Gas Monitor: Developments on the Gas Wholesale Market in the Netherlands in 2005

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NMa/DTe

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Summary

This monitor report reflects the state of affairs in the Dutch wholesale market for gas during 2005 by presenting a survey that is as factual as possible. On the basis of these facts and following a consultation with the Dutch gas sector, an analysis of primary causes will be made and recommendations will be further developed with a view to improving competition.

Conclusions development competition
Judging by the collected data for 2005, DTe concludes that the wholesale gas market functions insufficiently. Significant progress has been made through efforts of market parties, GTS, the Ministery of Economic Affairs and DTe. Still, the market does not operate well enough as yet. Problems that were signalled before, have still not all been resolved, and in some areas the situation will deteriorate unless measures are put into place.

The survey of the wholesale gas market is tripartite, distinguishing market conditions, market structure and market results.

- Market conditions concern the most important elements in the wholesale market, namely: supply of gas or commodity, transport capacity to transport gas to its destination, quality conversion (adapting the quality of gas to the needs of the consumer) and flexibility (adapting the gas supply profile to suit current demand).
- Market structure refers to the organisation of the market and the degree to which this contributes to market functioning: concentration of market parties, transparency of market data and the degree of entry barriers for market parties.
- Market results refers to the development of market outcomes in terms of liquidity and prices.

In the area of market conditions a slight deterioration threatens for transport and quality conversion capacity unless corrective measures are taken:

- In 2005, similar to 2004, there was a sufficient supply of gas. In the short term, the availability of gas for the Dutch wholesale market may be under pressure, however, as a result of extra gas exports to the UK via the BBL interconnector, which will become operational in late 2006. As the maximum level of production for the Groningenveld was recently lowered also, Groningen may possible not be mobilised to compensate for shortages resulting from export.
- Though no physical capacity shortages on transport infrastructure have been established, growing concerns have been raised in this respect, relating to import and quality conversion. As far as contractually available capacity is concerned, congestion may be caused by overbooking of capacity. Though trade in capacity surpluses and shortages among parties in the secondary market seems to have increased in the past year, as yet supplies in the secondary market have fallen short of demand.
- Lack of insight into available capacity for quality conversion and the way in which available capacity is divided over market parties, gives cause for concern. Though DTe has not been able to establish physical shortages on the basis of information provided, concerns are growing in this respect.
- The availability of flexibility for H-Gas does not give much cause for concern. It is expected that the introduction of flexibility services by GTS will lead to an improvement. However, as not enough information is available just now to show a trend, it is too early to assess the effectiveness of this development. The availability of gas storage for third parties in the past year did not show an improvement.

Hardly any improvement was registered as to market structure. In almost all aspects, the situation was shown to be inadequate as yet:

- The market concentration of gas producers slightly decreased in the past year. Nevertheless, all aspects under investigation (transport, quality conversion and commodity) showed a high concentration.
- Though the degree of transparency with regard to market information hardly changed in the past year, on the whole shippers' assessment of the level of transparency is neutral. Transparency with regard to infrastructure, however, was judged to be insufficient, relating to steering information, available storage capacity and quality conversion in particular.
- Market parties qualify the difficult access to storage capacity and shortage in available transport capacity as high entry barriers to the wholesale market.

Market results have slightly improved in the past year, but insufficient market liquidity and limited market integration still pose a problem:

- The development of TTF and APX Gas NL is positive, showing a significant increase of trading horizons (depth of the market) and the number of counterparties. Though TTF has developed positively, its share in the total market still is very modest and lags behind in comparison to the English NBP in particular.
- TTF also lags behind as regards its product offering, particularly as regards the availability of low caloric products.
- In the Dutch wholesale market, prices have risen by approximately 50% and the rate of volatility also increased. Though this development to a large extent runs parallel to developments in the NBP and Zeebrugge, its level is structurally lower. This warrants the conclusion that though the Dutch wholesale market is linked to foreign markets, as yet full market integration has nevertheless materialised in a very limited sense only.

Progress with regard to problems previously established

In last year's monitor, and in previous reports, various problems have been outlined. Though a number of these problems are still relevant or have become increasingly serious, this report establishes that improvements were realised in a number of problem areas, which will bear fruit now and in the future. For example, the economic unbundling of TSO improved as the Kingdom of the Netherlands became the 100 per cent owner of GTS. Also, the balancing regime was adapted and GTS now offers flexibility services. The timely availability of steering information to shippers is now worked on. As yet, 50 per cent of the costs of quality conversion are included in transport tariffs. DTe has categorised quality conversion as a system service and GTS will shortly outline a proposal for its set-up. GTS is also preparing an expansion of import capacity.

Other points of concern remain or have become more pressing. Trade on exit is still non-existent, and TTF cannot be used as a true sourcing alternative to imports or sourcing on entry. The contractual availability of transport capacity (import, export, quality conversion) still seems to be an issue. Concerns about the physical capacity for quality conversion have increased. Sufficient imports are a cause of concern, in the short term particularly, if BBL is on stream but an expansion of import capacity via pipelines and/or LNG has still not materialised. Market concentration too remains high.

Further steps

The outcome of this report is largely in keeping with the 'priorities market functioning Gas', which the Board of the NMa set out earlier this year. The following themes are rooted in this previous report.

Bearing in mind the outcome of the market monitor and judgment of DTe, it is important that the following issues are prioritised:

- Stimulating trade on TTF. The absence of trade in low caloric value gas on the TTF in particular, as a result of mostly direct supplies to GOS, poses a serious obstruction to the wholesale gas market. In collaboration with the sector, DTe will investigate which trade products are in demand, how and within which timeframe trade in these products may be accelerated. DTe's opportunities for direct intervention are limited in this respect; however, DTe will advise the Minister on this issue.
- Investigating possible solutions to transport congestion. This investigation will effect physical capacity as well as allocation mechanisms and the secondary market. DTe would also like to discuss which degree of 'margin for cold days' is to be considered reasonable, since GTS is now responsible for peak gas supply. DTe will perform this investigation engaging in relevant collaboration and is to present proposals for improvement.
- Investigating the capacity demand for quality conversion. In collaboration with GTS and the sector, the degree to which quality conversion needs to expanded in order to meet future demand will be subjected to investigation. Initially, attention will focus on increasing transparency relating to currently available conversion capacity.

DTe will address these issues in the coming months and will report on its findings and recommendations in 'phase 2' of this monitor survey.

Contents

1 Introduction and approach

This document is the monitoring report on the gas wholesale market in the Netherlands in 2005. This document is a "fact pack": a reflection of the present situation on the Dutch gas wholesale market that is as factual as possible. In this document, DTe makes an assessment of the operation of market forces and the issues which have to be addressed on this market. This report does not contain extensive analyses of the underlying causes and detailed recommendations on how the operation of market forces can be improved. These will be drawn up at a later stage, in cooperation with the Dutch gas sector in relation to specific areas. The aim of this division into two phases is firstly to reach a commonly shared conclusion with regard to the present situation (the facts), which can facilitate the discussion on causes and recommendations. This avoids a situation where the discussion on what should be done is clouded by a lack of clarity with regard to the facts. A "phase 2" report will follow with conclusions and recommendations.

Objective
DTe regards monitoring as a necessary condition for drawing up the agenda for improvement of the gas wholesale market and for measuring the effects of actions taken earlier. Monitoring also increases the transparency of the market, which is of considerable importance for the proper functioning of market forces. In this regard, DTe notes that most of the problems reported in this area have been known about for quite some time. The signals and conclusions are substantiated in more detail here to create transparency and to provide support for the discussions and the action to be taken. The importance of monitoring is also recognized in legislation, since DTe's statutory duty is to monitor the functioning of the gas market.

Elements of this monitor
This report reflects the present situation on the gas wholesale market as quantitatively as possible at the system level. Analyses of figures are supported by answers to opinion-based questions and qualitative reports. This report will not discuss aspects relating to the behaviour of individual parties.

With regard to the Dutch gas wholesale market, compared to, for instance, the electricity market, considerable attention has to be paid to access to physical resources (the commodity, transmission, quality conversion, flexibility), which the players on the wholesale market, the shippers, require to compete. This report will deal, amongst others, with the issue of whether there is contractual and/or physical scarcity with regard to import capacity and quality conversion capacity. Needless to say, this must be supported by figures.

In addition to the physical infrastructure, the organisation structureof the market is an important measure of the functioning of the market. This report presents quantitative analyses of concentration throughout the wholesale chain and qualitative information on the degree of transparency and barriers to entry (in so far as these are not clear from the discussion of the infrastructure).

In a market characterised by good access to physical resources and a market structure which promotes competition, liquid marketplaces will develop in which price formation in relation to a sufficient number of products is efficient. The final part of this report will discuss the market outcomes, such as those mentioned here, as far as possible in quantitative terms, and will analyse volatility, liquidity, and price developments in with regard to neighbouring countries.

This report builds on earlier research by DTe, in particular the monitoring report "Research into Competition on the Gas Wholesale Market" of March 2005. Where possible, the results for 2005 are compared to those of previous years in this report. The research method has been improved on the basis of input from market parties,. This year's monitor differs from last year's monitor in three areas:

- Greater emphasis has been placed on the physical resources (commodity, transmission, quality conversion, flexibility) because reports have been received that the (allocation of) physical resources is an issue in relation to the operation of the market. At the same time, there is less focus on unbundling and non-discrimination as this has been considerably improved since the division of Gasunie into GuTS and the "new Gasunie" (of which GTS is a subsidiary).[1]
- The analysis is more quantitative in order to obtain a more objective impression of the actual issues in the market.
- This report is limited to the phase 1 "the fact pack", while last year's report also included recommendations.

Approach to the research

The main part of this document consists of quantitative analyses which have been kept as simple (and therefore as transparent) as possible.

For this document, an extensive request for data was sent to shippers, gas storage operators and GTS. All the shippers completed an obligatory CODATA module. This questionnaire consisted of quantitative questions with regard to transmission capacity, the commodity, quality conversion and storage. In addition, approximately half of the shippers also filled in a non-obligatory questionnaire in which, in particular, questions were asked with regard to estimates and opinions. Gas storage operators submitted data on the characteristics of their storage facilities and contracts. GTS reported at the system level on transactions and the use of the infrastructure (transmission, conversion) and its services. There is some overlap between GTS's data and the shippers' data. This is used as an internal consistency check to validate the reliability of the data.

In addition to data obtained from market parties, this report also makes use of public sources. This relates, in particular, to price information and information on trading volumes on the various marketplaces. With the assistance of TNO-NITG, data from the *Oil and Gas Yearbook* [*Olie en Gas Jaarboek*] were used. Finally, "Energy in the Netherlands", published by EnergieNed, was also consulted for historic data on consumption and import and export.

The analyses of the physical infrastructure were drawn up and the degree of concentration was determined on the basis of the data from the obligatory CODATA module, obtained from shippers, the results of the gas storage questionnaire, TNO-NITG's production figures and data obtained from GTS. The non-obligatory questionnaire is the most important source for the analyses of transparency and barriers to entry, but was also used to support specific analyses.

[1] With retrospective effect from 1 January 2005, the State of the Netherlands became the sole shareholder of GTS. This report assumes that this situation applied throughout 2005 (the year which is monitored). The State still has an interest in Gasunie Trade & Supply.

The chapter on market outcomes is based largely on publicly available information, but also uses information from the shippers' questionnaire, for instance to understand the importance of TTF as a sourcing instrument.

Reader's guide

This report consists of three parts. The first part, on market conditions, discusses the extent to which shippers have access to transmission, commodity, flexibility (including balancing) and quality conversion. This part does not discuss the degree of concentration of the market. The second part, on the market structure, discusses the concentration of the market, transparency and barriers to entry. The third part deals with the market outcomes: prices, volumes, volatility and liquidity. Where possible, the situation in the Netherlands is compared to that at the UK National Balancing Point (hereinafter "NBP") and on the Zeebrugge Gas Exchange.

Each chapter begins with a summary and observations. After this, issues and finally knowledge gaps are discussed.

The knowledge gaps observed will be used as input for the second phase of this monitoring cycle in consultation with market parties and to improve the monitoring report for next year. In this regard, partly on the basis of input for this year from market parties, the market's need for sound information will be offset against the administrative burden resulting from requests for information.

2 Market conditions

To operate as a shipper in the Netherlands, a party must have access to gas (commodity), transmission, quality conversion and flexibility. DTe concludes that access to these resources is inadequate in a number of cases and if action is not taken, will remain inadequate. Areas of concern are the future availability of gas in the Netherlands, indications of contractual congestion with regard to import, export and quality conversion capacity, and future physical import and quality conversion capacity.

As a net exporter of gas, there was enough gas available in 2005 for the Dutch wholesale market. If the developments reported in relation to export flows, national consumption and domestic gas production continue, in the future (high-calorific) gas will increasingly have to be imported. This may also manifest itself in the short term (2006/2007) when the new export connection to the UK (Balgzand-Bacton Pipeline) comes into operation. In combination with the recent reduction in the production ceiling in Groningen, for the time being it is not clear how exported gas will be physically supplemented. The routing of international gas flows in the longer term, and whether the Netherlands will be able to acquire a position as a transit country, is also not clear and depends on many factors (amongst others, new capacity for entry of LNG and extension of the North European Gas Pipeline to the Netherlands).

To import gas at the eastern border of the Netherlands, sufficient capacity must be available at the border entry points. High-calorific gas is of particular importance in this regard. In 2005 there was no (decisive) evidence of physical congestion with regard to the import of high-calorific gas. This is partly due to a lack of information: monthly and quarterly averages were used in this report so that no conclusions can be drawn with regard to possible congestion in specific hours and/or at specific entry points during the year. This report also does not consider peak supply at temperatures of -17°C and the winter of 2005 was not cold. There does appear to be contractual congestion, since demand exceeds supply, capacity is reserved long in advance, use is made of interruptible capacity and not all the capacity allocated is used. Shippers have numerous reasons to reserve capacity at a margin: the dependency of demand on temperature, concerns about congestion, the fact there is little advantage to reserving a not-constant capacity pattern and a lack of trade on the secondary market. Trade on the secondary market is too modest to allocate unused capacity. A mismatch of supply and demand on the secondary market may also play a role in this. The firm capacity for importing H Gas, leaving aside planned extensions) is fully booked until 2013 and demand far exceeds supply until 2010. This is an indication that too little physical import capacity may be available in the near future. There are no indications of physical congestion in 2005, nor in the years thereafter in relation to export capacity for H Gas and G+ Gas. Contractual congestion, however, seems to play a role here given the use of interruptible capacity.

If import capacity is scarcer than export capacity, export capacity increases due to the Balgzand-Bacton Pipeline and not more gas is produced domestically, the availability of gas in the Netherlands may come under pressure.

For the market in low-calorific gas in the Netherlands, quality conversion, through which a high-calorific gas is converted into low-calorific gas, is an essential service for shippers who do not have access to low-calorific gas produced in the Netherlands. In 2005, GTS met the entire demand for quality conversion. Sufficient quality conversion is a necessary, but not a sufficient, condition for increasing competitive pressure on the market for low-calorific gas. This gives rise to concern with regard to the physically available quality

conversion capacity in the near future (1 to 3 years). To reach a conclusion on this, however, a considerable step must first be taken in the provision of transparency on actual demand and available conversion capacity, both through blending and by means of nitrogen dilution, and the way in which the available capacity is allocated to market parties. In the longer term, the demand for quality conversion will increase further as the domestic production of low-calorific gas decreases and and has to be supplemented by import of high-calorific gas.

Shippers use numerous instruments to meet their demand for flexibility. The availability of these flexibility resources is not adequate in all cases, in particular in relation to low-calorific gas, but there are no reports of physical shortages. The role of the TTF, in particular, as a flexibility instrument has increased in importance, although for the time being this increase is modest. The access to and information about storage capacity for third parties, however, is a barrier to trade. Numerous shippers also indicated that they required better steering information to manage their balance position. On the other hand, the amounts paid by shippers in balancing penalties in 2005 – approximately 4 eurocents per MWh exit — are lower than expected.

To operate on the Dutch gas wholesale market, a shipper requires access to gas (the commodity), transmission, flexibility and quality conversion. This chapter discusses the physical and contractual accessibility of these four factors.

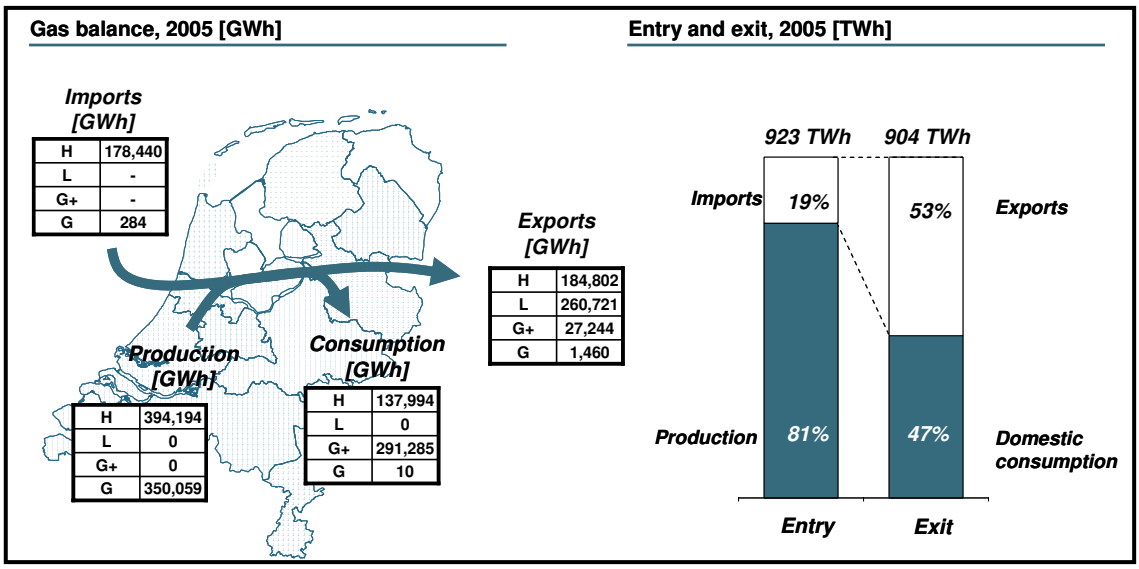
2.1 Commodity

- The position of the Netherlands as a net gas exporter will decline in the longer term due to decreasing domestic production, whereby it is still unclear to what extent the Netherlands will (be able to) position itself as a transit country.
- In the shorter term, it is not yet clear how the gas exported through the Balgzand-Bacton Pipeline will be supplemented.

Present situation

It is clear from Figure 1 that the Netherlands is still a net exporter of gas. Of all gas fed into the gas network in the Netherlands in 2005, 81% originated from domestic production in Groningen and the small fields, while 53% of offtake was reserved for export.

Figure 1. The gas balance in the Netherlands in 2005. Source: GTS



As can be seen from Figure 1, the Dutch gas fields produce H Gas and G Gas[2] in almost the same quantities. G Gas comes largely from the Groningen field; H Gas from the "small fields". The Netherlands almost exclusively imports H Gas; the small quantity of imported G Gas consists of backhaul, of which the physical flow is an export flow. Total import fell slightly compared to 2003: in 2003, 225 TWh was imported (23 bcm) as opposed to 178 TWh in 2005. This is still considerably higher than the 68 TWh (7 bcm) imported in 1997 and slightly higher than imports in 2004 (approximately 170 TWh). Domestic consumption is mainly G+ Gas, while export mainly consists of L Gas. This means that each year, large gas flows undergo quality conversion. The distinction in this regard between G Gas en G+ Gas is slightly arbitrary, since gas supplied to households may vary within a narrow Wobbe bandwidth. G quality (Wobbe index 43.8) is the lower boundary of this bandwidth; G+ (Wobbe index 44.4) is the upper boundary of the bandwidth. Domestic offtake fell very slightly in 2005 compared to 2003 and 2004; the difference is less than 20 TWh. Export increased compared to 2003 (an increase of approximately 40 TWh), but was more or less stable compared to 2004 (a fall of less than 10 TWh).

The total flow through the Dutch system increased further: from approximately 850 TWh in 2004 to more than 900 TWh in 2005. This is an increase of approximately 7%. This increase was higher on average for the period 1999-2003 (3.7% per annum), but lower than the 12% increase in 2004.

Gas is imported mainly from Norway and, to a lesser extent, from Russia. Gas is exported mainly to Germany, Italy and France. See Figure 2.

