Report on the system balancing actions and related procurement activities in the GASPOOL market area in the gas year 2017/2018

Table of contents

1 Introduction 5
2 Internal balancing actions 6
2.1 Graphical presentation of internal balancing actions and related positive and negative balancing quantities 6
3 External balancing actions and related procurement activities 7
3.1 Overview of buy and sell balancing actions by MOL 8
3.1.1 MOL 1 8
3.1.2 MOL 2 9
3.1.3 MOL 3 10
3.1.4 MOL 4 11
3.1.5 High CV gas 12
3.1.6 Low CV gas 12
3.2 Procurement of gas for balancing purposes in adjacent market areas 14
3.3 Number of trades executed for balancing purposes pursuant to Article 9(4) of the BAL Code 20
3.4 Situation during the cold period in February/March 2018 24
4 Effect and application of the within-day obligation rules 25
4.1 Within-day balancing actions in opposite directions in the respective MOL rankings 27
5 Procurement and use of balancing services (MOL 4) 28
5.1 Long-Term Options 32
5.2 Issuance of test call orders on LTO contracts 32
5.3 Product description of Short-Term Balancing Services 33
5.4 Supply security measures in accordance with the BMWi policy paper 33
6 Locational balancing products 36
7 Allocation of costs to the balancing neutrality accounts 37
8 Termination of approved interim measures according to Article 46 of the BAL Code) 39
9 Development of fees and levies in the market area 40
10 Conclusion / Summary 43
11 Annex I - Overview of external balancing quantities and costs 45

Table of figures

Figure 1: Graphical presentation of internal balancing actions in the high CV network areas and related positive and negative balancing quantities by month 6
Figure 2: Graphical presentation of internal balancing actions in the low CV network areas and related positive and negative balancing quantities by month 7
Figure 3: MOL 1 quantities and costs in GY 2017/2018 by month 8
Figure 4: MOL 2 quantities, costs and revenues in GY 2017/2018 by month 9
Figure 5: Minimum/maximum prices and price range of MOL 2 balancing transactions 10
Figure 6: LTO quantities and costs (commodity charges only) 11
Figure 7: High CV gas balancing transactions (buy and sell) in GY 2017/2018 by month 12
Figure 8: Low CV gas balancing transactions (buy and sell) in GY 201/2018 by month 13
Figure 9: Procurement activities in adjacent market area (TTF) by day 14
Figure 10: Quantities, costs and revenues of balancing actions taken via TTF 15
Figure 11: Transportation capacity booked for balancing actions via adjacent market areas in GY 2017/2018 16
Figure 12: Number of RoD balancing actions in GY 2017/2018 by direction and MOL 20
Figure 13: Number of DA balancing call orders in GY 2017/2018 by direction and MOL 21
Figure 14: Number of balancing call orders (DA and RoD) per day and MOL 22
Figure 15: MOL 1 to MOL 3 balancing actions across the high CV and low CV network areas by time of day 22
Figure 16: Costs and revenues of balancing transactions in GY 2017/2018 by month and MOL 23
Figure 17: Within-day flexibility quantities in GY 2017/2018 26
Figure 18: Flexibility gas account movements and quantities supplied/received in the high CV network areas [MWh] 30
Figure 19: Total for the flexibility gas account balances and movements and quantities supplied/received in the low CV network areas in GY 2017/2018 31
Figure 20: LTO delivery rates offered in GY 2017/2018 by network area and month [MW] ...34
Figure 21: Locational balancing products traded in GY 2017/2018 36
Figure 22: Neutrality account cost and revenue allocation for the last two GYs 37
Figure 23: Development of balancing neutrality charges at GASPOOL since October 2015 .40
Figure 24: Projected and actual balance (= costs – revenues) for the SLP area for GASPOOL 41
Figure 25: Projected and actual balance (= costs – revenues) for the RLM area for GASPOOL 41

Table of tables

Table I: Balancing quantities procured during 2018 cold period 24
Table II: MOL 2 within-day balancing actions in opposite directions 27
Table III: Contracted firm flexibility services (low CV gas only) 29

Table IV: Contracted interruptible flexibility services (low and high CV gas) 30
Table V: LTO tender results for the contract period 1 Jan. 2018 – 1 Apr. 2018.....34
Table VI: Conversion charge and conversion allocation at GASPOOL 42
Table VII: Balancing costs and revenues by MOL [EUR], excluding capacity charges.....45
Table VIII: Balancing costs and revenues by MOL and timing [EUR], excluding capacity charges 45
Table IX: Capacity charges paid under MOL 4 contracts [EUR].....46
Table X: Number of days on which MOL 4 contracts were used.....46
Table XI: Quantities supplied/received by MOL [MWh] 46
Table XII: Quantities supplied/received by MOL and timing [MWh].....47
Table XIII: MOL 2 within-day balancing actions in opposite directions by day.....48

1 Introduction

The administrative ruling on gas balancing handed down by the German national regulatory authority Bundesnetzagentur (below referred to as the “Federal Network Agency”) on 19 December 2014 (the so-called “GaBi Gas 2.0” ruling) places an obligation on the German market area managers (MAMs) to report on their system balancing activities once each year. In their annual reports the MAMs are to provide an account of their balancing experiences in the context of their internal and external balancing actions and related procurement activities carried out in the relevant gas year (GY). This report describes our system balancing activities and related balancing quantities for each rank of the applicable merit order for balancing actions (usually shortened to “MOL” for “merit order list”) along with the associated costs and revenues. Please note that all data and charts also include balancing actions that were taken for gas quality conversion purposes, which are not considered separately.

In addition, this report describes our use of balancing services, our balancing-related procurement activities in adjacent market areas, namely at the Title Transfer Facility (TTF), as well as our use of our balancing platform. We also provide a summary of our experiences in connection with the implementation of the 2015 policy paper on measures to improve natural gas supply security published by the German Federal Ministry for Economic Affairs and Energy (throughout this report referred to as the “BMWi policy paper”). The present document contains the third System Balancing Report published by GASPOOL.

2 Internal balancing actions

In this chapter of the GASPOOL System Balancing Report we describe the so-called “internal” balancing actions carried out in the market area GASPOOL (i.e. balancing actions effected by network operators by way of linepack and network storage measures). Use of the internal balancing tools available in our market area reduces our need for balancing products offered in the market – in return for a fee – by third-party balancing providers (those would be what we refer to as “external” balancing actions).

2.1 Graphical presentation of internal balancing actions and related positive and negative balancing quantities

The chart below shows the internal balancing actions carried out in both directions (positive/negative) in aggregate for both gas qualities (high-cal gas – below referred to as “high CV gas” – and low-cal gas – below referred to as “low CV gas”) for each calendar month in GY 2017/2018. The quantities shown here also include the quantities transferred between the two quality sectors of the multi-quality market area by the transmission system operators (TSOs).

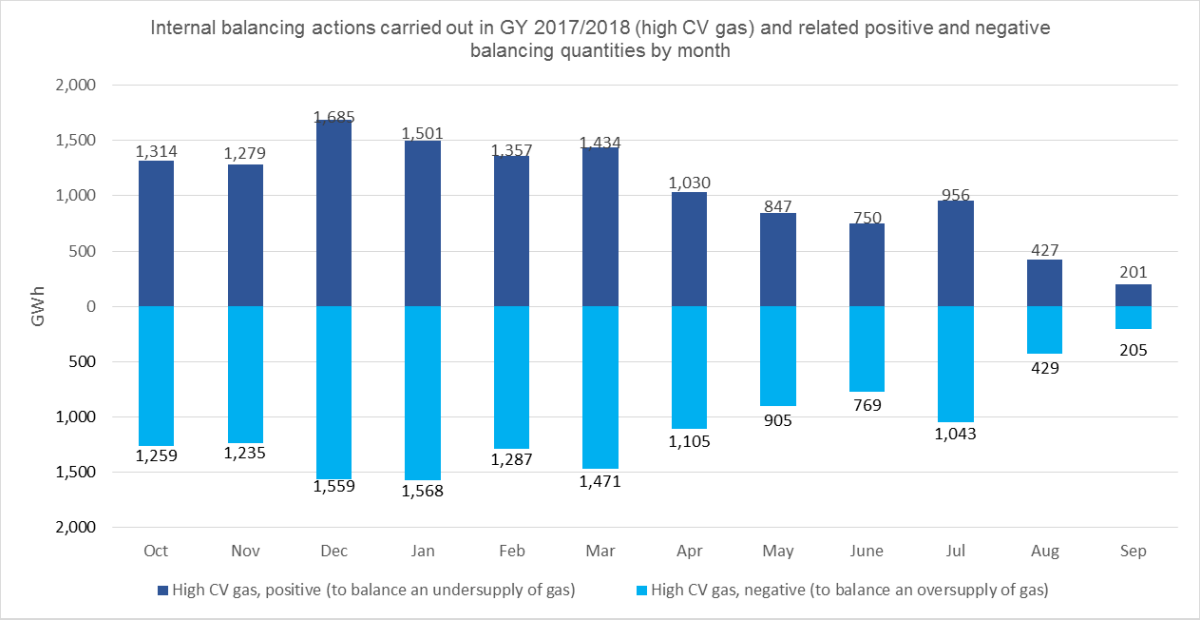

Figure 1: Graphical presentation of internal balancing actions in the high CV network areas and related positive and negative balancing quantities by month

As can be seen in Figure 1, increased internal balancing activities were required in the high CV network areas in January and March.

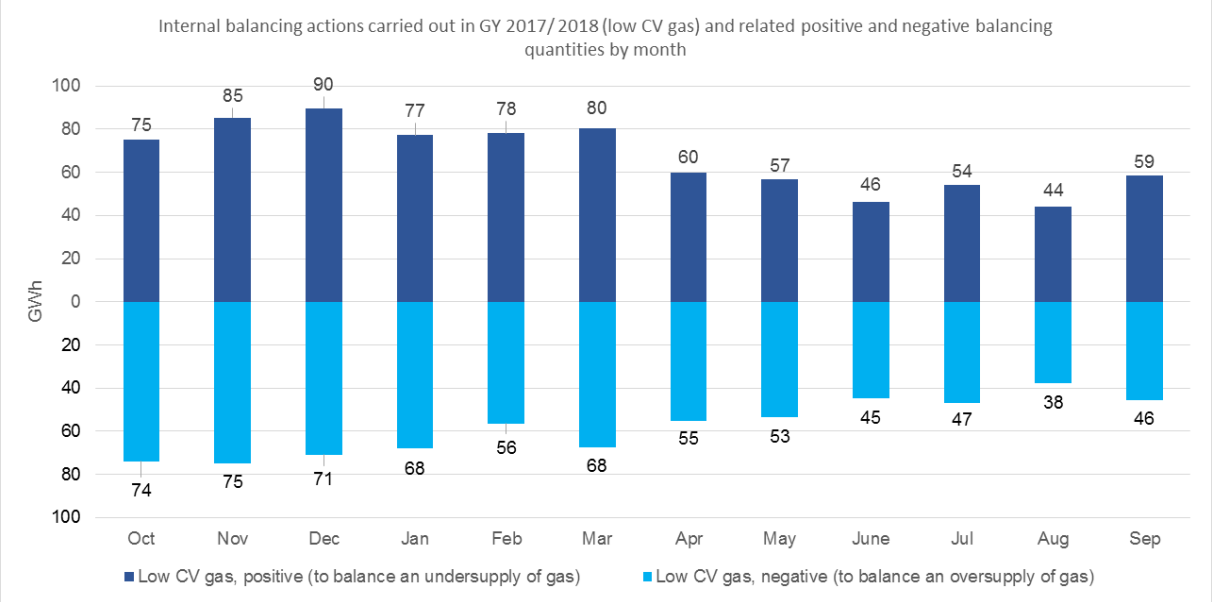

Figure 2: Graphical presentation of internal balancing actions in the low CV network areas and related positive and negative balancing quantities by month

As Figure 2 shows, the internal balancing actions taken in the low CV sector of our market area run up to around 5% of the magnitude of those taken in the high CV sector. Overall, positive internal balancing actions across both gas qualities were 17% up from the previous year, negative internal balancing actions up 15%.

3 External balancing actions and related procurement activities

In this chapter of the GASPOOL System Balancing Report we describe the market-based ("external") balancing actions carried out in the market area GASPOOL. Separate analyses are provided for the different ways in which we can take external balancing actions (purchases and sales of gas) as well as for the individual ranks of the merit order ("MOL"). Detailed cost, revenue and quantity information is given in the tables provided in Annex I.

Our total external balancing expenditure for the entire gas year amounted to EUR 470.575m (previous year: EUR 135.296m, up 248%). In relation to our sales of gas we generated external balancing revenues of EUR 232.452m (previous year: 41.779m, up 456%).

3.1 Overview of buy and sell balancing actions by MOL

3.1.1 MOL 1

The chart below shows the aggregate balancing quantities procured within MOL 1 for each month together with the associated costs and revenues. MOL 1 is procured via the global order book on PEGAS.

We have been taking MOL 1 balancing actions regularly again since February 2018. Past experience had previously shown that the assumption that only high CV gas is supplied in MOL rank 1 no longer applies. As gas quality is always a factor in determining system imbalances and related balancing requirements, we no longer used the global order book in many cases. Based on the experience gained in the past, it was possible to adapt the procurement algorithm so that more MOL 1 can be used since February 2018.

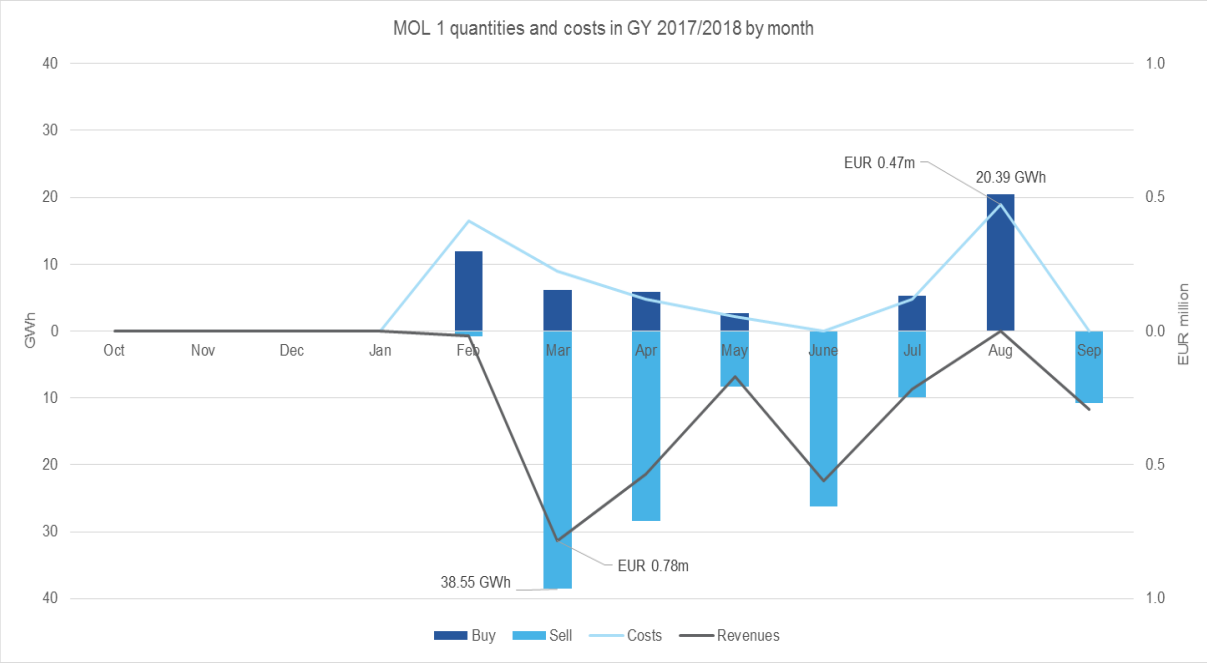

Figure 3: MOL 1 quantities and costs in GY 2017/2018 by month

The largest monthly quantity, 20.39 GWh, was purchased in August (previous year: 241 GWh in October, down 91.54%) at a cost of EUR 0.47m (previous year: EUR 3.88m in January, down 87.89%). On the sell side, relevant quantities were sold from March, with March seeing the largest monthly sell quantity of 38.55 GWh at revenues of EUR 0.78m (no MOL 1 quantities were sold in the previous year). We bought a total of 52.1 GWh (previous year: 241 GWh, down 78.38%) at a cost of EUR 1.404m (previous year: EUR 3.88m, down 63.81%). Overall, we sold 122 GWh for EUR 2.579m during the same period.

