TRADING HUB EUROPE
keep in balance

Statement of the Basis of the Conversion Fee and the Conversion Neutrality Charge for GY 2022/23

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List of abbreviations

BK7	Ruling Chamber 7
BNetzA	Federal Network Agency
DZK	Capacity subject to dynamic transport route restrictions" ("dynamisch zuordenbare Kapazitäten")
FZK	Capacity not subject to any transport route restrictions" ("frei zuordenbare Kapazitäten")
MAM	Market area manager
NCG	NetConnect Germany GmbH & Co. KG
OGE	Open Grid Europe GmbH
MBG	Master balancing group
RLM	Intraday-metered customers
SLP	Customers whose consumption is determined on the basis of a standard load profile
TG	Thyssengas GmbH
THE	Trading Hub Europe GmbH

Definitions

Virtual Conversion

The term Virtual Conversion refers to the quantity converted and invoiced for each balancing group portfolio under the cross-quality energy balancing mechanism, i.e. where the high CV and low CV gas balances determined for a master balancing group (MBG) have opposing signs, the lower of the two quantities (as measured in terms of their absolute values) is billed as the conversion quantity. Where low CV gas deficits are balanced out by means of high CV gas inputs, this is referred to as Virtual Conversion taking place in the direction from high CV to low CV gas (H to L). The opposite direction is defined as Virtual Conversion from low CV to high CV gas (L to H). The term Virtual Conversion may be used both for each (M)BG and for the aggregate Virtual Conversion quantity calculated as the sum of the Virtual Conversion quantities determined for all individual balancing groups.

System-wide Virtual Conversion Quantity

One of the alternative approaches for determining the actual overall conversion quantity: The System-wide Virtual Conversion Quantity is calculated by summing all inputs and offtakes across all balancing group portfolios registered in the market area for which both high CV and low CV gas allocations are recorded, with these sums being calculated separately for each gas quality. If the resulting high CV and low CV gas balances are in opposite directions (different algebraic signs), then the lower of the two quantities (as measured in terms of their absolute values) represents the System-wide Virtual Conversion Quantity.

In this calculation all balancing group portfolios comprising at least one subordinate balancing group (SBG) for gas of a quality different from the gas quality of the relevant MBG are taken into account. Both the MBG and SBG must be actively used, i.e. both must have been declared as receiving data for energy balancing purposes.

Commercial Conversion

In order to apply a commercial value to the System-wide Virtual Conversion Quantity the relevant figure is compared with the quantities of gas that were supplied/received as part of the market-based (“external”) balancing actions taken on the day in question. For this purpose, it is assumed that quality-specific balancing sell transactions in the gas quality for which there is an oversupply and the quality-specific or locational balancing buy transactions in the quality for which there is an undersupply have been made for the purpose of Commercial Conversion, with the upper limit being represented by the System-wide Virtual Conversion Quantity.

Physical Conversion Quantity

One of the alternative approaches for determining the Actual Overall Conversion Quantity: Where balancing actions have been taken in opposite directions, i.e. where quality-specific (balancing criterion “Quality”) or locational balancing buy transactions have been made in one gas quality whilst quality-specific or locational balancing sell transactions have been made in the other gas quality, the lower of

the two quantities (as measured in terms of their absolute values) represents the actual overall conversion quantity.

Actual Overall Conversion Quantity

Umbrella term for the quantity determined according to either the "system-wide virtual" approach (System-wide Virtual Conversion Quantity) or the "physical" approach (Physical Conversion Quantity).

Technical Conversion

Refers to the process of converting gas quality by means of technical measures, with a distinction being made between Technical Conversion measures that are already covered by the relevant network operators' transportation tariffs and other Technical Conversion measures which are only available to the MAM at extra costs (for example Technical Conversion via Third-party Conversion Facilities or Gas Imports and Exports Carried out for Conversion Purposes). An example of a Technical Conversion measure already covered by network operators' transportation tariffs is the conversion of gas in technical mixing plants operated by the gas transmission system operators (TSOs).

Gas Imports and Exports Carried Out for Conversion Purposes

Sub-set of a Technical Conversion measure; In this case, capacities for gas of different qualities are booked at two cross-border interconnection points with the Netherlands, and gas of one quality is shipped into the Dutch network while gas of the other quality is shipped back out form the Netherlands.

1 Introduction

Trading Hub Europe (THE) in its role as market area manager has an obligation under section 4(c) of the operative provisions of the administrative ruling BK7-11-002 handed down by the German national regulatory authority Bundesnetzagentur (hereinafter referred to as the "Federal Network Agency") on 27 March 2012 (the so-called KONNI GAS decision) as amended by the administrative ruling BK7-16-050 of 21 December 2016 to publish the basis and methodology it uses to calculate its conversion fees and conversion neutrality charges for the Trading Hub Europe market area.

In the validity period from 1 October 2021 to 30 September 2022, THE will charge a conversion fee of 0.45 EUR/MWh for the conversion of gas from high CV to low CV quality. The conversion neutrality charge is levied at a rate of 0.038 ct/kWh (0.38 EUR/MWh).

For harmonisation purposes the steps to be followed in setting the applicable conversion fee and conversion neutrality charge have been prescribed by the Federal Network Agency. The conversion fee is to be determined based on a set of indicators with a view to providing certain incentives ("incentive-based conversion fee"). The conversion neutrality charge is to be determined based on the following calculation steps:

- Projection of the actual overall conversion quantities expected for each direction of conversion
- Determination of the planned use of the available technical conversion facilities, separately for conversion measures already covered by network operators' transportation tariffs and conversion measures that are subject to separate fees
- Projection of the use of commercial conversion measures
- Calculation of conversion costs
- Projection of the virtual conversion quantities expected for each direction of conversion
- Allowance for the incentive-based conversion fee to be charged for the conversion of gas from high CV to low CV quality
- Estimate of the revenues expected to be generated from conversion fees charged for the conversion of gas from high CV to low CV quality
- Determination of liquidity buffer requirements
- Projection of total physical inputs across all balancing groups
- Determination of the expected residual conversion costs to be recovered via the conversion neutrality charge, with due regard to the required liquidity buffer

Under the amended Konni Gas ruling the conversion fee to be charged for the conversion of gas from high CV to low CV quality (H to L) has been subject to a permanent fee cap of 0.45 EUR/MWh since 1 April 2017. No conversion fee may be applied for the conversion of gas from low CV to high CV quality (L to H). The market area managers are to take an incentive-based approach to setting the level of the H-to-L conversion fee. The conversion fee is to be set at a level that ensures that market participants are sufficiently incentivised to engage in cross-quality gas trading whilst also ensuring that the market area

manager does not become the main party procuring the quantities of low CV gas needed to supply end users of low CV gas in its market area.

Based on these assumptions and in consideration of the steps prescribed by the Federal Network Agency, the calculations we have made to determine the applicable conversion fee and the conversion neutrality charge are as set out in the following report. This is preceded by a brief review of the development of the conversion mechanism and the indicators used to determine the fee in what used to be the separate GASPOOL and NetConnect Germany (NCG) market areas. For a detailed description of the development of the conversion mechanism, please refer to the "Evaluation Report on the Gas Quality Conversion Mechanism"[1] on the THE website (www.tradinghub.eu).

[1] https://www.tradinghub.eu/Portals/0/DLC%20Berichte/THE_Evaluierungsbericht_KONNI_2021.pdf?ver=wqZluFFXCA0m4-ATBX0r2Q%3d%3d

2 Current situation and development of indicators

2.1 As-is situation

The following is a description of the development of the conversion system in relation to the overall situation of the low CV gas network and temperature development.

After the total virtual conversion quantity in both directions in the old market areas had fluctuated around an average of 60 TWh per gas year since October 2017, the total virtual conversion quantity in the current gas year is only expected to be 50 TWh. In the GYs 2017/18 to 2019/20, the direction from low CV to high CV gas was the predominant direction. For the last year in which there were separate market areas, there was a net conversion in the direction from high CV to low CV gas (41 TWh to 17 TWh); in the first year of the all-German market area, however, this changed again in the opposite direction (12 TWh to 37 TWh).

The significant increase in commercial conversion volumes, especially in the direction from high CV to low CV gas in the last GY, does not seem to repeat itself in the current GY; it remains to be seen whether or not this is a temporary trend caused by the current situation.

Owing to the ongoing market area conversion, low CV gas sales have been falling continuously in the period under review since October 2017, despite the lower temperatures in the 2020/21 winter season. In the current gas year, the quantities are only around 80% of the quantities recorded in previous years (October to April of each year); see Figure 1.

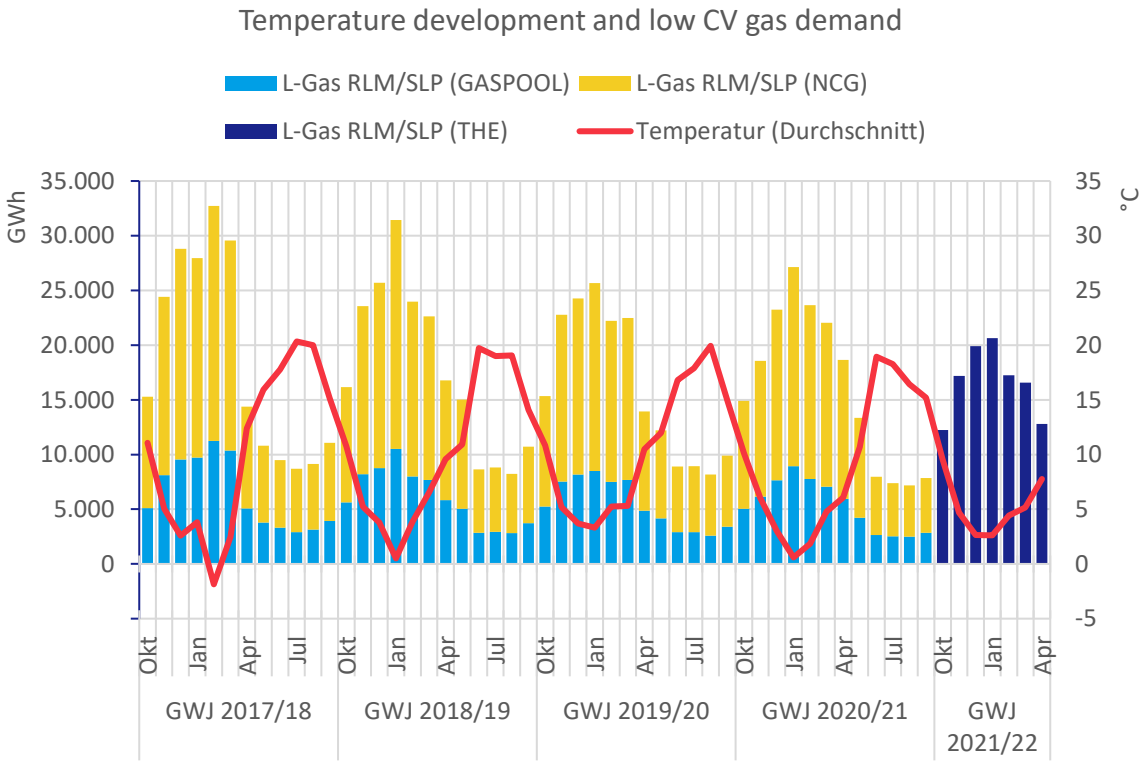


Figure 1: Temperature development and low CV gas demand

2.2 Development of the indicators used for determining the applicable incentive-based conversion fee

According to the amended Konni Gas ruling we have to determine our incentive-based conversion fee based on a set of suitable indicators that duly reflect the conversion fee's intended purpose of influencing market participants' behaviour, and to describe these in a transparent manner when publishing our statement of the basis of the conversion fee.

In its Konni Gas ruling the Federal Network Agency proposes the following three possible indicators:

- the quantities of gas that are virtually converted from high CV to low CV quality as measured relative to the total low CV gas demand in the market area (Indicator 1)
- the balancing quantities that are supplied/received for the purpose of converting gas from high CV to low CV quality as measured relative to the total balancing quantities supplied/received (Indicator 2)
- the balancing quantities that are supplied/received for the purpose of converting gas from high CV to low CV quality as measured relative to the total low CV gas demand in the market area (Indicator 3)

THE has to assess these indicators as to their suitability for the determination of an incentive-based conversion fee. THE further has an obligation to determine, assess and apply such additional indicators as it deems suitable for determining its conversion fee. The data base used to determine these indicators is to cover a period of at least 12 months so as to ensure that it provides a sound basis for drawing reliable conclusions as to the required level of an incentive-based conversion fee.

