

Acceleration of the development of the TTF and the gas wholesale market

NMa/DTe

September 2007

Summary

The acceleration of the development of the TTF and the operation of the gas wholesale market in general is both necessary and possible. By removing barriers in, for instance, (detailed) regulations and by changing the way business is done on the low-calorific market, structural progress can be achieved in the short term. In the medium and long term, investments and the process of internationalisation are needed. In this way, security of supply and competition can be strengthened by the efforts made by market parties, GTS and the government.

The importance of a well functioning TTF

A gas wholesale market which operates well contributes to security of supply in the Netherlands and to actual freedom of choice and efficient prices for consumers. Marketplaces which operate well attract gas because sellers are reassured they will find buyers. On the other hand, a marketplace which operates well, and which makes it easy for buyers and sellers to find each other, makes the supply of gas accessible to all buyers, including smaller buyers. If sufficient gas and gas-related services are traded in a range of products, energy companies can differentiate themselves from each other through the choices they make in relation to their procurement policy, the destination of the gas and their customer portfolio. Parties which play this game well can offer their customers better prices; this may result in price competition on the gas supply market. A well-operating marketplace consequently promotes security of supply and freedom of choice; inversely the Dutch TTF marketplace is also an indicator of competition on the wholesale market as a whole.

The TTF has a pivotal role in the ambition to create a "Dutch gas roundabout". The TTF may make it possible for the Netherlands to become a North-West European trading centre for gas and gas-related services, such as flexibility. In this way, optimal value is added to gas flowing through the Netherlands.

The future of the TTF

The TTF, as the centre of the gas roundabout in the future, will have a number of functions. Firstly, it will be used as the place at which gas will be bought and sold. This relates to a broad range of products, from bilateral multiple years ahead trade to trade on, for instance, a power exchange on the date of delivery itself. Secondly, energy companies use trading on the TTF to optimise their portfolios and to take part in proprietary trade. As a result, physical resources, such as gas storage facilities, can be deployed optimally. Thirdly, the TTF bundles the supply of flexibility, so that suppliers can supply gas at the right moment to their customers on the basis of efficient cost. The TTF may also ensure that the cost of maintaining the balance of the network—both for shippers and for the system as a whole—is manageable. Finally, a TTF which operates well sends reliable price signals and, by doing so, contributes to creating a healthy basis for investment decisions.

The international gas market makes use of high-calorific gas. However, most domestic consumption, including household consumption, uses low-calorific gas. The lion's share of this gas comes from the Groningen gas field, although use is also made of converted high-calorific gas. However, we note that in the coming years the domestic low-calorific market will only benefit to a small degree from the (high-calorific) gas roundabout. The role of the TTF will for the low-calorific market will mainly consist of the supply of gas and flexibility.

Situation today

The functions of the TTF as the centre of the gas roundabout and as a delivery point for low-calorific gas are not yet well enough developed. With regard to the domestic market for low-calorific gas, only 1% of low-calorific gas reaches the TTF. The reasons given for this are a lack of available quality conversion, a lack of available (seasonal) flexibility, and the fact that most low-calorific gas is supplied not on the TTF, but directly to the regional network without good opportunities for the re-trading of this gas or a change of its destination. The lack of competition on the market for low-calorific gas results in practice in a lack of price competition between suppliers to households.

With regard to the "gas roundabout", we note that approximately 10% of the high-calorific gas which flows through the Netherlands reaches the TTF. Although this percentage increases annually, further improvement is necessary. Amongst other things, shippers are still not able to use the TTF for balancing, insufficient flexibility is available, and international trade and supply are obstructed by a lack of available transmission capacity, insufficient transparency and complicated rules, which are not consistent with those applied in neighbouring countries.

Actions to resolve the issues mentioned are necessary and possible. Where investments offer a solution in the long term, the "rules of the game" can and must be improved considerably in the short term. Where problems arise due to the (detailed) structuring of the market and not due to physical shortcomings, physical solutions, such as investments, are often disproportionately expensive and time-consuming.

Action required: domestic market for low-calorific gas

Considerable progress can be made, particularly on the domestic market for low-calorific gas, without having to wait for additional investments. Firstly, the shortage of quality conversion must be solved. In the present situation, this is a contractual shortcoming: to a large extent, GasTerra's portfolio determines both the demand and supply of quality conversion. If GTS can enter into a contractual agreement with GasTerra, GTS can manage the conversion balance "behind the scenes". If this is so, wholesale traders will not have to reserve conversion capacity and to be concerned about its availability. If GTS and GasTerra cannot reach an agreement independently, imposing obligations on these parties must be considered.

Secondly, more gas from the Groningen field, including flexibility, must reach the TTF. A package of structural measures is necessary to make this happen, which as a whole should boost competition on the market for low-calorific gas:

- the transfer of gas can take place on the TTF if the supplier to small consumers is “balancing–responsible” with regard to these small consumers;
- a more modular way of doing business, using more standardised (master) contracts, increases the tradeability of low-calorific gas and flexibility;
- provided that and for as long as GasTerra has a dominant position, a good dispute-resolution procedure for resolving disputes between GasTerra and its customers will have to be introduced.

An alternative for the "more modular way of doing business" would be to impose new rules with regard to the volumes of various products which GasTerra offers on the TTF and to require GasTerra to follow prices on the TTF. This construction is also conditional and should only apply provided that and for as long as GasTerra has a dominant position.

In the medium term, additional investment in (seasonal) storage and quality conversion is desirable. This requires a good investment climate.

Action required: “gas roundabout”

To accelerate the development of the "gas roundabout", further action is also required. This relates to measures aimed at ensuring that the market works with a minimum of regulation.