3.1.2 MOL 2

Merit order rank MOL 2 comprises all other standardised products traded on the exchange that are used by the MAMs for their external balancing actions. GASPOOL effected MOL 2 transactions to trade both high CV and low CV gas for delivery at the GASPOOL VTP using the quality-specific order books, to trade gas through the zone-specific order books on PEGAS and also to trade spot contracts for delivery of gas at the virtual trading point TTF in the adjacent market area operated by the Dutch TSO Gasunie Transport Services B.V. (GTS). Gas contracts traded via the order books mentioned for delivery at the GASPOOL VTP are subject to specific physical delivery restrictions. Trading participants effecting trades via these order books have an obligation to cause a physical effect in a magnitude corresponding to the quantities traded, which is a necessary requirement for us to be able to manage system imbalances.

The chart below shows the balancing quantities procured via MOL 2 as well as the associated costs and revenues by month.

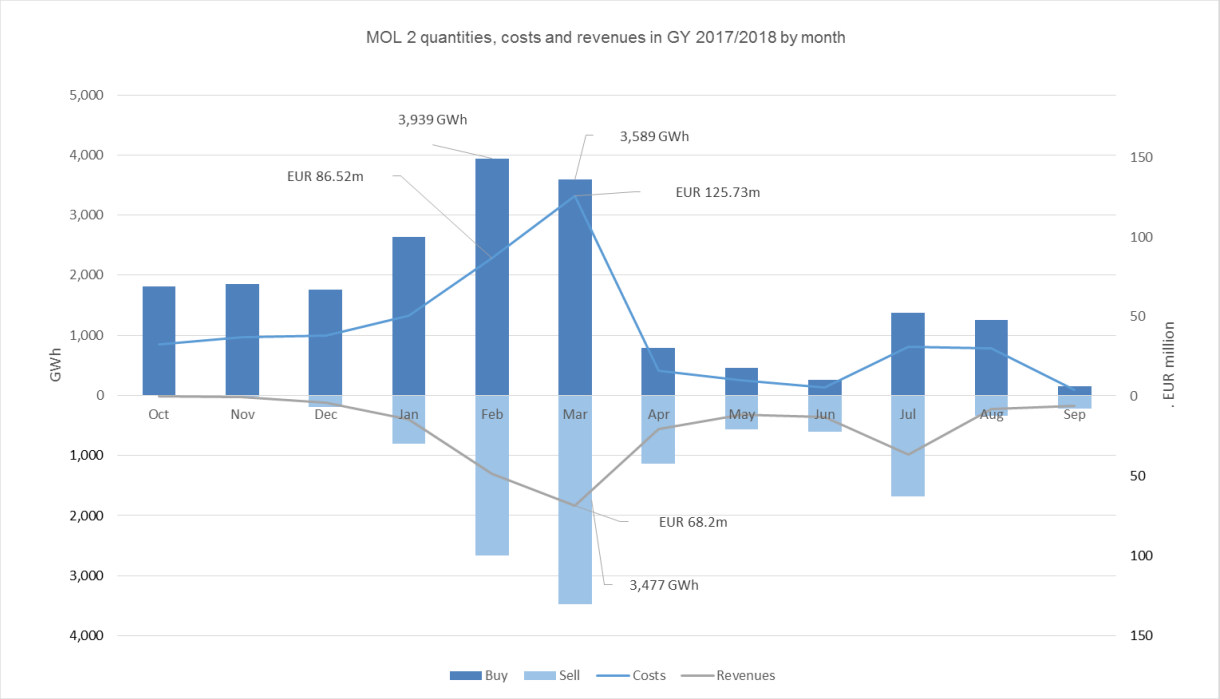

Figure 4: MOL 2 quantities, costs and revenues in GY 2017/2018 by month

In the gas year covered by this report we purchased a total of 19.9 TWh MOL 2 quantities amounting to EUR 468.8m compared to sales of 11.7 TWh with revenues of EUR 229.9m.

As can be seen in Figure 4, most of our MOL 2 buy transactions were effected in the winter months, especially in February and March. The main driver for this was the cold spell at the end of February (s. chapter 3.4). The largest monthly quantity, 3.9 TWh, was purchased in February (previous year: 1.7 TWh in January, up 135.3%) at a cost of EUR 86.52m (previous

year: EUR 35.04m in January, up 146.8%). On the sell side, relevant quantities were sold between February and July, with April seeing the largest monthly sell quantity of 3.5 TWh (previous year: 0.8 GWh in April, up 350.9%) at revenues of EUR 68.2m (previous year: EUR 11.81m in April, up 477.4%).

Figure 5 presents the lowest and highest prices in EUR per MWh that we paid and received in connection with our MOL 2 buy and sell transactions for each gas day.

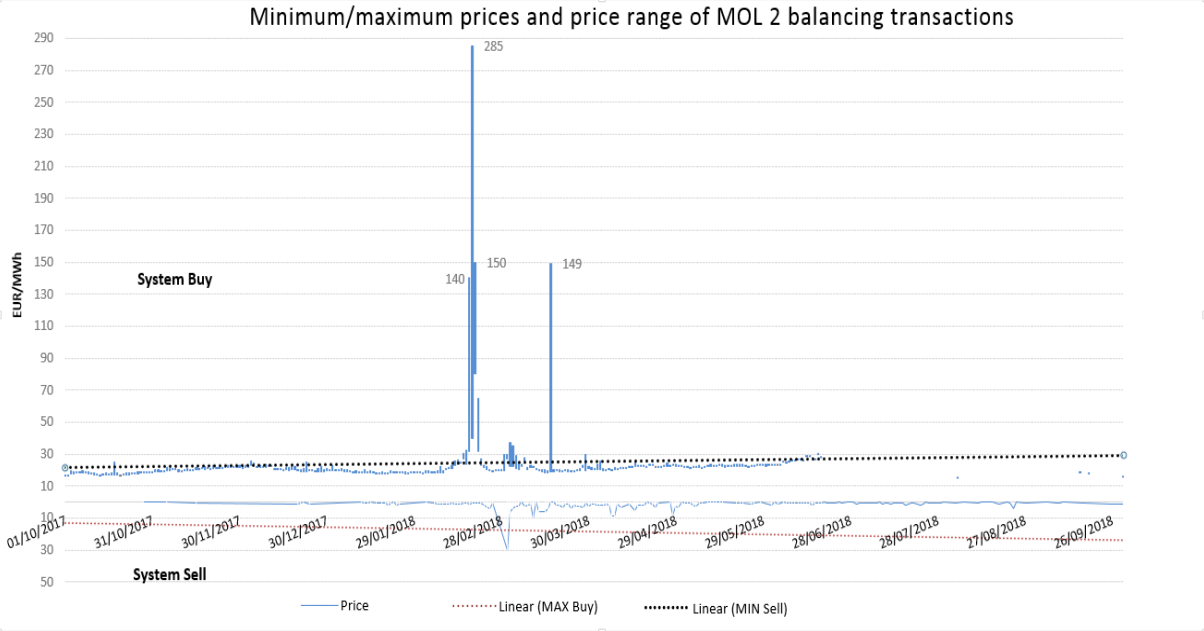

Figure 5: Minimum/maximum prices and price range of MOL 2 balancing transactions

The highest MOL 2 buy price, 285.0 EUR/MWh, was paid in the course of the cold spell on 1 March 2018 and related to a trade effected in the low CV gas market for delivery in the GUDH network area. The lowest buy price, 16.40 EUR/MWh, related to a TTF transaction executed on 1 October 2017. The highest MOL 2 sell price, 50.0 EUR/MWh, was obtained on 2 March 2018 and is related to the high price level during the cold spell. The lowest sell price of 9.5 EUR/MWh was received for a locational trade in the ONTRAS order book on 8 April 2017.

The price level for balancing energy at GASPOOL was significantly higher than the level in the past years. In the volume-weighted average, a price of 23.80 EUR/MWh was paid for balancing energy in the months from October up to and including March. One factor influencing the higher price level is the high prices and quantities of regulated energy during the cold spell at the end of February. In the previous years this average price fluctuated between around 13.00 and 20.00 EUR/MWh.

3.1.3 MOL 3

In GY 2017/2018 we did not take any MOL 3 balancing actions. The specifications applicable to the available MOL 3 balancing products are identical to those traded on the exchange. All

balancing requirements were therefore met from within MOL 1 and MOL 2. As of 1 January 2018 there was no longer any usage of bilateral products on MOL3.

3.1.4 MOL 4

MOL 4 comprises the balancing products “Long-Term Options” (LTO), “Short Term Balancing Services” (STB) and “Flexibility”. LTOs were only contracted for the purpose of implementing the requirements of the BMWi policy paper on supply security. For the months from January 2018 to March 2018 we contracted monthly reserves of 1.3 GW for the low CV network areas of our market area. The capacity charges payable under these contracts totalled EUR 1.79m. The total capacity charges paid in relation to our “Flexibility” contracts amounted to EUR 16.71m. Detailed information on our LTO contracts is provided in chapter 5.1, our Flexibility product and its use is described in chapter 5.

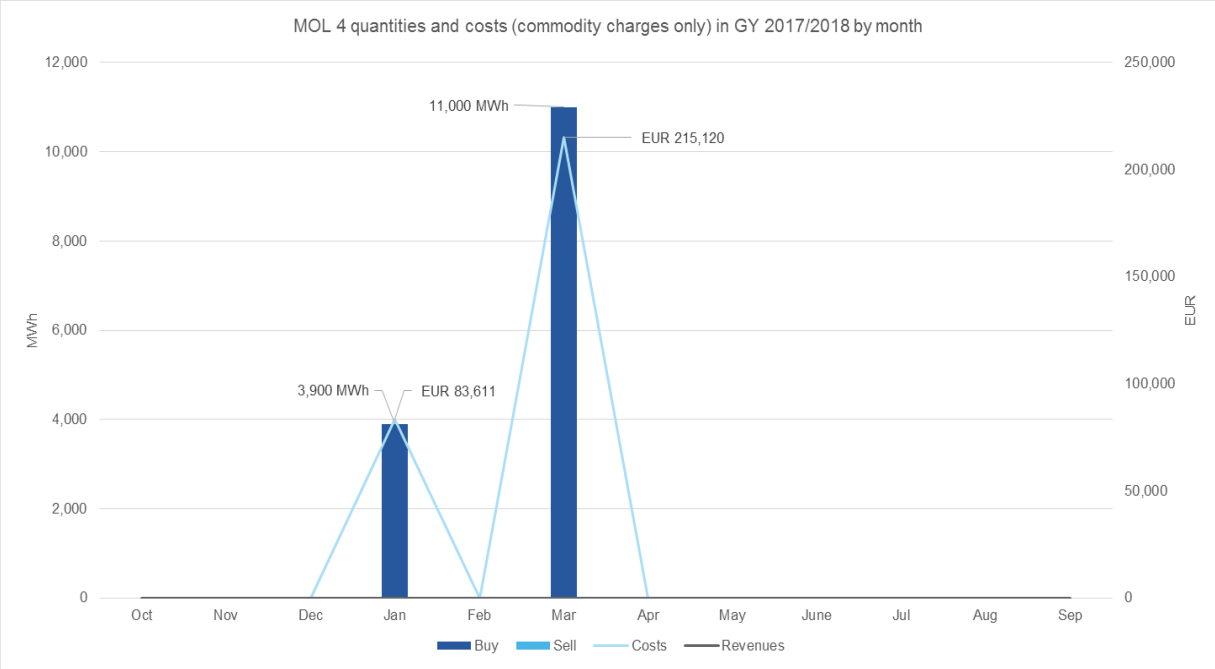

Figure 6: LTO quantities and costs (commodity charges only)

Figure 6 shows the total use of Long-Term Options. The first use on 3 January 2018 was based on a test call order, with 3,900 MWh being requested at a cost of EUR 83.610. There was a liquidity bottleneck on the exchange on 28 March 2018 and an LTO call order was issued in the low CV gas market area for 11.000 MWh for EUR 215,120.

3.1.5 High CV gas

The chart below provides an overview of the quantities of high CV gas we bought and sold (SystemBuy and SystemSell) for balancing purposes in each month. These include all commodity transactions across all merit order ranks. The chart shows the cumulative daily quantities in GWh along with the cumulative costs and revenues in millions of EUR by month.

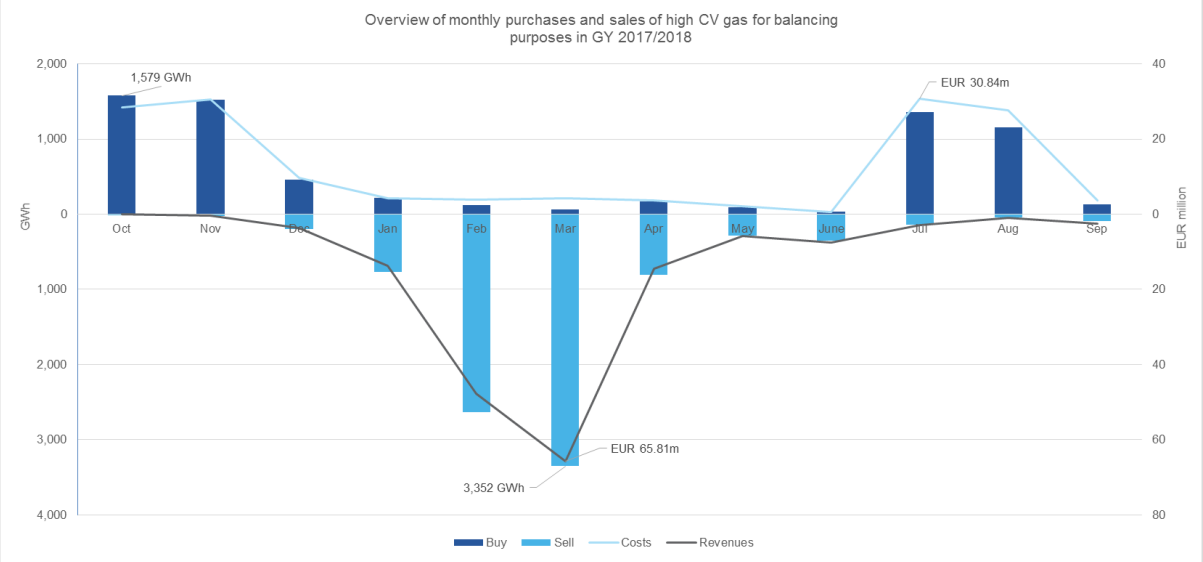

Figure 7: High CV gas balancing transactions (buy and sell) in GY 2017/2018 by month

As can be seen in Figure 7, sales of high CV gas prevailed from January to June 2018, while there were predominantly purchases in the months of October to December and July/August.

Overall, some 6.9 TWh of high CV gas[1] (previous year: 4.0 TWh, up 72.5%) were bought for balancing purposes at a total cost of EUR 149.79m (previous year: EUR 76.06, up 96.97%) compared with sales of 8.7 TWh (previous year: 2.1 TWh, up 314.2%) and revenues of EUR 165.58m (previous year: EUR 32.304m, up 412.6%). This results in a cumulative negative balance of 1.8 TWh.

3.1.6 Low CV gas

The chart below provides an overview of the quantities of low CV gas we bought and sold for balancing purposes in each month. The chart shows the cumulative daily quantities in GWh along with the cumulative costs and revenues in millions of EUR by month.

[1] To ensure comparability of these figures with the previous year, all MOL 1 balancing actions have been treated as relating to the high CV network areas and have therefore been included in this data.