THE has identified one additional indicator other than the three proposed by the Federal Network Agency that we believe are a suitable reference for setting an incentive-based conversion fee:

- the quantities of low CV gas that are purchased for balancing purposes as measured relative to the total low CV gas demand in the market area (Indicator 4)

The indicators "Base case for virtual conversion from high CV gas to low CV gas" (GASPOOL) and "Commercial break-even point" (NCG) used previously in the old market areas are no longer used in THE's Germany-wide market area.

2.2.1 Indicator 1: Virtual conversion quantities converted from high CV to low CV quality relative to the total low CV gas demand in the market area

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of total low CV gas demand that was virtually converted by balancing group managers (BGMs) in each of the previous conversion periods. Figure 2 shows the maximum daily proportion for each of the old market areas in each month of the period from October 2017 until September 2021. The chart also shows the conversion fee applicable in the respective month.

Indicator 1 clearly shows the dependence of the virtual conversion quantities on the given conversion fee. In the old GASPOOL market area, the reduction to 0.39 EUR/MWh in October 2020 led directly to a significant increase in offtakes of low CV gas (maximum daily values) at exit points supplied by converted high CV gas, so that these proportions rose to almost 90% in September 2021. After the fee was set at 0.45 EUR/MWh in the old NCG market area, the proportion of low CV gas sales accounted for by virtual conversion dropped to a level the system can cope with, which at the same time reflects a relevant use of the conversion system. Nevertheless, a significant increase in the proportions compared to the previous gas year could also be observed in the old NCG market area despite the unchanged conversion fee. In the first all-German market area the behaviour in the period under review (for a conversion fee unchanged at 0.45 EUR/MWh) is erratic, with months without any system-wide virtual conversion in the direction from high CV to low CV gas alternating with months showing proportions with daily peaks of up to 100 %.

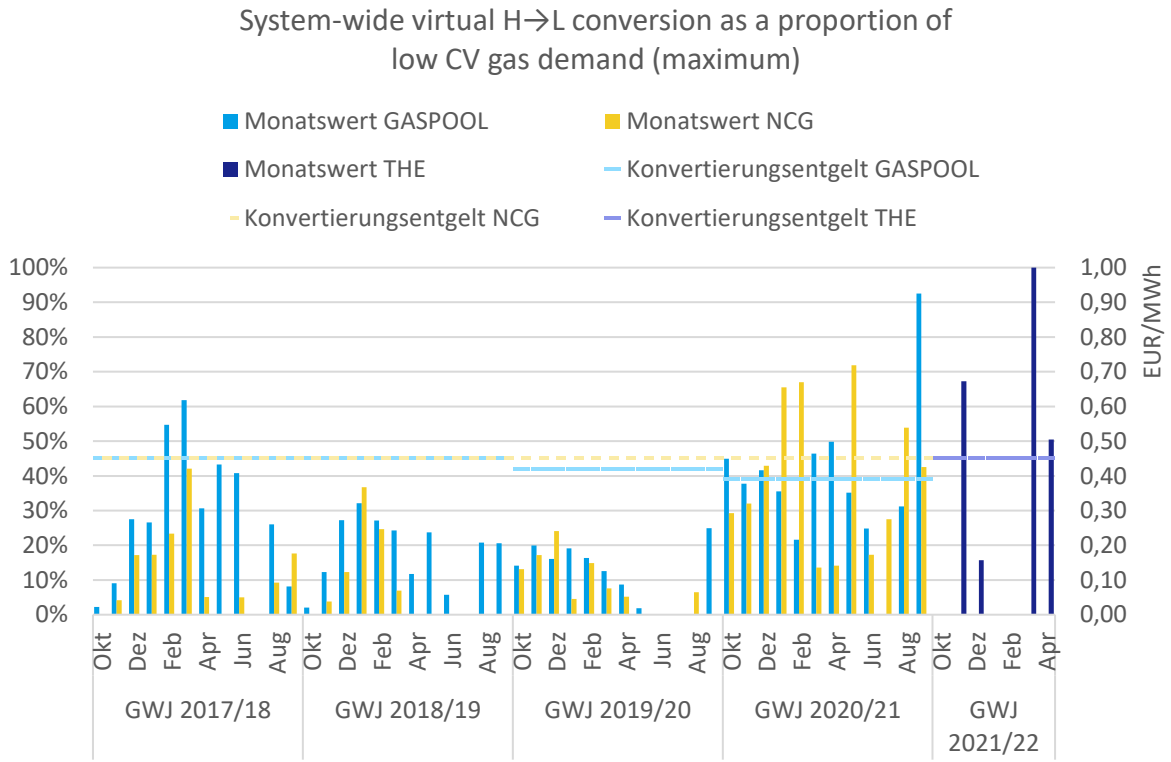


Figure 2: System-wide virtual conversion quantities as a proportion of low CV gas demand

2.2.2 Indicator 2: Balancing quantities supplied/received for high CV gas to low CV gas conversion purposes relative to the total balancing gas quantities supplied/received

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of our total balancing quantities (SystemBuy and SystemSell) that was used for the purpose of taking commercial H-to-L conversion measures in each of the previous conversion periods. until September 2021, Figure 3 shows System Sell the average proportion for a given month. For the period from October 2017 to September 2021 the quantities are shown for each of the old market areas. The chart also shows the conversion fee applicable in the respective month.

THE considers that this indicator is only of limited value as a reference, given that ultimately the results it provides depend strongly on the magnitude of the balancing actions we have to take. In situations where we have to balance very large system imbalances primarily driven by other effects, even comparably high levels of conversion activities and corresponding commercial conversion measures would represent a relatively small proportion of our total balancing actions and vice versa.

Nevertheless, a similar development can be seen in Indicator 2 as in the other indicators: The reduction of the fee to 0.39 EUR/MWh in the old GASPOOL market area in October 2020 resulted in an increase in the proportion of balancing actions used for commercial conversion to as much as 40%. These values

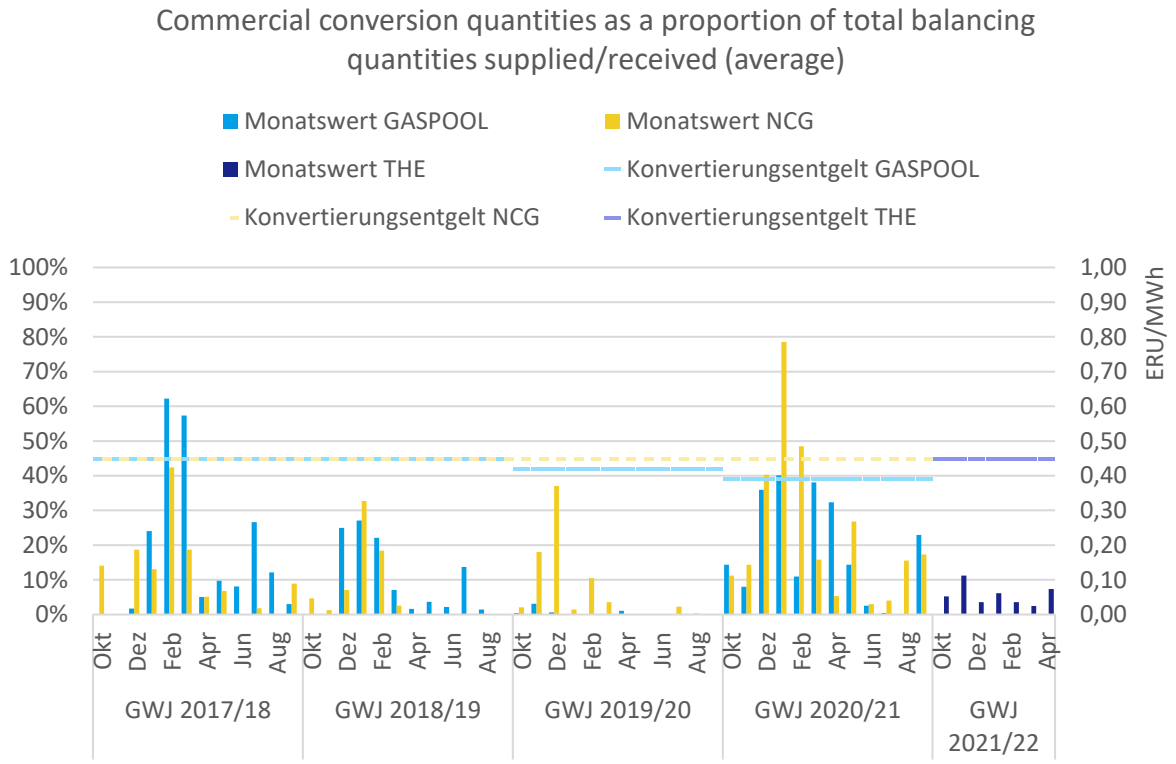


Figure 3: Commercial conversion quantities as a proportion of total balancing quantities supplied/received

were last recorded in the 2017/2018 gas year. After the fee was set at 0.45 EUR/MWh in the old NCG market area, the proportion of low CV gas sales accounted for by balancing actions used for commercial conversion purposes has now arrived at a level the system can cope with overall, even though proportions fluctuated in the individual fee periods while the fee remained unchanged and in January /February 2021 the proportions of balancing actions used for commercial conversion rose to almost 50% and 80%, respectively. In the current gas year, which has seen a moderate use of balancing actions overall and the fee kept unchanged at 0.45 EUR/MWh, commercial conversion accounted for less than 20 % of the balancing actions taken, which is the limit we consider to be compatible with the system.

2.2.3 Indicator 3: Balancing gas quantities supplied/received for high CV to Low CV gas conversion purposes relative to the total low CV gas demand in the market area

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of low CV gas demand that was provided via commercial H-to-L conversion measures for each of the previous conversion periods. **Fehler! Verweisquelle konnte nicht gefunden werden.** shows the maximum daily proportion for each of the old market areas in the respective month of the period from October 2017 until September 2021. The chart also shows the conversion fee applicable in the respective month.