[2] The quality indices used by GTS's service serve as guidelines for this document. In terms of these, the Wobbe index of H Gas is 51.6; L Gas 46.5; G+ Gas 44.4; and G Gas 43.8. This is mainly an administrative matter. Gas supplied to small consumers is often near the upper limit of 44.4. Generally, where reference is made to high-calorific gas, H Gas is meant. Low-calorific gas refers to all gas of the quality L and lower.

Figure 2. Origin and destination of natural gas (2004). Source: Cedigaz

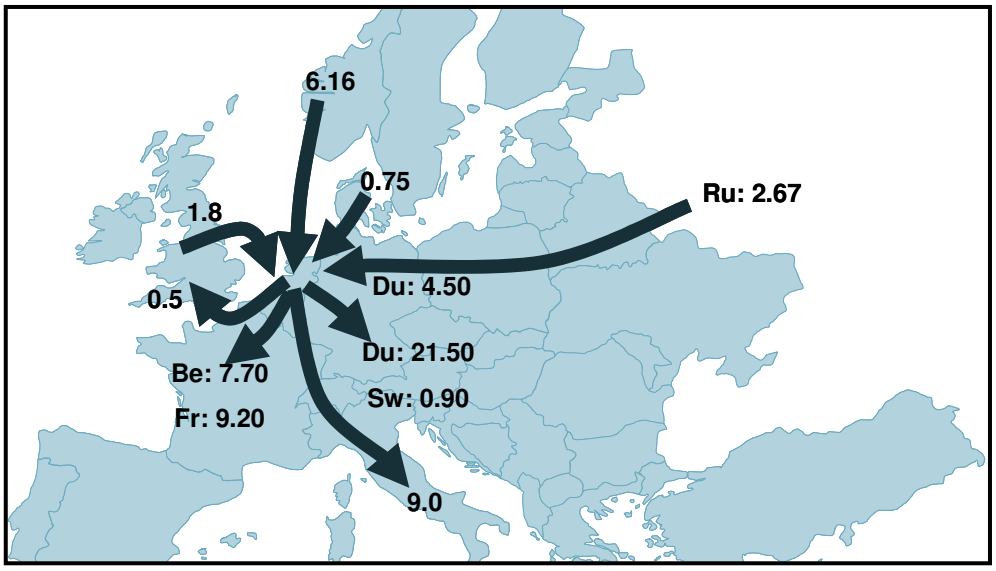


Figure 2 only shows gas flows of which the final destination or origin lies in the Netherlands. Transit flows are therefore not included in this figure. Gas is both imported from and exported to Germany and the UK. The gas flow with Germany is a net export flow and with the UK, an import flow.

The gas flows are generally expected to change in the coming years, although domestic demand will remain stable or will increase slightly. At the end of 2006, the Balgzand-Bacton Pipeline will come into operation. This pipeline has a maximum export capacity to the UK of 17 GW (1.75 mcm/hour) and is expected to transmit 12 bcm (117 TWh) per annum. In the present situation, only a physical flow from the Netherlands to the UK is possible via the Balgzand-Bacton Pipeline, and not in the opposite direction. In addition, pipelines under construction from Russia to Germany with a capacity of approximately 27.5 bcm in 2010, and LNG imports to the Netherlands are under discussion. Shippers have stated that they expect LNG to have a positive effect on the Dutch gas market, in particular on the availability of gas. In addition, international flows are also affected by developments in neighbouring countries. In this regard, future LNG imports into the UK are relevant.

Figure 3. Expected domestic production up to 2015. Source: Olie en Gas Jaarboek

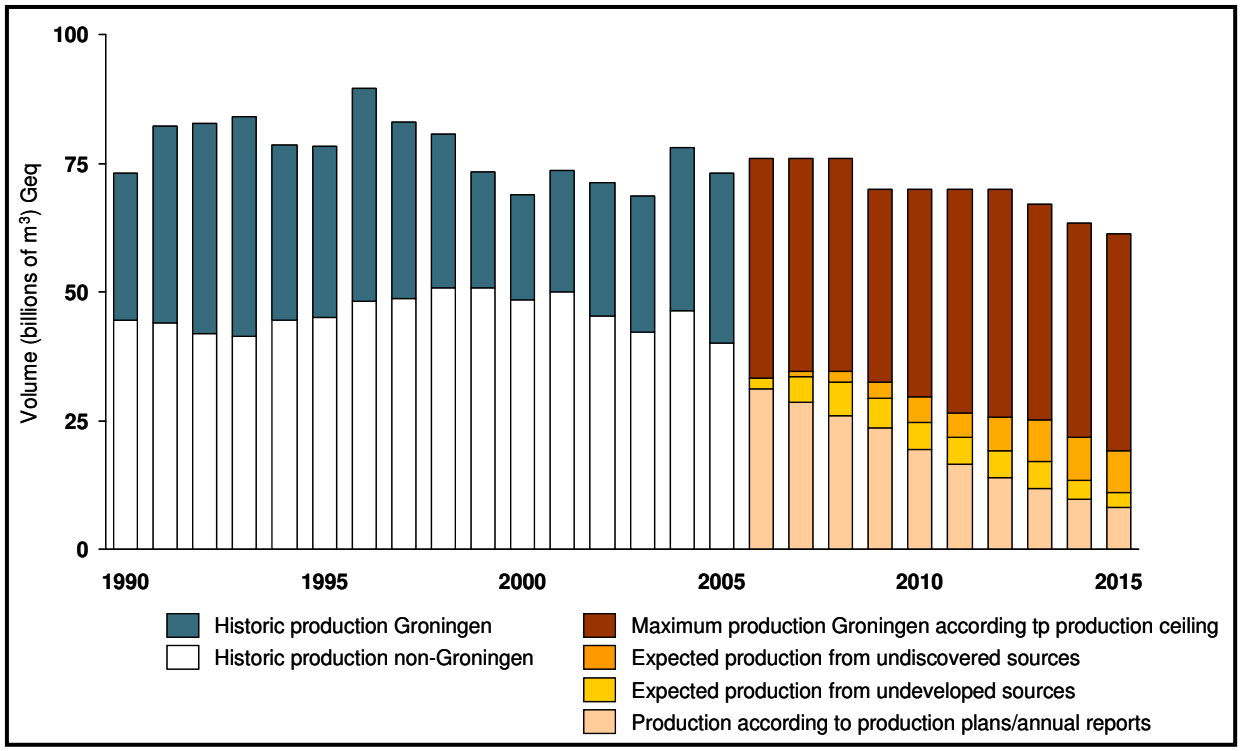


Figure 3 shows the production ceiling ("cap") of the Groningen field - an average of 425 bcm over 10 years - as well as the expected production from other existing fields and fields which have not yet been developed or which still have to be discovered. The figure shows that total production is expected to fall after 2012.

Issues

At present, there is sufficient gas in the Netherlands. The same conclusion was drawn in the previous monitoring report. With the fall in production of gas from Groningen and the small fields, the production ceiling set by the government in relation to the Groningen field and the expected higher net export through the Balgzand-Bacton Pipeline, the import of gas will have to increase in the future (from 2007 onwards) to avoid scarcity on the Dutch market. If production, domestic consumption and existing exports remain constant, imports will increase by more than 50% (relative to 2005). To maintain export volumes at a comparable (or higher) level, transit will also have to increase. Whether this will actually happen depends on international gas flows, including the import of LNG into the UK and other countries, and future pipelines.

Knowledge gaps

There is still little insight at present into how international gas flows will develop in the future. This depends not only on the choices made by Dutch parties, but also on developments in neighbouring countries. The use of the Balgzand-Bacton Pipeline may cause a shift in the balance of supply and demand in the Netherlands. Although the contractual agreements entered into in relation to this are known, for the time being the consequences for physical flows are unclear. An unequivocal overview of future gas flows, however, has not yet been obtained, partly because there is still considerable uncertainty with regard to a number of key developments (in particular, the emergence of LNG and gas transit).

2.2 Transmission

- There seems to be contractual congestion in relation to the import capacity for H Gas. Although no concrete cases are known (as yet), there is also concern about physical congestion.
- There is also an indication of contractual congestion, but not physical congestion, in relation to export capacity.
- Secondary trade hardly occurs at all, as a result of which scarce capacity is not allocated optimally.

In this chapter, DTe reports on the capacity to import and export H Gas and L Gas which is available and used. We make a distinction between physical and contractual congestion.

2.2.1 Introduction: the system of booking and using capacity

To feed gas into the Dutch system (entry) or to take gas from the Dutch system (exit), capacity must be reserved with GTS, as the national transmission system operator (TSO). A certain capacity (in m^3/h or MW) has to be reserved at a certain point. Every entry or exit point is characterised by a single gas quality. GTS accepts reservations of capacity on a "first come, first served" basis. As long as the capacity required does not exceed the capacity which is available with certainty, the reservation is firm. However, since in practice it often appears that shippers transport less gas than they reserve, since they reserve on the basis of their peak requirement, GTS can continue to accept reservations. Reservations above the total available capacity are made on an interruptible basis. Interruptible capacity is cheaper than firm capacity, but is accompanied by a probability that the capacity will not be available. There are numerous tranches in various combinations of prices and levels of certainty. Quality conversion cannot be reserved on an interruptible basis, while this is possible for import and export capacity. Firm import and export capacity can only be reserved in the physical direction of the flow of gas. "Backhaul" (capacity reserved against the flow of gas) is always interruptible.

Shippers (non-balancing), who have to reserve capacity, have to indicate ("nominate") one gas day beforehand how much gas they will actually use. They can change their nomination up until two hours beforehand ("renomination"). A shipper loses capacity which is reserved, but is not nominated ("use it or lose it"). Imbalance occurs if the actual entry deviates from the exit, outside the permissible boundaries.

DTe has obtained information from GTS with regard to the capacity reserved and the capacity used, broken down into import and export, gas quality, and level of certainty. GTS has also indicated how this relates to the total available capacity. All shippers active on the Dutch gas wholesale market have stated how much import capacity they have requested from GTS, how much of this was honoured as firm capacity, and how much they have used. Due to inconsistencies between the aggregate figures obtained from shippers and the data supplied by GTS, from the data provided by shippers we have used, in particular, the ratio of requested and allocated capacity and from the data provided by GTS we have used the absolute total figures for the system as a whole. DTe did not ask the shippers for information on export reservations.

With regard to quality conversion, shippers have also stated how much they requested, received and used. GTS has provided the total figures for reservations. These data were used by DTe in the same way as the

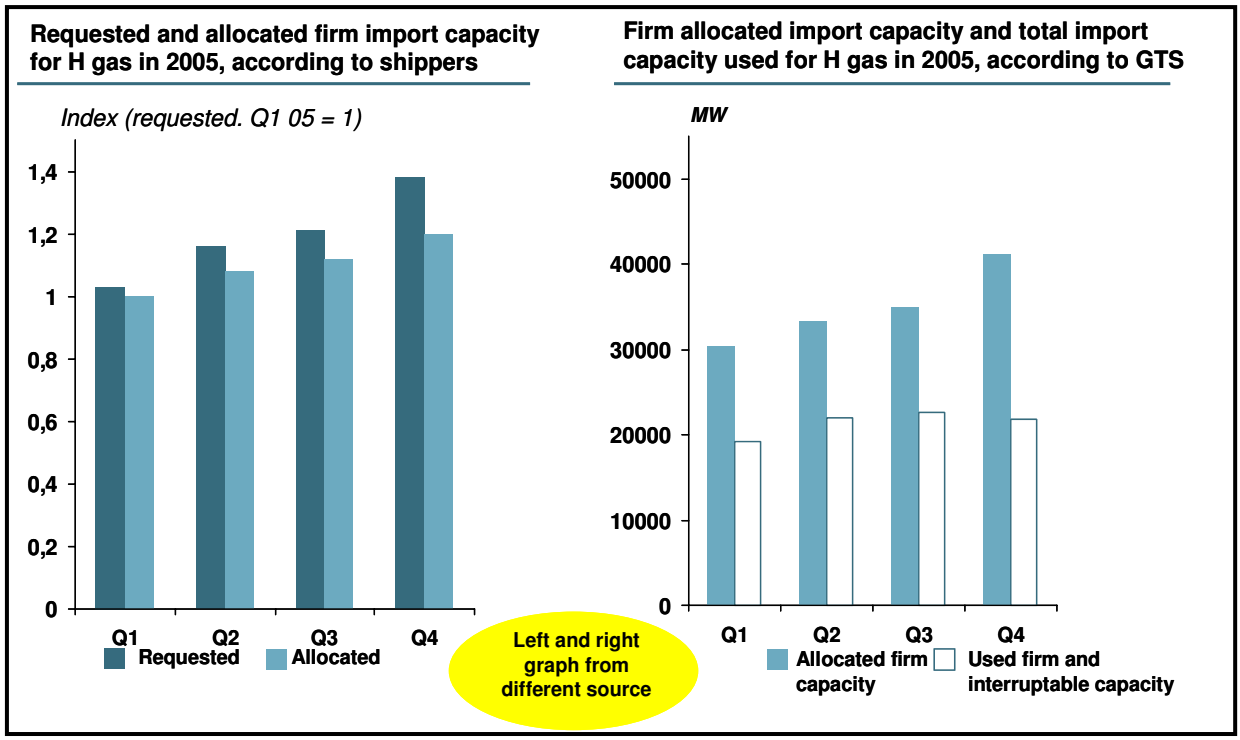
import data, on the understanding that in the case of quality conversion, interruptible capacity is not possible.

2.2.2 Import of H Gas

Present situation

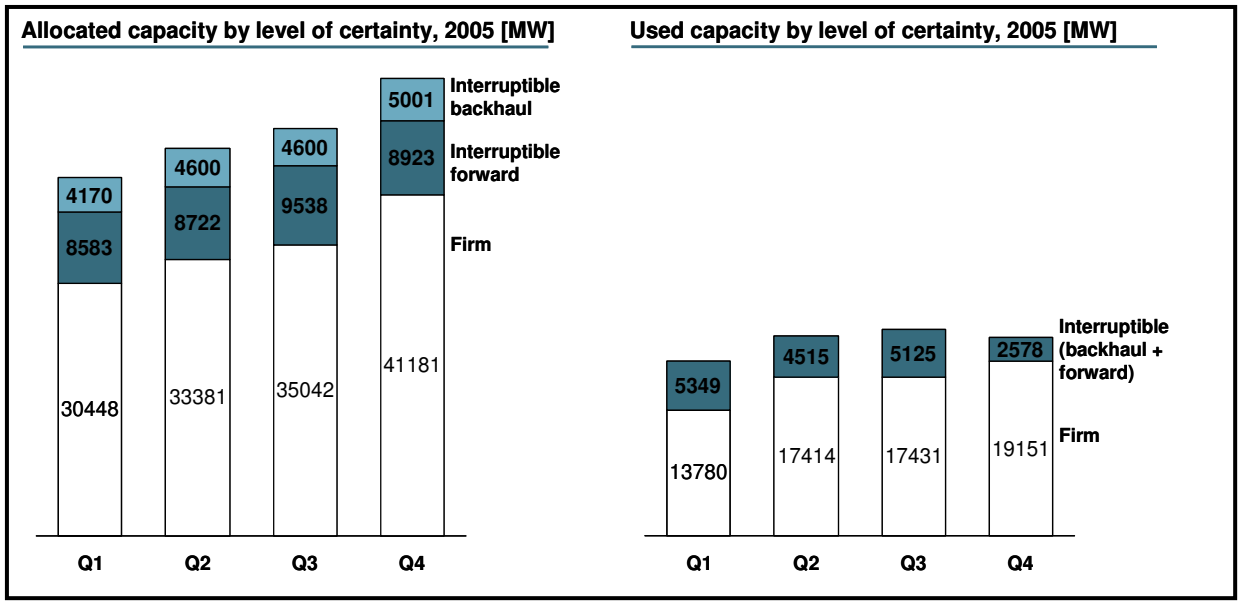
Figure 4 shows the requested and reserved capacity in 2005, according to the shippers, and the reserved and used firm capacity, according to GTS. Figure 5 shows reservations and the use of firm and interruptible capacity. The data in these figures are historic data for 2005 and have not been converted to a "normal year".[3]

Figure 4. Requested, allocated and used capacity to import H Gas in 2005. Source: Shipper questionnaire, GTS



[3] Conversion to a normal year means that a correction is made for deviations from the average temperature.

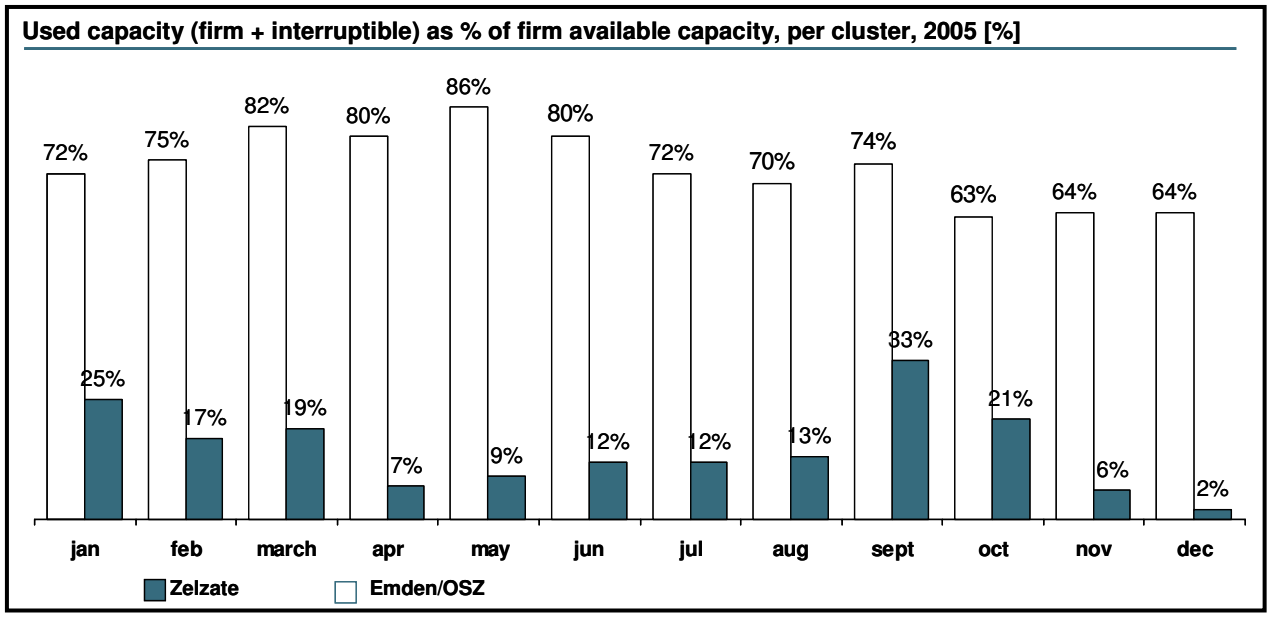
figure 5. Reserved and used interruptible capacity and firm import capacity for H Gas. Source: GTS



It appears from Figure 5 that approximately 30% of capacity which is reserved with GTS is reserved on an interruptible basis. In 2005, all GTS's firm available import capacity at all (clusters of) entry points was reserved. This appears from GTS's figures, but is not reflected in the graph. According to Figure 4, on average demand for firm capacity exceeds supply per quarter by up to 20%. On average, approximately 53% to 66% of the capacity is used, of which 40% to 50% is firm reserved capacity, as shows from Figures 4 and 5. The highest monthly average use of capacity was 71% in September 2005. For their entire H gas portfolio, shippers report a load factor of approximately 72%, as opposed to an average load factor for import capacity of 53% to 66%, according to GTS. The use of import capacity, according to GTS's figures, therefore appears to be slightly lower. This may be an indication that shippers prefer to reserve with a larger margin rather than too precisely. Secondly, this may relate to the warm winter of 2005: the use of import capacity will be higher in a cold winter. GTS has stated that at -17 °C capacity utilisation in approximately 95%.

The level of capacity utilisation is not the same for all import clusters. In the northeast region of the Netherlands (Cluster Emden/Oude Statenzijl) capacity utilisation is considerably higher than in the south (Zelzate). Both clusters, however, were fully booked. In this regard, see Figure 6. With regard to this figure, it must be borne in mind that the available capacity of Emden/ Oude Statenzijl was increased in 2005 by 39% in three stages (6% in April, 8% in addition to this in July and a further 25% in October, compared to January 2005).