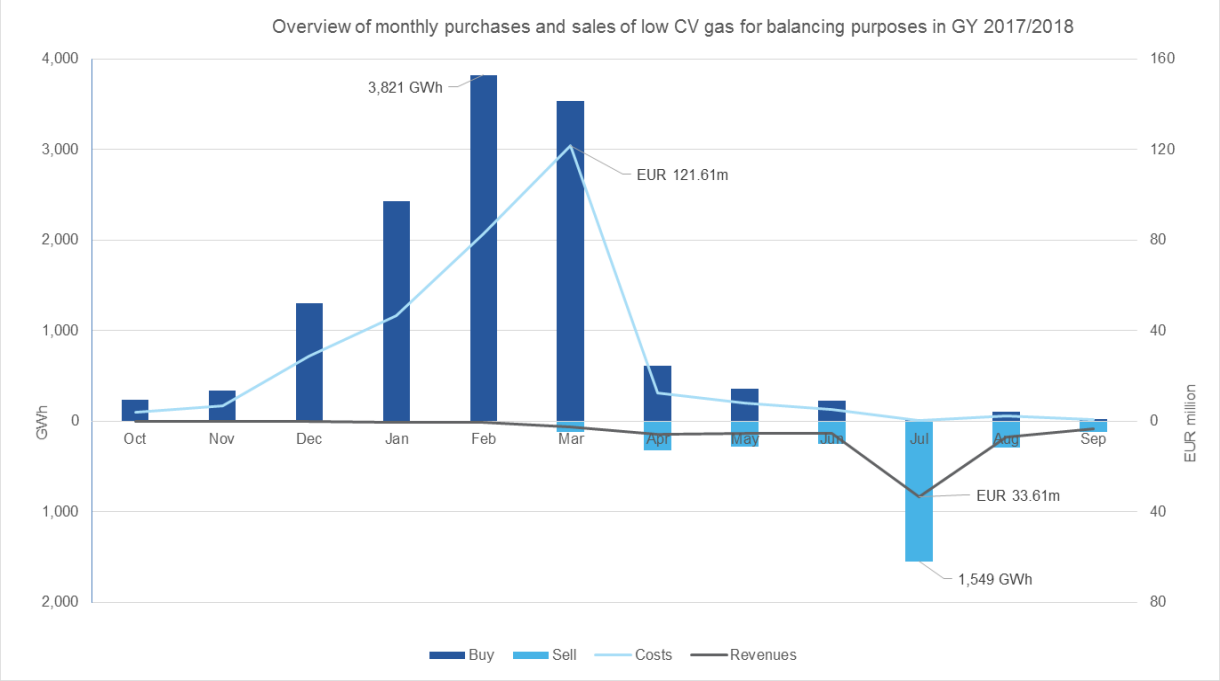

Figure 8: Low CV gas balancing transactions (buy and sell) in GY 201/2018 by month

As can be seen in Figure 8, the major part of our gas purchases for the low CV sector were made during the winter months of the GY, with significant quantities being purchased up to March. The largest monthly quantity, 3.8 TWh (previous year: 1.2 TWh in February, up 231.4%), was purchased in February. The highest costs of EUR 121.61m were incurred in March (previous year: EUR 23.29m in January, up 422.15%). Relevant quantities were sold in July, with the largest monthly sell quantity of 1.6 TWh (previous year: 0.3 TWh in May, up 480.15%), bringing in revenues of EUR 33.61m (previous year: EUR 3.77m in May, up 791.51%).

Overall, some 13.0 TWh of low CV gas (previous year: 3.1 TWh, up 324.44%) were bought for balancing purposes at a total cost of EUR 319.383m (previous year: EUR 59.76m, up 434.44%), compared with sales of 3.0 TWh (previous year: 0.7 TWh, up 356.06%) and revenues of EUR 64.295m (previous year: EUR 9.375m, up 585.81%).

3.2 Procurement of gas for balancing purposes in adjacent market areas

Below we describe the quantities we procured in the adjacent Dutch market area by trading gas for delivery at the TTF.

The gas purchased at the TTF is made available on the gas network of the Dutch TSO GTS and therefore needs to be transported to the GASPOOL market area via cross-border interconnection points (IP). In order to do so we have to book transportation capacity, for which we incur additional costs.

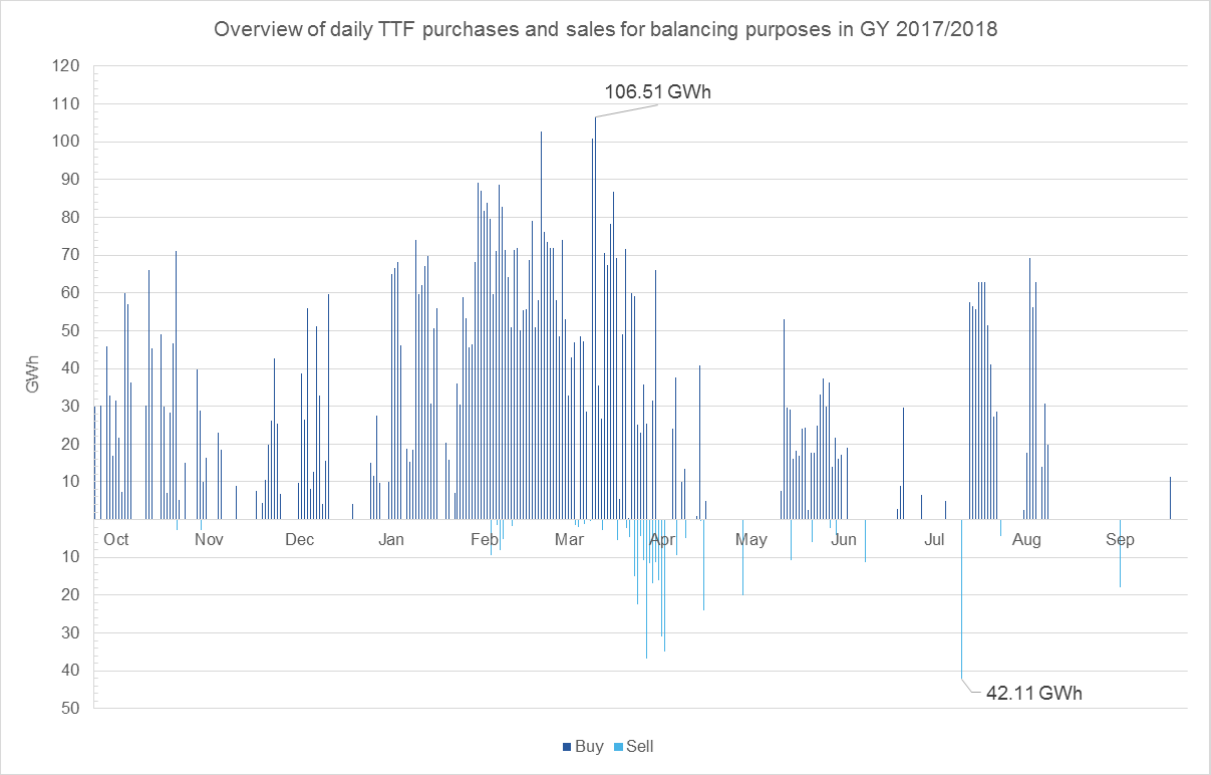

Figure 9: Procurement activities in adjacent market area (TTF) by day

GASPOOL used the TTF in conjunction with transportation capacity contracts as an external balancing tool on 230 days in total (previous year: 102 days, up 125.5%).

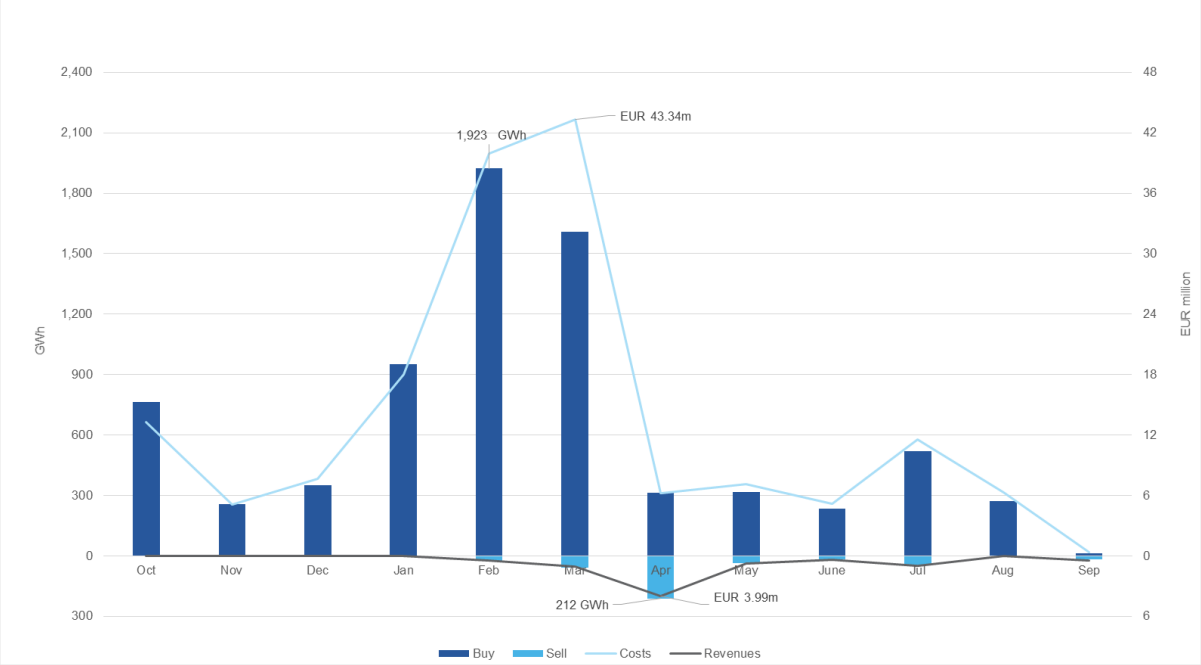

Figure 10: Quantities, costs and revenues of balancing actions taken via TTF

The TTF was generally used for the procurement of both high CV and low CV gas throughout the entire gas year. Figure 10 shows the monthly quantities supplied and received together with the associated costs and revenues. We purchased 7.5 TWh of gas at a total cost of EUR 163.9m (previous year: 2.0 TWh / EUR 36.1m, up 278.2% and 353.8%, respectively). This compares to sales of 0.4 TWh generating total revenues of EUR 8.3m (previous year: 2.0 TWh / EUR 2.7m, up 150.8% and 212.1%, respectively).

The gas sourced via the TTF is bought without qualifying it as either high CV or low CV gas but instead is assigned a gas quality with reference to the corresponding booked transportation capacity. We thus incurred costs of EUR 8.0m for capacities for a total potential transport volume of 8.9 TWh, with 8.6 TWh of entry capacity and 0.3 TWh of exit capacity.

On the TTF, 1.5 TWh (previous year: 0,9 TWh, up 66.7%) was purchased for the high CV network areas for EUR 30.5m (previous year: EUR 20.9m, up 538.0%). At the same time, sales of 0.3 TWh were effected for the first time for EUR 6.5m.

On the TTF, 6.0 TWh (previous year: 1,1 TWh, up 445%) was purchased for the low CV network areas for EUR 133.4m (previous year: EUR 20.9m, up 46%). At the same time, sales of 0.9 TWh (previous year: 0,006 TWh, up 1,400%) were effected for EUR 1.8m (previous year: EUR 0.1m, up 1,752%).

The transportation capacity we booked for the purpose of taking the above balancing actions is shown in the chart below together with the associated costs. We primarily booked capacity in the winter months, with the largest amounts of entry capacity being booked in March (2,463 GWh). The largest exit capacity bookings (171 GWh) were effected in April. Entry

capacity costs were highest in February, where we paid a total of EUR 2.1m. The highest costs for exit capacity were incurred in April and ran up to EUR 0.2m.

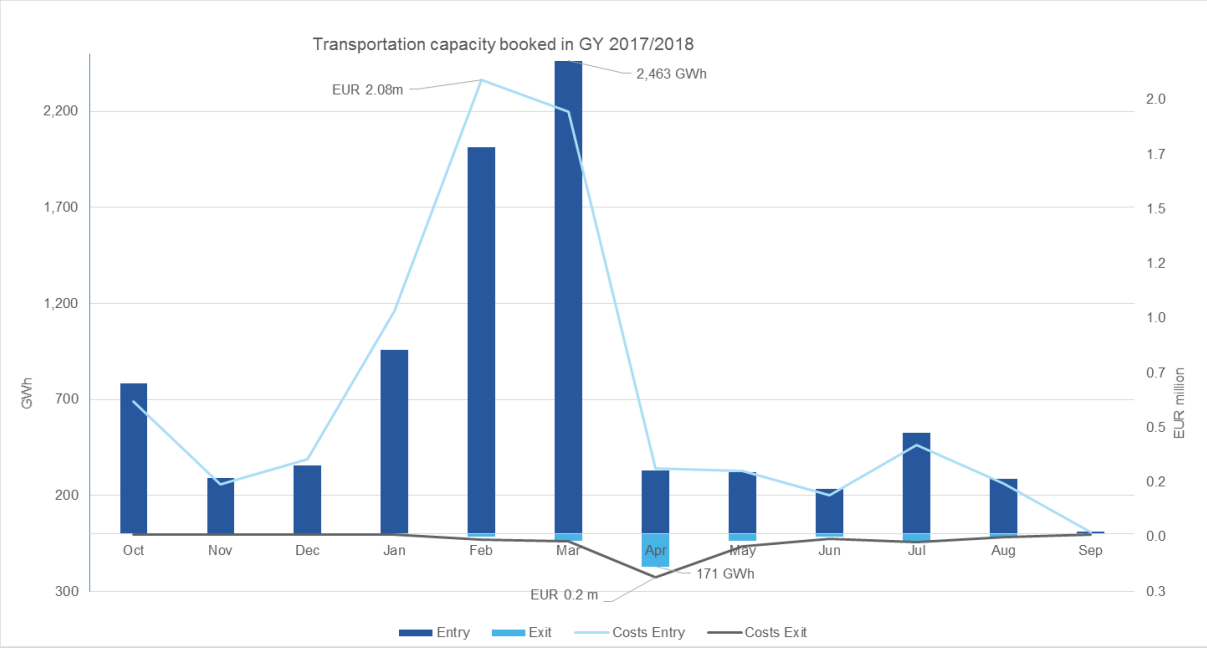

Figure 11: Transportation capacity booked for balancing actions via adjacent market areas in GY 2017/2018

A total of 7.5 TWh of entry capacity was imported, equivalent to a utilisation rate of the booked capacities of around 87.8% (previous year: 95.2%, down 7.4%) 0.4 TWh of exit capacity was exported (previous year: 0.167 TWh, up 150%).

As required under sentence 3 of Article 9(3) of the BAL Code, GASPOOL reconsiders the terms and conditions applicable to the trading of balancing products in adjacent market areas on an annual basis. Our review of the general terms and conditions governing our TTF trading activities as well as of the relevant transportation contracts governing our corresponding gas transports/nominations did not give rise to any legal concerns that would lead us to dispute their appropriateness. Furthermore, in our view the possibility to procure gas in adjacent market areas continues to be a necessary and appropriate option. In summary, it can be noted that our trading activities in adjacent market areas are in conformity with the requirements of sentence 3 of Article 9(3) of the BAL Code.

Calculation of transportation markups and markdowns until 30 September 2017

Under the GaBi Gas 2.0 ruling and the Balancing Group Contract Terms & Conditions (Appendix 4 to the Cooperation Agreement VIII), the MAM has an obligation to take the transportation costs it incurs in relation to MOL 2 balancing actions into account. So whenever we buy or sell gas on the exchange in an adjacent market area as part of our balancing actions, the resulting transportation markups and markdowns are factored in when calculating the applicable negative and positive daily imbalance prices.

- These transportation markups and markdowns were calculated on a monthly basis, with separate amounts being determined for SystemBUY balancing transactions (purchases of gas) and SystemSELL balancing transactions (sales of gas), respectively.
- For SystemBUY transactions the MAM applied a transportation markup and for SystemSELL transactions a transportation markdown, with the applicable markup or markdown being added to or deducted from the price payable in respect of the relevant exchange trade.
- The transportation markups and markdowns applicable in the following delivery months were published on the MAM's website on an ex-ante basis on the 10th business day of the month preceding the relevant period.