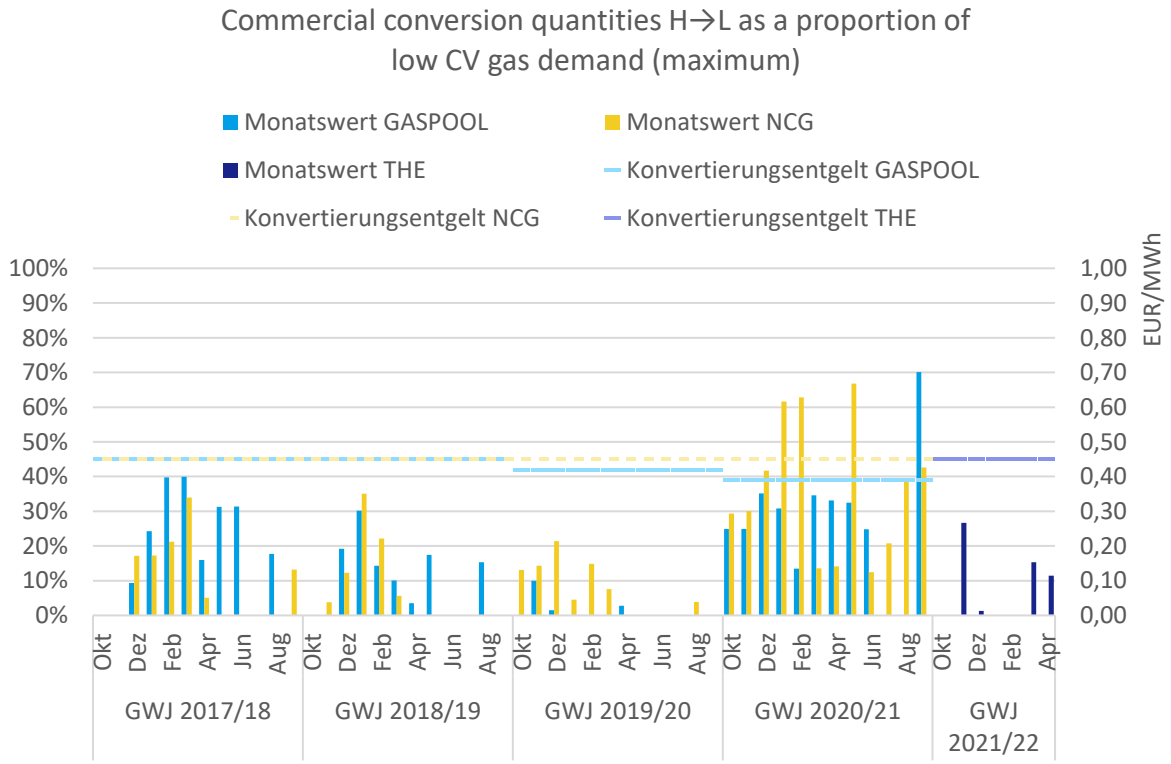


Figure 4: Commercial conversion quantities as a proportion of low CV gas demand

We believe that this indicator is suitable for helping us assess whether market participants' conversion behaviour might result in THE becoming the main buyer of low CV gas. The trends observed for the indicators listed above can also be found in Indicator 3. The proportion of low CV gas demand accounted for by commercial conversion, for example, rose rises significantly in October 2020 in the old GASPOOL market area after the conversion fee had been reduced to 0.39 EUR/MWh. Here, proportions of over 30% were reached in some of the months, while in previous gas years they had been no higher than 10%. In September 2021, both market areas reached the previous maximum proportion of 70 %. In the old NCG market area where the fee has been constantly set at 0.45 EUR/MWh, the proportions have dropped to a level the system can cope with overall, even though some fluctuations can be observed in individual fee periods and in gas year 2020/2021, the proportion of balancing actions used for commercial conversion in low CV gas sales peaked at over 60% in some cases. For the months under review in THE's market area and a conversion fee kept unchanged at 0.45 EUR/MWh, Indicator 3 shows a decline to a level the system can cope with corresponding to the proportions reached in GY 2019/20.

2.2.4 Indicator 4: Low CV gas quantities purchased for balancing purposes relative to the total low CV gas demand in the market area

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of total low CV gas demand that corresponds to the low CV gas quantities we purchased for balancing purposes for each of the previous conversion periods. **Fehler! Verweisquelle konnte nicht gefunden werden.** shows the maximum daily proportion in the respective month of the period from

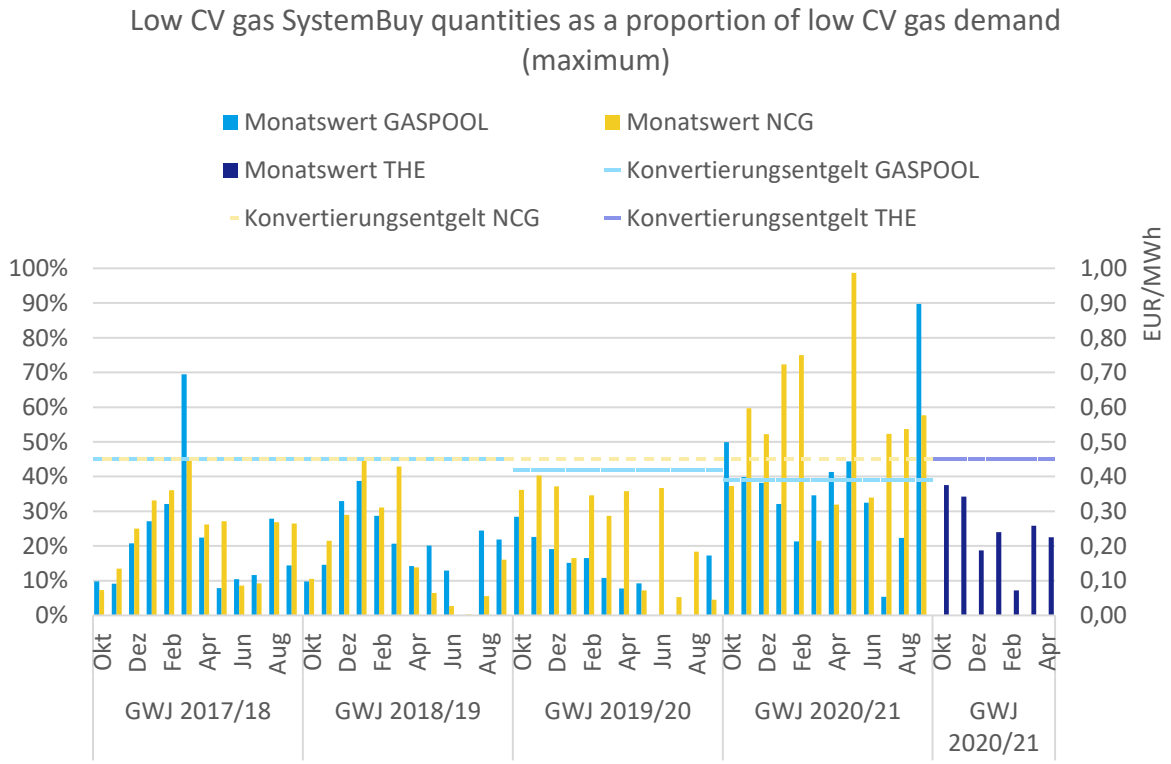


Figure 5: Low CV gas SystemBuy quantities as a proportion of low CV gas demand

October 2017 until September 2021. The chart also shows the conversion fee applicable in the respective month.

This indicator shows to what extent we procure gas for the supply low CV gas customers as part of our system balancing activities, even where this does not result in balancing actions in opposite directions and so is not considered a commercial conversion measure. Measuring the quantities of low CV gas we purchase as part of our balancing actions as a proportion of total low CV gas demand shows directly to what degree THE is becoming a buyer of low CV gas.

Indicator 4 also clearly reflects the effects of the reduction of the conversion fee: whilst the proportion of gas for the supply low CV gas customers in GASPOOL's old market area previously hardly ever reached 30%, it rose immediately to 50% after the fee was reduced in October 2020 and then remained at around 40% continuously in some cases thereafter. In the old NCG market area where the fee was set at a constant 0.45 EUR/MWh, the maximum proportions procured were usually in an acceptable range. However, especially in the 6-month winter periods, the quantities of low CV gas procured as balancing gas regularly rose to almost 50%, reaching over 70% in some cases in the old NCG market area in the winter of 2020/2021. In the further course of GY 2020/21, peak values of over 90 % were recorded in both market areas. For the current gas year, monthly values of between 20 % and 40 % (with the exception of February 2022) can be seen in THE's market area for an unchanged conversion fee of 0.45 EUR/MWh. Should the level again reach 50% or more over extended periods, this would lead to high conversion system costs.

3 Determination of the applicable incentive-based conversion fee

We have determined our incentive-based conversion fee by calculating the required conversion fee level separately for each of the four indicators and then aggregating the results based on individual weights attributed to each indicator. The weights attributed for the purpose of this calculation are to reflect each indicator's suitability in comparison with the other indicators applied.

3.1 Description, weighting and calculation of the indicators applied

Indicator 2 (Balancing gas quantities supplied/received for high CV gas to low CV gas conversion purposes relative to the total balancing gas quantities supplied/received) is of limited use, as it is ultimately highly dependent on the balancing quantities supplied/received. If the balancing quantities supplied/received are very high due to other influences, a comparatively small proportion of the total balancing quantities would still arise despite relatively strong conversion behaviour and corresponding commercial conversion. In calculating the applicable conversion fee, Indicator 2 is therefore weighted at 10%.

Indicator 1 (Virtual conversion quantities converted from high CV to low CV quality relative to the total low CV gas demand in the market area), Indicator 3 (Balancing gas quantities supplied/received for high CV to Low CV gas conversion purposes relative to the total low CV gas demand in the market area) and Indicator 4 (Low CV gas quantities purchased for balancing purposes relative to the total low CV gas demand in the market area) all put factors of the conversion system in relation to low CV gas sales. We believe that the aforementioned indicators are well suited for determining an incentive-based conversion charge. Indicators 1, 3 and 4 are therefore each weighted at 30% which gives a total weighting of 90%.

3.1.1 Indicator 1: Virtual conversion quantities converted from high CV to low CV quality relative to the total low CV gas demand in the market area

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of low CV gas demand that was provided via commercial H-to-L conversion measures for each of the previous conversion periods. For the purpose of carrying out these calculations we adjusted the underlying data base by eliminating "outliers" and also by applying a lesser weight to phases with low conversion quantities observed during a conversion period. For the GASPOOL and THE market areas, low CV equity gas production was taken into account.

Figure 6 shows the proportion assigned to each fee as a separate data point. These calculations were made separately for all three market areas, i.e. GASPOOL, NCG and THE. As no significant conversion has occurred for fees above 1 EUR/MWh, they were excluded from the analysis. We performed a linear regression analysis to describe the distribution of all data points deriving an equation that returns the

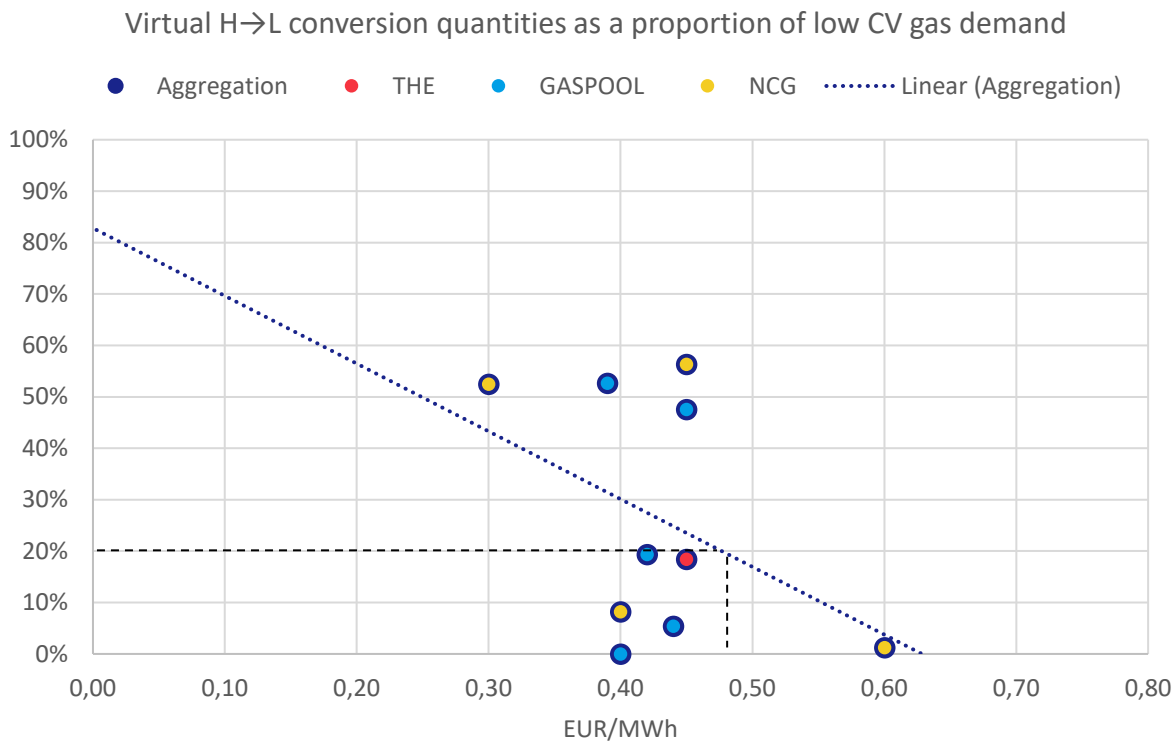


Figure 6: Indicator 1 – Virtual conversion quantities as a proportion of low CV gas demand

proportion of low CV gas demand that was virtually converted by BGMs for each given fee level. This forecast was applied to the next gas year.

In THE's view a proportion of virtual conversion from high CV to low CV gas of up to 20% relative to total low CV gas demand can be considered an acceptable level the system can cope with. Based on this proportion we would have to charge a conversion fee of 0.48 EUR/MWh.

Given that this indicator is directly related to market participants' conversion behaviour, THE believes that it is suitable for providing an appropriate indication of whether market participants will have sufficient incentives for their cross-quality conversion activities. In calculating the applicable conversion fee Indicator 1 is weighted at 30%.