Figure 6. Use of import capacity per cluster in 2005. Source: GTS



Shippers can reserve capacity several years in advance. This is done on a large scale. As appears from Figure 7, the available import capacity is fully booked until 2013, on the understanding that planned, but not yet approved, extensions to GTS's capacity, amounting to 29,000 MW (3 million m^3/u, or an extension of more than 80%), have not been taken into account in calculating the available capacity. According to GTS's plans, this capacity will become available to the market between 2010 and 2012. The demand from shippers exceeds GTS's supply,[4] with a peak of 80% in 2006. In this regard, see Figure 8. Shippers state that up to and including 2015 their reservations exceed the capacity they have been allocated. These two figures make use of different sources and are therefore not entirely consistent. Figure 7 is taken as the basis for data on the total actual reservations, because this originates from a single source (GTS) and is not a compilation of the data obtained from all the shippers. The indication of requested/reserved capacity is considered reliable because this shows a considerable level of consistency amongst shippers.

[4] The requested capacity is an indication. On the one hand, shippers will only request capacity if they think there is a chance that their request will be honoured. On the other hand, requesting capacity is less 'firm' than actually reserving. In this regard, GTS has stated that in its open season it noted a considerable difference between initial interest and actual commitment. The indication presented here also does not take into account planned extensions to GTS's H Gas network.

Figure 7. Reserved and available capacity 2005-2015. Source: GTS

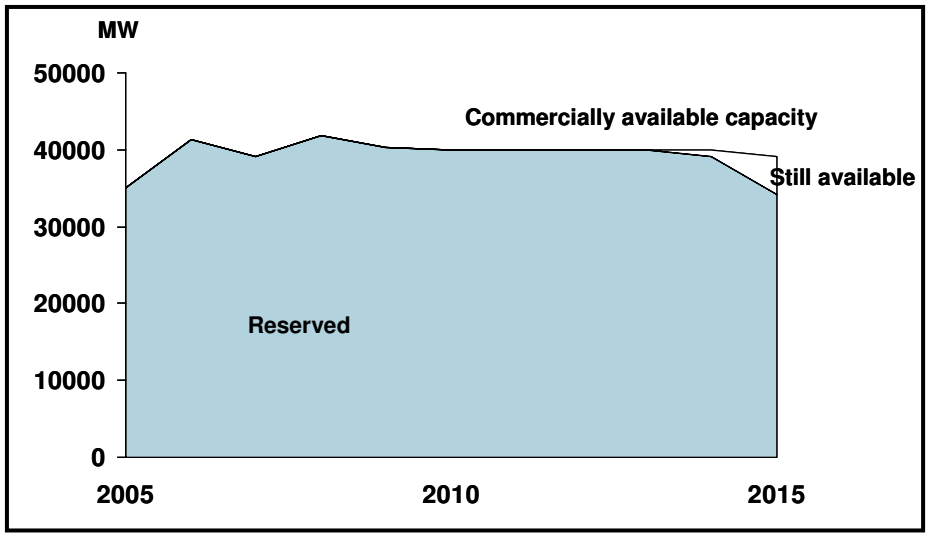
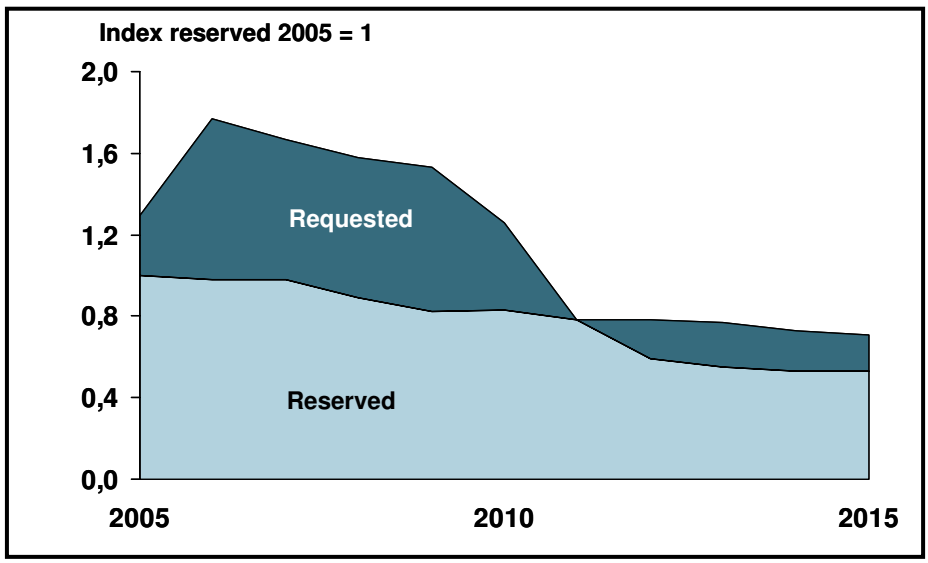


Figure 8. Requested and reserved capacity according to shippers. Source: Shipper questionnaire



The secondary market for import capacity has hardly developed at all. See Figure 9.

Figure 9. Size of the secondary market for the import of H Gas in 2005, MW. Source: Shipper questionnaire

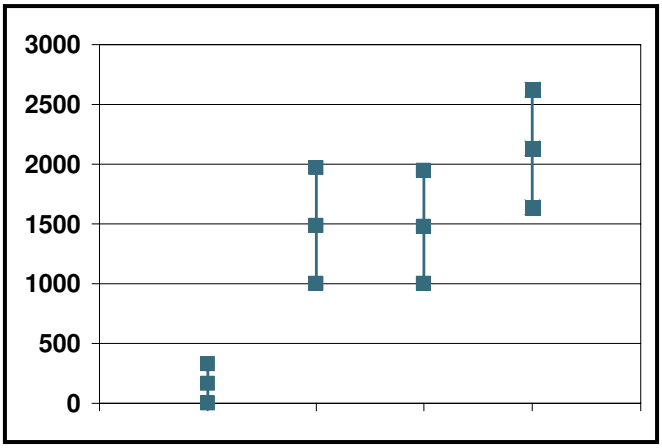


Figure 8 contains estimates of the quantity of import capacity traded on the secondary market for H Gas. The bars represent the boundaries of the estimates. The uncertainty is caused by the fact that the total declared capacity purchased in all quarters is estimated to be lower than the total capacity sold. The secondary trade in import capacity was considerably higher, however, in 2005 than in 2003 (264 MW) and 2004 (313 MW).

The peak of more than 2000 MW traded in 2005Q4 corresponds to slightly less than 20% of the available capacity, whereby the available capacity is defined as the difference between the reserved and used capacity. This means that liquid trade and extensive reallocation does not occur on the secondary market, despite the fact that there are shippers who have reserved interruptible capacity and who have stated that their demand for capacity exceeded the available capacity.

In 2005 transactions occurred on the secondary market for import capacity in 2006. Estimates in this regard also differ, in this case from 1700 to 5000 MW. It is not yet possible to identify the part of the available capacity to which this corresponds because this depends on the actual use of the capacity. No trading of import capacity for H Gas has taken place on the secondary market for the years after 2006.

Issues

On the basis of the data presented here, DTe concludes that contractual congestion seems to occur in relation to import capacity for H Gas. Use was made of interruptible capacity, which can only be reserved once all firm capacity has been sold, not all the capacity was actually used in 2005, the firm capacity was reserved far in advance, and demand will exceed supply in the coming years (excluding the open season). This conclusion corresponds to DTe's conclusion in last year's monitor, when questions were asked about the effectiveness of allocation.

Shippers have various incentives to reserve more capacity than they expect to use. Firstly, utilisation of capacity depends on the temperature: the lower the temperature, the higher the demand. This is only clear a short time in advance (in any event, not years in advance). DTe has concluded from informal discussions that when making reservations numerous shippers assume a temperature of -17°C. In this research, DTe did not consider how high capacity utilisation would be at such low temperatures. GTS has stated that at -17°C approximately 95% of import capacity will be used. DTe will raise for discussion the extent to which it is necessary for shippers to take into account these extremely low temperatures when reserving import capacity for H Gas. After all, peak supply from -9°C onwards is one of GTS's tasks, for which it has reserved gas

storage capacity. A large part of the additional demand consists of low-calorific gas and is caused by households. The flexibility required for this would logically come initially from the Groningen field and only in the second instance from the import of H Gas. A second incentive for shippers to reserve some margin coud be a concern about physical scarcity in a "first come, first served" system. This may be enough to turn this concern into a reality for some. If shippers are concerned about the available capacity, they have an incentive to reserve capacity with a margin to ensure that they do not experience a shortage. If numerous shippers do this, firm capacity will indeed be sold out earlier and others will be confronted with a lack of firm available capacity. Thirdly, there seems to be little advantage in reserving on the basis of a varied offtake profile rather than a flat annual pattern. DTe has received numerous reports that shippers find calculating the costs of a non-constant profile complex and that little advantage is obtained from this. This means that shippers have a reason to reserve for the entire year on the basis of their peak requirement. The peak requirements of all shippers do not necessarily occur at the same time, although a large degree of overlap is probable due to the fact that demand bears a relationship to temperature. Finally, the trade on the secondary market up until now has been inadequate to provide for the remaining demand for capacity. Supply and demand do not appear to be matched. In this regard, the relationship between demand and the temperature plays a role. Shippers cannot estimate weather conditions very precisely far in advance and can nominate a capacity up to one day in advance. All these factors considered, the (relative) prices of primary and secondary capacity may also play a role. This means that shippers that cannot reserve capacity with GTS are hardly able at all to obtain firm capacity by other means.

It is not possible to draw definitive conclusions with regard to possible physical congestion at specific hours or at specific points from the data. The data also do not provide clarity as to whether congestion occurred when temperatures were low. Furthermore, the winter of 2005 was not cold. For this reason, it is not possible to draw comprehensive conclusions as to whether physical congestion occurred in 2005 (no physical congestion was observed in 2004). It is clear, however, that the available physical capacity is not utilised optimally. Average capacity utilisation is considerably lower than the capacity reserved.

In addition to contractual congestion in 2005, future import capacity (contractual and physical) is a second point requiring attention, in particular at the Emden / Oude Statenzijl cluster. Shippers have stated that they are concerned about the available import capacity for H Gas. Transmission capacity is referred to in the questionnaire as one of the most important barriers to entry on the gas wholesale market and as one of the factors which should be improved in 2006 as a priority. In this regard, see also Addendum A. With the coming into operation of the Balgzand-Bacton Pipeline, in combination with the cap on the Groningen field, the demand for import capacity will sooner increase than decrease. A harsh winter or increasing trade may also result in an increase in import (and export). Interruptible capacity, certainly in the winter months, is a risk for shippers because in this case they are not certain whether they will have access to gas in the Netherlands. The fact that import capacity (firm, excluding the open season) is fully booked up to and partly including 2013 and the fact that shippers have stated that they require more, means that DTe must monitor developments, including GTS's expansion plans, very closely.

Knowledge gaps

The figures used here are monthly and quarterly averages. It is therefore possible that import capacity was fully utilised in specific hours and/or at specific points in 2005 and that the supply to parties was interrupted. To ascertain whether this was the case, the entire load duration curve for each entry point is required and ideally also the flow from hour to hour during the entire year. In addition, data is required from shippers on the extent to which their supply of gas was interrupted.

Secondly, on the basis of these data it is not clear what the effect would have been of a much colder winter. For this it is necessary to extrapolate actual use from-9 °C to -17°C.

In addition, it is not yet clear to what extent it is favourable to reserve a monthly pattern rather than a constant pattern. The calculation is complex and multiple shippers are of the view that it lacks transparency.

2.2.3 Export of H Gas

Present situation

Figure 10 shows the allocated firm export capacity (according to the level of certainty) and the utilised firm export capacity for H Gas. Figure 11 compares the use of firm and interruptible capacity.

Figure 10. Allocated (firm and interruptible) capacity and utilised export capacity for H Gas. Source: GTS

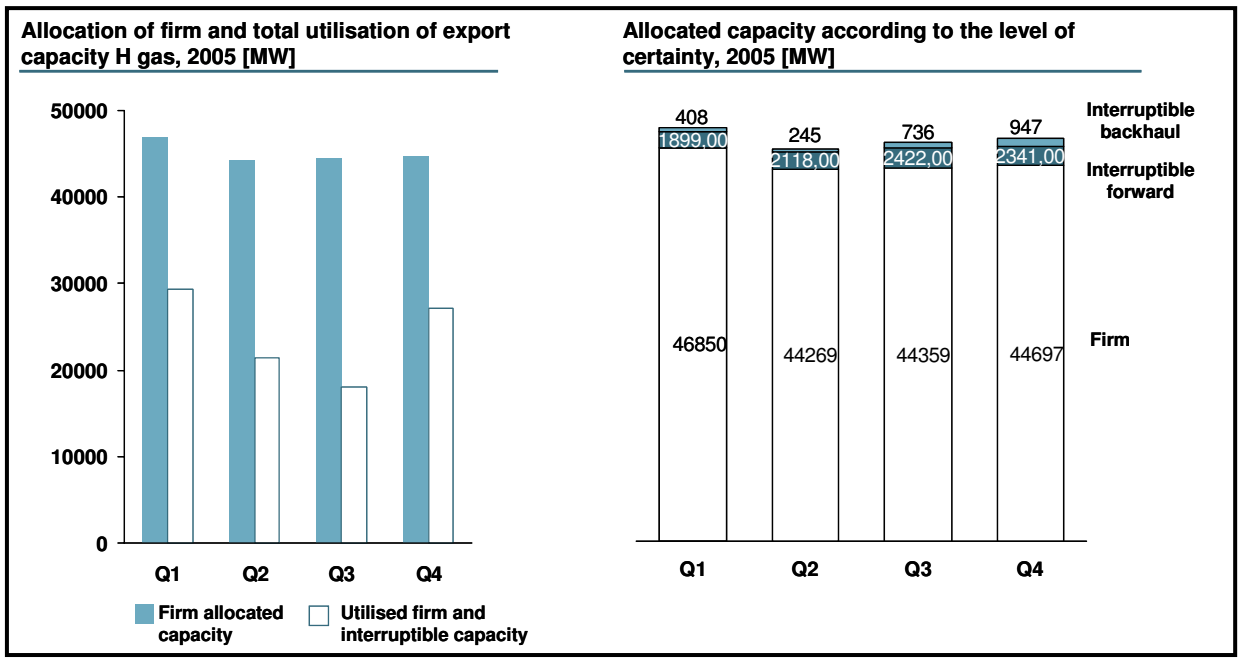
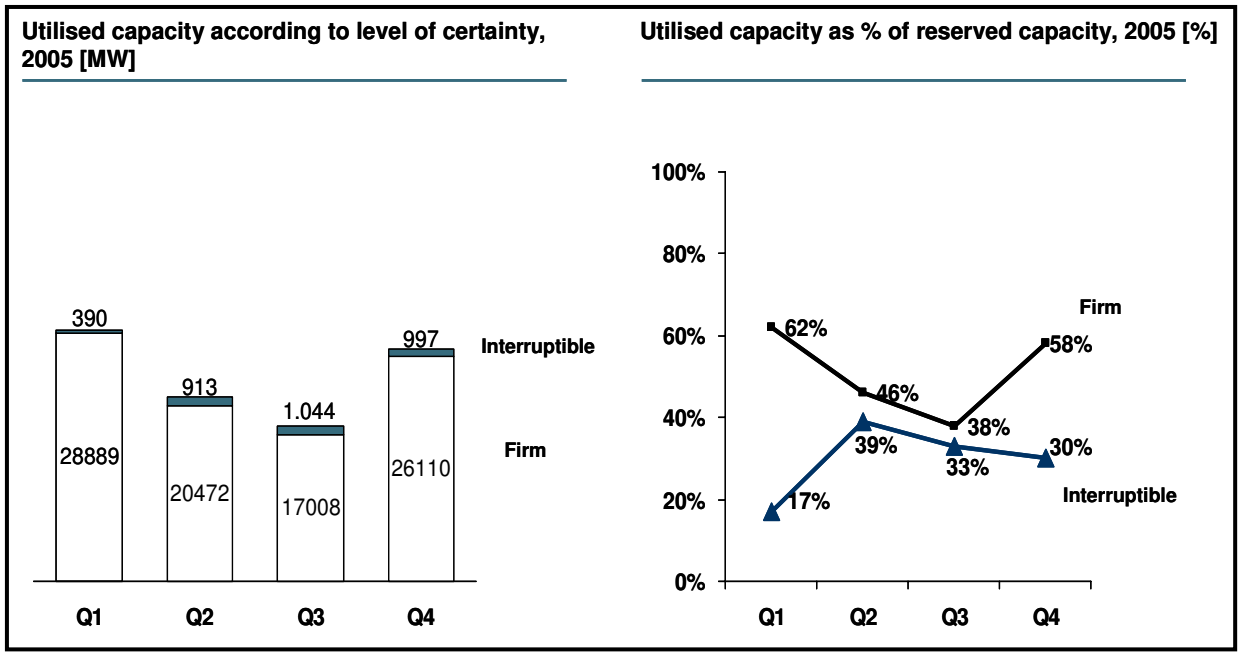


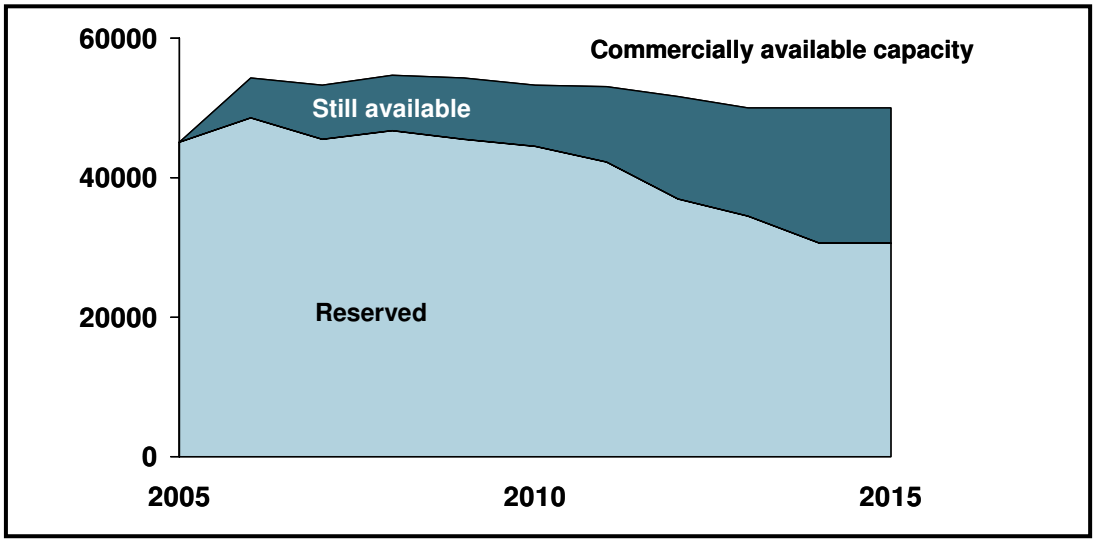
Figure 11. Reservation and use of interruptible, compared to firm, capacity for H Gas. Source: GTS



Firm export capacity for H Gas was fully booked in 2005, similar to import capacity. However, less interruptible capacity was reserved, namely approximately 7%, as is clear from Figure 10. It is striking, however, that the use of interruptible capacity shows the opposite seasonal pattern, compared to firm capacity (Figure 11). In the second and third quarters of 2005, firm and interruptible capacity were used to almost the same extent. Average utilisation was approximately 40% to 63% in 2005.

If Figures 10 and 4 are compared, it emerges that the (realised) export of H Gas shows a stronger seasonal pattern than import. This may mean that flexibility is "added" to the gas in the Netherlands. Export capacity for H Gas is largely, but not entirely, fully booked for the coming years. Up until 2010, approximately 85% of available capacity has been reserved. This decreases to 60% in 2015, as Figure 12 shows.

Figure 12. Reserved and available firm export capacity for H Gas. Source: GTS



Issues

There does not appear to have been any physical congestion in 2005. Average utilisation which amounted to 40% to 63% was lower than the expected load factor (approximately 70%[5]) for H Gas. Capacity is also still available for the coming years. It is striking in this regard that interruptible reserved capacity, which was necessary in the summer months, was used almost as much as firm capacity and shows the opposite pattern. There does not seem to be a shortage of export capacity for the coming years, since capacity can still be reserved.