The applicable transportation markups and markdowns were calculated according to the following formula:

$$(1)\quad \text{Transportation markup/markdown} = \frac{\text{daily transportation tariff (EUR/MWh/h)}}{\text{Ø utilisation period (h)}}$$

- Calculation of the daily transportation tariff:
  - The calculations were based on the daily capacity tariffs applicable to day-ahead capacity products during the relevant validity period on the Dutch and German sides of the IPs the MAM used for transportation purposes.
  - Where gas transports were effected via more than one IP, the applicable daily tariff for each side of the border was calculated as the arithmetic mean of all daily tariffs payable on that side of the border.
  - The daily capacity tariffs thus calculated were then added together for both sides of the border.

- Determination of the average utilisation period:
  - For the purpose of calculating the utilisation period only days on which the booked transportation capacity was actually used were taken into account:

$$(2)\quad \text{Utilisation period} = \frac{\text{total quantity supplied/received on the day (MWh)}}{\text{maximum hourly quantity supplied/received on the day (MWh/h)}}$$

- The average utilisation period was calculated as the average of the daily utilisation periods determined, with separate average utilisation periods being calculated for the winter (1 October to 31 March) and summer (1 April to 30 September) periods.
- All calculations were based on the data available for the last complete winter or summer period, as applicable.

The applicable average utilisation period remained unchanged for the duration of each validity period.

Changes to the transportation markup/markdown calculation methodology taking effect on 1 October 2017

Transportation markups (or markdowns) are applied to all balancing actions taken via adjacent market areas to take account of the fact that the MAM incurs transportation costs in connection with these balancing activities. When determining the daily imbalance prices applicable in its market area the MAM adds the corresponding transportation markup to the buy price of each TTF buy transaction (if any) and deducts the corresponding transportation markdown from the sell price of each TTF sell transaction (if any). Our previous approach relied on constant utilisation rates. To take account of the fact that the MAMs now mostly book capacity on a within-day basis, GASPOOL and NetConnect Germany adjusted their approach in consultation with the Federal Network Agency with effect from 1 October 2017.

- The new calculation methodology is as follows: Separate transportation markups and markdowns are calculated for SystemBUY balancing transactions (purchases of gas) and SystemSELL balancing transactions (sales of gas), respectively, based on the actual number of hours in which we use the transportation capacity booked for this purpose.
- For SystemBUY transactions the MAM applies a transportation markup and for SystemSELL transactions a transportation markdown, with the applicable markup or markdown being added to or deducted from the price payable in respect of the relevant exchange trade.

- The transportation markups and markdowns applicable to each utilisation period are published on the MAM's website for each delivery month.

$$\text{Transportation markup/markdown (EUR/MWh)} = \frac{\text{transportation tariff (EUR/MWh/h)}}{\text{utilisation period (h)}}$$

- Calculation of the transportation tariff:
  - The calculations are based on the daily capacity tariffs applicable to day-ahead capacity products during the relevant validity period on the Dutch and German sides of the IPs the MAM can use for transportation purposes.

- As several IPs are available in each gas quality, we determine the arithmetic mean of all daily capacity tariffs applicable at the relevant high CV and low CV IPs for each side of the border.
- On the GASPOOL side of the border the full average daily capacity tariffs are taken into account. On the GTS side of the border the applicable daily capacity tariffs are taken into account on a pro-rata basis, based on actual utilisation.
- The formula has the following components:

$$\text{Transportation tariff} = \left(\text{Ø daily capacity tariff} + \left(\frac{\text{Ø daily capacity tariff GTS}}{24h}\right) * utilisation\ period\right)$$

- Utilisation period: the actual delivery period during which gas was supplied/received (as the case may be).

As a result, the transportation markups and markdowns vary depending on the number of hours in which the booked capacity was used. The shorter the utilisation period, the higher the transportation markup/markdown.

The applicable transportation markups and markdowns are also taken into account when it comes to deciding whether or not a balancing action is carried out via the TTF. The TTF is only used if the purchase price plus transportation markup is smaller than the price we would have to pay in the German wholesale market (and vice versa for sell transactions).

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

Below we provide a summary of the number, frequency and costs of the balancing call orders in the last GY. Figure 12 shows the number of balancing call orders on a rest-of-the-day (RoD) basis within each MOL rank and month. In March 2018, we executed a total of 126 transactions (previous year: highest number of 50 in January, up 152%), while in September we only had to take action 26 times (previous year: lowest number of 5 in August/September, up 420%).

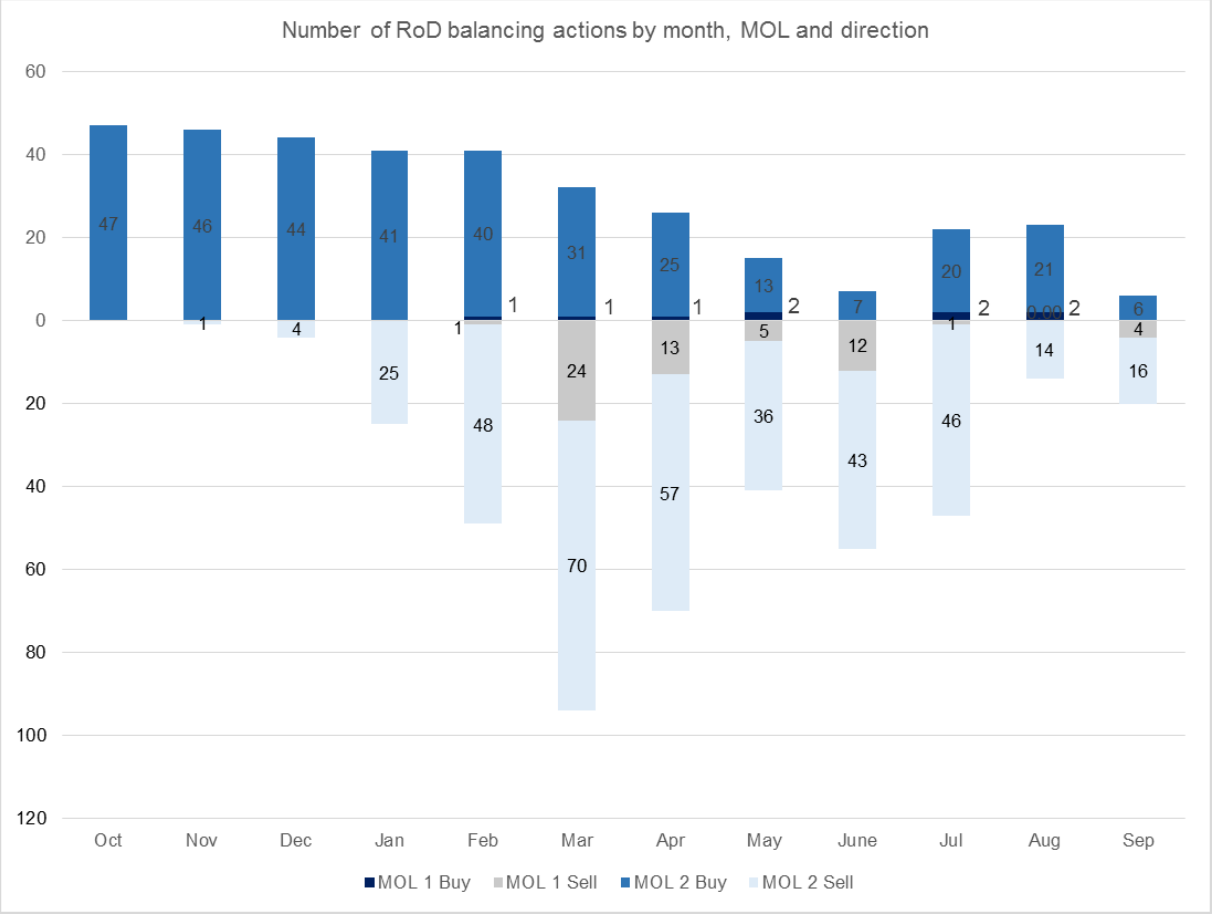

Figure 12: Number of RoD balancing actions in GY 2017/2018 by direction and MOL

The numbers for our day-ahead (DA) balancing call orders are shown in Figure 13. In total, our DA balancing call orders in GY 2017/2018 resulted in 262 balancing call orders (previous year: 120, up 118%).

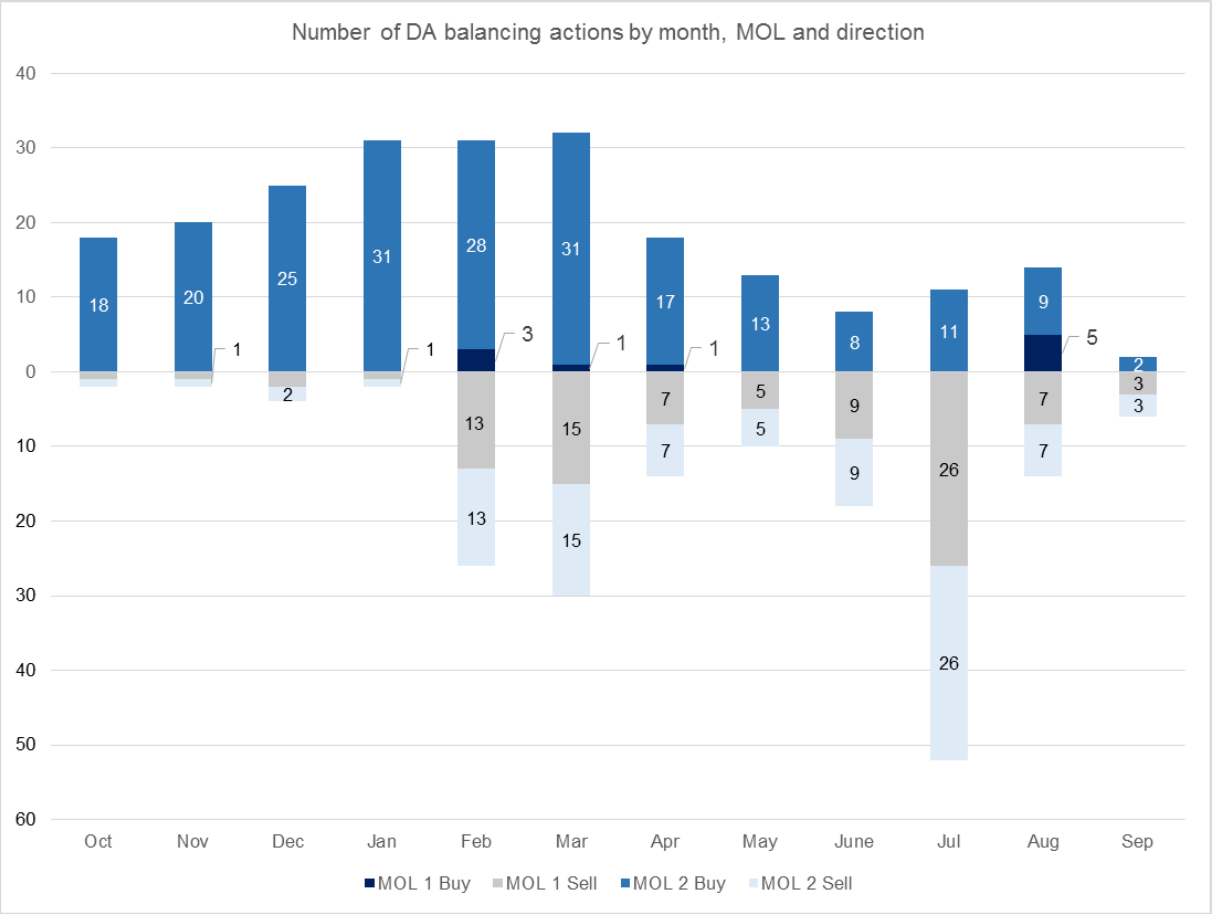

Figure 13: Number of DA balancing call actions in GY 2017/2018 by direction and MOL

Figure 14 shows the number of balancing actions per gas day. Balancing actions were carried out on 332 days in this GY (previous year: 220 days, up 51%). Overall, we took a total of 1088 balancing actions in GY 2017/2018 (previous year: 448 balancing actions, up 143%), averaging 2.98 balancing actions per gas day (previous year: 1.23 balancing actions, up 142%). The highest number was achieved on 16 March 2018 with eight call orders. Apart from July 2018, fewer balancing actions tend to be required during the summer months. Accordingly, these are also the months with the lowest balancing requirements.

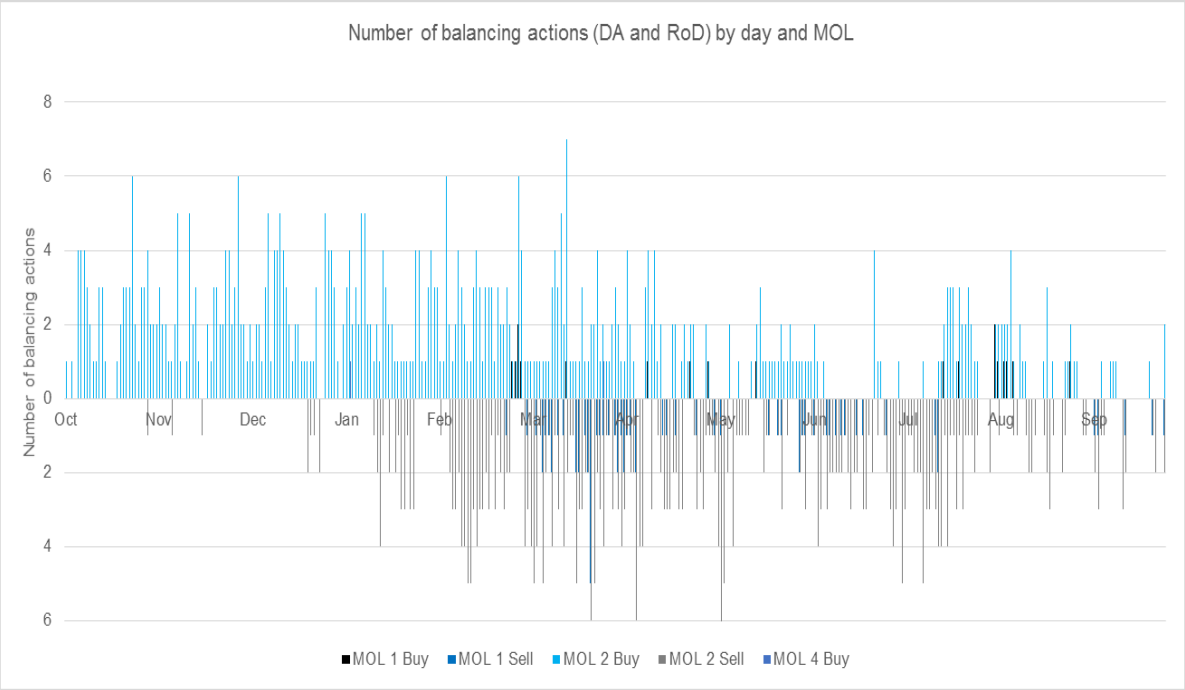

Figure 14: Number of balancing call orders (DA and RoD) per day and MOL

In Figure 15*: MOL 1 to MOL 3 balancing actions across the high CV and low CV network areas by time of day* our balancing actions are plotted against the time of day when they were executed.