3.1.2 Indicator 2: Balancing gas quantities supplied/received for high CV gas to low CV gas conversion purposes relative to the total balancing gas quantities supplied/received

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of our total balancing quantities (SystemBuy and SystemSell) that was used for the purpose of taking commercial H-to-L conversion measures for each of the previous conversion periods. In determining the proportion of our balancing quantities that was used for commercial conversion purposes we calculated the arithmetic mean of the daily proportions determined for all days falling within the relevant period.

Figure 7 shows the proportion assigned to each fee as a separate data point. These calculations were made separately for all three market areas, i.e. GASPOOL, NCG and THE. As no significant conversion has occurred for fees above 1 EUR/MWh, they were excluded from the analysis. We performed a linear regression analysis to describe the distribution of all data points for the gas, old market areas deriving an equation that returns the proportion of low CV gas demand that was commercially converted by BGMs for each given fee level. This forecast was applied to the next gas year.

In THE's view using a proportion of up to 20% of our total balancing quantities for H-to-L conversion purposes can be considered an acceptable level the system can cope with. Based on this proportion we would have to charge a conversion fee of 0.42 EUR/MWh.

In THE's view, this indicator is of limited use, as it is ultimately highly dependent on the balancing quantities supplied/received. If the balancing quantities supplied/received are very high due to other influences, a comparatively small proportion of the total balancing quantities would still arise despite relatively strong conversion behaviour and corresponding commercial conversion.

In calculating the applicable conversion fee, Indicator 2 is therefore weighted at 10%.

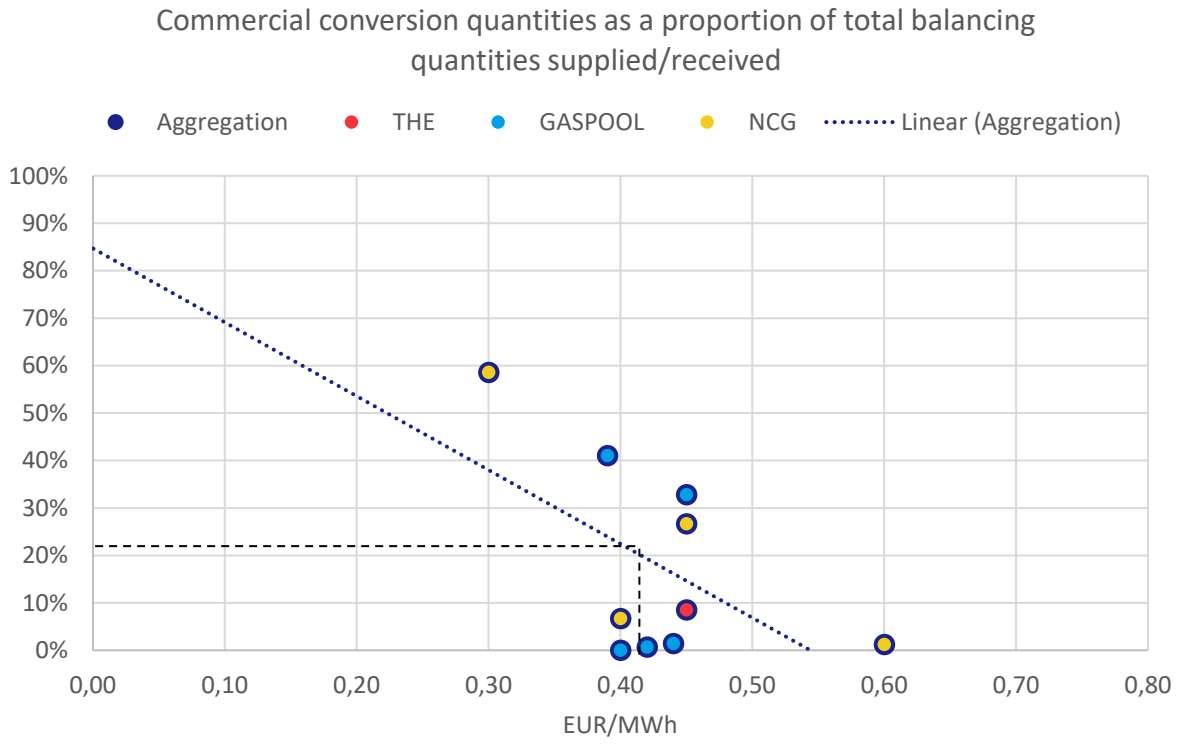


Figure 7: Indicator 2 – Commercial conversion quantities as a proportion of total balancing quantities supplied/received

3.1.3 Indicator 3: Balancing gas quantities supplied/received for high CV to low CV gas conversion purposes relative to the total low CV gas demand in the market area

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of low CV gas demand that was provided via commercial H-to-L conversion measures for each of the previous conversion periods. For the purpose of carrying out these calculations we adjusted the underlying data base by eliminating "outliers" and also by applying a lesser weight to phases with low conversion quantities observed during a conversion period. For the GASPOOL and THE market areas, low CV equity gas production was taken into account.

Figure 8 shows the proportion assigned to each fee as a separate data point. These calculations were made separately for all three market areas, i.e. GASPOOL, NCG and THE. As no significant conversion has occurred for fees above 1 EUR/MWh, they were excluded from the analysis. We performed a linear regression analysis to describe the distribution of all data points for the old market areas deriving an equation that returns the proportion of low CV gas demand that was commercially converted by BGMs for each given fee level. This forecast was applied to the next gas year.

We believe that this indicator is suitable for helping us assess whether market participants' conversion behaviour might result in THE becoming the main buyer of low CV gas. In THE's view a proportion of the balancing quantities supplied/received for H-to-L conversion purposes of up to 20% relative to total low

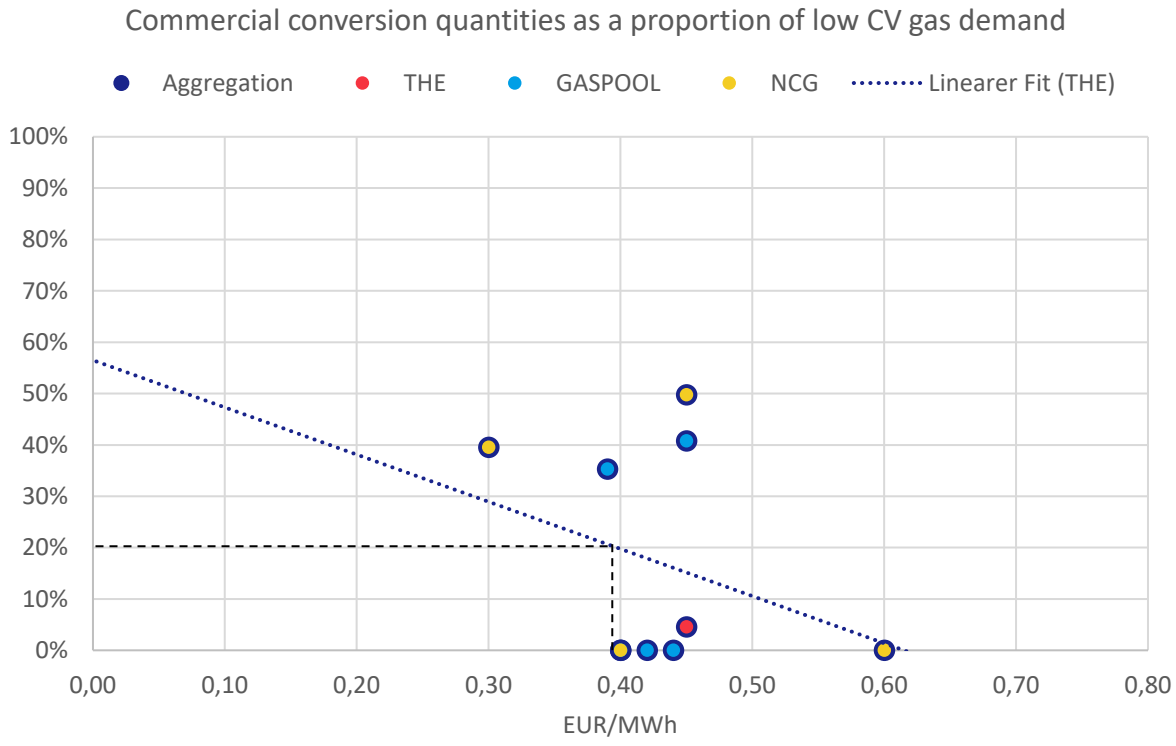


Figure 8: Indicator 3 – Commercial conversion quantities as a proportion of low CV gas demand

CV gas demand can be considered an acceptable level the system can cope with. Based on this proportion we would have to charge a conversion fee of 0.39 EUR/MWh.

In calculating the applicable conversion fee, Indicator 3 is weighted at 30%.

3.1.4 Indicator 4: Low CV gas quantities purchased for balancing purposes relative to the total low CV gas demand in the market area

In order to calculate this indicator, we examined the relationship between the conversion fee level and the proportion of total low CV gas demand that corresponds to the low CV gas quantities we purchased for balancing purposes for each of the previous conversion periods. For the purpose of carrying out these calculations we adjusted the underlying data base by eliminating "outliers" and also by applying a lesser weight to phases with low conversion quantities observed during a conversion period. For the GASPOOL and THE market areas, low CV equity gas production was taken into account.

Figure 9 shows the proportion assigned to each fee as a separate data point. These calculations were made separately for all three market areas, i.e. GASPOOL, NCG and THE. As no significant conversion has occurred for fees above 1 EUR/MWh, they were excluded from the analysis. We performed a linear regression analysis to describe the distribution of all data points for the old market areas deriving an equation that returns the quantities of low CV gas we purchased as part of our balancing actions as a proportion of low CV gas demand for each given fee level.

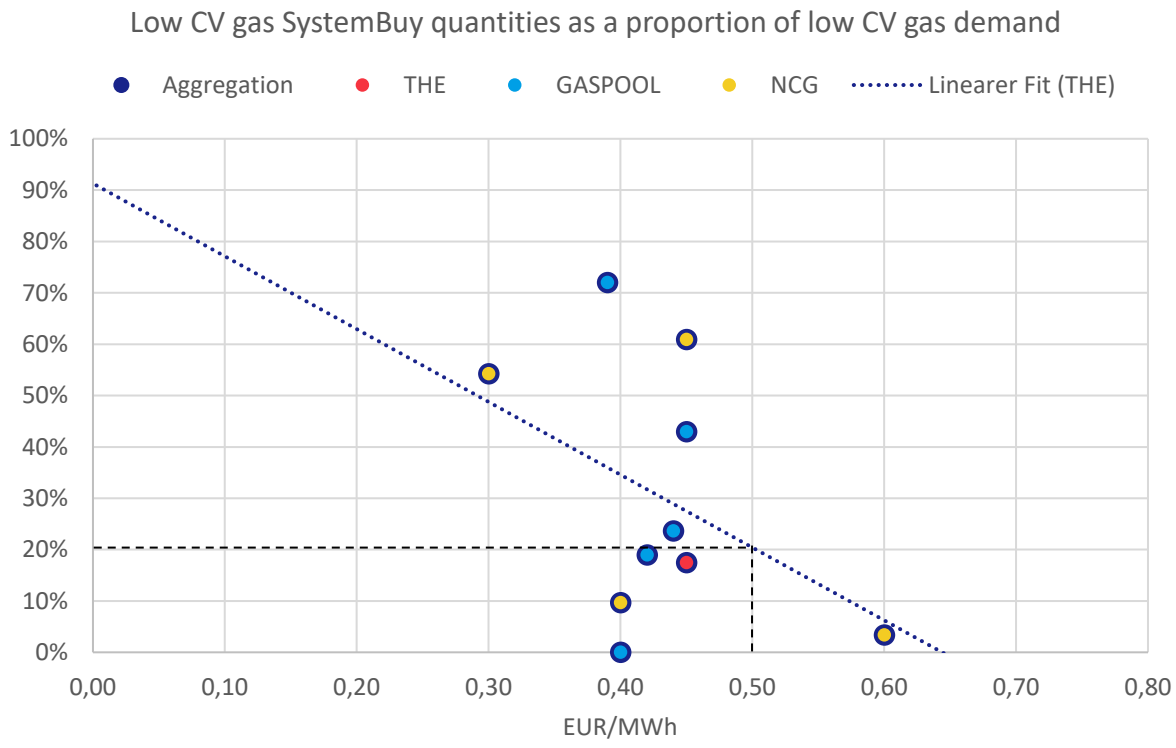


Figure 9: Indicator 4 – Low CV gas SystemBuy quantities as a proportion of low CV gas demand

This forecast was applied to the next gas year. We have chosen to apply this indicator because we believe that it should also be taken into account to what extent we procure gas for the supply of low CV gas customers as part of our system balancing activities even where this does not result in balancing actions in opposite directions and so is not considered a commercial conversion measure. Measuring the quantities of low CV gas we purchase as part of our balancing actions as a proportion of total low CV gas demand shows directly to what degree THE is becoming a buyer of low CV gas.

