MAM website (www.tradinghub.eu)
[20] Published on the MAM website (www.tradinghub.eu)

9 Summary

In GY 22/23, as in previous years, THE engaged in system balancing transactions almost exclusively via the EEX's spot market books. A total of 32,243 GWh of balancing gas was purchased in GY 22/23 (vs. 22,890 GWh in GY 21/22) and 55,383 GWh was sold (vs. 29,162 GWh in GY 21/22). Expenditure for external balancing transactions (excluding capacity charges) totalled EUR 2,066 million in the full GY (vs. EUR 2,659 million in GY 22/23). Income from the external balancing actions totalled EUR 3,253 million in GY 22/23 (vs. EUR 3,980 million in GY 22/23).

The year was characterised by continuously high balancing gas sales. Due to the high sales, GY 22/23 can be described as an exceptional gas year in terms of system balancing. The strong sales activities from the summer months of the previous gas year continued into October and November, one reason being the savings effects in the SLP area, which are only shown with a time delay using the synthetic load profile method. In addition, strong low-CV gas to high-CV gas conversion was also observed during GY 22/23. At the time of the editorial deadline in mid-January 2024, the employment of balancing gas appears to have returned to normal winter patterns, with the exception of GY 22/23. In low-CV gas and merit order rank 1, balancing gas purchases are increasing and are well above the previous year's figures. In addition, total sales are around 81 % below the previous year's volumes.

Prices fell significantly over the course of GY 22/23 until the end of summer 2023. The average VTP price in GY 22/23 was EUR 55.43/MWh which was well below the previous gas year (EUR 123.24/MWh). Despite the lower prices, a positive balance of EUR 1,188 million remains in this gas year, even taking into account the capacity charge-related costs.

The newly introduced LRD product in merit order rank 4 was not utilised in GY 22/23.

Appendix to the system balancing report for the THE market area

Overview of balancing costs and revenues in GY 22/23

Balancing costs/revenues	Costs (SystemBuy)	Revenues (SystemSell)
MOL 1	**95,390,083**	**46,463,170**
DA	0	3,351,183
RoD	95,390,083	43,111,987
MOL 2	**1,969,706,914**	**3,206,288,783**
DA	1,001,923,772	2,609,290,718
RoD	853,754,659	447,886,714
Hour	114,028,483	149,111,350
MOL 4	**850,924**	**595,553**
RoD[21]	26,197	0
Hour (LTO)	0	595,553
Hour (SCB)	824,727	0
Total	**2,065,947,921**	**3,253,347,505**

Table 17: Balancing costs/revenues by MOL (DA, RoD and Hour; commodity charges only)[22]

Balancing costs	Capacity charge (SystemBuy)	Capacity charge (SystemSell)
Long-term options, RoD	275,915,889	0
Long-term options, Hour	12,289,031	7,654,397
Short-call balancing services	22,310,321	43,142,404
Flexibility services	86,884,521	0
Total	**397,399,761**	**50,796,801**

Table 18: Costs from MOL 4 contracts (capacity charges only)

[21] The costs are made up of STB and LTO RoD commodity charges.

[22] The bilateral short-term balancing products in MOL 3 were discontinued as of 1 January 2018 (see section 8 of the System Balancing Report for GY 17/18); MOL 3 has therefore no longer been listed in the tables since the System Balancing Report for GY 18/19.

Overview of balancing gas quantities in GY 22/23

Balancing gas quantities [GWh]	Quantities (SystemBuy)	Quantities (SystemSell)
MOL 1	**1,222,438**	**625,134**
DA	0	89,976
RoD	1,222,438	535,158
MOL 2	**31,017,203**	**54,754,816**
DA	15,988,518	43,121,464
RoD	13,298,875	9,050,714
Hour	1,729,810	2,582,638
MOL 4	**3,330**	**2,950**
RoD[23]	330	0
Hour (LTO)	0	2,950
Hour (SCB)	3,000	0
Total	**32,242,971**	**55,382,900**

Table 19: Balancing gas quantities by MOL (DA, RoD and Hour)

Tender results for LTO RoD per balancing zone

Contract period	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge surcharge (EUR/MWh)
Jan. 2023	7,430	9,810	---	---	---
Feb. 2023	7,430	9,900	7,430	84,228,430.92	23.32
Mar. 2023	7,430	9,100	7,430	98,267,224.75	26.60

Table 20: LTO RoD contracts – SystemBuy (summary per contract period, HS zone)

Contract period	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge surcharge (EUR/MWh)
Jan. 2023	1,154	3,385	---	---	---
Feb. 2023	1,154	3,465	1,160	4,139,856.00	6.18
Mar. 2023	1,154	3,210	1,160	4,868,328.60	3.60

Table 21: LTO RoD contracts – SystemBuy (summary per contract period, HN zone)

[23] The quantities include STB and LTO RoD calls.

Contract period	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge surcharge (EUR/MWh)
Jan. 2023	1,154	3,250	---	---	---
Feb. 2023	1,154	3,250	1,160	4,293,424.00	29.21
Mar. 2023	1,154	3,250	1,160	5,382,340.00	35.63

Table 22: LTO RoD contracts – SystemBuy (summary per contract period, HM zone)

Contract period	Total required (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge surcharge (EUR/MWh)
Jan. 2023	1,226	2,460	---	---	---
Feb. 2023	1,226	2,450	1,230	8,878,968.00	15.06
Mar. 2023	1,226	1,880	1,230	10,093,879.46	11.74

Table 23: LTO RoD contracts – SystemBuy (summary per contract period, HOS zone)

Contract period	Total required [24] (MWh/h)	Offered delivery rate (MWh/h)	Contracted delivery rate (MWh/h)	Capacity charge (EUR)	Avg. commodity charge surcharge (EUR/MWh)
Jan. 2023	3,463	5,984	---	---	---
Feb. 2023	3,463	7,284	3,520	26,532,239	12,49
Mar. 2023	3,463	6,764	3,520	29,231,198	12,39

Table 24: LTO RoD contracts – SystemBuy (summary per contract period, low-CV gas: LW, LO, LGN, LGU & LNA zones)

[24] The balancing requirement for the provision of low-CV gas volumes was tendered jointly for the balancing zones low-CV West and low-CV East.

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