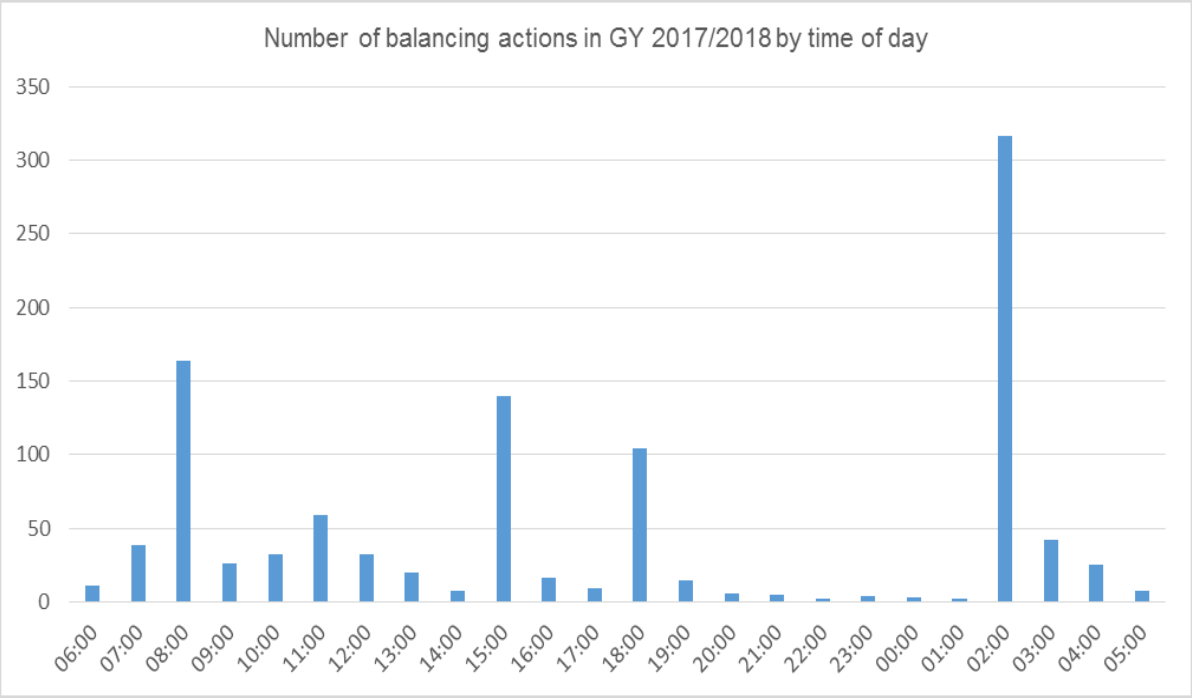

Figure 15: MOL 1 to MOL 3 balancing actions across the high CV and low CV network areas by time of day

The largest number of balancing actions per hour was executed between 02:00 and 03:00 hours at night, with 316 of the total balancing actions taken during the entire GY being carried out in this hour (previous year: 119 balancing actions, up 166%). These were balancing actions taken via the exchange on a DA basis for which we used either the day-ahead or within-day order books to meet the corresponding balancing requirements. Overall, the proportion of our balancing actions that was carried out on a DA basis fell to 398 (previous year: 120 balancing actions, down 39.1%) and thus a share of approximately 26.8% (previous year: 37%, down 27.6%). The focal point of our within-day balancing activities was the hour from 08:00 to 09:00, with 87 balancing actions being taken in this hour (previous year: 102 balancing actions, down 14.7%). 49 balancing actions were executed between 18:00 and 19:00 hours (previous year: 55 balancing actions, down 10.9%).

GASPOOL's related balancing costs and revenues show the same seasonal pattern and are shown in Figure 16. We thus incurred the highest costs of EUR 127.7m in March 2018 (previous year: EUR 35m in January 2017, up 265%) and achieved the highest revenues of EUR 68.2m (previous year: EUR 11.8m in April 2017, up 477%).

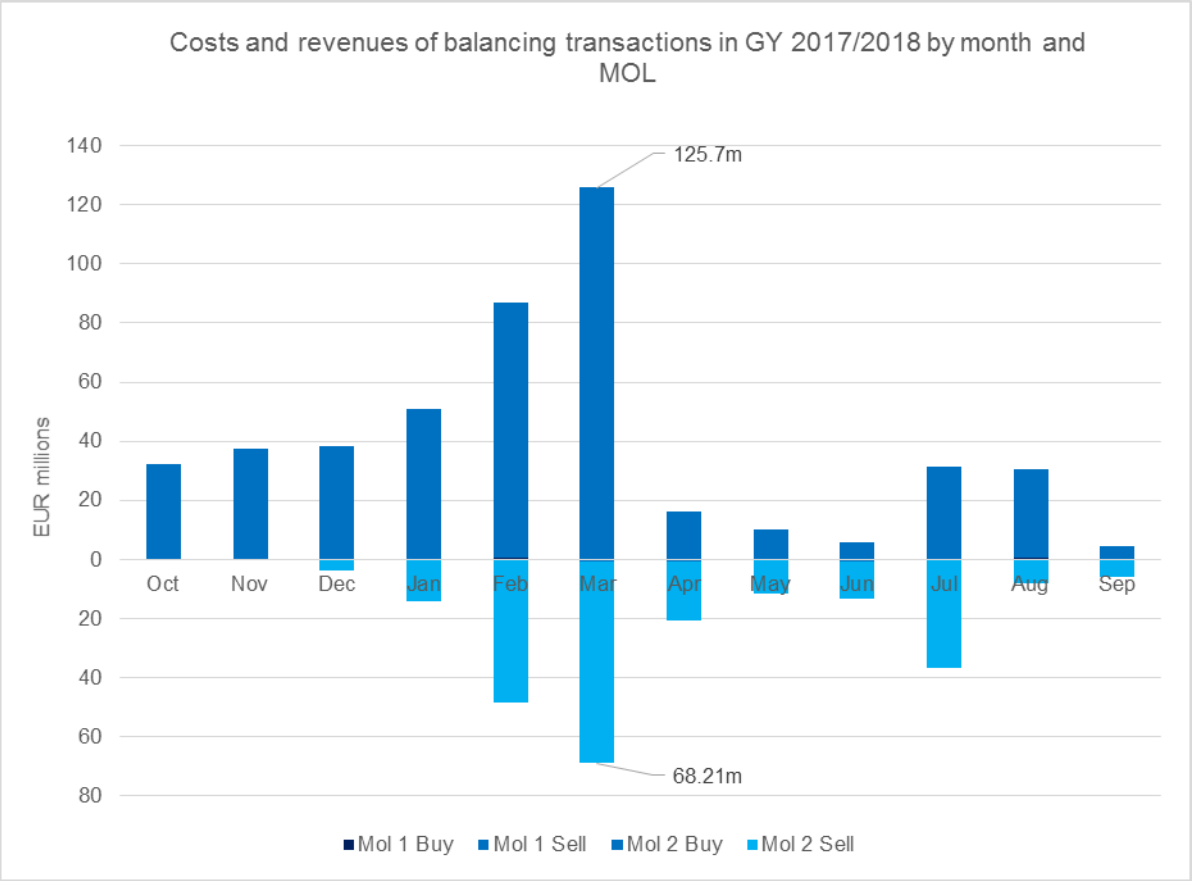

Figure 16: Costs and revenues of balancing transactions in GY 2017/2018 by month and MOL

3.4 Situation during the cold period in February/March 2018

Between 25 February and 6 March 2018 there was a cold period with extremely low temperatures on practically the entire European continent. During this cold period, 1,639 GWh external balancing energy was purchased for EUR 86.2m in the GASPOOL market area, predominantly in the low CV network areas. The highest net costs from balancing actions of EUR 22.6m were incurred on 1 March 2018. In the months of February and March 2018, we procured on average over 34% of the entire low CV gas sales via balancing quantities. A tender was issued for STB on 1 March 18 and 2 March 2018, but did not lead to any bids being submitted. Due to a liquidity bottleneck on the exchange on 28 March 2018, a call order was made to further increase supply security of LTO contracted in accordance with the the BMWi policy paper, with 11 GWh with a delivery period of 22 hours being procured for a total volume of EUR 215,120.

Table I: Balancing quantities procured during 2018 cold period

	Low CV gas in MWh	High CV gas in MWh (negative=sell)	Avg buy price in EUR/MWh	Max buy price in EUR/MWh
01/03/2018	189,354	64,872	€82.30	€285.00
02/03/2018	219,456	-148,872	€107.53	€150.00
03/03/2018	193,176	-178,774	€46.97	€65.00
04/03/2018	111,312	-222,354	€25.38	€27.00
05/03/2018	104,616	-263.161	€22.11	€22.80

In addition to the very high quantities to be procured in the low CV sector, the price level for balancing actions at GASPOOL was significantly higher than the level in the past years. In the volume-weighted average, a price of 23.81 EUR/MWh was paid for balancing actions in the months from October up to and including March. In the previous years this average price fluctuated between around 13.00 and 20.00 EUR/MWh. This led to extreme price peaks, which meant that 285.0 EUR/MWh had to be paid on 1 March 2018 to buy balancing gas.

These high prices represented a situation that could be observed throughout Western Europe and was probably triggered by several causes in parallel. In this context it is also worth mentioning the unscheduled shortfall in production at an LNG facility in the United Kingdom, which resulted in a gas deficit warning being issued by the British TSO National Grid. Added to this were various failures at conveyor and transport facilities, mainly towards the United Kingdom and the lowest production in a February in the Groningen since the 1960s.

4 Effect and application of the within-day obligation rules

As required under the Gabi Gas 2.0 ruling, GASPOOL introduced a within-day obligation regime on 1 October 2016. The new system replaced the variable structuring charges previously applied.

The within-day obligation rules are to incentivise balancing group managers (BGMs) to keep their balancing group accounts in balance during the day, too. For this purpose, the hourly imbalances between the inputs and offtakes allocated to BGMs' balancing groups are recorded and cumulated over the course of each gas day. If a pre-defined threshold is exceeded, these hourly imbalance quantities (so-called "within-day flexibility quantity") may be charged to BGMs. Charges are only applied, however, if the MAM had to take (MOL 1) balancing actions in opposite directions on the day in question (i.e. buy and sell gas on the same day) and actually incurred costs as a result. At the same time and in order to avoid that all forecasting inaccuracies incur a charge, BGMs are granted an hourly tolerance on offtakes at "RLM" exit points (i.e. intraday-metered exit points equipped with a supply meter installation that records hourly consumption) which is calculated as 7.5% of the daily RLM offtake quantity allocated to the relevant balancing group. No tolerances are available for any other types of system points.

The extent to which BGMs used the flexibility available in GY 2017/2018 is presented in Figure 17, which shows that we observed the highest within-day flexibility quantities in February 2018. In the following months BGMs' within-day flexibility quantities fluctuated but without indicating a clear trend.

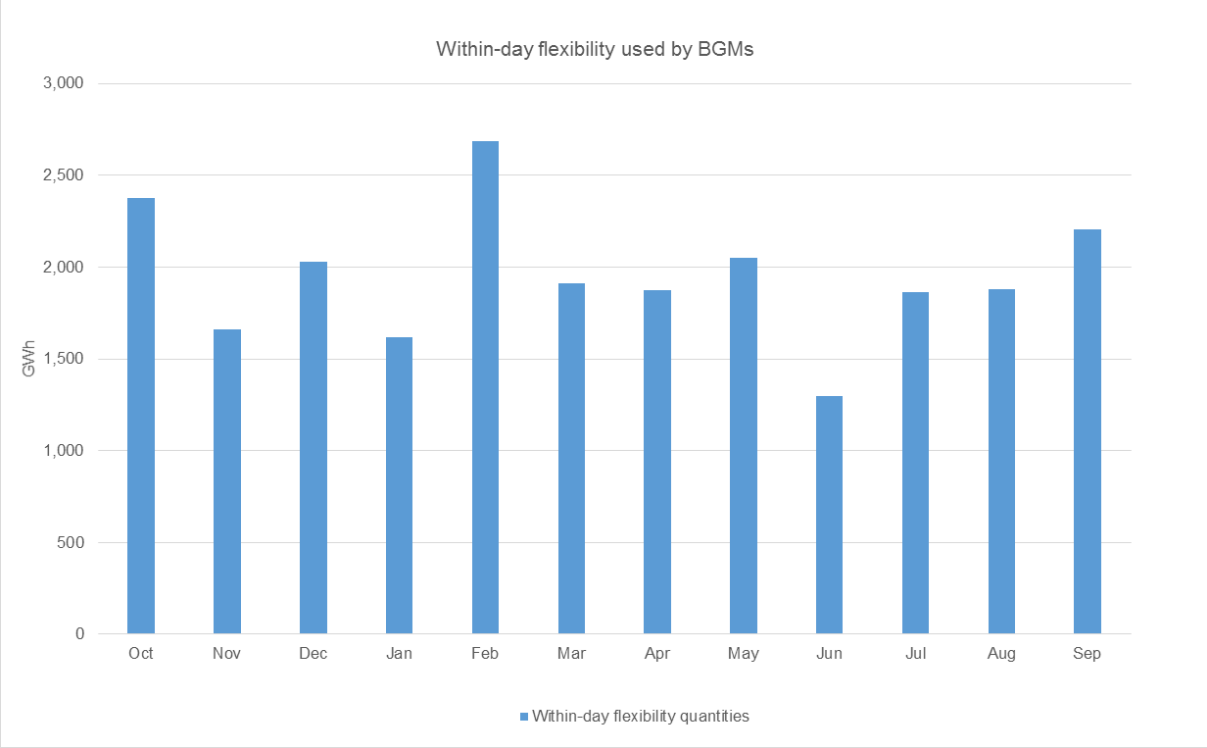

Figure 17: Within-day flexibility quantities in GY 2017/2018

Compared with the former rules, the current hourly tolerance of 7.5% of daily RLM offtakes affords BGMs greater flexibility during the day and means that it is generally more advantageous for BGMs to have their RLM customers assigned to the “RLMmT” allocation regime, where daily offtakes are divided by 24 for balancing purposes (flat allocation profile). The exception to this rule are customers who use large quantities of gas but whose consumption fluctuates strongly over the day (e.g. gas-fired power stations). In these cases, it may still be better for BGMs to have these points assigned to the “RLMoT” allocation group, where actual hourly offtakes are allocated as measured. Even so, RLMoT quantities made up only 6.3% of total RLM allocations in the GASPOOL market area in GY 2016/2017. The proportion fell slightly in GY 2017/2018 to 5.78%.

Figure 17 shows the flexibility quantities used in GY 2017/2018. The total amount of 23,445 GWh is 5,481 GWh higher than the annual total from GY 2016/2017, which corresponds to an increase of 30.5%.

GASPOOL did not apply any within-day flexibility charges during the entire GY. This was due to the fact that we never took balancing actions in opposite directions within MOL 1 (see chapter 3.1.1).

4.1 Within-day balancing actions in opposite directions in the respective MOL rankings

No MOL 1 balancing actions in opposite directions were taken for the GY covered by this report. MOL 2 balancing actions in opposite directions were taken for the high CV network areas on three days with a total of 57 GWh, in the low CV network areas on 32 days with 242 GWh, and quantities in opposite directions were procured at the TTF on four days, with 43 GWh being traded. The detailed Table XIII can be found in the Annex.

Table II: MOL 2 within-day balancing actions in opposite directions

Quality / Location	Number of days of balancing actions in opposite directions	Balancing quantity in opposite directions in MWh
High	3	57,181
Low	32	241,949
TTF	4	43,313

5 Procurement and use of balancing services (MOL 4)

Our “Flexibility” product involves the provision of short-term “parking” and “lending” services in the event of an oversupply or undersupply of gas in the GASPOOL market area. Both GASPOOL and the provider may supply or receive gas under this service. Both directions are possible:

- “to GASPOOL” means that the MAM temporarily receives gas quantities from the provider and subsequently returns these gas quantities to the provider (“lending”); and
- “from GASPOOL” means that the MAM temporarily supplies gas quantities to the provider and subsequently receives these gas quantities back from the provider (“parking”).

The Flexibility product is a combined “lending/parking product”. The supply or receipt of gas under the service commences within a few minutes after being instructed by the MAM but no later than 90 minutes thereafter. In duly justified exceptional cases the supply or receipt of an instructed gas quantity may also take place outside the above time window, provided GASPOOL has expressly approved this new time window beforehand. Due to this short call lead time, the Flexibility product can bridge the gap for short-term demand until delivery of Commodity with the standardised three-hour call lead time.

The product does not involve any call order or nomination processes. The Flexibility provider supplies or receives an exact gas quantity in kWh at a specified physical entry or exit point; the service can only be offered for a network area of a TSO operating in the GASPOOL market area.