In THE's view a proportion of low CV gas SystemBuy quantities of up to 20% relative to total low CV gas demand can be considered an acceptable level the system can cope with. Based on this proportion we would have to charge a conversion fee of 0.50 EUR/MWh.

In calculating the applicable conversion fee Indicator 4 is weighted at 30%.

3.2 Determination of the applicable incentive-based conversion fee

According to our calculations based on the weighted indicators as shown below (Table 1) we would have to charge an incentive-based conversion fee of 0.453 EUR/MWh for the conversion of gas from high CV to low CV quality. Since the permitted conversion fee level is capped at 0.45 EUR/MWh, THE will charge an H-to-L conversion fee equal to this fee cap and has therefore set its H-to-L conversion fee at 0.45 EUR/MWh.

Indicator	Required conversion fee according to calculations	Weight
Indicator 1	0.48 EUR/MWh	30%
Indicator 2	0.42 EUR/MWh	10%
Indicator 3	0.39 EUR/MWh	30%
Indicator 4	0.50 EUR/MWh	30%

Table 1: Calculation of applicable conversion fee

4 Projection of quantities

A new forecasting model was developed for THE's Germany-wide market area. The new calculation logic and the uncertainties surrounding the development of quantities and prices in the new market area resulted in a shift for the calculation between the forecasts of expected costs and revenues on the one hand and the liquidity buffer on the other. The new approach has meant that risks from the liquidity buffer have shifted directly to the cost and revenue forecast.

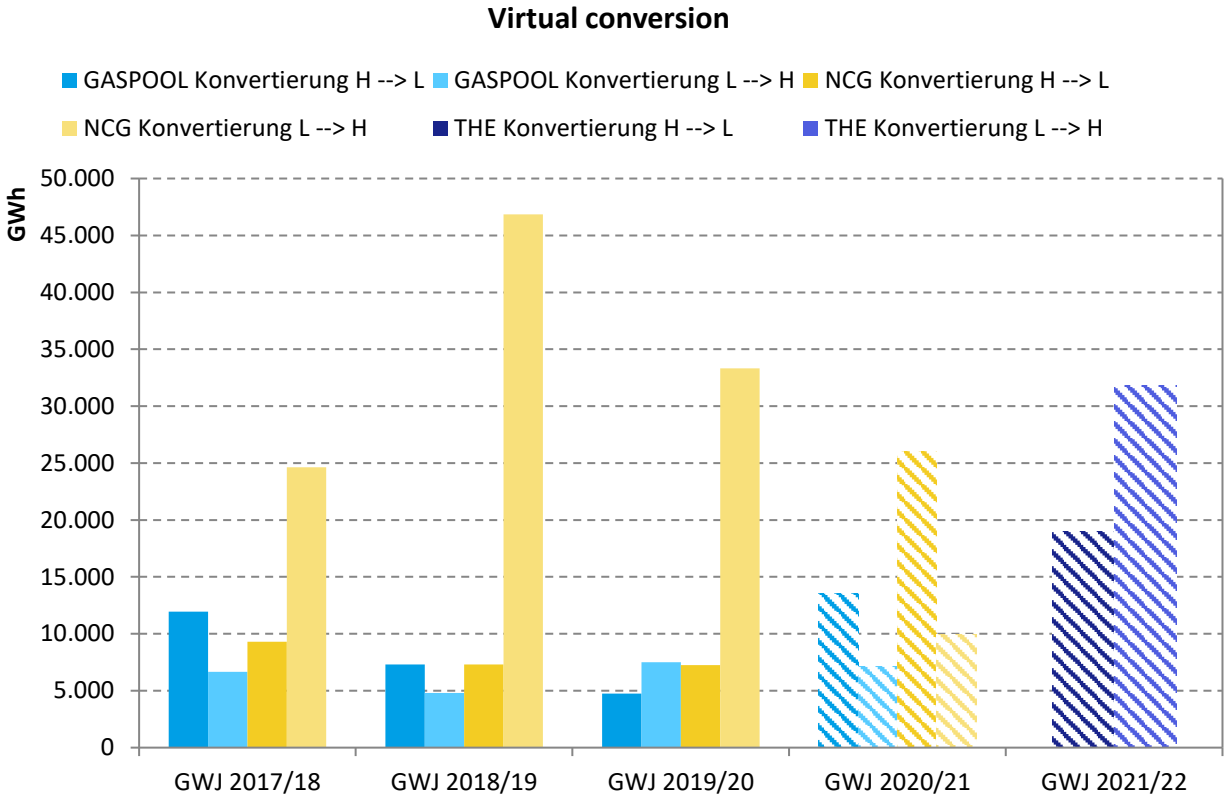
Although the individual components of the conversion system are interrelated, they are projected independently by THE as part of the new forecasting model so as to allow the required risk assessment to be made as part of the model. It should therefore be noted that the projections made for the individual quantities do not necessarily reflect a stringent relationship from a commercial gas business perspective.

4.1 Projection of virtual conversion quantities and actual overall conversion quantities

Figure 10 shows the virtual conversion quantities as well as the actual conversion quantities (network-wide virtual conversion) for the old market areas and for THE's market area. Up until gas year 2020/21, the quantities are shown for each old market area, while the projections for the current gas year and the coming gas year are made for THE's Germany-wide market area. Dark colours represent the quantities in the direction from H gas to L gas while light colours represent the opposite direction from low CV gas to high CV gas. Hatched bars represent projected data.

By the end of the current conversion period (30 September 2022), based on projections for the entire gas year, we are expecting for THE's market area a virtual conversion quantity from high CV gas to low CV gas totalling 11.9 TWh and a virtual conversion quantity from low CV gas to high CV gas totalling 37.4 TWh. For the next gas year, based on past data and projections for a conversion fee of 0.45 EUR/MWh, we are expecting a virtual conversion quantity from high CV gas to low CV gas totalling 20.0 TWh and a virtual conversion quantity from low CV gas to high CV gas totalling 36.2 TWh.

The expected system-wide virtual conversion from high CV gas to low CV gas in relation to the entire gas year for THE's market area has been calculated to be 11.92 TWh by the end of the current conversion period (30 September 2022), while the expected system-wide virtual conversion from low CV gas to high CV gas is 34.8 TWh. For the next gas year, based on past data and projections for a conversion fee of 0.45 EUR/MWh, we are expecting a virtual conversion quantity from high CV gas to low CV gas of 23.4 TWh and a virtual conversion quantity of 29.2 TWh from low CV gas to high CV gas.



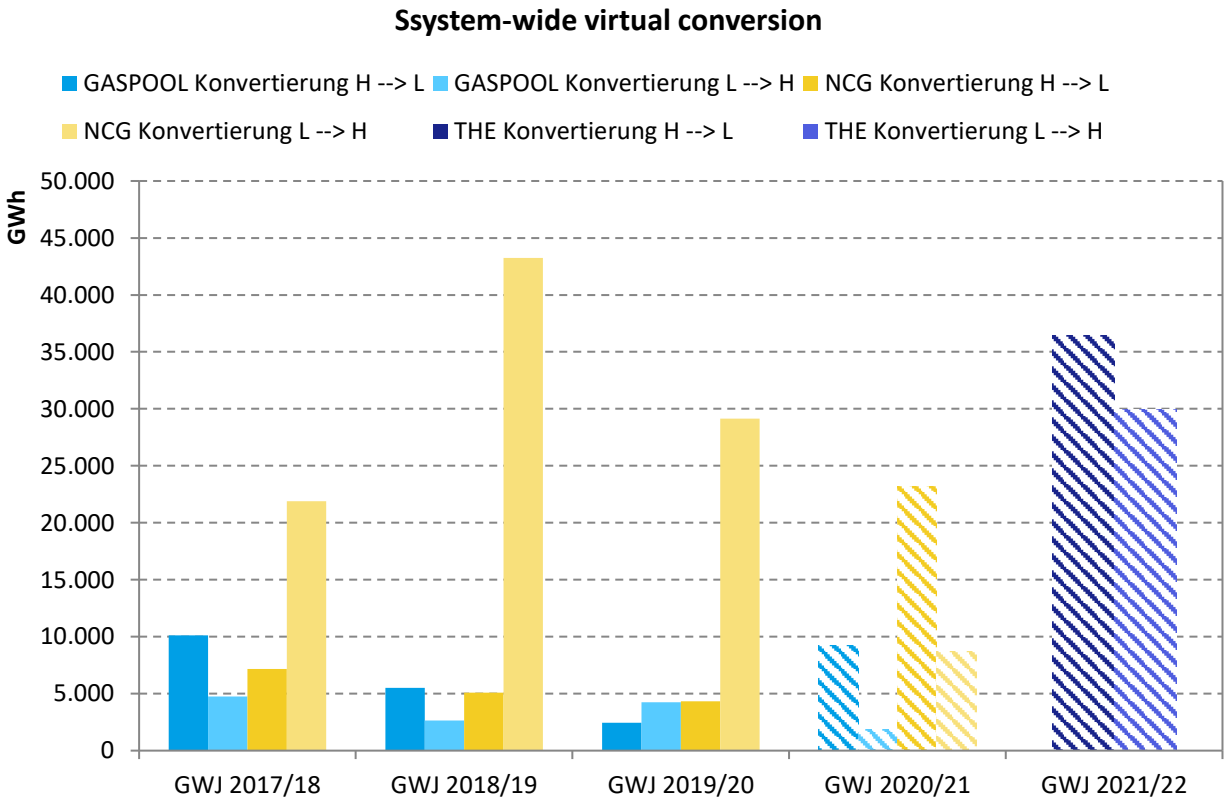


Figure 10: Virtual conversion quantities

The market shifts taking place within the market area are projected relative to the total offtakes of high CV gas and low CV gas, respectively, based on market participants' use of the conversion mechanism as observed to date as well as on the basis of market participants' expected future conversion behaviour. In this context a market shift from low CV to high CV gas (L to H) refers to a situation where exit points using high CV gas are supplied via inputs of low CV gas. The reverse applies where a market shift takes place from high CV to low CV gas (H to L). Please note when comparing the related percentages that total gas demand in the high CV sectors of the network area significantly exceeds total gas demand in the low CV sectors, among other reasons due to transit shipments.

By the end of the current conversion period (30 September 2022), we expect the market in THE's market area to have experienced a 5.8% shift from high CV to low CV gas and a 2.1% shift from low CV to high CV gas. Based on historical data, considering our projections for future developments and taking into account a conversion fee level of 0.45 EUR/MWh for THE's market area, we would expect to see a 19.4% H-to-L market shift. For the L-to-H direction, we expect a 4.4% market shift. The market shift figures for the previous four gas years (fully coloured) and the projected market shifts (hatched) in the current and next gas years are shown in Figure 11.