Knowledge gaps

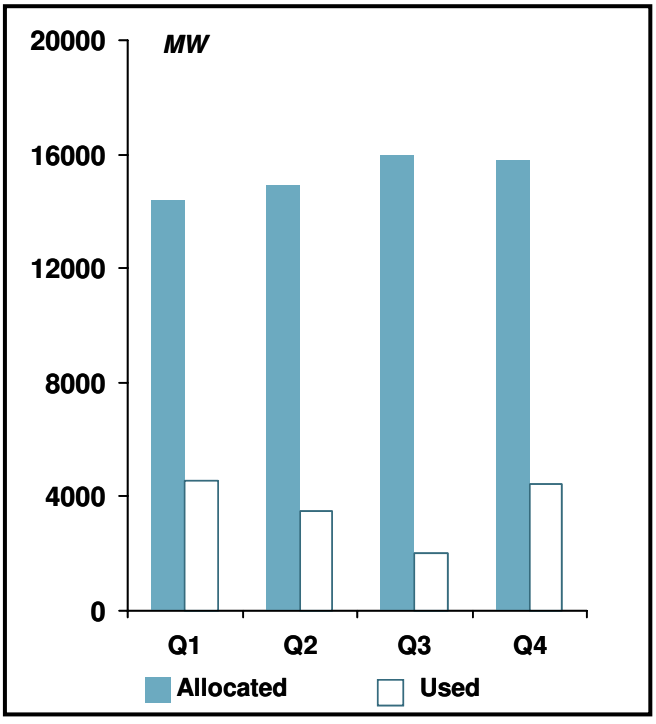
As in the case of import capacity for H Gas, it is not clear at present whether exports were interrupted in 2005 in specific hours or at specific points. The effect of a harsh winter is also not clear on the basis of this information.

2.2.4 Export of G+ Gas

Present situation

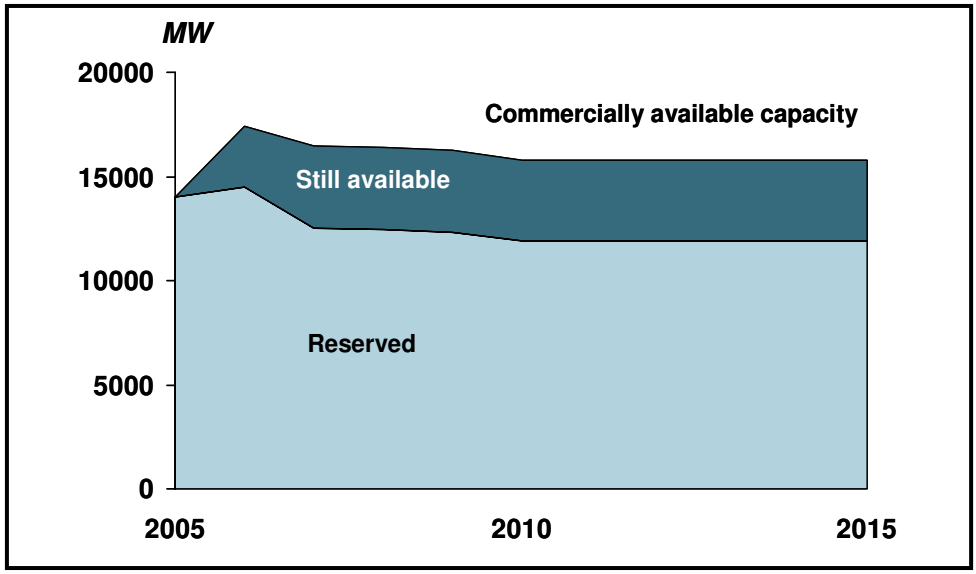
The available export capacity for G+ Gas was fully booked in 2005. On average, between 12% and 24% of the reserved capacity was used. Up until 2015, approximately 25% of capacity is still available (see Figure 13 and Figure 14).

Figure 13. Reserved and utilised capacity for G+ Gas. Source: GTS



[5] See the comments on page 15 in relation to the import load factor.

Figure 14. Available export capacity G+ Gas up to 2015. Source: GTS



The difference between used and reserved capacity in Figure 13 can partly be explained by the offtake pattern of G+ Gas, which depends very much on temperature. Exports of G+ Gas are also modest compared to other cross-border flows. The difference between reserved and used capacity — in some cases used capacity is 12% of reserved capacity — is slightly greater than the typical load factors, as presented by GTS (18% for G1 customers, 14% for G2 customers), and considerably greater than the indications given by shippers (20% to 25% for G1 and G2, up to 60% for some types of larger customers of individual shippers). Reserving constant capacity may also play a role in this.

The decline in commercially available capacity after 2006, which can be seen in Figure 14, is related to expected network congestion: the capacity of individual points does not seem to decrease, although the total capacity does.

Knowledge gaps

As in the above paragraphs, the realised load duration curve or offtake profile is lacking and the figures have not been converted to a normal year or to a cold year.

2.3 Quality conversion

- There is too little insight into the available capacity for quality conversion and the way in which the available capacity is allocated to market parties.
- Although no physical scarcity was observed in 2005, there is concern in the light of the importance of quality conversion for competition on the low-calorific gas market and the replacement in time of domestic L Gas production by imported H Gas.

Introduction

Quality conversion is an essential service to provide end-users with gas of the right calorific value. This is indicated by the Wobbe index.[6] in this regard, there is some flexibility for Dutch households, since it is possible to supply gas within a narrow Wobbe bandwidth of 43.8 to 44.4. Quality conversion takes place at conversion stations. There are two conversion methods: blending and nitrogen dilution. In the case of blending, H Gas and G Gas are combined to form G+ or L Gas. In the case of nitrogen dilution, nitrogen is added to H Gas. As a result, the H Gas is, in fact, diluted to form L Gas. Some stations can carry out one of the two methods while others can do both. Due to the choice of the Wobbe bandwidth for small consumers and by switching between nitrogen diltution and blending, GTS ensures that all gas qualities are balanced. Finally, it is possible, but has not yet happened, that GTS purchases conversion from other parties, who may vary the quality mix of their supply to or offtake from the market.

Large gas flows are converted each year. The entire export flow of L Gas, for instance, is the result of quality conversion. This means that the conversion stations are almost always in operation. At the same time, supply and demand of all qualities of gas must be in balance within the applicable tolerance levels. This means that the conversion capacity must be adequate to meet peak demand. The demand for quality conversion is typically highest in the adjacent months at the beginning and the end of the winter (March, April, October and November).

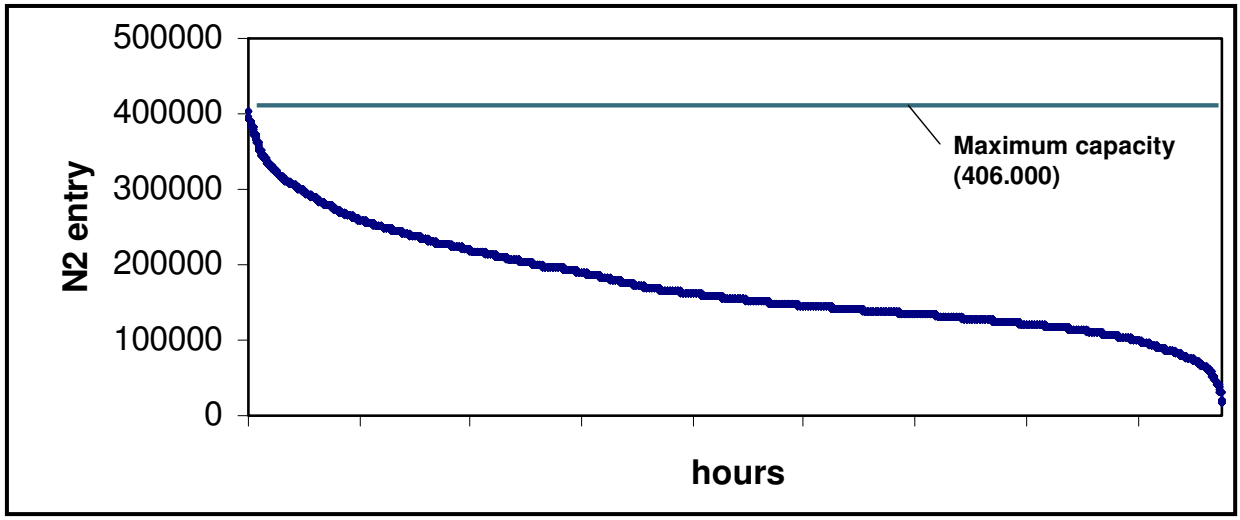
Present situation

GTS calculates quality conversion in terms of available nitrogen capacity. The load duration curve ("LDC") of nitrogen capacity shows that in 2005 there was no single instance in which there was too little nitrogen. On one occasion, the capacity was fully utilised. See Figure 15.

The LDC shows that the total capacity, measured in cubic metres of nitrogen per hour, is approximately 406,000 m^3. If the realised figures for 2005 are compared to this, it follows that the conversion stations on average utilise half of their nitrogen capacity and usually (>3/4 of the year) they use between 30% and 70% of their capacity. It is not clear to what extent the capacity for blending is utilised and how this relates to the capacity for nitrogen dilution.

[6] The Wobbe index reflects the speed of the flow of energy supplied. The calorific value of the gas is one of the most important components of the Wobbe index.

Figure 15. The Load Duration Curve of nitrogen capacity for quality conversion for 2005. Source: GTS

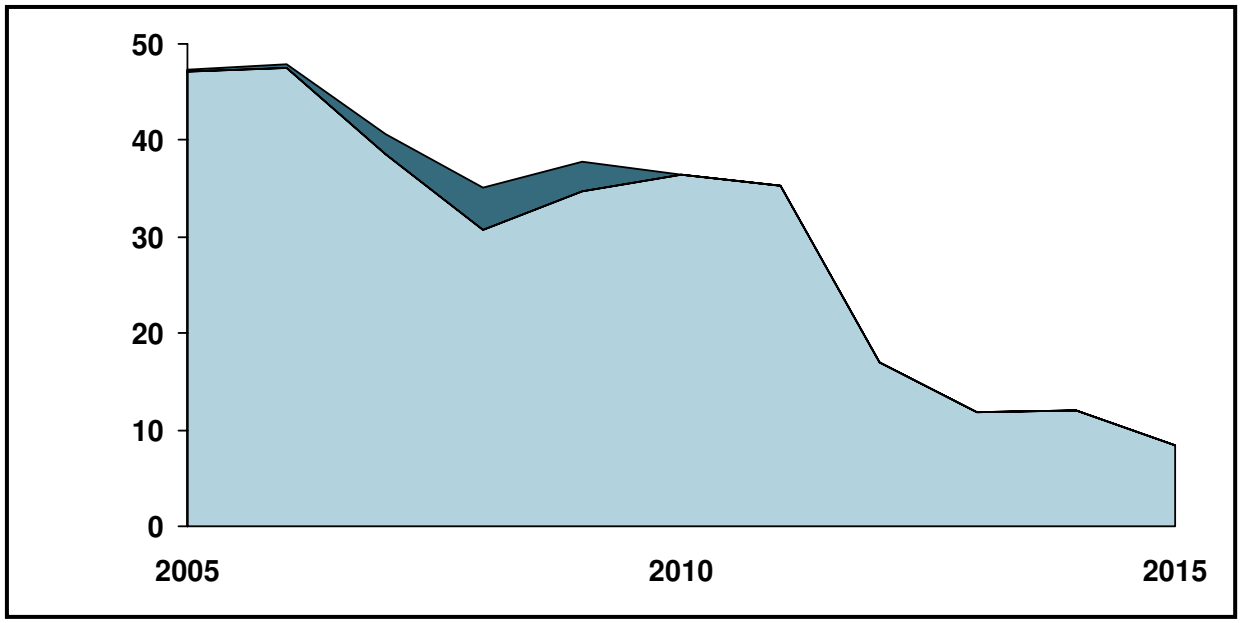


The shippers state that their demand for conversion capacity was honoured in full in 2005. This may be an outcome of the allocation mechanism whereby GTS matches supply and demand through numerous rounds if demand is initially higher than supply. In 2005, approximately 13% to 14% was reallocated in this way. Also in this case, the parties appeared to reserve constant capacity throughout the year, despite the fact that the demand shows a clear seasonal pattern. It is difficult to obtain insight into actual demand because there is a discrepancy between the sum total of all the reservations declared by all the individual shippers (47 million m^3/u X MJ/m^3) and the figure provided by GTS (37 million m^3/u X MJ/m^3). It is also not clear how 406,000 m^3/u of nitrogen relates to a conversion capacity of 37 million m^3/u X MJ/m^3.

GTS expects an increase in demand for quality conversion. The more competition there is on the low-calorific market, the greater the demand for quality conversion. After all, as long as low-calorific gas is not traded on TTF (see chapter 4), or all the shippers, with the exception of GuTS, can only supply low-calorific gas by purchasing high-calorific as gas and converting it, or purchasing lower-calorific gas from GuTS (at the exit point). It has already emerged from informal discussions that also in 2006 the quality conversion capacity could not be allocated at once to the shippers who requested this. In the spring of 2006, this issue had not yet been fully addressed.

In recent years, DTe has taken numerous steps to improve quality conversion for shippers with a view to improving competition in relation to low-calorific gas. At present, 50% of the costs have been socialised, to improve the balance between the cost of low-calorific gas from Groningen and converted H Gas. Recently (in 2006) it was decided that quality conversion is a system services provided by GTS. This means that GTS is responsible for providing sufficient capacity and an efficient allocation mechanism (both with regard to the system of allocating capacity and cost allocation). In the coming months, GTS will present a proposal on the way in which it intends to provide this system service. In this regard, GTS has expressed the concern that full socialisation of the costs in combination with prior reservation may result in an increase in demand, since the parties will not be charged for their individual use and will therefore possibly adopt a less economical way of dealing with scarcity. Figure 16 shows that the conversion capacity for the coming years, however, has not been fully booked.

Figure 16. Development of requested as compared to reserved conversion capacity. Source: Shipper questionnaire



A striking feature of Figure 16 is that in 2005 (and 2006) more conversion was reserved than was available, according to GTS. This is probably due to inconsistent data sets obtained from the shippers and GTS. In addition, another notable feature is that the reservation of quality conversion decreases more sharply than that of import and export capacity, despite the fact that comparable concerns were expressed in the market about scarcity. This may be due to the uncertainty with regard to future quality conversion schemes.

The extent to which the secondary market for quality conversion has developed is unclear. The estimates of traded physical quality conversion capacity on the basis of the shippers' data for 2005 diverged sharply from 1% to 20% of total capacity.[7] In this regard, GTS has stated that the "pure" secondary trade amounts to approximately 1% of the capacity. In 2003 and 2004, the capacity traded was less than 1%. The bandwidth is caused by the fact that the sum of the quality conversion capacity sold by shippers is equal to the sum of the capacity purchased by shippers. The bandwidth for 2006 was slightly higher (10% to 32%) and slightly lower for the period 2007-2009 (3% to 13%). As yet no capacity from 2010 onwards appears to have been traded on the secondary market. The trade in virtual quality conversion (including swaps) is almost nil: less than 1% of the physically available capacity in 2005 up to and including 2007 and 0% after this.

[7] The total capacity referred to here is GTS's figure for maximum reservations in 2005: 37 million m3/u X MJ/m3. The cause of this wide range may be confusion with regard to the "genuine" secondary market and re-allocation by GTS.

Issues

As in the previous monitor, physically available conversion capacity is a matter which requires attention. It is still too early to make a definitive statement as to whether the available capacity will be sufficient in the coming years, even though the trend points towards increasing scarcity. In this regard, two developments are discernible. Firstly there is increasing competition on the low-calorific gas market, whereby part of the L Gas is supplied from (imported) H Gas. Quality conversion is a necessary aspect and could become a barrier to increased competition. In addition, in the longer term the declining domestic production of L Gas will have to be supplemented by imported and converted H Gas. To accommodate the need for quality conversion for this, more transparency is required, initially with regard to the actual capacity available (both of nitrogen dilution and blending, and all the interdependencies between these).

The present allocation mechanism, whereby shippers first reserve (a constant pattern) and, if necessary, GTS then matches supply and demand in a number of rounds, gives shippers little certainty that they will obtain the necessary capacity. The fact that numerous rounds are necessary to allocate conversion capacity indicates contractual congestion. There is no insight, however, into the extent to which this is the case. This is a possible barrier to entry to the low-calorific markets, on which the end-users are often small consumers. Suppliers and small consumers have to meet strict requirements with regard to security of supply and therefore require shippers who can offer certainty that they can supply gas of the right quality, in the right quantities and at the right moment.

Knowledge gaps

There is a lack of actual insight into supply and demand for quality conversion throughout the year. Although the LDC of GTS gives insight into the actual use of conversion through nitrogen dilution, it is not clear how little additional capacity was available when demand peaked. For this, it is necessary to have insight into the use of blending and the interdependencies, and specific characteristics of the various conversion stations must be clear in quantitative terms. In addition, clarity is required with regard to the extent to which GTS can purchase quality conversion from third parties. To obtain an insight into the expansion of capacity that may be required, the information described above is necessary and DTe considers the lack of this information a matter of concern.

In addition, it is not clear to what extent the reservation system functions. The fact that shippers' demand is met is striking in the light of the lack of additional capacity when demand peaks, as envisaged in the LDC. The extent to which the secondary market acts as a safety net is also unclear, given the spread in the estimates of actual trade.

2.4 Flexibility

- The availability of flexibility is not adequate in all cases, but does not appear to be pressing for the time being in the case of H Gas.
- Access to storage capacity is a barrier to trade for market parties, in particular due to the lack of information on capacity scarcity and available capacity.
- The market's perception of the risk of (high) balancing penalties appears to be largely due to a lack of timely steering information

This chapter discusses the access to flexibility. In this regard, the deployment of various flexibility resources by market parties and, in particular, gas storage is considered. Finally, balancing will be discussed in more detail.

2.4.1 Use of flexibility instruments

Present situation

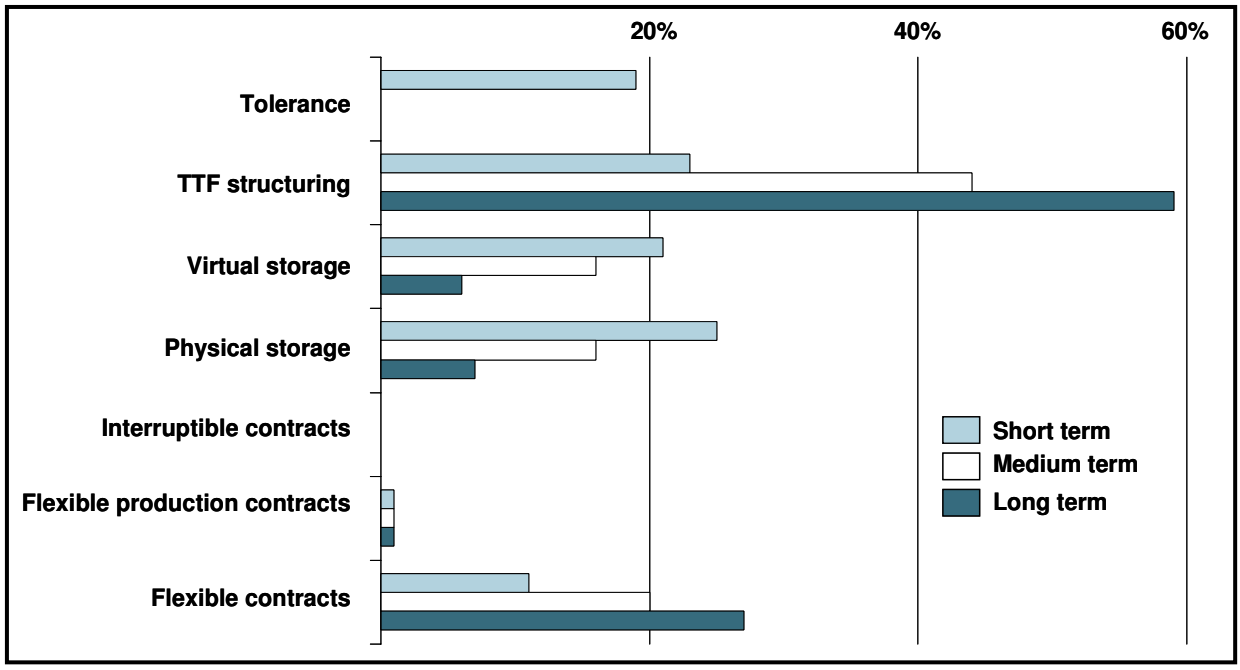
In addition to the procurement and sale of gas as a commodity and the transmission of gas to its destination, shippers must make the necessary arrangements to match the gas flows purchased and actual demand. To do so, shippers have various flexibility instruments at their disposal. These instruments vary from the use of a tolerance and (virtual) storage to entering into flexible contracts (for instance, contracts for ACQ and DCQ flexibility[8]).