All gas quantities supplied or received by a provider are returned or received back at the point where the gas was originally supplied or received, generally in the course of the gas day on which the gas quantities were originally supplied or received.

The period of time throughout which a provider is required to procure availability of the contracted balancing service may correspond to a month, a quarter, a half-year or a year. The parties may also agree shorter periods covering only a part of the above durations in individual cases specified by GASPOOL. Tender invitations and contracts may be for either firm or interruptible products.

The lot size specified in a Flexibility bid must correspond to a gas quantity delivered at a rate of 10 MWh/h. When submitting a bid, each provider may specify a positive price to be applied without variation throughout the entire contract period and a positive commodity charge.

Two tendering process fell within GY 2017/2018, the period from October 2017 to March 2018 and from April 2018 to September 2018, respectively. For the winter period we tendered and, with the exception of October 2017, signed firm Flexibility contracts for 2,600 MW (previous

year: also 2,600 MW) for the low CV network areas of our market area. In the summer period from April 2018 to September 2018, we tendered and contracted 1,000 MW per month (previous year: also 1,000 MW). The capacity charges we paid as a result amounted to EUR 13.6m in the winter period (previous year: EUR 14.6m, down 6.8%) and to EUR 3.1m in the summer period (previous year: EUR 3.0m, up 4.8%). We accepted all contract offers that were submitted on an interruptible basis, with 25 GW in the winter months and 23.6 GW in the summer months, without capacity charges.

Additional information on the flexibility agreements we entered into in GY 2017/2018 is provided in Table III and Table IV.

Table III: Contracted firm flexibility services (low CV gas only)

Contract period	Delivery rate required (GW)	Delivery rate offered (GW)	Delivery rate contracted (GW)	Number of bidders	Number of bids	Number of bidders who were awarded a contract	Costs for capacity charges (EUR)
01/10/2017 - 01/11/2017	2.60	2.45	2.25	3	3	3	1,811,493
01/11/2017 - 01/12/2017	2.60	3.09	2.60	6	11	7	2,238,349
01/12/2017 - 01/01/2018	2.60	3.12	2.60	7	11	7	2,736,136
01/01/2018 - 01/02/2018	2.60	3.13	2.60	6	14	7	2,380,151
01/02/2018 - 01/03/2018	2.60	3.14	2.60	5	14	7	2,174,800
01/03/2018 - 01/04/2018	2.60	3.18	2.60	5	10	5	2,257,278
01/04/2018 - 01/05/2018	1.00	1.94	1.00	5	7	5	563,959
01/05/2018 - 01/06/2018	1.00	1.94	1.00	8	13	5	497,832
01/06/2018 - 01/07/2018	1.00	1.84	1.00	8	11	4	563,083
01/07/2018 - 01/08/2018	1.00	1.79	1.00	6	8	3	487,816
01/08/2018 - 01/09/2018	1.00	1.76	1.00	8	8	3	487,816
01/09/2018 - 01/10/2018	1.00	1.89	1.00	7	7	4	510,158

Table IV: Contracted interruptible flexibility services (low and high CV gas)

Contract period	Delivery rate offered (GW)	Delivery rate contracted (GW)	Number of bidders	Number of bids	Number of bidders who were awarded a contract
01/10/2017 - 01/11/2017	24.85	24.85	3	10	3
01/11/2017 - 01/12/2017	25.20	25.20	3	14	3
01/12/2017 - 01/01/2018	25.20	25.20	3	14	3
01/01/2018 - 01/02/2018	25.20	25.20	3	14	3
01/02/2018 - 01/03/2018	25.20	25.20	3	14	3
01/03/2018 - 01/04/2018	25.20	25.20	3	12	3
01/04/2018 - 01/05/2018	23.60	23.60	2	12	2
01/05/2018 - 01/06/2018	23.60	23.60	2	12	2
01/06/2018 - 01/07/2018	23.60	23.60	2	11	2
01/07/2018 - 01/08/2018	23.60	23.60	2	10	2
01/08/2018 - 01/09/2018	23.60	23.60	2	10	2
01/09/2018 - 01/10/2018	23.60	23.60	2	11	2

Figure 18 shows the aggregate gas account movements for all interruptible flexibility agreements in place for the high CV networks.

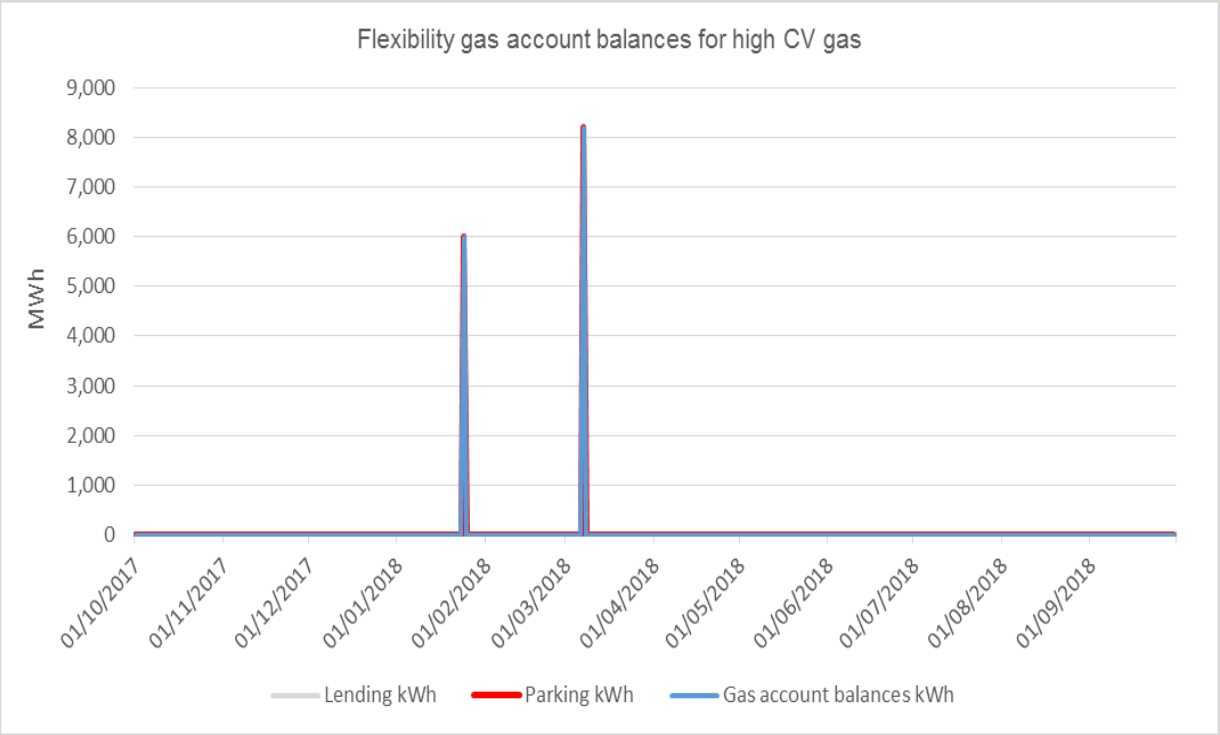

Figure 18: Flexibility gas account movements and quantities supplied/received in the high CV network areas

As can be seen in Figure 18, we only made use of our high CV flexibility agreements on two days in January and March 2018. Throughout the entire GY we did not use any lending

services at all. As for the high CV network areas we had only entered into interruptible flexibility agreements, we incurred no capacity charges under these contracts.

Figure 19 shows the gas account movements for all flexibility agreements in place for the low CV networks.

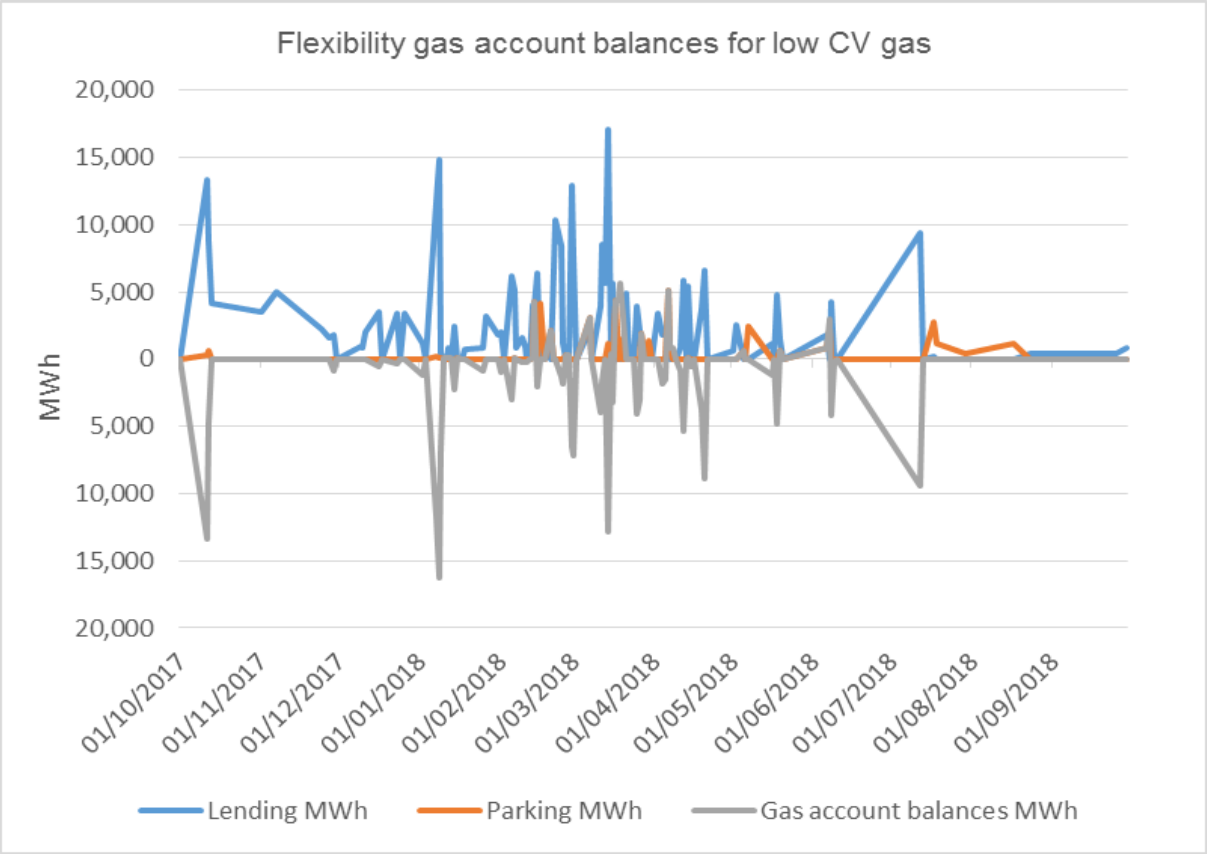

Figure 19: Total for the flexibility gas account balances and movements and quantities supplied/received in the low CV network areas in GY 2017/2018

We made most active use of our low CV flexibility agreements in the months from November to April.

Article 8(6) of the BAL Code places an obligation on the MAMs to review potential options for reducing their balancing service contract volumes. From today's perspective we do not see any possibility to reduce current contract volumes in the GASPOOL market area. Instead, the tendered and contracted Flexibility service was increased for the GY 2018/19. The reasons for this are:

- reduced linepack due to market area restructuring, resulting in a reduction in the potential to balance structuring needs,
- deviations in the effectiveness of the balancing gas delivery from the procurement of balancing energy,

- resulting increased temporary structuring needs,
- proportionately serious effects of forecast uncertainties for larger purchases in the low CV sector and
- the need for the availability of a safeguard quantity for deficits in home production in Germany.

Owing to the underlying contractual arrangements, especially due to their short-notice availability within 90 minutes of receipt of a service instruction, our contracted Flexibility products deliver a significant contribution to upholding supply security. As there are presently no alternative products available on the exchange, we will not be able to reduce our Flexibility needs for the time being.

5.1 Long-Term Options

LTOs are only applied in rest of the day (RoD) mode. Providers promise their stored gas capacity (buy or sell gas transactions) throughout the contract period. For this, the provider receives a capacity charge. When the call order is issued by GASPOOL with a lead time of no less than three (maximum 23) hours ahead of the start of the call hour, the provider receives the applicable commodity charge. The standard number of call orders is restricted to 14 days for a monthly product. The delivery rates offered can only be requested completely as a fixed capacity. Each provider has to ensure that the receipt or supply of each instructed gas quantity is carried out from the relevant call hour onwards.

LTOs can be arranged for a week, a month, a quarter, a half-year or a year. Shorter periods covering only a part of the above durations in individual cases may also be agreed. The minimum lot size for the bids is 10 MWh/h. Above that, any whole number quantity can be offered.

The instructed capacity can be supplied or received on a list of possible physical entry/exit points published by GASPOOL. In addition from GY 2017/2018, breaking capacities at RLM exit points can be used.

No LTO contracts for ordinary balancing reserves were tendered out or signed in the GASPOOL market area for the GY covered by this report. Our procurement of option contracts for the purpose of implementing the BMWi policy paper is addressed separately in chapter 5.4.

5.2 Issuance of test call orders on LTO contracts

At around 23:45 on 3 January 2018, we issued test call orders on all the LTO lots contracted to implement the policy paper to further increase supply security. Specifically, we instructed providers to provide 300 MW in the network area of Gastransport Nord GmbH (GTG), 500 MW

in the network area of Gasunie Deutschland GmbH and also 500 MW in the network area of Nowega in the last three delivery hours of the gas day 3 January 2018.

The aim of these test call orders was to check if the relevant providers were in compliance with their contractual obligation to keep the contracted reserves ready but also if they upheld their commitment to ensure 24/7 communication availability.

Of the requested 1,300 MWh/h, 1,240 MWh/h was delivered as contractually agreed, 60 MWh/h was provided with a call lead time longer than the one contractually agreed.

5.3 Product description of Short-Term Balancing Services

The STB product comprises short-term bids for providing gas quantities to the MAM or receiving gas quantities from the MAM in balancing zones or network areas (including RLM). Tenders for STB are always issued as needed, at short term for the tendered gas day. The call order arises for short-term local supply bottlenecks after the previous MOL capacities have been exhausted.

A tender was issued for STB on 1 March 18 and 2 March 2018, but no bids were submitted.

5.4 Supply security measures in accordance with the BMWi policy paper

In December 2015 the German Federal Ministry for Economic Affairs and Energy (BMWi) published a policy paper[2] according to which the level of supply security was to be increased. The MAMs were asked to procure additional reserves through their existing LTO product at short notice. Additional details were specified by the Federal Network Agency in its first notification on implementation of the GaBi Gas 2.0 ruling[3].

In GY 2017/2018 GASPOOL again contracted LTOs for the purpose of further increasing supply security. For the period from January 2018 to March 2018 we signed additional monthly reserves of 1.3 GW to be provided in the low CV network areas operated by Gasunie, Nowega and GTG. As described in section 3.4, the reserves were requested on 28 March 2018.

The delivery rates offered in each network area in each month are shown in Figure 20.

[2] https://www.bmwi.de/BMWi/Redaktion/PDF/E/eckpunkte-gasversorgungssicherheit,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf (German)

[3] http://www.bundesnetzagentur.de/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK7-GZ/2014/2014_0001bis0999/2014_001bis099/BK7-14-0020_BKV/BK7-14-020_MitteilungNr1_download.pdf?__blob=publicationFile&v=2 (German)

To ensure that a required physical effect is actually delivered, GASPOOL has reduced the list of the entry and exit points and storage connection points that can be used to achieve the physical effect. RLM exit points are also permitted. Providers should be barred from using interruptible entry capacity or exit capacity based on backhaul services. We amended our System Balancing Terms & Conditions accordingly.