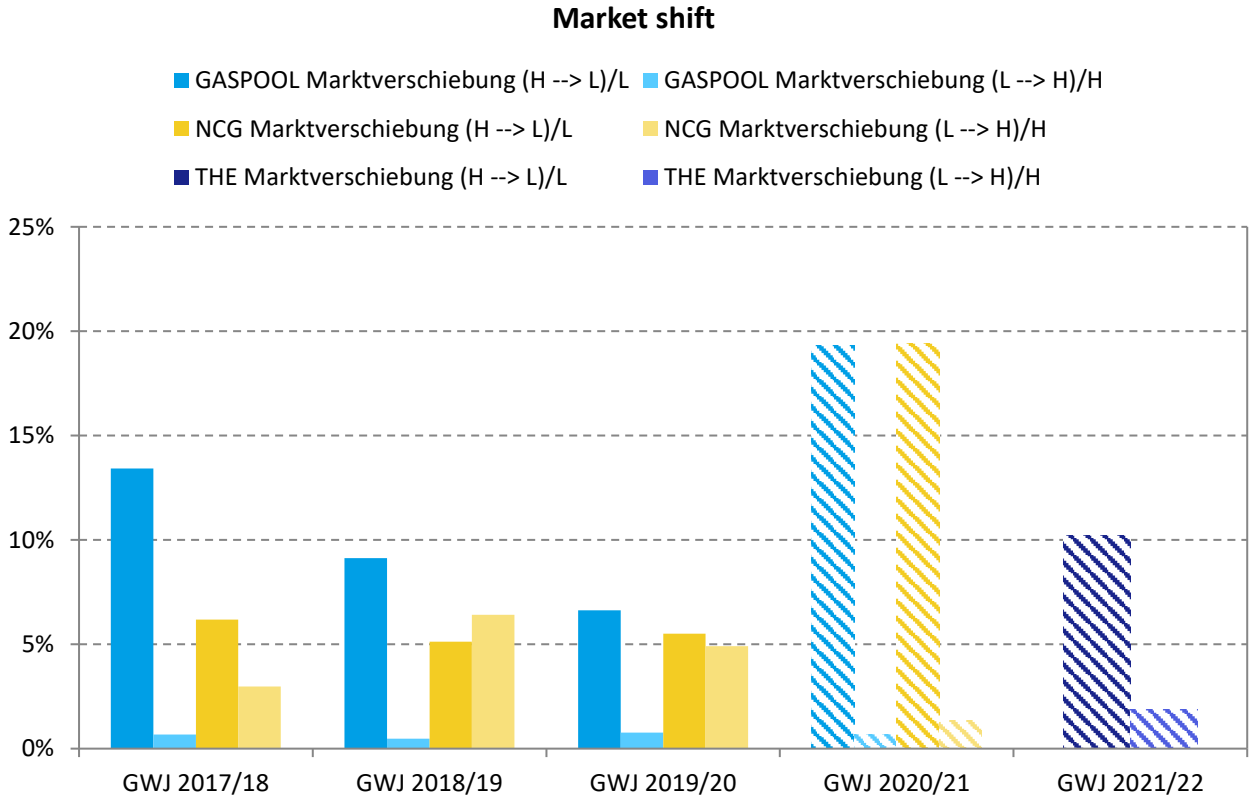


Figure 11: Market shift

4.2 Projection of technical conversion quantities

When it comes to determining the planned use of the available technical conversion facilities it is necessary to distinguish between conversion facilities that are already included in the relevant network operators' transportation tariffs and those conversion facilities that are not. Given that the conversion facilities that are included in network operators' transportation tariffs can be used by THE free of charge, they must be deployed first, subject to their availability.

The TSOs generally use these conversion facilities for the purpose of maintaining system stability in the high and low CV network areas of the market area and do not explicitly deploy them to carry out conversion measures so as to reflect the virtual conversion activities of market participants. So in order to project the technical conversion quantities that can be assumed to have been converted for the purposes of the gas quality conversion mechanism we use a computational approach based on the assumption that these quantities represent the remaining proportion of the projected virtual conversion quantities that is not converted via the projected commercial conversion measures.

"Swaps" between TSOs, which can help reduce the market area's technical conversion needs, were not taken into account in projecting the future technical conversion quantities. Such swaps represent capacity-related measures that result in an exchange of gas quantities at certain system interconnection points and that are carried out with a view to ensuring certain gas flows. Swaps can be used to either avoid that technical conversion facilities need to be used in the first place or to reduce the quantities to be converted in these facilities.

4.2.1 Conversion facilities included in the transportation tariffs

In THE's market area technical conversion facilities are currently provided by Gasunie Deutschland Transport Services GmbH (Gasunie), Open Grid Europe GmbH (OGE) and Thyssengas GmbH (TG) in its multi-quality networks. Nowega GmbH also has a conditioning plant (in the direction from high CV gas to low CV gas) linking it to GASCADE Gastransport GmbH.

OGE can use its gas blending plant in Werne to add both low CV gas to the high CV system and high CV gas to the low CV system. In addition, OGE has a mixing plant at its site in Scheidt which can be used to add low CV gas to the high CV system. TG has a gas-air mixing plant located in Broichweiden. The facility adds air to high CV gas in order to obtain low CV gas.

Gasunie has blending capacity in its own network (both in the direction from high CV gas to low CV gas and in the direction from low CV gas to high CV gas).

The increased technical conversion activities in the Dutch gas transmission system, where high CV gas is converted to low CV gas through the addition of nitrogen as a substitute for the terminated production or significantly reduced production volumes from the Groningen field, have a limiting effect on the technical conversion capacity from high CV gas to Low CV gas. As nitrogen is added, the Wobbe Index of the low CV gas received from the Netherlands rises, resulting in a higher gross calorific value. The opposite conversion direction, from low CV to high CV gas, is not affected by this development.

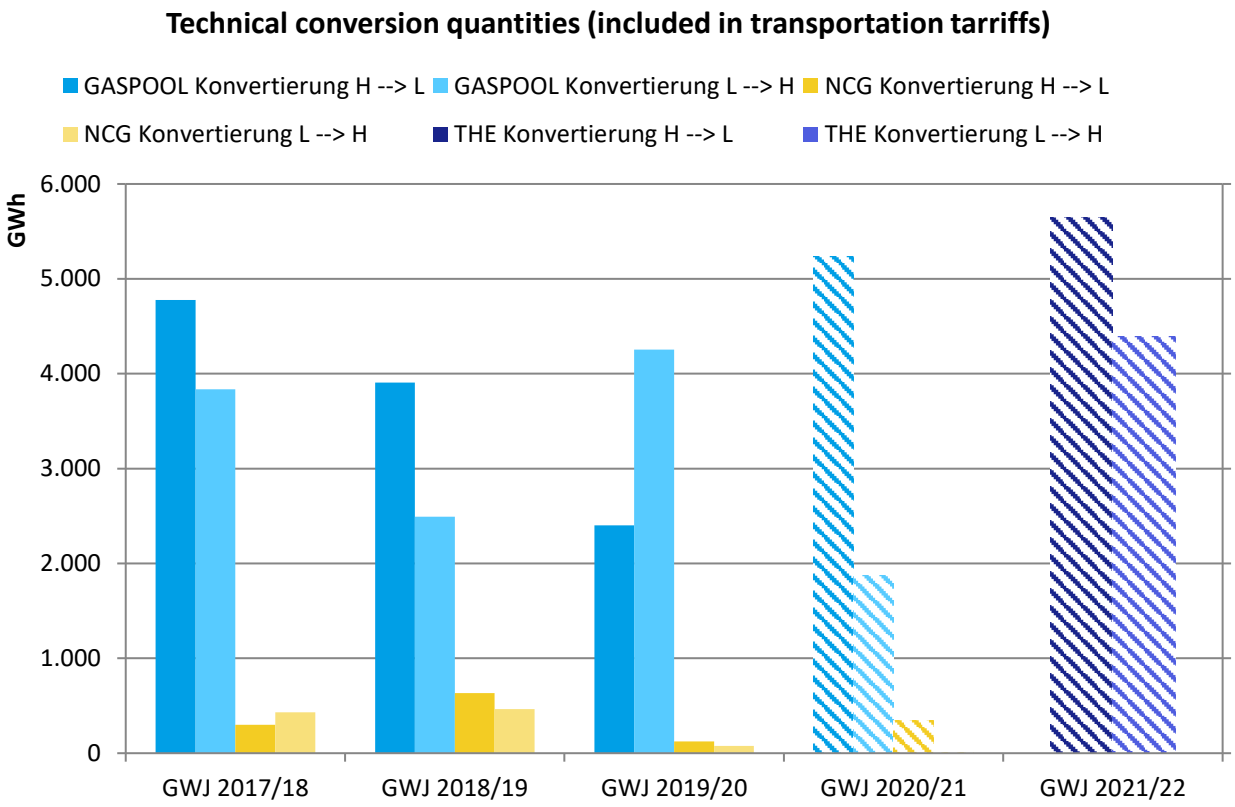


Figure 12: Technical conversion quantities (included in transportation tariffs)

Figure 12**Fehler! Verweisquelle konnte nicht gefunden werden.** shows the actual historical technical conversion quantities determined to have been converted for the purposes of the gas quality conversion mechanism for the previous gas years and the projected technical conversion quantities expected for the current and the next gas year. For the periods up until the 2020/21 gas year, the quantities are shown for each of the old market areas, while the quantities for current gas year and the projection for the next gas year are shown for the merged THE market area. Dark colours represent the quantities in the direction from high CV gas to low CV gas, while light colours represent the opposite direction from low CV gas to high CV gas. Hatched bars represent projected data.

In line with our computational approach, the projected quantities shown in the chart represent the difference between the System-wide Virtual Conversion Quantity and the Commercial Conversion Quantities determined on the basis of our projections. The past years have shown that due to swaps between TSOs and/or due to the technical/operational circumstances on the network(s) affected, a large share of the projected system-wide Virtual Conversion Quantities does not usually have to be converted using technical and/or Commercial Conversion measures and so we expect the Actual Technical Conversion Quantities to be significantly lower than our current projections.

4.2.2 Conversion facilities not included in the transportation tariffs

Since January 2018, a technical conversion plant located in the Nowega GmbH network has also been used for conversion measures in the former GASPOOL market area. This technical conversion plant, which produces low CV gas by adding nitrogen to the high CV gas, is not fully covered by the network operators'

transportation tariffs. No other arrangements are currently in place in THE's market area with third parties that would permit the use of any technical conversion facilities that are not already covered by network operators' transportation tariffs. THE is continuing to review whether and to what extent additional technical conversion capacity could be made available to THE by third parties and on what contractual terms.

Given the current network situation, THE does not expect any relevant fee-based use of the plant or other plants that can be used in the future, neither in the current nor in the coming gas year.

Figure 13 shows the technical conversion quantities of the previous gas years not already covered by the network operators' transportation tariffs and the projected technical conversion quantities expected for the current gas year and the next gas year. For the periods up until the 2020/21 gas year, the quantities are shown for each of the old market areas, while the quantities for current gas year and the projection for the next gas year are shown for the merged THE market area (but is forecast to be zero as stated above). Given the previous technical conditions, conversions only actually took place in the direction from high CV gas to low CV gas .