In 2005, 72% of shippers drew up their own demand forecasts and compiled their own flexibility portfolios. However, shippers can also outsource this balancing task to third parties. In 2005, 11% of market parties outsourced their balancing entirely to third parties, while 17% partially outsourced balancing.

In the case of shippers who built up their own flexibility portfolio in 2005, the deployment of instruments varied according to the time frame which was balanced. Figure 17 shows which instruments were applied in the short term (within-day and within-week contracts), in the medium term (month and part-year contracts) and in the long-term (contracts for a year or longer). However, from responses received from market parties it appears that an increase in available flexibility does not have the highest priority.

[8] DCQ: Daily Contracted Quantity; ACQ: Annual Contracted Quantity. Flexible types of contract daily/annual capacity. This also includes demand management, such as flexible contracts with greenhouse gardeners.

Figure 17: Use of flexibility instruments [%] by market parties. Source: Shipper questionnaire



According to the statements made by market parties, tolerance in combination with (virtual and physical) storage is mainly used for within-day balancing. In the slightly longer term (within-week, month and part-year), (virtual and physical) storage is used, possibly supplemented by structuring through the TTF. The role of the TTF clearly increases in relation to longer-term balancing. Flexibility for a period of a year is usually realised by means of TTF structuring and flexible contracts. The use of instruments also differs considerably from one party to the next. A striking feature is the TTF's considerable share in providing flexibility. However, the role of APX gas in this regard is still negligible.

Issues

On the basis of the data obtained, no general issue can be identified in relation to flexibility. It is clear, however, that a number of instruments can only be used for H Gas flexibility. There is, after all, hardly any trade at all in L Gas on the TTF and most of the gas storage available through the TPA is for high-calorific gas. DTe also concludes that the TTF is also not very effective in the short term for H Gas as a means of providing flexibility. On the basis of DTe's Method Decision, GTS has been obliged since recently to offer short-term flexibility. However, it is still too early to assess the effectiveness of this measure.

Knowledge gaps

It is not clear whether market parties have sufficient resources at their disposal to meet their need for flexibility easily. It is also not clear what the costs of various flexibility instruments are and whether these are cost efficient.

2.4.2 Gas storage

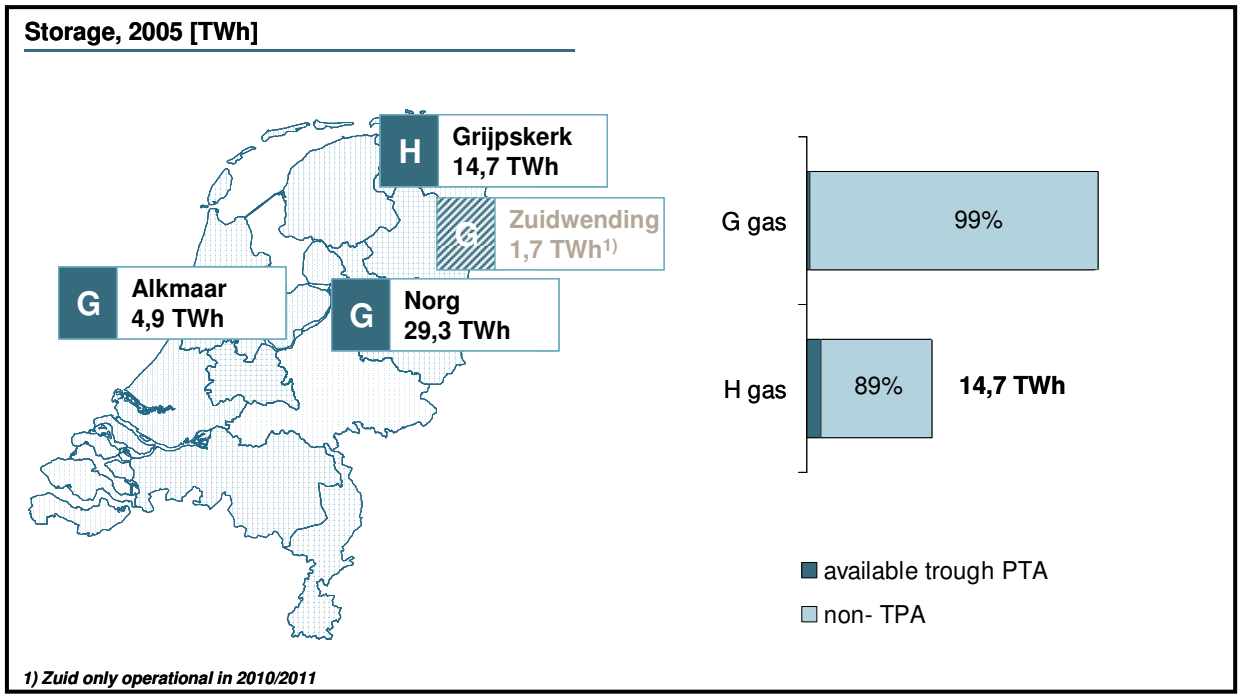
Gas storage is used by market parties to realise flexibility, both in the short and the medium term. Since the Netherlands has been able to rely on the considerable flexibility of the Groningen gas field since the 1970s, gas storage capacity in the Netherlands has always been relatively limited compared to other countries. With

the liberalisation of the gas market and the decline in production capacity and flexibility of the Groningen field, however, the importance of gas storage has increased.

Present situation

Figure 18 shows that the Netherlands has approximately 50 TWh of gas storage within its borders. Of this, 34 TWh is G-Gas storage and 15 TWh is H-Gas storage. Of a total of 50 TWh of gas storage capacity, however, only 2 TWh was available to third parties ("TPA"): 1.6 TWh for H Gas in Grijpskerk and 0.4 TWh for G Gas in Alkmaar. More than 80% of the gas storage available (to third parties) in Grijpskerk is used by three parties. The limited access to storage for third parties is not new. Frontier reached this conclusion within the framework of its research into flexibility carried out in 2005.[9] This was the reason that GTS was made responsible for providing short-term flexibility. All the above-mentioned storage capacity is for short-term storage and does not provide seasonal flexibility.

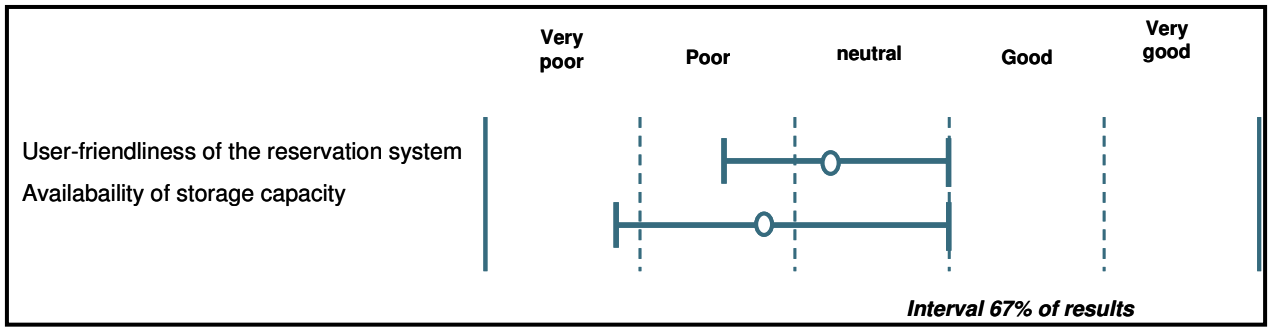
Figure 18. Gas storage in the Netherlands and access to third parties ("TPA"). Source: Gas storage operators' questionnaire



Towards 2010/2011, new storage capacity amounting to 1.7 TWh will become available in Zuidwending. In addition, there is a considerable quantity of storage capacity (just) across the border in Germany, which can provide the Dutch wholesale market with gas storage services. In this regard, several market parties offer, for instance, "virtual storage" services, which combine both storage and transmission to the Netherlands.

[9] Frontier Economics. *Research into Flexibility Services – Final Report,* March 2005.

Figure 19: Market parties' views on gas storage. Source: Shipper questionnaire



It can be concluded from graph 19 that most of the parties consider the extent of (contractual) scarcity on the gas storage market, in particular, to be a matter of concern in the light of the development of the Dutch wholesale market. Finally, on average the ease with which parties can reserve storage is rated as moderate to poor.

With regard to the investment climate for new gas storage construction, the present price levels are generally considered by the market parties to be fairly attractive with regard to the construction of additional short-term storage (for instance, using salt caverns). As of 2006, GTS offers a new flexibility service, the so-called combiflex, which allows shippers to purchase certain combinations of shortfall and surplus flexibility in fixed proportions. For the time being, the extent to which foreign storage facilities and (new) flexibility products will affect the climate for investment in flexibility on the Dutch wholesale market is not known. For the time being, the construction of longer-term storage using depleted oil fields is considered less attractive by market parties.

Issues

Market parties indicate that they regard scarcity of storage capacity, in particular, as a barrier to the use of flexibility services. At the moment it is not clear whether this relates to physical or contractual scarcity.

Knowledge gaps

In this monitor, DTe has been guided, in particular, by the opinions of market parties with regard to the way gas storage operates on the Dutch wholesale market. The data obtained from the questionnaire provided DTe with insufficient insight and provided insufficient grounds from which to draw factual conclusions with regard to possible physical scarcity on the gas storage market.

The information lacking in this regard relates to the quantity of storage in Germany that can be used for the Dutch wholesale market, the capacity utilisation of storage and the extent to which storage capacity is reserved or overbooked. The information with regard to the cost of (the various types of) storage, which is necessary for monitoring the operation of the storage market and reporting scarcity, is also lacking. From the statement submitted by market parties, it appears that there is a reasonable incentive to invest in (short-term) gas storage, which implies a certain degree of scarcity. In this regard, market parties noted that the financial incentive which market parties have to invest in new storage capacity has decreased significantly since the (obligatory) introduction of the flexibility services provided by GTS.

2.4.3 Balancing

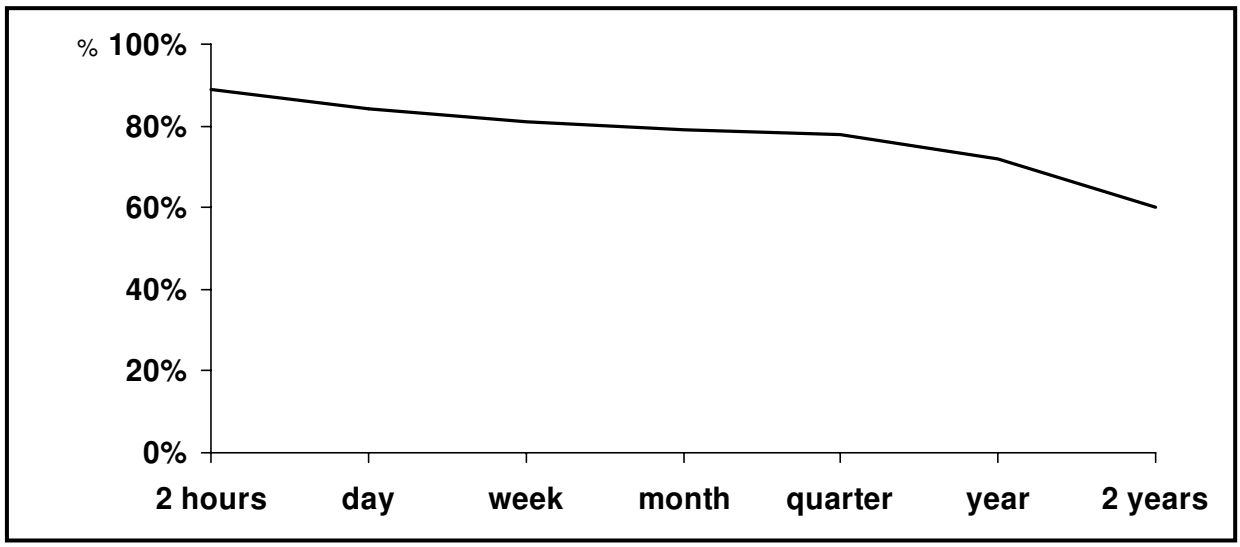
Present situation

The actual cost of balancing incurred by shippers in 2005 is not yet known. However, the costs for 2004 are partially known. Calculated on the basis of exit volume, approximately a quarter of the market received a balancing settlement for 2004. The total penalty amount known is EUR 4.6 million. If this is divided by domestic exit, this amounts to an average of 4 eurocents/ MWh. The precise volume on which the penalties were calculated (the actual imbalance exceeding the tolerance) is not known.

Quantitative measurements of imbalance costs were not made by DTe for earlier years. However, steps were taken to increase transparency and in 2006 the balancing system was adjusted by GTS to create a more cost-based system. The effects of the new balancing regime will be evaluated by DTe at the beginning of 2007. The plan to make more steering information available has not been implemented fully.

It appears from the shipper questionnaire that shippers can forecast with 90% accuracy. Of course, this accuracy decreases as the duration increases (see Figure 20).

Figure 20. Precise demand forecasts by shippers (% realised versus nominated); Source: Shipper questionnaire



Issues

Shippers indicated that they still lack the steering information necessary to manage their balance effectively. Balancing costs are regarded as a risk by the market. Small shippers probably pay relatively more for balancing than larger shippers, but there is little insight into how much more. Nevertheless, the total amounts appeared to be lower than expected. DTe therefore expects that the perception of the risk of (high) balancing penalties is mainly due to a lack of information and manageability. Numerous shippers have indicated that more steering information is needed urgently. In this regard, see section 3.2 above on transparency.

Knowledge gaps

It has not proved possible to make more than a rough estimate of the cost of balancing, based on incomplete figures for 2004. Furthermore it is not clear how large (in MWh) the imbalance was which had to be settled, how penalties were distributed amongst the shippers and what the effect may be of better steering

information. This is a serious shortcoming which also makes it difficult to use the present data as a reference point for measuring the future effects of changes to the balancing regime.

3 Market structure

The market structure in the Netherlands, of course, remains a cause of concern, in particular due to the high concentration of the market. For the time being, DTe does not expect major changes in this regard. Transparency with regard to the availability of transmission resources is still considered inadequate and shippers regard (contractual or physical) scarcity of these resources as a barrier to entry.

The wholesale market for gas was highly concentrated in 2005 on all fronts: with regard to production volume, import and export capacity, quality conversion capacity and the volume of gas transmitted. The concentration of the market for low-calorific gas is (still) higher than that of the market for high-calorific gas. This is due, in particular, to the fact that the only direct source of low-calorific gas is allocated to a single shipper and all the other shippers are therefore dependent on (scarce) quality conversion and in many cases on (scarce) import capacity.

With regard to information on gas prices and flexibility, shippers rate transparency on the Dutch gas wholesale market as neutral to good. With regard to information on available transmission, conversion and storage capacity, they rate the Dutch gas wholesale market as neutral to poor. The availability of steering information is rated as poor.

In accordance with the earlier conclusions with regard to the availability of physical resources, shippers regard scarce capacity for transmission, conversion and storage as average to high barriers to entry to the gas wholesale market. In this regard, no distinction is made between physical or contractual scarcity. Legal, administrative or general conditions hardly appeared to obstruct shippers in developing shipper-related or trading activities. On the whole, only the general conditions applicable to underground gas storage are considered to be a barrier to trade.

The previous chapter reported on the extent to which sufficient commodity, transmission, flexibility and conversion are available to shippers to enable them to be active on the Dutch gas wholesale market. This chapter discusses the overarching characteristics of the market structure, namely concentration in the gas value chain, the transparency of the market and barriers to entry.

3.1 Concentration

- The various parts of the Dutch wholesale market are without exception highly concentrated, in particular in relation to low-calorific gas.

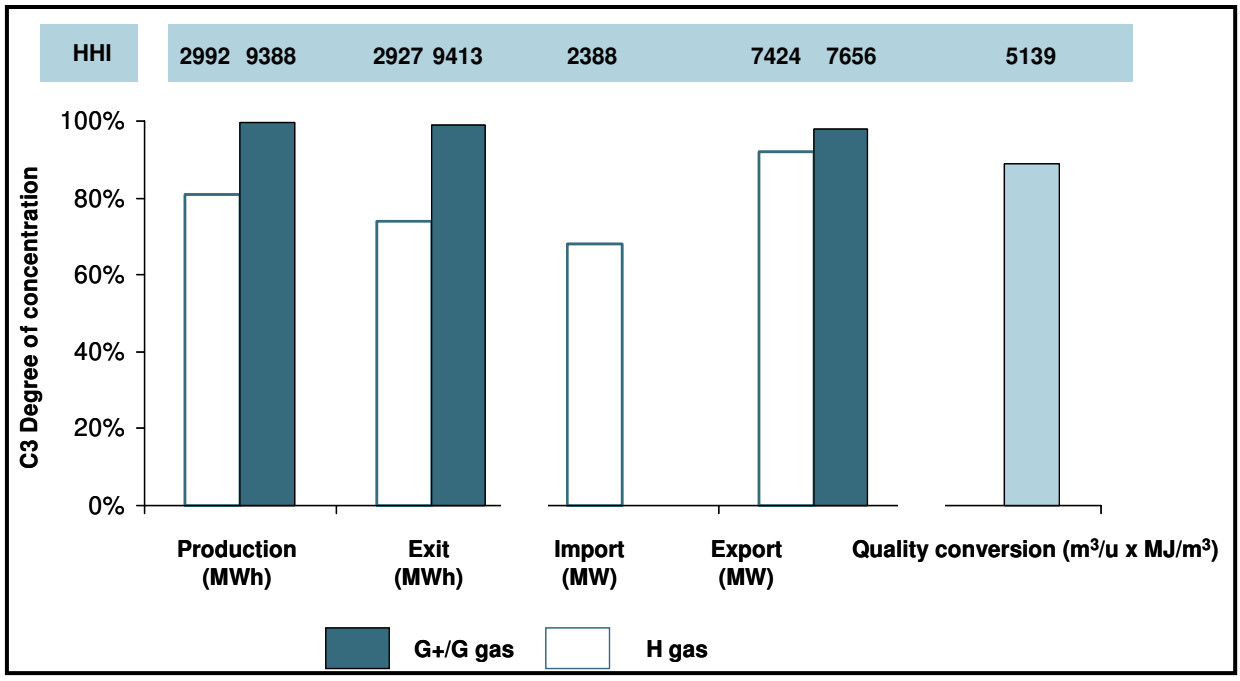
In this chapter, the degree of concentration of the gas wholesale market is discussed in more detail in relation to the various parts of the value chain. Within this framework, consideration is given to production and exit, import and export, and finally to quality conversion.

Present situation

As can be concluded from Figure 21, the market throughout the value chain of production, import and export, quality conversion, storage and distribution is a highly concentrated market. With regard to production, the

concentration relates to the amount of gas produced, while in the case of import, export and quality conversion, the level of concentration is calculated on the basis of capacity reservations by market parties.