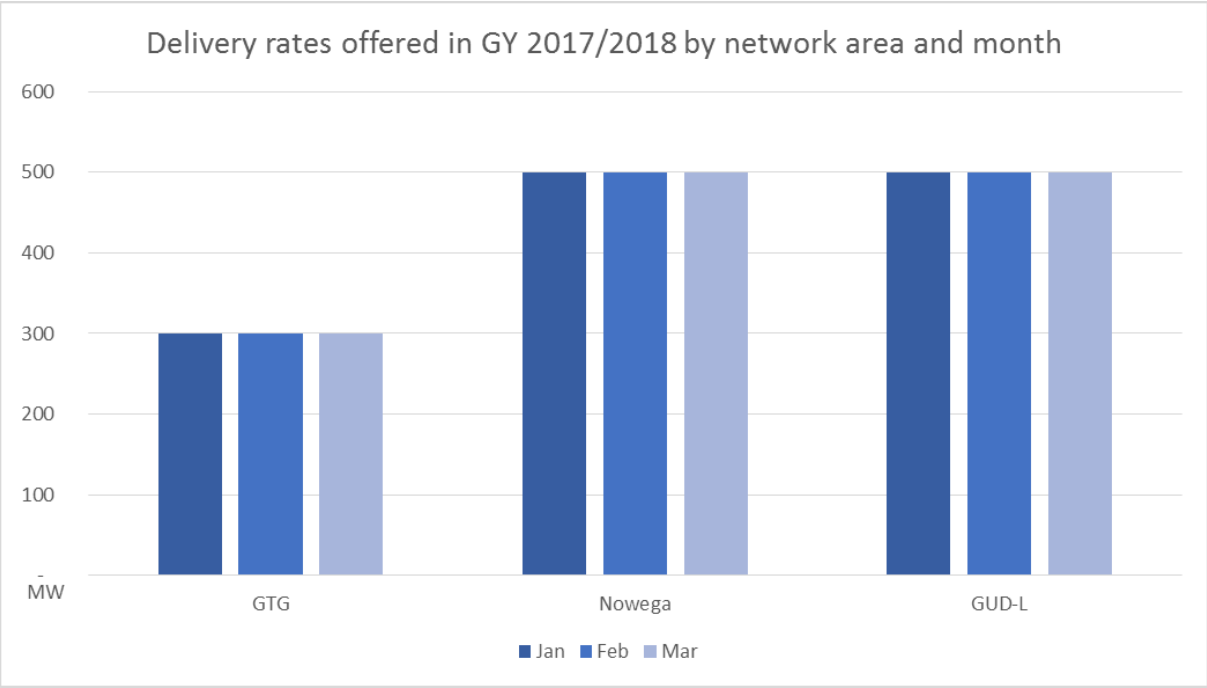

Figure 20: LTO delivery rates offered in GY 2017/2018 by network area and month [MW]

The delivery rates offered for all three network areas combined exceeded the rates requested by a factor of up to nine.

The tender results are provided in Table V.

Table V: LTO tender results for the contract period 1 Jan. 2018 – 1 Apr. 2018

Contract period	Delivery rate required (GW)	Delivery rate offered (GW)	Delivery rate contracted (GW)	Number of bidders	Number of bids	Number of bidders who were awarded a contract	Costs for capacity charges (EUR)
01/01/2018 - 01/02/2018	1.3	7.56	1.3	8	115	5	597,172
01/02/2018 - 01/03/2018	1.3	7.7	1.3	8	112	5	544,468
01/03/2018 - 01/04/2018	1.3	6.87	1.3	8	114	5	647,036

We were able to procure the necessary reserves from the bids submitted and paid capacity charges totalling some EUR 1.78m (previous year: EUR 1.22m, up 46%) over the duration of the contract period under the corresponding contracts.

6 Locational balancing products

Locational balancing products are balancing products which require delivery of gas, and of the required physical effect, in a specified location. These products are offered via MOL 2 in the local PEGAS order books for the GASPOOL market area. These products are not taken into account in the determination of daily imbalance charges.

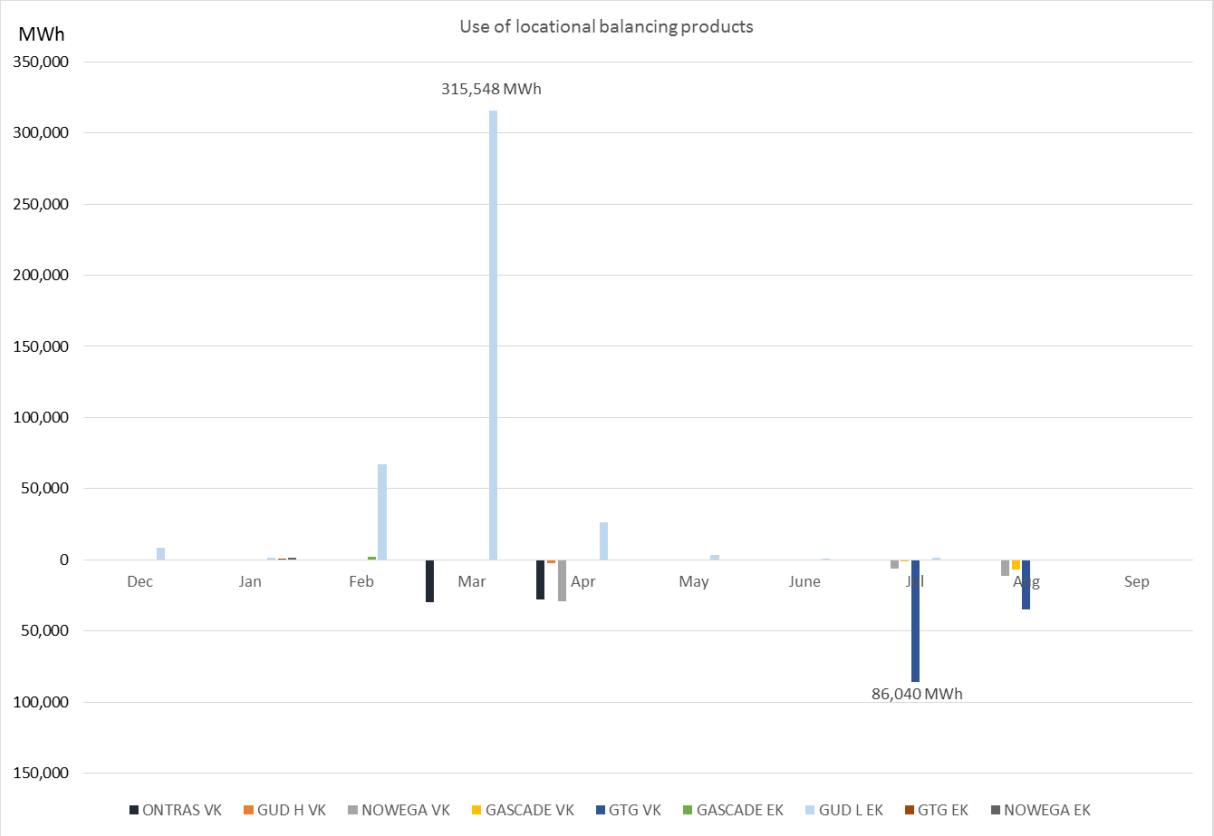

Figure 21: Locational balancing products traded in GY 2017/2018

The highest buy requirement of 315.5 GWh was registered in March 2018 for the GUD L network area. The corresponding total cost was EUR 12.4m (previous year: 39.9 GWh in January 2017 for the GASCADE network area). Our largest sale, 86.0 GWh, was registered in July 2018 in the GTG network area, generating revenues of EUR 1.8m (previous year: 20.5 GWh in May 2017 in the NOWEGA network area). Overall, we purchased 429.4 GWh in locational trades at a total cost of EUR 15.7m and sold a total of 234 MWh in locational trades for an amount of EUR 4.4m.

7 Allocation of costs to the balancing neutrality accounts

All costs and revenues related to our balancing actions are allocated to the two separate balancing neutrality accounts set up for our market area – one for non-daily metered "SLP" exit points (where daily allocations are based on standard load profiles) and one for intraday-metered "RLM" exit points (where daily allocations are based on measured offtakes) – according to causation. To allocate these costs and revenues, we use daily allocation keys. The costs and revenues allocated for the period from October 2017 to May 2018 are shown in Figure 22[4].

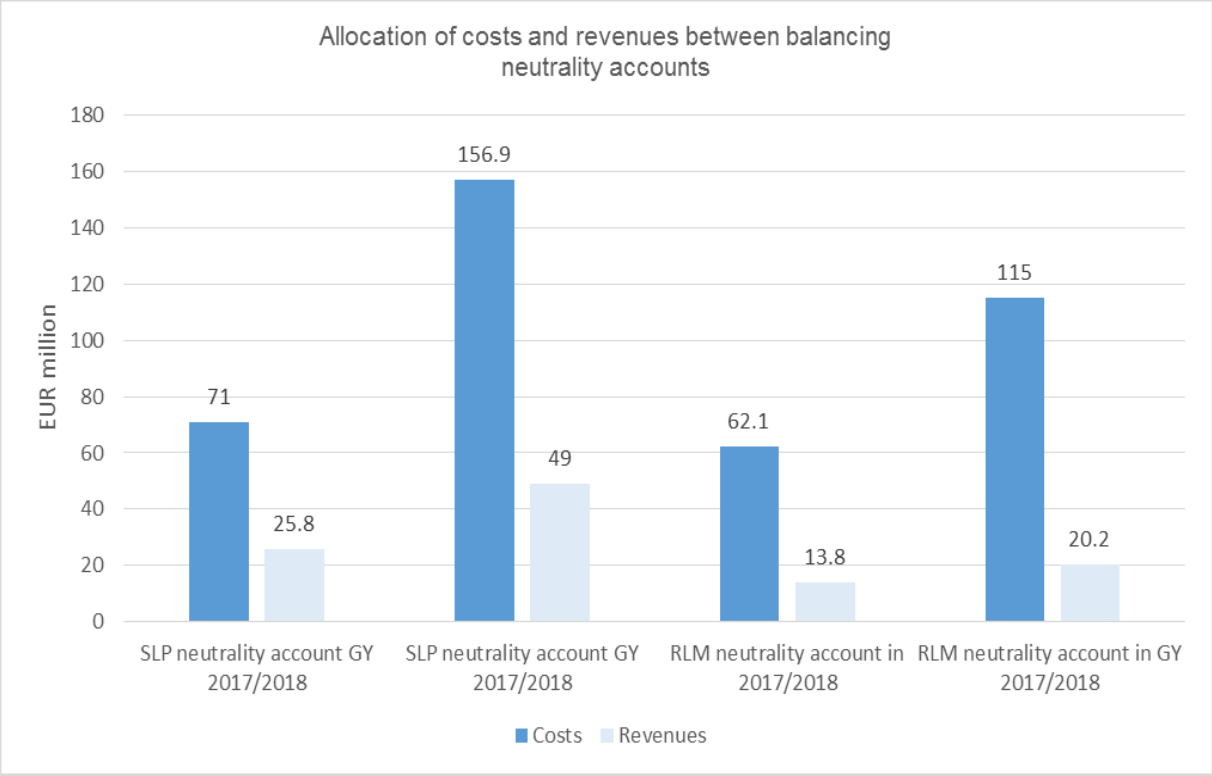

Figure 22: Neutrality account cost and revenue allocation for the last two GYs

The costs and revenues for the SLP balancing neutrality account have almost doubled compared with the previous year. The costs allocated to the RLM account in this GY, however, have also increased on the previous GY. The main reason for the development in the neutrality accounts is the high level of balancing quantities procured.

[4] We cannot calculate the applicable daily allocation keys until the data clearing deadlines have passed. Due to this background the relevant data was only available up to May 2018 at the time of writing this report.

In relation to gas days on which no external balancing actions were taken an annual allocation key is applied, which is calculated on an ex-post basis. This annual allocation key is calculated for each neutrality accounting period on an ex-post basis as the mean of all daily allocation keys determined for the individual days falling within the neutrality accounting period. This mean is not calculated on a volume-weighted basis[5].

The preliminary allocation key for the period from October 2017 to September 2018 is 52.56% for and 47.44% for RLM.

A comparison between the costs and revenues allocated to the SLP and RLM balancing neutrality accounts has shown that more costs were charged to the SLP account (EUR 156.9m; previous year: EUR 70.9m, up 121.3%) than the RLM account (EUR 115m; previous year: EUR 62.1m, up 85.19%). SLP-related revenues totalled EUR 49m (previous year: EUR 25.8m, up 89.92%), while total RLM-related revenues stood at EUR 20.2m (previous year: EUR 13.8m, up 46.48%). No distributions will be made from the balancing neutrality accounts for GY 2017/2018 as the conditions for such distributions are not satisfied.

[5] For an analysis of the pros and cons of volume-weighting in the context of the determination of daily allocation keys please refer to chapter 4 of the System Balancing Report for GY 2015/2016.

8 Termination of approved interim measures according to Article 46 of the BAL Code)

As part of the administrative proceedings underlying the Gabi Gas 2.0 ruling the MAMs had filed an application seeking permission for continued use of their existing balancing platforms. In its Gabi Gas 2.0 decision the Federal Network Agency approved this interim measure until 16 April 2019. In accordance with the provisions of the BAL Code, however, the MAMs may only use their balancing platforms to procure balancing products which are not traded on the exchange. The aim of this provision was to further promote use of the exchange as a balancing tool. Still, once locational products were available on the exchange, procurement via the balancing platform was only to be ceased after an appropriate implementation phase.

In the last two gas years, it was possible to cover local balancing requirements with the products traded on the exchange. As a consequence, the MOL 3 products were phased out, which means that no more balancing products will be available within MOL 3.

The balancing portal as a physical balancing platform was discontinued.

An extension of the interim measure beyond 16 April 2019 is therefore not necessary.

9 Development of fees and levies in the market area

Balancing energy levies

All costs and revenues of the balancing energy system originating with the MAM due to its original activities, such as balancing quantity procurement, balancing group and excess/shortfall invoicing, are included in the RLM and SLP balancing neutrality account. For the MAM to be able to perform its tasks on a cost-neutral basis, it is entitled to levy a charge. The expenses and revenues for the next levy period are projected to calculate the levy. In addition, a liquidity buffer is determined to absorb any projection risks that occur. If the projected revenues exceed the projected expenses, taking account of the liquidity buffer, this surplus will be distributed to the BGMs.

Figure 23 shows the balancing energy levies at GASPOOL since October 2015. There is a noticeable difference between the amount levied for SLP and RLM customers. This is due to the different risk structure in the customer groups. Whereas balancing group invoicing takes place two months after the delivery month, excess/shortfall quantities arising from deviations from the SLP projection are usually invoiced only a year or more after the delivery month due to the system configuration. In addition, the excess/shortfall quantities represent significant amounts and are a key item in the balancing neutrality account.