4.2.3 Gas imports and exports carried out for conversion purposes

One of the examples of technical conversion measures not covered by network operators' transportation tariffs cited by the Federal Network Agency in its Konni Gas ruling is for the market area managers to export high CV gas to the Netherlands during a day whilst simultaneously importing the same quantity of

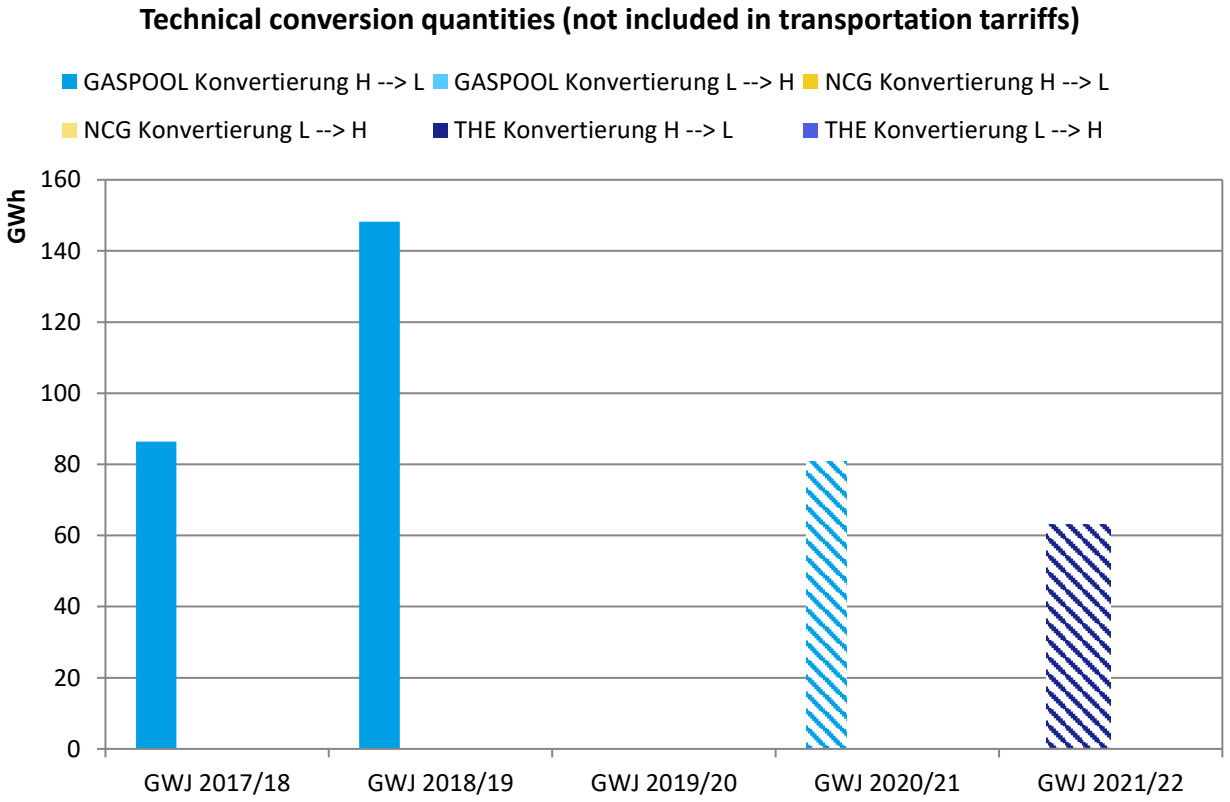


Figure 13: Technical conversion quantities (not included in transportation tariffs)

low CV gas from the Netherlands, which is what we mean by “Gas imports and exports carried out for conversion purposes”. This conversion method cannot be considered a technical conversion measure in the strictest sense as it does not involve a modification of the physical composition of the gas itself but rather an exchange of gas quantities of different gas qualities between the market areas involved.

In order to be able to carry out such gas imports and exports for conversion purposes, THE has to book transportation capacity at interconnection points between the high CV and low CV network sectors of a German market area and the Netherlands, with capacity to be booked on a short-term basis where and to the extent possible. In order to be able to decide based on cost considerations whether to export and import gas for conversion purposes or whether to take commercial conversion measures we have to compare in each case the transportation costs associated with the gas imports and exports we carry out for conversion purposes with the commodity costs we incur at that time for taking the corresponding commercial conversion measures.

Gas imports and exports for conversion purposes as a commercial technical conversion measure are always used when the booking of capacities into and out of the Netherlands results in lower overall costs than the corresponding purchase and sale of balancing gas in opposite directions. This measure has been in use since 2018 and has so far accounted for a very small part of total conversion.

As gas imports and exports are only carried out for conversion purposes if and where the transportation costs incurred in relation to these imports and exports are less than or at most equal to the commodity costs we would incur for taking corresponding commercial conversion measures, it is not necessary to estimate the additional costs associated with such gas imports and exports. Given the limited practical experience to date, we cannot currently estimate the potential savings we may be able to achieve compared with the costs of our commercial conversion measures.

In THE’s market area, gas imports and exports carried out for conversion purposes in the direction from high CV gas to low CV gas are expected to total 156 GWh in the current gas year. In the opposite direction, gas imports and exports carried out for conversion purposes are expected to total 22 GWh. For the conversion period from 1 October 2022 to 30 September 2023, THE expects gas imports and exports carried out for conversion purposes in the direction from high CV gas to low CV gas to total 92 GWh. In the direction from low CV gas to high CV gas the expected quantity is 11 GWh.

Figure 14 shows the gas imports and exports carried out for conversion purposes during the last few gas years and a forecast of the gas imports and exports carried out for conversion purposes for the current and upcoming gas year. Up until the 2020/21 gas year, the quantities are shown for each old market area, while the quantities for current gas year and the projection for the next gas year are shown for THE’s Germany-wide market area. Dark colours represent the quantities in the direction from high CV gas to low CV gas while light colours represent the opposite direction from low CV gas to high CV gas. Hatched bars represent projected data.

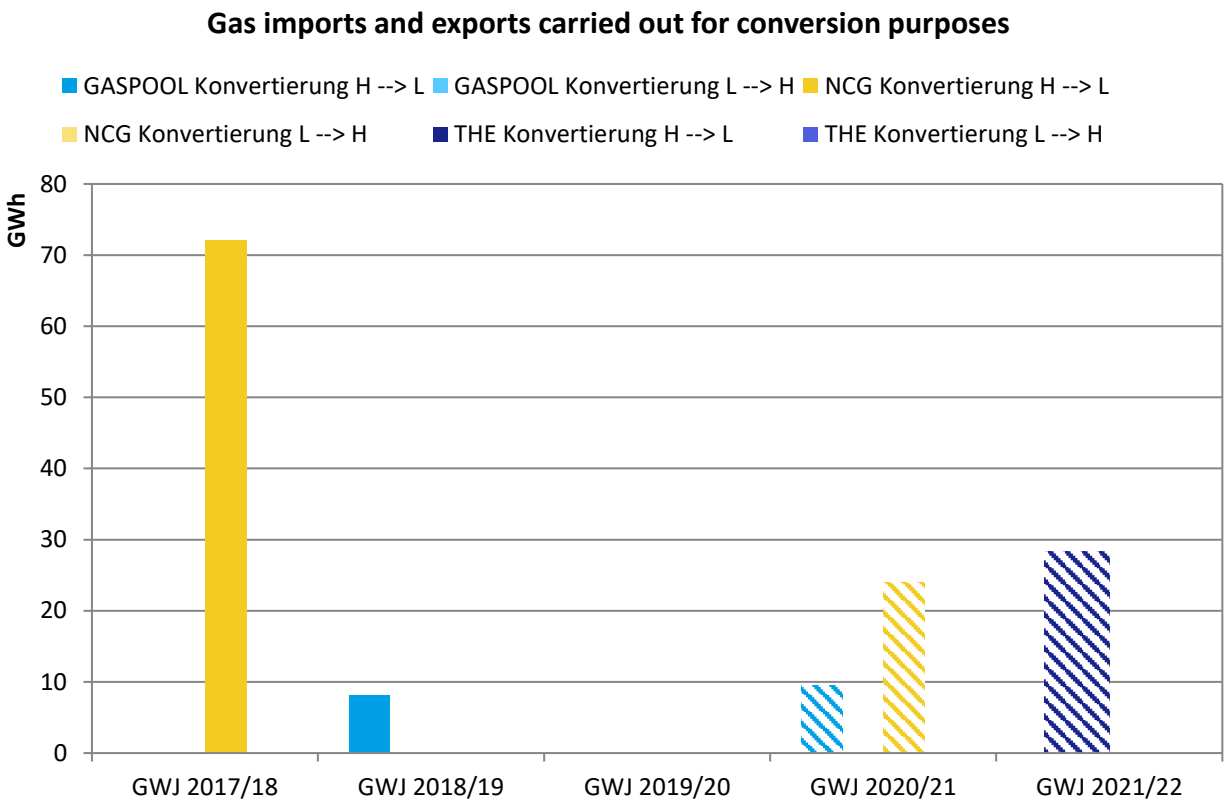


Figure 14: Gas imports and exports carried out for conversion purposes

4.3 Projection of commercial conversion quantities

There is no reliable way to project the commercial conversion measures that will need to be taken until the end of the current and over the course of the next conversion period given that the need for such measures at any given point in time depends directly on the use of the virtual conversion mechanism by market participants, the conversion capabilities of the mixing plants available and the current physical state of the network, and thus on system balancing requirements. Therefore, we have selected an approach for our projections that takes account of the commercial conversion quantities observed previously and the regulatory circumstances (e.g. very high capacity costs compared to the maximum conversion fee, especially during the winter months).

Another major factor is the accuracy of market participants' demand forecasts for the supply of gas at intraday-metered "RLM" exit points and non-daily metered "SLP" exit points, which can significantly influence the gas quantities physically delivered to the market area by the market participants and therefore have a massive impact on the required balancing actions, and thus indirectly on the actual overall conversion quantities. For example, a general oversupply or undersupply to either or both the low CV or high CV systems as can result from imbalances in network operators' network balancing accounts due to the mechanisms inherent to the current balancing regime has an impact on whether and to what extent we will have to take balancing actions in opposite directions.

The expected commercial conversion quantity for THE's market area has been calculated to be 1.4 TWh in both directions by the end of the current gas year (30 September 2022). For the next gas year, we expect a commercial conversion quantity from high CV gas to low CV gas of 16.8 TWh on the basis of historical data and forecasts at a conversion fee of 0.45 EUR/MWh and a commercial conversion quantity from high-capacity low CV gas to high CV gas totalling 1.6 TWh.

Figure 15 shows the commercial conversion quantities recorded in the previous gas years and the projected quantities expected for the current conversion period and the next conversion period. Up until the 2020/21 gas year, the quantities are shown for each old market area, while the quantities for current gas year and the projection for the next gas year are made for THE's Germany-wide market area. Dark colours represent the quantities in the gas year in the direction from H gas to L gas, while light colours represent the opposite direction from low CV gas to high CV gas; hatched bars represent projected data.

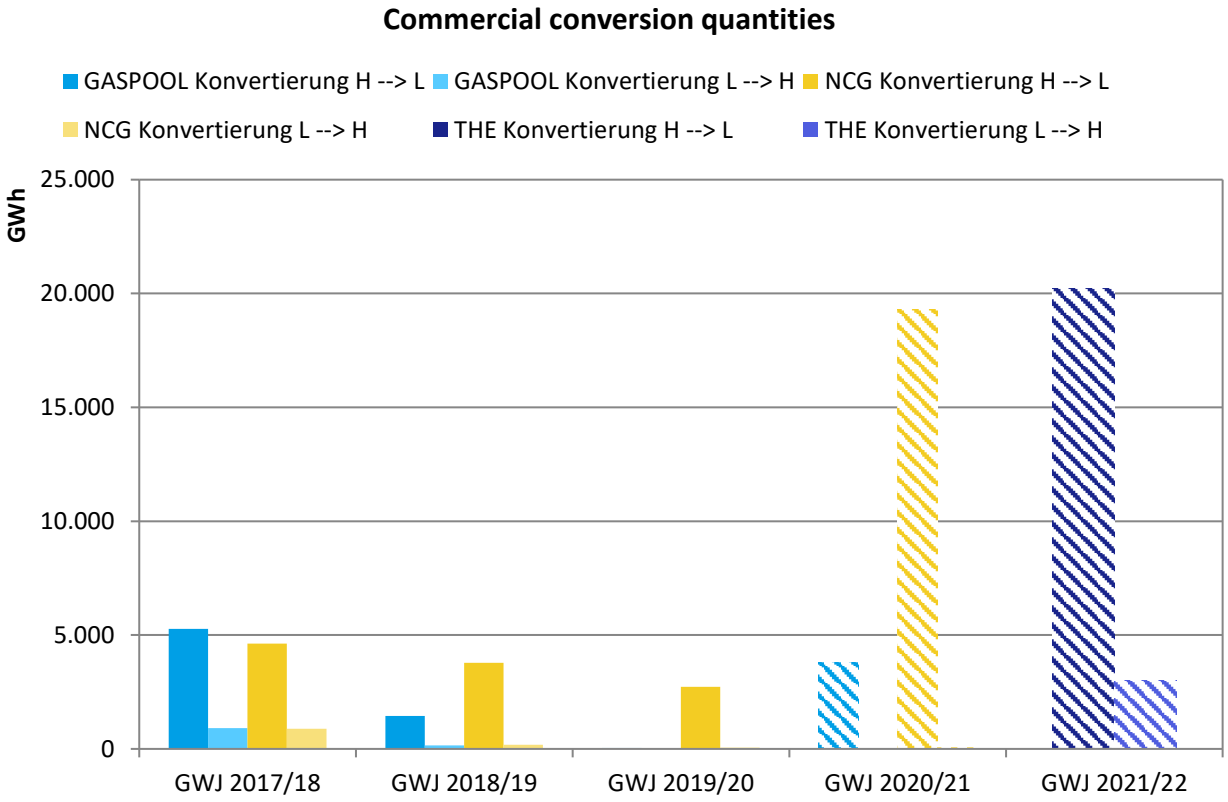


Figure 15: Commercial conversion quantities

4.4 Projection of the physical inputs

As the conversion neutrality charge is levied on all physical inputs of balancing groups with the status "capacity that is not subject to transportation route restrictions" ("frei zuordenbare Kapazitäten"; FZK) and "capacity that is subject to dynamic transport route restrictions" ("dynamisch zuordenbare Kapazitäten"; DZK), the expected physical inputs for the entire current and next conversion periods have to be projected using the available historical data and weighting the results to reflect a typical distribution over the months (based on the monthly averages observed in the past). Following the request by the Federal Ministry of Economic Affairs and Climate Action (BMWK) to save energy, THE assumes that there will be an overall volume reduction of 15% on the volumes previously determined by linear extrapolation. Since the entry quantities of the old market areas contain transit-related entries at the market area interconnection points, which no longer occur after the market area merger, the quantities for the Germany-wide THE market area are reduced by the quantities shipped between the old GASPOOL and NCG market areas and are therefore lower than the total from the two old market areas.