Figure 21. Concentration of the gas wholesale market 2005. Source: Shipper questionnaires, GTS, Oil and Gas Yearbook



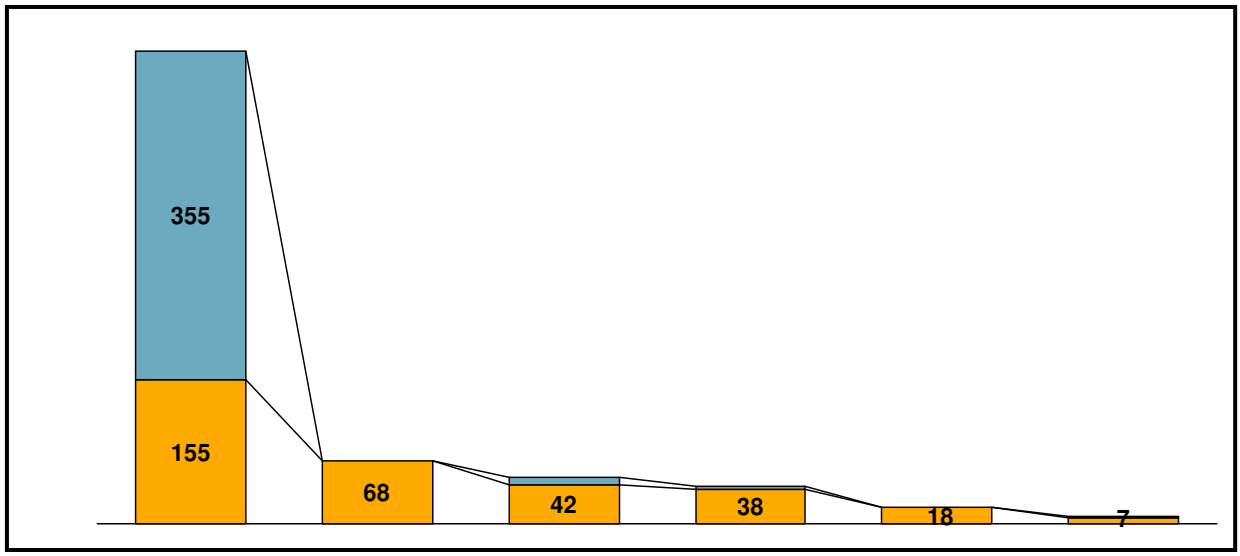
To determine the degree of concentration, DTe makes use of both C3, which is the sum total of the market shares of the three largest market players, and the HHI, which is the sum total of the squares of the market shares of all the market players (10,000 is a full monopoly, 0 is perfect competition). DTe applies an HHI value of 1800 as the (lower) boundary for a high degree of concentration. The Dutch gas market is therefore highly concentrated in all the segments referred to above. This also means that no changes have occurred relative to the situation in 2004 (and earlier), when it was concluded that the degree of concentration on the supply side of the market was at least 6,400.

The number of parties active as shippers on the gas wholesale market appears to have fallen. In the previous report, it was stated that 69 shippers were registered, while at year-end 2005 this figure was 44. In this regard, it must be noted that some companies are registered more than once due to the fact that they have subsidiaries. On the production side of the market, one party has entered the market.

As is apparent from Figure 22, NAM is the largest domestic producer of natural gas. Its market share, however, has fallen slightly from 77% in 2003 to 73% in 2005. The degree of concentration in relation to production as a whole (H and G combined), has fallen from 5,967 in 2003 to 5,576 in 2005. However, this does not detract from the fact that the production market is still highly concentrated.

Low-calorific gas (from Groningen) is only produced by NAM and marketed by GuTS. In addition, GuTS is obliged to purchase gas from small fields and producers other than NAM if these parties request this. GuTS is obliged to take this gas, but the producers are not obliged to supply it. This means that on the supply side the gas wholesale market is comparable to or more highly concentrated than the production and import markets viewed separately.

Figure 22. Domestic production of H Gas and G Gas in 2005 [TWh]. Source: Olie en Gas Jaarboek



Issues

The high level of concentration of the Dutch gas market is a source of concern. Despite the increase in the number of shippers on the Dutch market, their market shares are modest. In addition, the market is vertically integrated. On the low-calorific market, in particular, the opportunities for competition are limited because all G Gas produced in the Netherlands has to be delivered exclusively (by law) to a single shipper and no G Gas is imported. Shippers competing on the low-calorific market are therefore dependent on H Gas (mainly from import) which is converted into low-calorific gas using scarce quality conversion capacity.

Knowledge gaps

It is unclear which part of the production of the small fields is available to competing shippers. In addition, it is not clear how concentrated the import capacity will be in the long-term because a complete overview of long-term commodity contracts is not available.

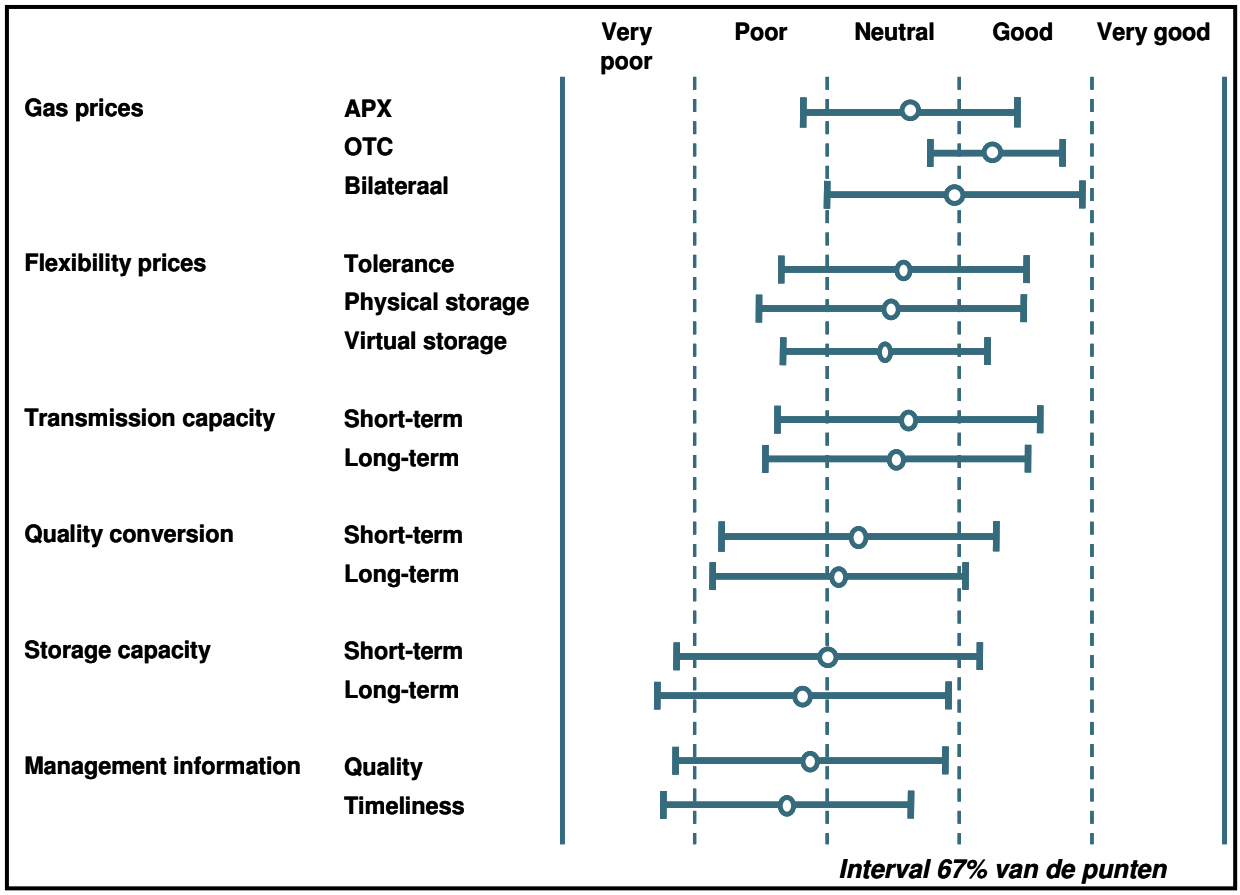
3.2 Transparency

- The transparency on the gas wholesale market (as rated by market parties) ranges from poor to neutral, depending on the aspect considered.
- In particular, the transparency of the infrastructure (steering information, storage capacity and quality conversion) is considered inadequate.
- The transparency of gas and flexibility prices and transmission capacity generally receives a neutral rating.

Present situation

The opinions of market parties with regard to transparency are presented in Figure 23. In this figure, these circles indicate the average answers and the bars 66% intervals. In other words, less than one third of the shippers provided an answer to each question to the left or the right of the bar.

Figure 23. Opinions with regard to transparency. Source: Shipper questionnaire



It appears from the figure that the information is rated by the market as neutral to good. Where this relates to steering information, information on available storage capacity and available quality conversion capacity, the transparency is considered inadequate. In response to the open question as to whether improvements should still be made to the Dutch gas market, numerous shippers stated that steering information, in particular, is an important area for improvement (with specific reference to data on the allocations of individual shippers, actual entry and exit flows, consumption, linepack and system balance). Information on available quality conversion capacity is also mentioned as an improvement requiring priority in 2006.

Issues

The lack of transparency on the gas market in relation to the availability of infrastructure is a barrier to the entry of new players. This observation is consistent with earlier reports by DTe. DTe expects the lack of transparency to be a problem, in particular, on the low-calorific market, since this market has a lower load factor and requires quality conversion.

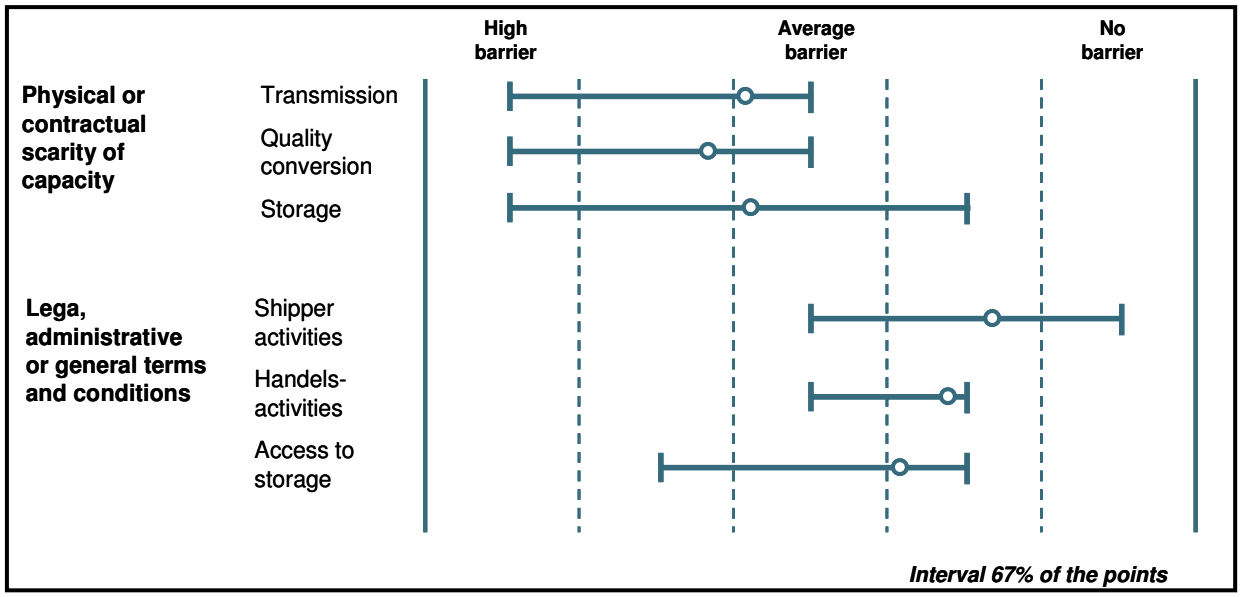
3.3 Barriers to entry

- The (physical or contractual) scarcity of capacity is regarded as a high barrier to entry.
- With regard to access to storage capacity, the general conditions are regarded as a high barrier to entry.

Present situation

Transparency and the (contractual) scarcity of transmission capacity and quality conversion were discussed as possible barriers to entry in the preceding sections. In addition, in its questionnaire DTe asked shippers how high they estimated the potential barriers to be, which DTe has identified. The result for this question is presented in Figure 24.

Figure 24. Opinions of shippers in relation to the extent of barriers to entry. Source: Shipper questionnaire



The scarcity of transmission capacity, quality conversion and storage emerge clearly. In this regard, there is no distinction between contractual and physical scarcity. In the open questions in the questionnaire on the most important aspects requiring improvement, numerous shippers stated that better access to entry/exit points, quality conversion and storage capacity are required. The market's experience is consistent with the earlier findings in this report. In addition, the reservation systems do not appear to be an obstacle. The shippers rate these as normal to good (both with regard to the accessibility of the systems and user-friendliness).

With regard to the barriers in the infrastructure referred to, the barriers caused by regulations, administrative obligations and general terms and conditions appear to be lower than expected. There are few barriers of this category which obstruct market parties in developing shipper-related activities or trading activities. Some market parties observed barriers with regard to access to storage, in particular as a result of general terms and conditions.

Knowledge gaps

On the basis of the data presented above, it is not possible to make a distinction between physical and contractual scarcity.

4 Market outcomes

The liquidity of TTF as a marketplace is increasing and in Northwest Europe TTF occupies a midfield position. Nevertheless it is still not possible to view TTF as a fully mature market. TTF is too small to be a sourcing alternative and a market for low-calorific products, in particular, is not developing.

As a marketplace, TTF is clearly developing. In 2005, volumes increased and shippers almost unanimously stated that TTF had developed favourably in the past year. However, this is not a fully mature marketplace. The volumes traded are modest compared to the total volume of the Dutch market and not all products by far are traded. For instance, there is no trade in low-calorific gas and the trade in within-day products has still not developed. TTF is therefore not an alternative for which shippers to source their portfolios. For this they are generally still dependent on bilateral contracts entered into mainly at entry points.

The Dutch wholesale market is linked to foreign markets. However, complete market integration has not yet taken place. Although the trading volumes and churn rate on the Dutch wholesale market (in particular, TTF) have increased considerably, they will remain low for the time being. Internationally TTF occupies a midfield position. TTF is regarded by shippers as less-developed than NBP, comparable to the Zeebrugge Gas Exchange and more developed than VEP-BEB. The percentage increase in prices on the TTF in 2005 shows the same trend as that at the NBP and on the Zeebrugge Gas Exchange, even though prices on these markets have increased more. In 2005, volatility increased, but is still lower than that of the NBP and the Zeebrugge Gas Exchange. The increasing volatility may (partly) relate to regionalisation of the wholesale market and an increase in gas-to-gas competition.

To analyse the extent to which the operation of market forces has affected the Dutch gas wholesale market, DTe carried out research into the trade and liquidity in the Netherlands. Attention was given to the size of the flows traded and the liquidity of trade. In a liquid market, parties find each other easily, transactions occur without any noteworthy costs and individual transactions do not result in major price fluctuations. In addition, the composition of the shippers' portfolios was examined. Finally, DTe compared the prices, volatility and liquidity of the Dutch gas wholesale market to several neighbouring countries.

4.1 Trade and liquidity in Nederland

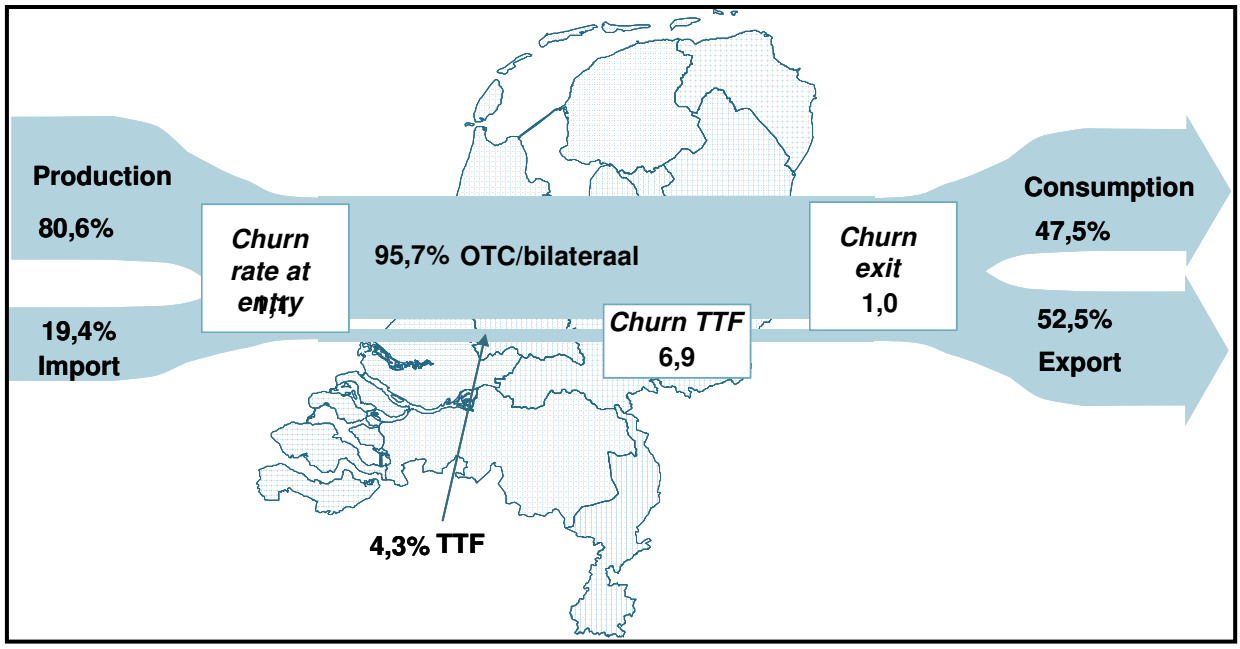
- Despite strong growth in trade through the TTF, this marketplace only covers part of the market and mainly H Gas is traded on it.
- The depth and the number of counterparties for the products traded are developing favourably.

Present situation

It appears from Figure 25 that approximately 4% of gas available on the Dutch market was traded on the TTF in 2005. This is approximately 80% higher than in 2004. The remainder went directly behind the city gate or was exported through bilateral and OTC import or supply contracts, circumventing the TTF. If the churn rate (the ratio of the volume traded to the volume supplied) is considered, it appears that lively trade takes place

on the TTF, on which gas is traded an average of seven times.[10] However, hardly any trade takes place at all on entry and exit, but is supplied almost exclusively for consumption. This has not changed compared to 2004.

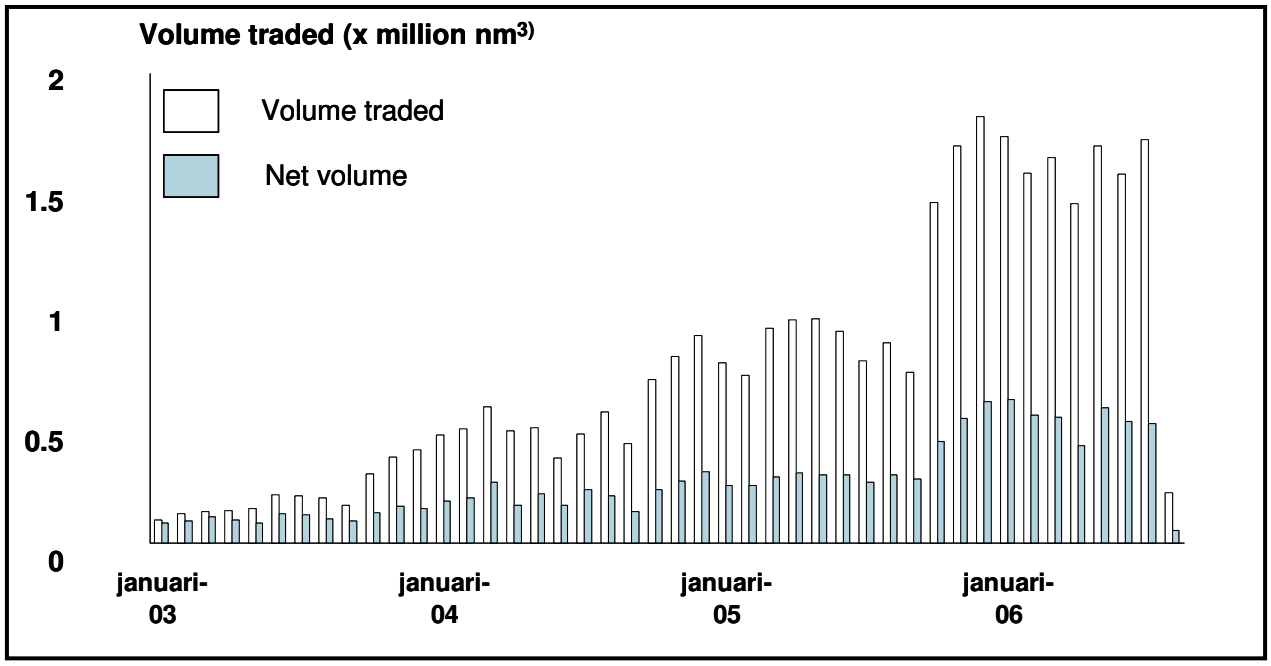
Figure 25. Trade flows and churn rate. Source: GTS, DTe



In the Netherlands, the size of the TTF is still modest at a level just above 4%. Most of the gas traded on the TTF seems to be intended for domestic offtake. TTF is therefore slightly larger from the point of view of the Netherlands. The growth of previous years continued into 2005 (see Figure 26). The "TTF churn rate" (the volume traded on the TTF compared to the net volume on the TTF, or the length of the white bars compared to the blue bars) increased further from 2.6 in 2004 to 3.1 in 2005.