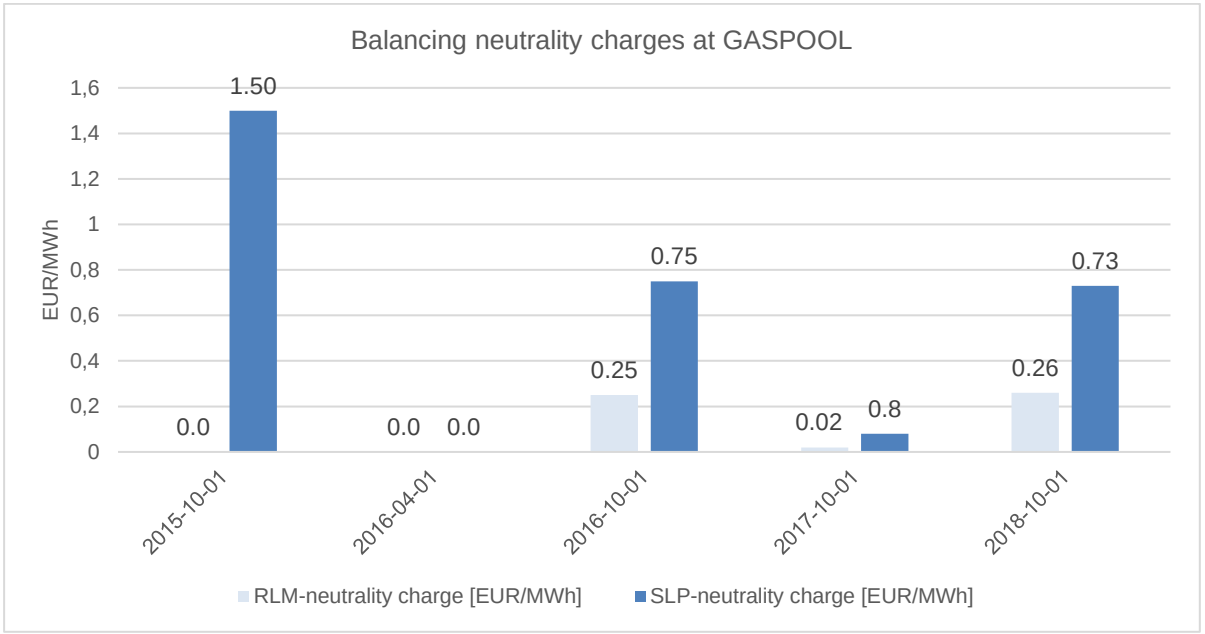

Figure 23: Development of balancing neutrality charges at GASPOOL since October 2015

Figure 24 shows a comparison between the projected balance before the start of the neutrality accounting period and the actual balance achieved later for the SLP area. This is exclusively based on the cost and revenue projections. The start and end account balances and the liquidity buffer are not included. The projected revenues do not include those from the neutrality charge, since a charge – and hence potential revenues – is a result of the cost and revenue

estimate. It can be seen, on the one hand, that the projections in the first three months are close to the balance achieved later. In GY 17/18, the actual balance – and hence the costs – are well above the projection. Since, however, not all the invoices for this GY have yet been presented, the amounts are not yet complete.

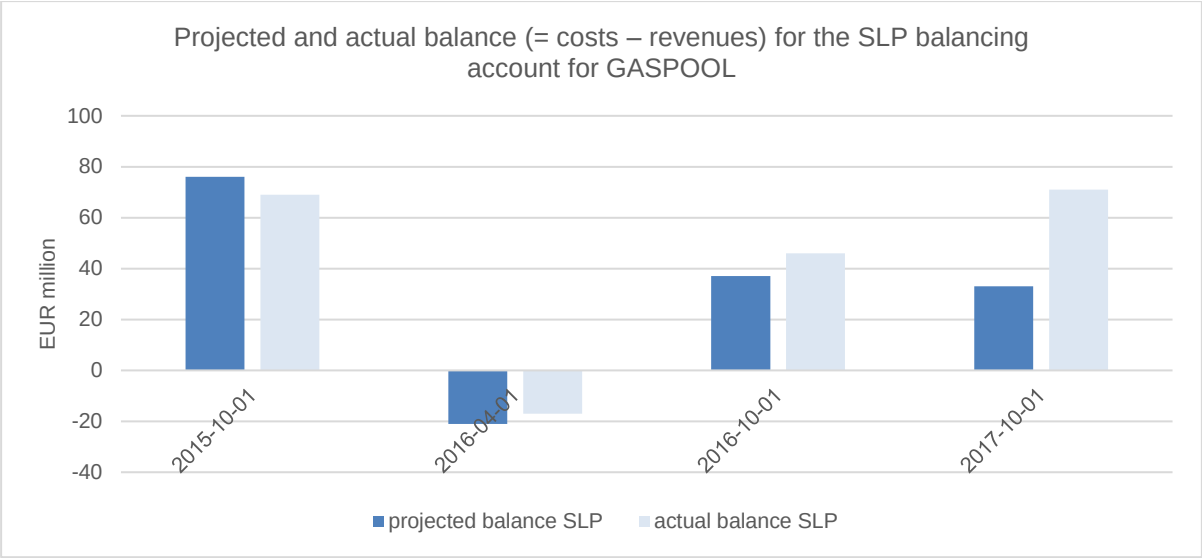

Figure 24: Projected and actual balance (= costs – revenues) for the SLP balancing account for GASPOOL

Figure 25 shows the balances for the RLM area applying the same assumptions as for the SLP area. It can be seen, in particular in the last two periods, that the actual costs were significantly higher than those projected. One reason for this is the price risks arising in combination with a higher level of balancing quantity procurement. Here, too, GY 17/18 is not yet complete, since not all invoices have yet been booked.

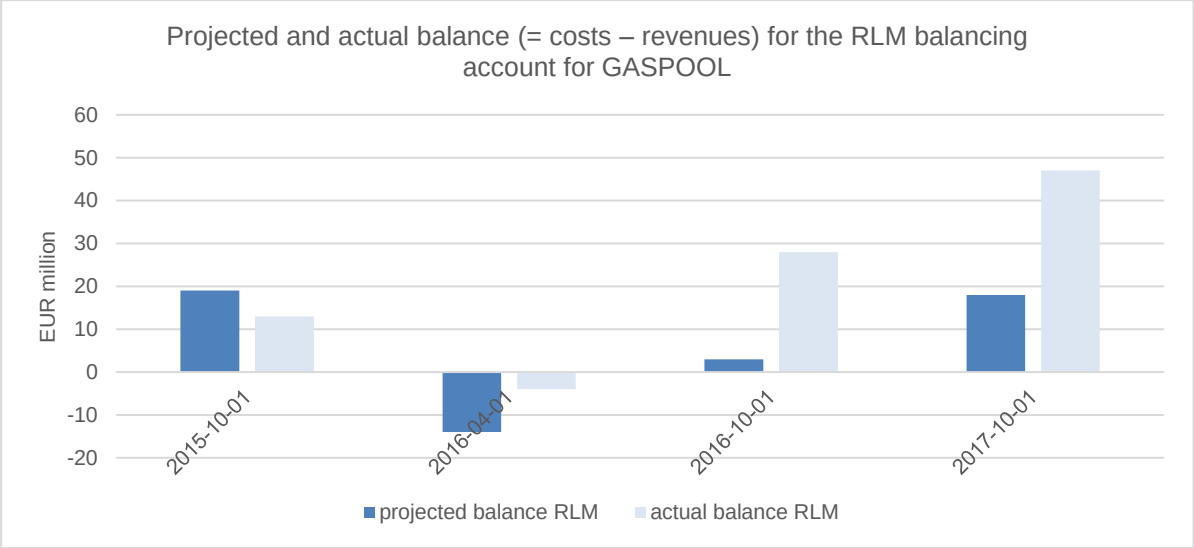

Figure 25: Projected and actual balance (= costs – revenues) for the RLM balancing account for GASPOOL

Here, too, the database for GY 17/18 is not yet complete, since not all invoices have yet been booked or the clearing periods were still open at the editorial deadline.

Conversion fee payments and conversion neutrality charges

Cross-quality trading in the market areas is regulated by the so-called “Konni Gas” ruling (conversion system in cross-quality market areas). Since balancing energy is bought and sold by the MAM for commercial balancing actions, the fees and neutrality charges are presented here[6].

The following Table VI shows both the conversion charge for high CV gas to low CV gas and the conversion allocation since October 2015.

Table VI: Conversion charge and conversion allocation at GASPOOL

	Conversion allocation in EUR/MWh	Conversion charge from high CV to low CV gas EUR/MWh	Conversion charge from low CV to high CV gas EUR/MWh
01/10/2015	0	0.441	0.441
01/04/2016	0	0.441	0.441
01/10/2016	0	0.441	0
01/04/2017	0.022	0.4	0
01/10/2017	0.017	0.45	0
01/10/2018	0.075	0.45	0

[6] The calculation basis for the conversion charge and conversion allocation is published on the website: https://www.gaspool.de/services/bilanzkreisverantwortliche/konvertierung/konvertierungsentgelt/

10 Conclusion / Summary

Throughout the period covered by this report we were consistently able to manage the system imbalances arising in the GASPOOL market area and thus to meet one of our key responsibilities in our capacity as MAM. We carried out our balancing activities not only effectively but also efficiently whilst meeting the regulatory requirements set out in the GaBi Gas 2.0 ruling. For the high CV networks, we purchased a net quantity of 2,299 GWh (previous year: 1,893 GWh, up 21.45%), resulting from total purchases of 6,141 GWh (previous year: 3,988 GWh, up 54.0%) and total sales of 8,440 GWh (previous year: 2,095 GWh, up 302.86%). For the low CV networks, we purchased a net quantity of 9,978 GWh (previous year: 2,400 GWh, up 315.75%), resulting from total purchases of 12,988 GWh (previous year: 3,060 GWh, up 324.44%) and total sales of 3,010 GWh (previous year: 660 GWh, up 356.06%).

In adjacent market areas we purchased 7,520 GWh at the TTF at a cost of EUR 163.93m (previous year: 1,988 GWh / EUR 36.12m, up 278.27% and 353.8, respectively). This compares to sales of 419 GWh generating total revenues of EUR 8.3m (previous year: 167 GWh / EUR 2.659m, up 150.9% and 212.15%, respectively). The proportion of our total balancing quantities that was traded on the exchange made up a share of over 99.95% and thereby delivered on the aims of the underlying regulatory framework. Around 43% of balancing actions were taken on a within-day basis. The figure in the previous GY 2016/2017 was around 66%.

There was no change made to the methodology applied to calculate transportation markups and markdowns in this GY. This means that 24 different transportation markups and markdowns continue to be possible per day and direction.

From today's perspective we do not see any possibility to reduce current contract volumes in the GASPOOL market area. Instead, the tendered and contracted flexibility service was increased for the GY 2018/19. Owing to the underlying contractual arrangements, as already described in detail above, especially due to their short-notice availability within 90 minutes of receipt of a service instruction, our contracted Flexibility products deliver a significant contribution to upholding supply security. As there are presently no alternative products available on the exchange, we will not be able to reduce our Flexibility needs for the time being.

Our measures to implement the BMWi policy paper included the contracting of additional monthly LTO reserves of 1.3 GW in the low CV network areas of Gasunie, Nowega and GTG for the period from January 2017 to March 2018. The costs for capacity charges we incurred under these contracts amounted to a total of EUR 1.78m. Due to a liquidity bottleneck on the exchange on 28 March 2018 a call order was made to further increase supply security of LTO contracted in accordance with the the BMWi policy paper, with 11 GWh with a delivery period of 22 hours being procured for a total volume of EUR 215,120.

A comparison between the costs and revenues allocated to the SLP and RLM balancing neutrality accounts has shown that more costs were charged to the SLP account (EUR 156.9m;

previous year: EUR 70.9m, up 121.3%) than the RLM account (EUR 115m; previous year: EUR 62.1m, up 85.19%). SLP-related revenues totalled EUR 49m (previous year: EUR 25.8m, up 89.92%), while total RLM-related revenues stood at EUR 20.2m (previous year: EUR 13.8m, up 46.48%). No distributions will be made from the balancing neutrality accounts for GY 2017/2018 as the conditions for such distributions are not satisfied.

The balancing platform operated as an interim measure was no longer used from 1 January 2018. Our locational balancing requirements can now be met by trading gas in the zone-specific order books available on PEGAS. In addition, we can also use our new MOL 4 balancing product STB if needed. The tendering platform (ASP) is used for the non-standardised MOL 4 balancing products LTO and STB.

11 Annex I - Overview of external balancing quantities and costs

Table VII: Balancing costs and revenues by MOL [EUR], excluding capacity charges

	2016/2017		2017/2018	
	Costs (System Buy, Entry)	Revenues (System Sell, Exit)	Costs (System Buy, Entry)	Revenues (System Sell, Exit)
MOL 1	3,882,153.00	0.00	1,404,732.50	2,578,857.21
MOL 2	131,361,488.26	41,779,155.18	468,872,085.08	229,873,690.19
MOL 3	0.00	0.00	0.00	0.00
MOL 4	52,784.19	0.00	86,011.65	0.00
Total	**135,296,425.45**	**41,779,155.18**	**470,362,829.23**	**232,452,547.40**

Table VIII: Balancing costs and revenues by MOL and timing [EUR], excluding capacity charges

		2016/2017		2017/2018	
		Costs (System Buy, Entry)	Revenues (System Sell, Exit)	Costs (System Buy, Entry)	Revenues (System Sell, Exit)
MOL 1	Day-ahead	325,962.00	0.00	1,002,772.80	445,088.16
	Rest-of-the-day	3,556,191.00	0.00	401,959.70	2,133,769.05
MOL 2	Day-ahead	58,650,171.00	9,892,004.40	335,650,036.78	82,501,998.10
	Rest-of-the-day	72,711,317.26	31,887,150.78	133,222,048.30	147,371,692.09
MOL 3	Day-ahead	0.00	0.00	0.00	0.00
	Rest-of-the-day	0.00	0.00	0.00	0.00
MOL 4	Day-ahead	0.00	0.00	0.00	0.00
	Rest-of-the-day	22,652.00	0.00	298,731.00	0.00
	Flexibility (comm.)	30,132.19	0.00	86,011.65	0.00

Table IX: Capacity charges paid under MOL 4 contracts [EUR]

	2016/2017		2017/2018	
	System Buy	System Sell	System Buy	System Sell
Flexibility capacity charges	17,584,316.00	0.00	16,708,861.00	0.00
LTO capacity charges - BMWi policy paper	1,216,914.00	0.00	1,788,675.00	0.00
LTO capacity charges - supplemental tender	826,917.00	0.00	0.00	0.00

Table X: Number of days on which MOL 4 contracts were used

2016/2017		2017/2018	
Flexibility, parking	Flexibility, lending	Flexibility, parking	Flexibility, lending
17	62	33	70

Table XI: Quantities supplied/received by MOL [MWh]

	2016/2017		2017/2018	
	System Buy, Entry	System Sell, Exit	System Buy, Entry	System Sell, Exit
MOL 1	240,524	0	52,104	122,841
MOL 2	6,805,761	2,760,997	19,880,873	11,715,034
MOL 3	0	0	0	0
MOL 4	226,692	0	14,900	0
Total [MWh]	**7,272,977**	**2,760,997**	**19,947,877**	**11,837,875**

Table XII: Quantities supplied/received by MOL and timing [MWh]

		2016/2017		2017/2018	
		System Buy, Entry	System Sell, Exit	System Buy, Entry	System Sell, Exit
MOL 1	Day-ahead	19,872	0	36,768	19,935
	Rest-of-the-day	220,652	0	15,336	102,906
MOL 2	Day-ahead	3,034,056	663,346	13,892,977	4,092,631
	Rest-of-the-day	3,771,705	2,097,651	5,987,896	7,622,403
MOL 3	Day-ahead	0	0	0	0
	Rest-of-the-day	0	0	0	0
MOL 4	Day-ahead	0	0	0	0
	Rest-of-the-day	1,600	0	14,900	0
	Flex (total from parking and borrowing)	226,692	0	0	0

Table XIII: MOL 2 within-day balancing actions in opposite directions by day

Quality / Location	Date	Quantity in MWh
High	24/03/2018	1,400
High	17/07/2018	35,948
High	11/08/2018	19,833
Low	13/01/2018	9,095
Low	23/01/2018	22,489
Low	13/02/2018	275
Low	16/02/2018	12,026
Low	18/02/2018	6,000
Low	08/03/2018	8,100
Low	15/03/2018	17,362
Low	19/03/2018	19,998
Low	27/03/2018	2,832
Low	28/03/2018	19,908
Low	31/03/2018	7,961
Low	03/04/2018	4,520
Low	06/04/2018	6,208
Low	07/04/2018	10,056
Low	13/04/2018	13,545
Low	15/04/2018	3,104
Low	16/04/2018	2,304
Low	20/04/2018	17,876
Low	21/04/2018	11,878
Low	27/04/2018	5,020
Low	01/05/2018	4,176
Low	02/05/2018	7,999
Low	20/05/2018	264
Low	26/05/2018	4,800
Low	01/06/2018	1,058
Low	03/06/2018	3,000
Low	07/06/2018	3,072
Low	09/06/2018	720
Low	04/07/2018	480
Low	12/07/2018	7,665
Low	06/08/2018	6,016
Low	30/09/2018	2,142
TTF	27/03/2018	2,272
TTF	03/04/2018	25,464
TTF	16/04/2018	4,831
TTF	21/05/2018	10,746