Figure 16 shows the physical inputs in the past gas years as well as a forecast for the current and upcoming conversion periods. The data provided is based on the data series types "Entryso" (physical inputs other than biogas, hydrogen and liquefied petroleum gas), "Entry Biogas" (inputs from biogas production plants) and "Entry Wasserstoff" (inputs from hydrogen production facilities). Up until the 2020/21 gas year, the quantities are shown for each old market area, while the quantities for current gas year and the projection for the coming gas year are shown for THE's Germany-wide market area. The projections are shown as hatched bars.

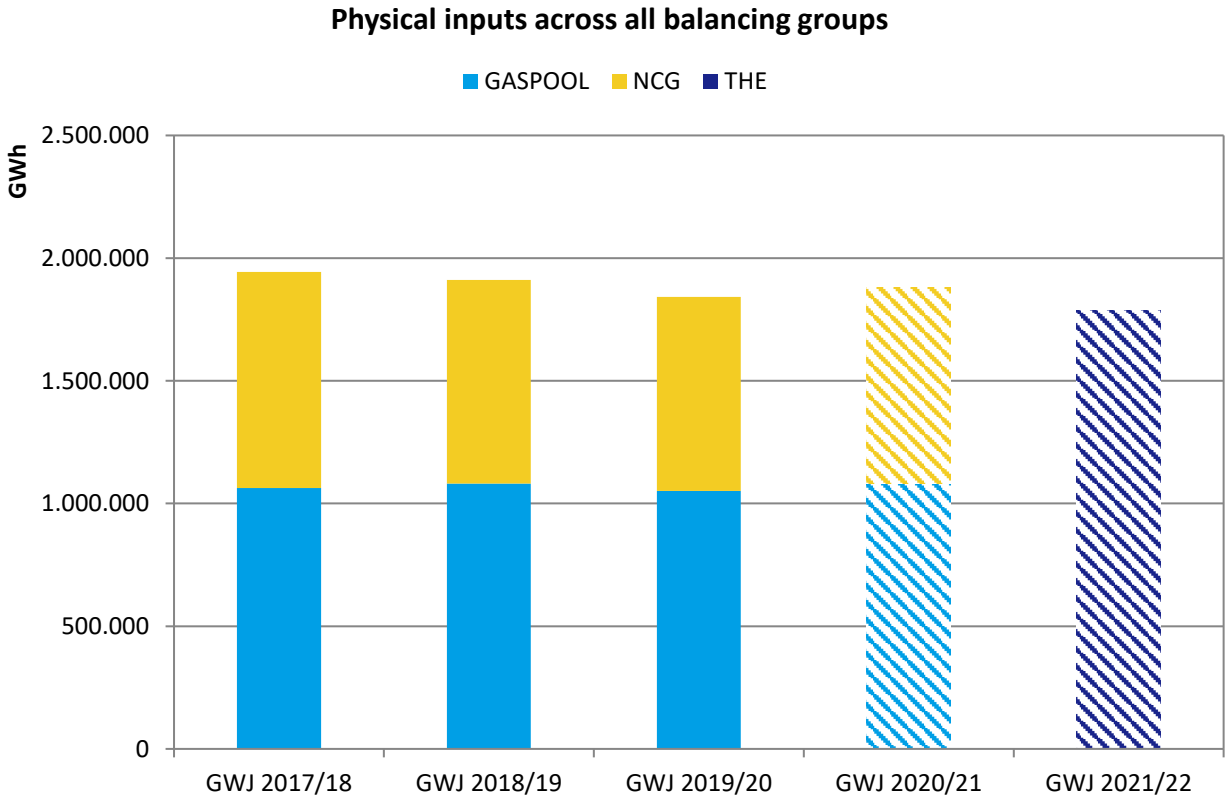


Figure 16: Physical inputs

5 Determination of the liquidity buffer

Under the amended Konni Gas ruling of 21 December 2016, the market area managers have the right to allow for a liquidity buffer when setting their conversion fees and conversion neutrality charges. The intended function of this liquidity buffer is primarily to mitigate the liquidity risks that may arise due to the uncertainty inherent to projections or as a consequence of high conversion costs.

The actual costs caused by conversion activities can vary significantly, even though the general conditions shown in the model are almost the same. For example, the total commercial conversion costs across both of the old market areas were between EUR 5 million (GY 2019/20) and EUR 50 million (GY 2017/18 and 2020/21). In addition, there are periods in which very high costs were incurred for the procurement of low CV gas within a short space of time (for example, almost EUR 100 million within one week in February 2021). Even if these costs can only be attributed to the conversion system on a pro-rata basis, the increased balancing gas prices in particular lead to high margin requirements at the exchange, which must be taken into account as per the GaBi/Konni distribution.

As during the course of each conversion period liquidity is provided by the revenues that come in from conversion fee payments and conversion neutrality charges, the relevant liquidity buffer for setting the level of the conversion neutrality charge is the liquidity buffer we intend to achieve by the end of the relevant conversion period. This liquidity buffer serves to limit our risk exposure in the event of payment defaults and cases of insolvency, to pre-finance commercial conversion measures (incl. funds required for the pro-rata inclusion of costs for the contracting of long-term options and increased margin requirements of the clearing houses) and in particular to manage the uncertainty associated with volume and price trends. In addition, the termination of production of low CV gas from the Groningen field in the Netherlands poses a particular price risk which was exacerbated by the rise in procurement prices. The prices for the procurement of low CV gas are far above the prices for the procurement of high CV gas, especially in winter. In addition, the high market prices could increase the spread between the purchase and sale. However, in order to be able to ensure security of supply for low CV gas, the possible risk has been taken into account in the current liquidity buffer.

The influence of the individual risks on the liquidity buffer is shown in Table 2.

Our risk assessment in this context covers both the full next conversion period (twelve months) as well as the winter season – which falls within the conversion period following the next conversion period – so that we can achieve the required balance in the conversion neutrality account by the start of that winter season.

Based on the above, we seek to achieve a liquidity buffer of EUR 354.1 million by the end of the next conversion period.

Risk	Explanation	Impact[2] on liquidity buffer
Quantity risk	Uncertainties, especially due to weather conditions, the behaviour of market participants and the curtailment of Russian gas volumes.	High
Price risk	Uncertainties, e.g. due to gas shortage, the behaviour of market participants and the curtailment of Russian gas volumes.	High
Further	Portfolio effects, MMMA, BKA	Medium
Model risks	Margin requirement due to increased balancing gas demand/balancing gas costs	High
Margin increase	Legal disputes, payment delays	Low

Table 2: Impact of the individual risks on the liquidity buffer

[2] The assessment of the individual risks results from the relation of the respective individual risk to the liquidity buffer of the conversion system

6 Calculation steps to determine the applicable conversion neutrality charge

6.1 Projection of the actual overall conversion quantities expected

Direction of conversion	Projection of the actual overall conversion quantity
H -> L	23,368 million kWh
L -> H	29,184 million kWh

Table 3: Projection of the actual overall conversion quantities expected for each direction of conversion

6.2 Determination of the planned use of the available technical conversion facilities

Direction of conversion	Planned use of the available technical conversion facilities covered by the network operators' transportation tariffs	Planned use of the available technical conversion facilities not already covered by the network operators' transportation tariffs
H -> L	6,605 million kWh	0 kWh
L -> H	5,119 million kWh	0 kWh

Table 4: Determination of the planned use of the available technical conversion facilities

6.3 Projection of the use of commercial conversion measures

Direction of conversion	Projection of commercial conversion measures
H -> L	16,755 million kWh
L -> H	1,649 million kWh

Table 5: Projection of the use of commercial conversion measures

6.4 Calculation of conversion costs

Cost/revenue item	Projection of commercial conversion measures
Costs of technical conversion and blending facilities not included in the transportation tariffs	EUR 0 million
Revenue from conversion measures	EUR 3,863.4 million
Conversion costs resulting from gas purchases for balancing purposes or conversion-related gas import/export costs	EUR 4,309.6 million
Conversion costs resulting from proportional long-term costs	EUR 15.3 million
Total	**EUR 461.4 million**

Table 6: Calculation of conversion costs

6.5 Projection of the virtual conversion quantities

Direction of conversion	Projection of the virtual conversion quantities
H -> L	19,994 million kWh
L -> H	36,233 million kWh

Table 7: Projection of the virtual conversion quantities

6.6 Projection of the revenues expected to be generated from conversion fees

Direction of conversion	Projection of revenues from virtual conversion quantities
H -> L	19,994 million kWh x 0.045 ct/kWh = EUR 9.0 million

Table 8: Projected revenues from conversion fees

6.7 Determination of liquidity buffer requirements

Liquidity buffer requirements as at 30 Sept. 2023
EUR 354 million

Table 9: Liquidity buffer

6.8 Projection of total physical inputs across all balancing groups

Projection of physical high CV and low CV gas inputs
1,639,551 million kWh

Table 10: Projected physical input

6.9 Determination of the expected residual conversion costs to be recovered via the conversion neutrality charge with due regard to the required liquidity buffer

Cost/revenue item	Projection of the commercial conversion measures
Projected conversion neutrality account balance as at 30 September 2022	EUR 189 million
Projected conversion costs	EUR 461 million
Liquidity buffer requirements	EUR 354 million
Projected revenue from the conversion fee	EUR 9 million
Costs to be recovered via charge	**EUR 618 million**

Table 11: Expected conversion costs to be recovered via the conversion neutrality charge

6.10 Calculation of the conversion neutrality charge

Required level of the conversion neutrality charge
EUR 618 million / 1,639,551 million kWh = 0.038 ct/kWh

Table 12: Calculation of the conversion neutrality charge

7 Determination of the applicable conversion neutrality charge

Determination of the residual costs to be recovered

As was described in chapter 6 we expect the balance of the conversion neutrality account to stand at approximately EUR 264 million – without taking account of potential revenues from conversion neutrality charges – at the end of the next conversion period. Considering the account balance needed to take account of the required liquidity buffer of EUR 354 million, this means that there will a deficit totalling EUR 618 million.

Calculation of the applicable conversion neutrality charge

Conversion neutrality charges are levied on all physical inputs (except inputs of gas made using capacity that is subject to transportation route restrictions), which means that the deficit must be divided by the projected physical inputs expected for the next conversion period.

Given the forecast physical high CV and low CV gas entry quantities of 1,639,551 million kWh and a projected account balance incl. a required liquidity buffer of EUR -618 million, we have set the applicable conversion neutrality charge at **0.38 EUR/MWh**.

8 Decision on distribution of surplus

Estimate of surplus amount

As was described in chapter 5 seek to achieve a liquidity buffer of EUR 354 million by the end of the next conversion period (30 September 2023). According to our conversion cost and revenue estimates, the conversion neutrality account can be expected to show a deficit at the end of the next conversion period.

We can make distributions only if we expect that there will be a surplus in the conversion neutrality account after we have taken account of our cost and revenue estimates and allowed for a liquidity buffer. As this is not the case in relation to the next conversion period, we will not pay any distributions to BGMs from the conversion neutrality account as of 30 September 2022.

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