[10] On the basis of the shippers' statements, an estimate was made of the total churn. Transactions were also included which were entered into by market parties but which were netted on the TTF before registration (clearing). These are not reflected in the TTF trade volumes, as reported by GTS (see Figure 26).

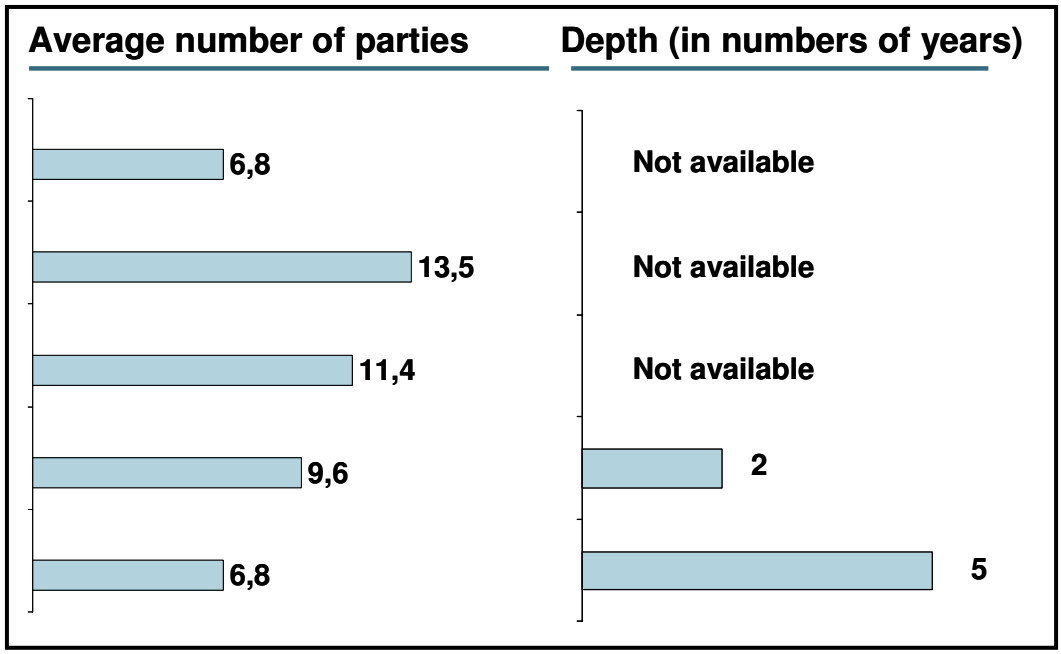
Figure 26. Monthly and net volumes traded on the TTF. Source: GTS



The gas traded on the TTF is almost exclusively H Gas (98%). All G Gas produced from the Groningen field is delivered directly behind the city gate and is therefore not available for trade on the TTF. No further trade takes place behind the city gate. This means that the total volume (all G Gas and the lion's share of H Gas) is not traded, but is only delivered. This problem was also reported in 2004. The only progress made is the increase in the trade of H Gas on the TTF.

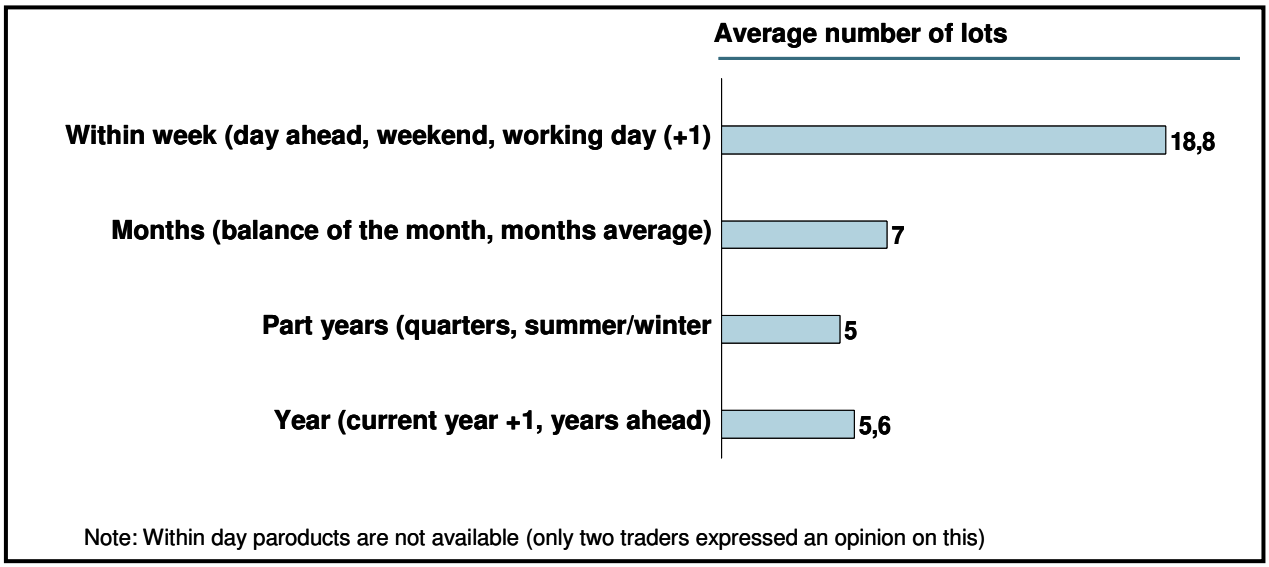
The products traded, in particular, are day-ahead, month, quarter and year contracts. This is shown in the section entitled "sourcing". On average one H Gas transaction with an average volume of 1 GWh takes place each day on the day-ahead market of APX Gas NL, established on 3 February 2005. In 2005, no within-day G Gas products were traded on APX. Some shippers also state that they find the transaction costs of trading on APX high, while transaction costs for OTC and bilateral trade are considered to be neutral to low. The speed and ease with which transactions can be entered into (the "immediacy") is rated good by shippers for all marketplaces. Shippers state (see Figure 27) that they can find numerous counterparties for all products.

Figure 27. Immediacy: number of trading partners and depth per product. Source: Shipper questionnaire



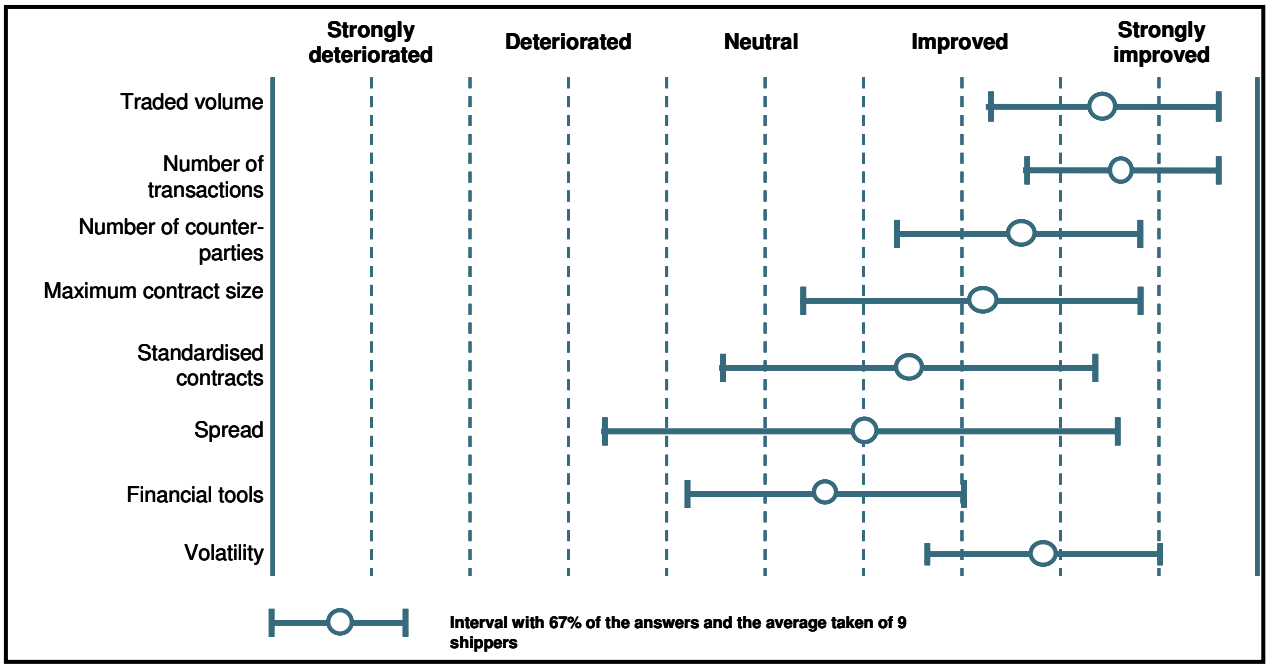
It appears to be possible to trade quarter and year products more than one year in advance (see Figures 27 and 28). In the case of longer-term products, the number of 30 MW lots that can be traded without affecting the price (the "resilience") decreases.

Figure 28. Resilience: the number of lots that can be traded without affecting the price. Source: Shipper questionnaire



A striking feature is the considerable improvement in the liquidity of the gas wholesale market, according to the shippers (Figure 29). The volume traded, in particular the number of transactions and the number of counterparties, has improved considerably compared to 2004.

Figure 29. Development of the liquidity of the gas wholesale market in 2005. Source: Shipper questionnaire



Issues

Despite the increase in the volume of trade on the TTF, the size of the market remains modest and there is no trade in within-day products and hardly any trade in low-calorific gas. The market is therefore not a fully-fledged liquid market.

4.2 Sourcing

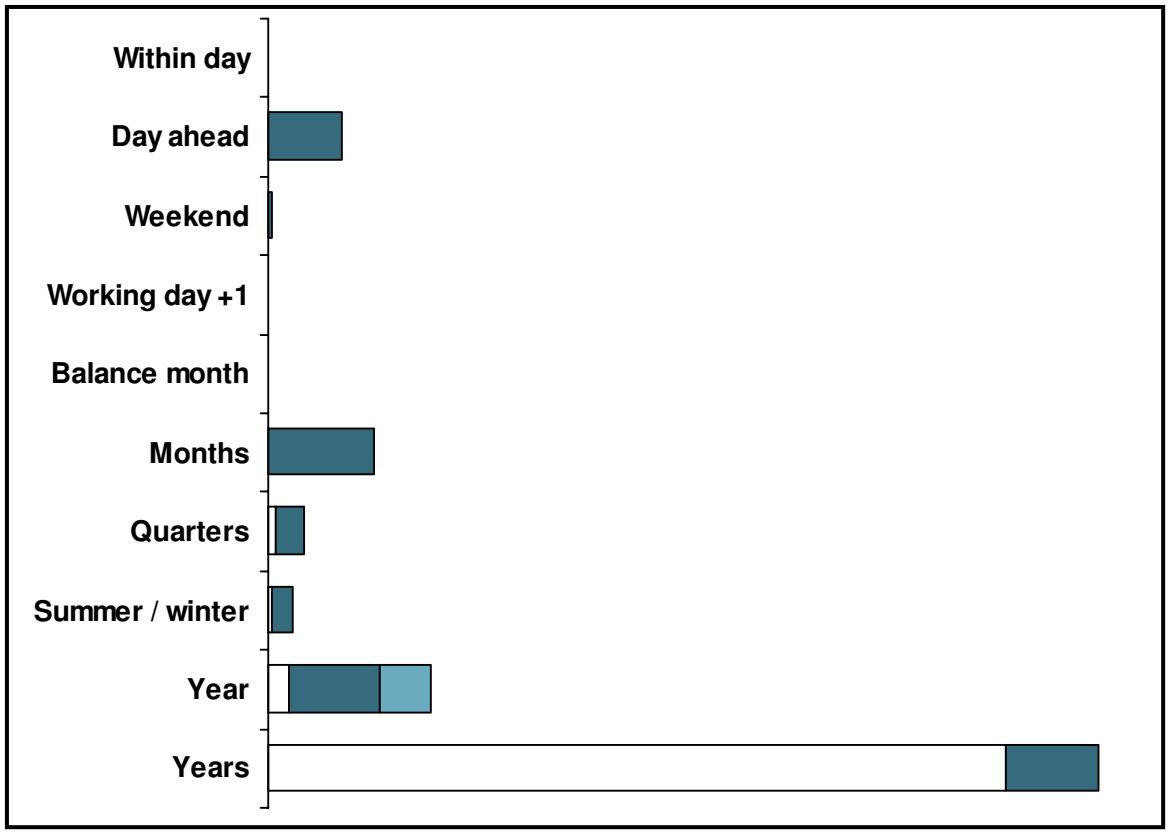
- The TTF is not yet a fully-fledged alternative source of gas and shippers do not expect this situation to change quickly.
- Procurement of gas (for the longer term) still occurs mainly at the entry points.

In this chapter, the way in which market parties have compiled their gas portfolios on the gas wholesale market will be discussed in more detail. More specifically, consideration is given to the role and development of the TTF in this regard.

Present situation

In the previous paragraph, it was mentioned that approximately 4% of trade on the Dutch market takes place through the TTF. Figure 30 shows how shippers on the Dutch gas wholesale market build up their gas portfolios. It appears from this that they procure the largest part of their gas requirement through long-term entry contracts. The shorter-term products, in particular day-ahead and month contracts, are mainly traded through the TTF.

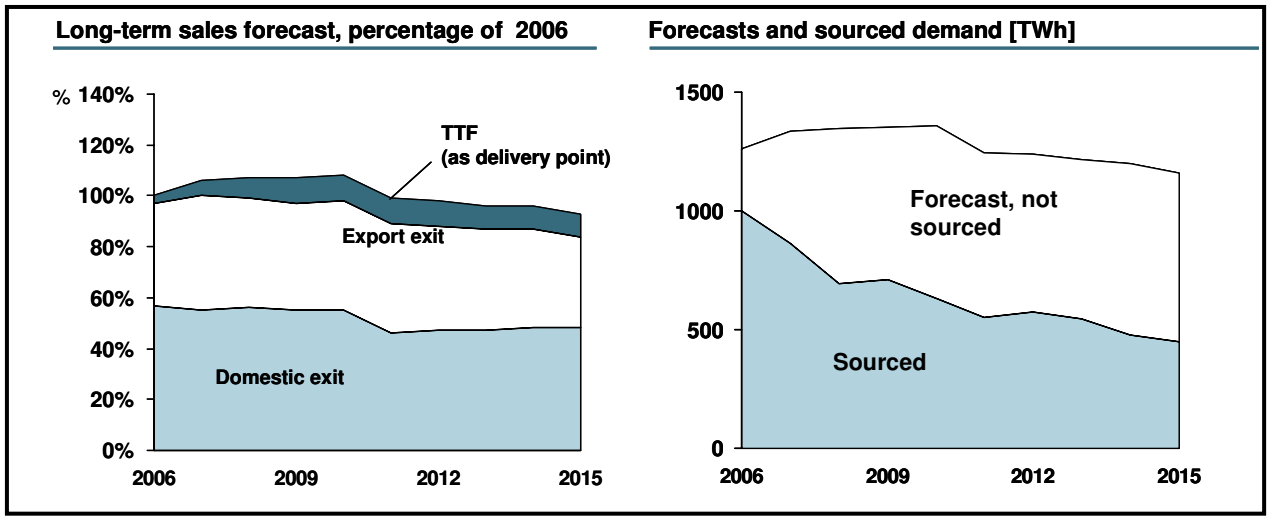
Figure 30. Procurement type and source. Source: Shipper questionnaire



Due to the sensitivity of the information, standardisation of the horizontal axis of the above figure has not been included. Furthermore, to make the graph legible, the length of the "Years" bar has been shortened. In reality, this is three or four times longer. It must also be noted that the procurement is rated from the shippers' perspective and not from the local suppliers' perspective. For this reason, the extent to which supplies take place "behind the city gate" is not included in the analysis.

It appears from Figure 31 that half of the demand up until 2010 forecast by shippers has already been purchased. Shippers expect to realise most turnover on the domestic exit points and as export. Sales on the TTF, according to the forecasts, will only increase gradually. It must be noted in relation to this figure that the total sales expected by shippers in 2006 will be approximately 30% higher than the realised exit in 2005. These figures have therefore to be interpreted with some caution.

Figure 31. Long-term forecasts sales and sourced versus forecast demand. Source: Shipper questionnaire



Issues

The TTF is still not a fully-fledged alternative source of gas. This limits the possibilities which shippers have to adopt a diversified sourcing policy. In addition, the shippers do not expect this situation to change quickly, due to the low sales forecast for the TTF. This may obstruct the development of the TTF into a fully-fledged hub.

Knowledge gaps

There is a lack of insight into the actual trade volumes on the OTC and bilateral market and the products traded. As a result, it is only possible to estimate the development of sourcing on the gas wholesale markets.

4.3 Development of the wholesale market in comparison to neighbouring countries

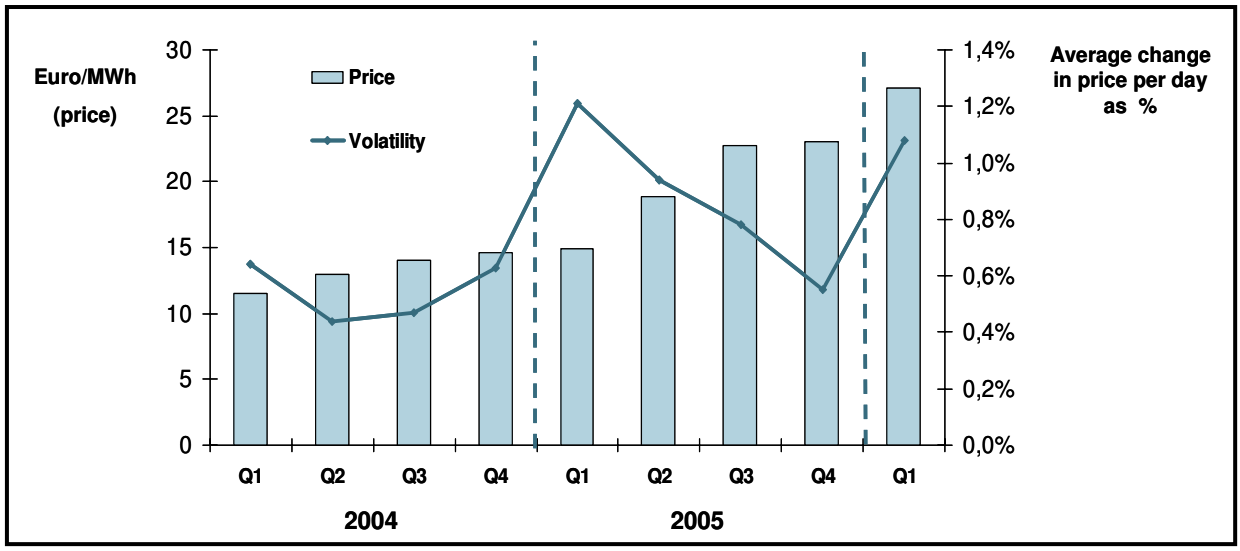
- The Dutch gas wholesale market is linked to foreign markets, but as yet there is no full market integration.
- Trade on the Dutch gas wholesale market will be limited for the time being. Although the volume of trade on the TTF is increasing sharply, it is still limited in size compared to the NBP.
- The (development of the) liquidity of the market is viewed favourably.
- The increasing volatility may (partially) be related to regionalisation of the wholesale market and an increase in gas-to-gas competition.

In this section, the development of gas prices, volatility and liquidity are discussed in more detail in comparison to neighbouring countries, as well as the extent to which market coupling occurs.

Present situation

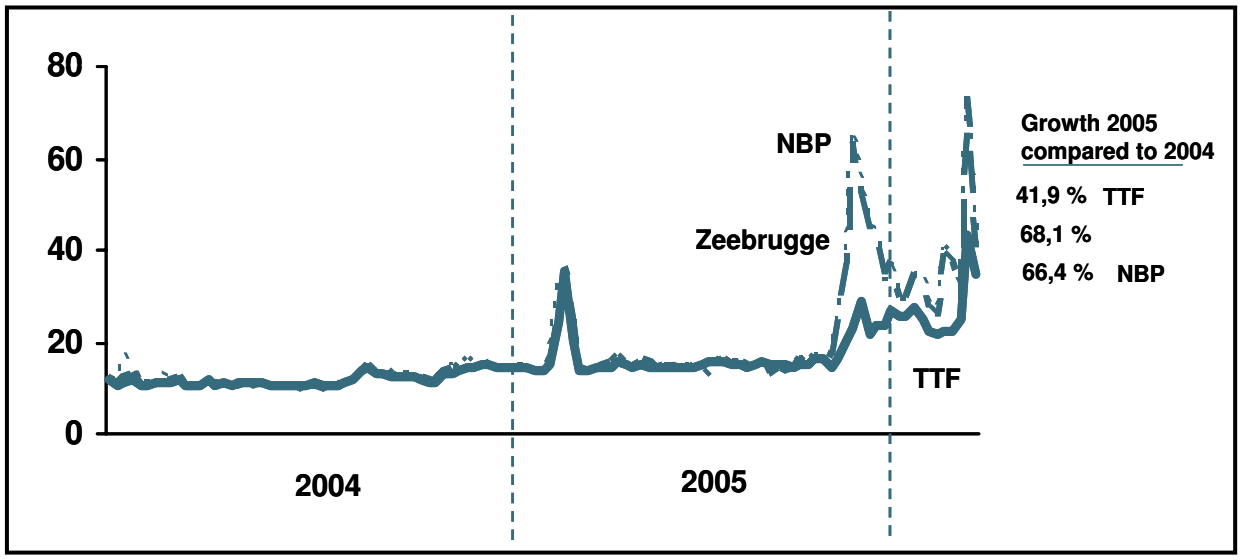
Figure 32 shows that both the prices (of day-ahead contracts) on the TTF and (average) volatility in 2005 have increased. Due to the favourable development of liquidity on the Dutch wholesale market, higher volatility could indicate a greater role for gas-to-gas competition.

Figure 32. Day-ahead prices and volatility. Source: APX



The price increase observed is a direct expression of the international increase in gas prices. In comparison to price increases on the Zeebrugge Gas Exchange and the NBP, the price increase on the TTF has been relatively low. For instance, the day-ahead prices on the TTF increased by more than 40% in 2005, while prices on the Zeebrugge Gas Exchange and NBP were well above 65% (see Figure 33) due to scarcity on the UK market. Although the TTF followed the trend of price increases on the NBP and the Zeebrugge Gas Exchange, this does not apply to the extent to which this occurred. This is evidence of a considerable degree of arbitrage between the NBP and Zeebrugge, and a weaker link with the TTF. The TTF is expected to show a stronger relationship to the NBP as a result of the coming into operation of the Balgzand-Bacton Pipeline.

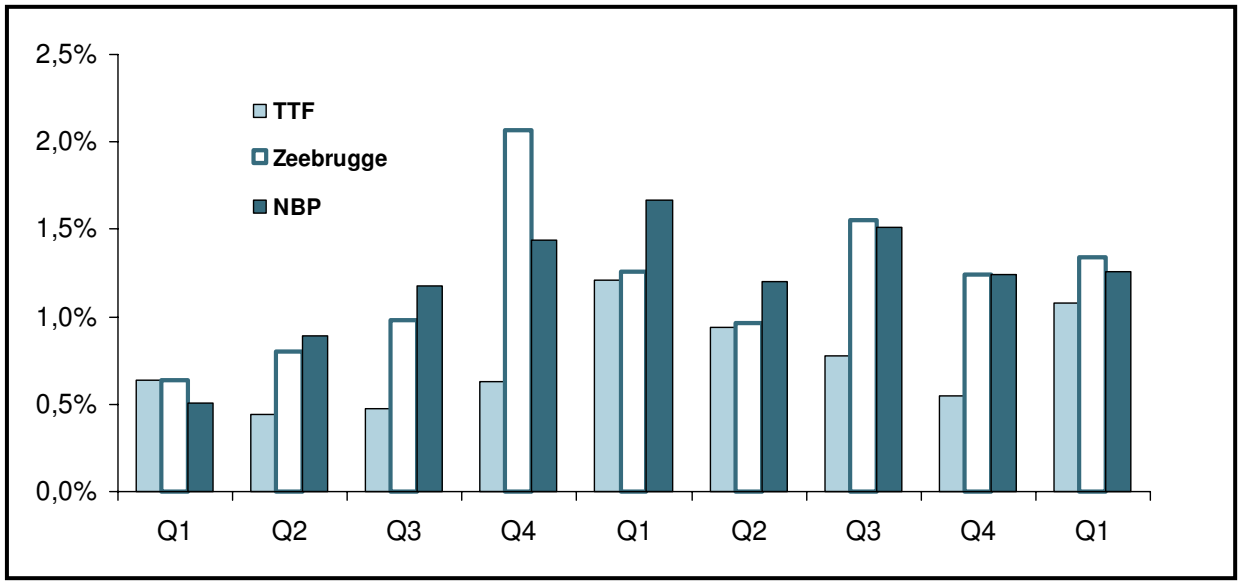
Figure 33. Day-ahead prices (EUR/MWh) on the NBP, Zeebrugge Gas Exchange and the TTF. Source: Platts



In comparing the day-ahead prices, however, it should be noted that the peak on the NBP and the Zeebrugge Gas Exchange in November 2005 was probably caused by an incident (outage of the Rough storage facility in the UK). This peak was not included when calculating the averages.

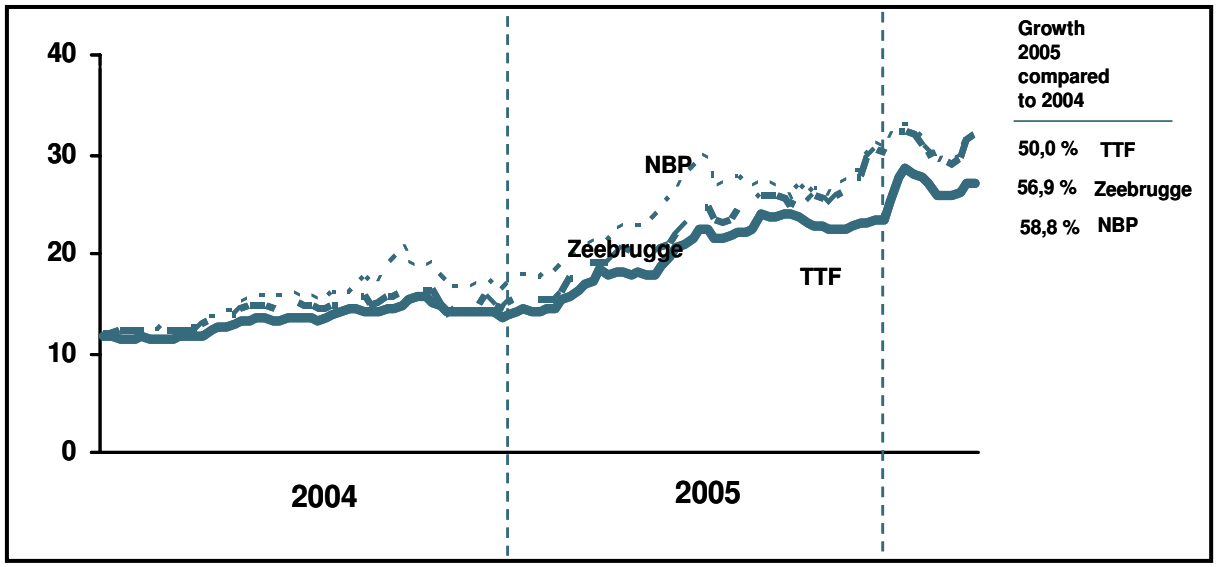
It appears from Figure 34 that the volatility of the TTF is significantly lower, compared to the NBP and the Zeebrugge Gas Exchange. During the entire year, the volatility of the TTF was significantly below the level of the NBP. In the case of the Zeebrugge Gas Exchange, it appears that this was raised to a level comparable to the NBP in the second half of the year. In this case, the increasing degree of gas-to-gas competition and the increase in price sensitivity as a result also appeared to be due to higher volatility.

Figure 34. Average daily variation in the day-ahead price, as percentages. Source: Platts



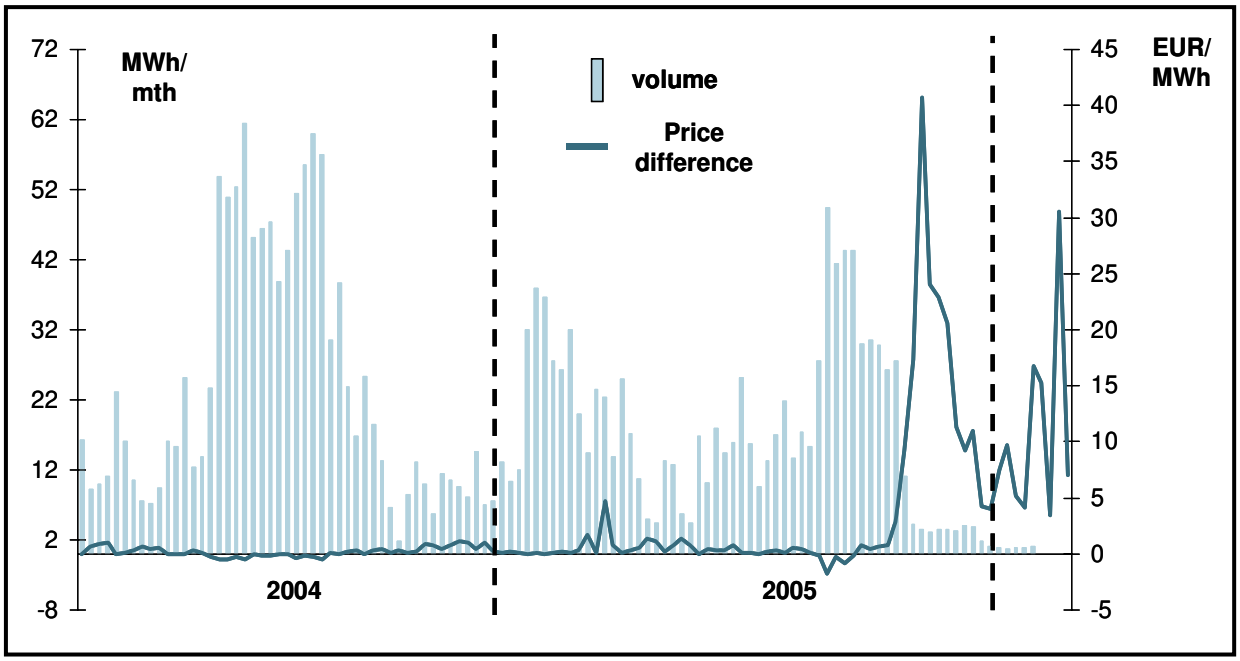
It appears from Figure 35 that the price of year contracts on the TTF increased by 50% in 2005. The increase on the TTF, however, was less than that at the NBP and on the Zeebrugge Gas Exchange.

Figure 35. Development of year contract prices at NBP and on the Zeebrugge Gas Exchange and the TTF. Source: Platts



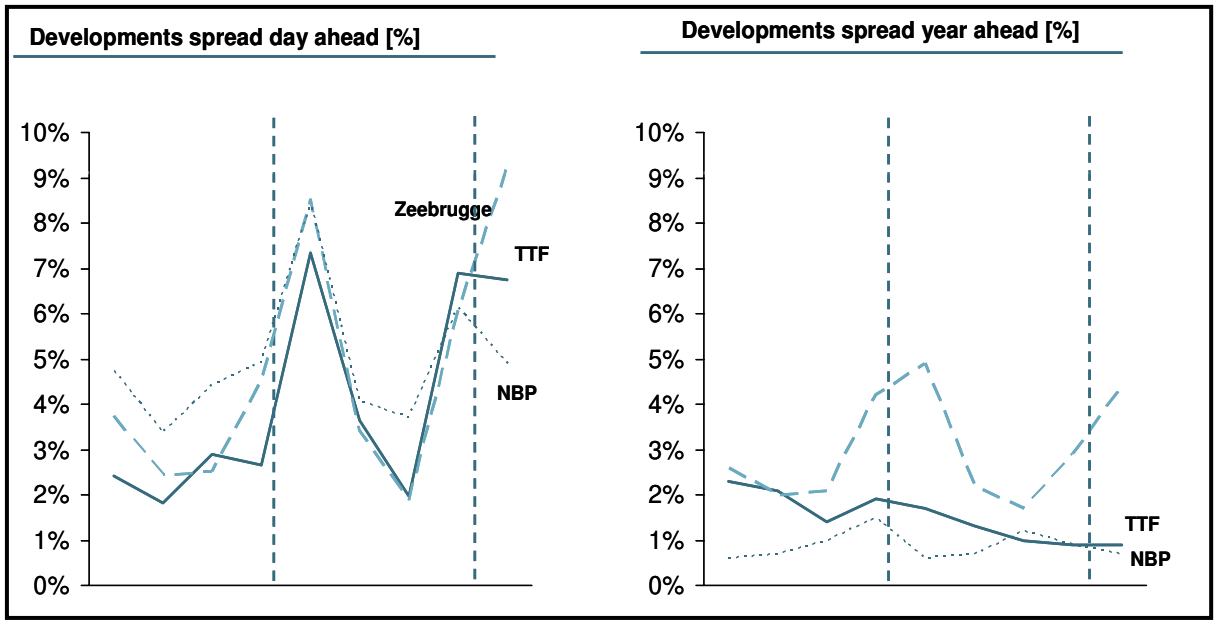
As was mentioned in relation to graph 33, it can also be concluded from the development in the year-ahead price in Figure 35 that the market coupling of the Zeebrugge Gas Exchange and the NBP was considerably stronger than that between the TTF and the Zeebrugge Gas Exchange. A certain degree of arbitrage between the two wholesale markets occurs through the Zelzate (import) interconnector with Belgium. The effects of the higher prices in Belgium on import volumes can clearly be inferred from Figure 36. Export to Belgium through Zelzate, however, can only be realised by means of backhaul. As a result, a physical export flow at that point cannot occur and no further arbitrage takes place.

Figure 36. Price difference between Zeebrugge Gas Exchange and the TTF compared to volume imported through Zelzate. Source: GTS, Platts



The bid-ask spread of day-ahead and year products shows an erratic development (Figure 37). In addition, it is not possible to discern a clear trend over time. However, the TTF and NBP year-ahead contracts appear to have a structurally lower spread than the Zeebrugge contracts. Year contracts also have a structurally lower spread than day contracts.

Figure 37. Bid-ask spread of day and year contracts at the NBP and on the Zeebrugge Gas Exchange and the TTF. Source: Platts.



The fact that the TTF is considered important on the Northwest European market is also apparent from the market parties' assessment of the relative liquidity of several international marketplaces. They were asked in this regard to compare NBP, Zeebrugge, TTF and VEP-BEB in in Germany. The answers given by market parties result in the following ranking:

1. **NBP** is the most liquid market, followed by
2. **TTF** and **Zeebrugge** in a shared second place
3. Followed by **VEP-BEB**

They were also asked to make a distinction between various types of products. The liquidity of the separate products, however, did not result in a different ranking for the separate marketplaces. It is the case, however, that Zeebrugge is regarded as the more liquid market place for shorter-term products (a month and less), while the TTF is regarded as more liquid for the longer-term products.

Knowledge gaps

What is not yet sufficiently clear to DTe is the extent to which the coupling of oil and gas prices affects gas wholesale prices. Insight into this dynamic is important to provide an estimate of the extent to which a gas-to-gas market is developing.

5 Developments and next steps

The issues identified in this monitor, of course, are not new. The findings in this report are therefore consistent with the "priorities in relation to competition on the gas market" which the Board of Directors of NMa formulated earlier this year. In many areas, progress has already been made or improvements are being prepared. The following is an overview of the progress made in recent years, the outstanding issues and an overview of the themes which DTe will take up in the coming months within the monitoring framework.

Progress in relation to issues identified earlier and current initiatives

- In last year's monitor, the economic unbundling of the TSO was considered to be a point of concern. This has improved because the State of the Netherlands has been appointed as the sole shareholder of GTS since 1 January 2005.
- To stimulate competitive pressure on the market for low-calorific gas, DTe has categorised quality conversion as a system service, 50% of the cost of conversion has been socialised for the time being, and DTe will contribute to ensuring that sufficient quality conversion capacity is available subject to good conditions. GTS will soon present a proposal for the implementation of this service.
- To reduce the degree of concentration on the H Gas market, DTe wishes to stimulate alternative sources, such as LNG, additional import capacity and better use of existing capacity. In this regard, DTe will take into account the cost effectiveness of investments.
- In the area of flexibility, numerous initiatives have been developed. The balancing regime has been adjusted to a more cost-based and transparent system. GTS offers short-term flexibility. Work is being done to improve the availability of steering information.
- To stimulate trade, DTe will increase transparency, for instance by means of monitoring.
- GTS is preparing to expand export capacity through its "open season". According to GTS's plan, this will come on stream in the period 2010-2012. Numerous parties also have plans for LNG terminals.

Other areas of concern, however, continue to exist or have even increased. There is still no trade on the city gate and the TTF is not a fully-fledged sourcing alternative. Contractual congestion still appears to exist with regard to transmission capacity (import, export, quality conversion). The concern about the physical capacity for quality conversion has increased. Import capacity will be an issue, in particular in the short term once the Balgzand-Bacton Pipeline has come on stream, if there is no expansion of import capacity by means of pipelines and/or LNG. The concentration of the market is still high.

Steppes

DTe intends taking up three of the areas of concern presented here as priorities within the framework of the monitor:

- Stimulating trade on the TTF. In particular, the absence of trade in low-calorific gas is a serious barrier to the gas wholesale market. In cooperation with the sector, DTe will carry out research to identify the products for which there is demand and how and within what timeframe trade in these products can be accelerated. DTe's mandate to direct developments in this regard are limited. However, DTe will advise the Minister on this.
- Carrying out research into how transmission congestion can be solved. This research will relate to both physical capacity, and the method of allocating capacity and the secondary market. In doing so, DTe also wishes to discuss the extent to which the "margin for cold days" is reasonable, in the light

of the implementation of the peak gas scheme. DTe will carry out this research in cooperation with a limited group of parties and make proposals for improvements.
- Research, in cooperation with GTS and the sector, into the extent to which quality conversion capacity must be expanded to meet future demand.

DTe will take up these points in the coming months and report on and make recommendations in "phase 2" of this monitoring report.

Addendum A. answers to the open questions in the shipper questionnaire

Theme	Improved in 2005 t.o.v. 2004	Must be improved in 2006
Liquidity/ TTF	• Increasing number of counterparties in the OTC market (6x) • Increased liquidity (4x) • Better price signals on TTF • Increase in TF trading • APX platform • Possibility of TTF hub trading without necessity to enter/exit the market	• Cleared exchange • City-gate deliveries of GuTS to be replaced by TTF deliveries (2x) • Structured participation of GuTS in the traded market, to allow commercial activity without fear of abuse of dominance • Re-entries of volumes sold on GOS at TTF • GTS active with imbalances on TTF • Financial forwards, development of futures exchange • Improvement of liquidity on TTF
New infrastructure	• Open season for transmission (2x)	• Availability of entry capacity (3x) • Availability of exit capacity
Balancing regime	• Balancing regime hourly to daily with hourly restrictions • Market-based calculations of imbalance mechanisms • Change of balancing regime to a commodity based system, without month factors • Balancing regime that reflects costs of TSO balancing	• Improved transparency of hourly system balancing, e.g. like UK National Grid • Active participation of GTS for balancing the grid to visualise the balancing situation of the grid • Availability of steering information to its widest extent • Feedback / allocations available h+1 (2x) • Adjustment of penalties (2x) • Balancing system like on NBP • Balancing based on market prices • Daily balancing
Capacity allocation and transparency	• Information on capacity availability (3x) • Capacity allocation mechanism / "click and book" system	• Improved regime for booking new capacity (open season) • Real time, daily supply and demand information (system entry/exit flows) • Improved entry/exit booking procedures (faster processes) and less expensive fees • Further improvement availability allocation data • More transparent capacity management cross – border (e.g. to Germany) • Availability of transportation on a within day basis and easy 3rd party trading of transmission and quality conversion
Flexibility and storage	• New storage projects on stream • Slightly more flexibility in the market • Provision of combi-flex albeit only available in dec 04	• Improved access to Dutch storage • Storage facilities • Additional flexibility for balancing and larger flexibility offers (monthly, seasonal and annual)

Quality conversion	• -	• Proper unification of high and low-cal markets through full socialisation of quality conversion / blending costs • Availability and transparency in quality conversion capacity • Reasonable, adequate availability of transmission and quality conversion capacity • Quality conversion to become system service managed by GTS
Other	• Completion of unbundling of TSO; new mindset of GTS to behave as independent transmission system provider	• Stable regulatory regime' • Make firm backhaul available to shippers with net export flows on the same exit point • German market development on equal terms