In the short term, the balancing regime, in particular, including the availability of information required by shippers (steering information and the "line pack monitor"), must be dealt with. The result should be that the costs of balancing are manageable for shippers and that they themselves can actively contribute to managing the network balance. The credit risks of balancing can also be limited. The transparency with regard to utilisation of the infrastructure has been recently improved, but it is still clearly necessary to monitor its progress.

Within a period of two to three years, the transmission procedures in the various North-West European countries can be aligned better. This makes cross-border trade and transmission easier and, by doing so, improves the connections with marketplaces in neighbouring countries. Within this period, the allocation of import capacity otherwise remaining unused can be improved, which would allow an increase in cross-border trade in the short term.

In the long-term, additional investments in import capacity and entry of LNG will provide a solution, which (must) be initiated now. It is also desirable that the existing connections to the British and Belgian marketplaces be improved by ensuring that the connections can be physically used in both directions (import and export).

Role of the government

The implementation of this entire plan of action requires an effort from market parties (and from GasTerra, in particular), GTS and the government. Where it is able to do so, NMa/ DTe will use its powers to determine the technical codes to make changes possible. NMa/ DTe will give priority to the balancing regime in the broad sense and to quality conversion. In the Gas Regional Initiative, NMa/ DTe will continue to push for the internationalisation of the market.

Action by the Ministry of Economic Affairs is desired for a considerable number of the proposed improvements. This relates to possible adjustments or extensions to legislation and/or regulations, which may result in considerable improvements to competition, in particular on the domestic market for low-calorific gas, but may also bring the "gas roundabout" closer to fruition.

* * *

Contents

Summary.....	2
Contents.....	6
1 Introduction and aim.....	7
2 The importance of a TTF that operates well	9
2.1 A marketplace for gas.....	9
2.2 The TTF.....	10
3 Future vision for the TTF.....	11
3.1 Centre for International trade and gas flows; the “gas roundabout ”	11
3.2 Different ambitions for low-calorific gas and high-calorific gas	13
3.3 Low-calorific gas: delivery point	15
4 Situation today.....	16
4.1 Domestic market for low-calorific gas	16
4.2 Gas roundabout.....	21
5 Why action should be taken?.....	25
6 Action required: domestic market for low-calorific gas.....	26
6.1 Quality conversion.....	26
6.2 Flexibility.....	28
6.3 Quality conversion and investment are not sufficient	29
6.4 Low-calorific gas and flexibility via the TTF	29
6.4.1 Package of structural measures	30
6.4.2 Expected effects of the structural package.....	33
6.4.3 Reasonableness of the proposed measures	34
6.4.4 Alternatives	35
7 Action required: gas roundabout	38
7.1 Improving the function of the TTF as a marketplace for procurement and selling	38
7.2 Strengthening trade and portfolio optimisation	39
7.3 Balancing	42
8 Action plan.....	47
8.1 Order.....	47
8.2 Role of the government	48
Addendum	49

1 Introduction and objective

The Office of Energy Regulation of the Netherlands Competition Authority (hereinafter "NMa/ DTe") has been assigned tasks in relation to the implementation of the Electricity Act of 1998 and the Gas Act, and the supervision of compliance with these acts. This also includes close *monitoring* of the development of the wholesale and consumer markets, on which we report annually. The extent to which *actual* competition exists on the energy markets is a central issue.

We have taken cognizance of the intention¹ of the Minister of Economic Affairs to strengthen competition on the national gas market. This intention stands in perspective of the integration of integrating the North-West European gas market, whereby the Minister is aiming to position the Netherlands as the "gas roundabout" of North-West Europe. This will benefit both security of supply and competition.

This report sets out the views of NMa/ DTe how the functioning of the TTF² and the gas wholesale market can be improved at a quicker rate so that security of supply and competition on the national gas market are strengthened and the Netherlands can position itself as a "gas roundabout". These views are based on monitoring activities³ (hereinafter "the gas monitor") and earlier reports,⁴ supplemented by further research and a consultation of the sector, in which 20 market parties representing a cross-section of the market contributed in past months through workshops, interviews and written responses. Together these parties represent the vast majority of the Dutch gas market. This report is meant as advice to the Minister of Economic Affairs. In presenting this advice, NMa/ DTe also implements the commitment made in the last gas monitor to carry out further research into a number of problem areas on the gas market.

Many of the problem areas referred to in this report were noted earlier by NMa/ DTe. Also, improvements were mentioned that have a wider effect on competition than simply improving the liquidity of the TTF. In a sense, the health of the TTF is an indicator of the operation of the wholesale market as a whole. Since the operation of the TTF depends on many factors around the TTF and because competition involves more than just the TTF, NMa/ DTe has opted to adopt a

¹As stated in the letter to the Lower House of the Dutch Parliament of 27 April 2007 with reference ET/ EM 7049839, "*Evaluatie elektriciteitswet, Gaswet en toezicht*" (Evaluation of the Electricity Act, the Gas Act and Regulation")

²Title Transfer Facility, the virtual transfer point for gas on the network of the transmission system operator, Gas Transport Services (hereinafter "GTS")

³See for instance, *Gasmonitor, ontwikkelingen in de groothandelsmarkt gas in Nederland in 2005*, NMa/ DTe, September 2006.

⁴"Access to Storage in the Netherlands", The Brattle Group, May 2002; "Wholesale Gas Competition in the Netherlands and implications for Phase III customers", The Brattle Group, June 2003; "*Onderzoek ontwikkeling gasmarkt, informatie- en consultatiedocument*", DTe, June 2004; "Research into Flexibility Services", Frontier Economics, March 2005; "*Prioriteiten marktwerking groothandelsmarkt gas*", NMa/ DTe, June 2006.

broader perspective in this document. At the same time, some topics which may be of importance to the Minister in taking a decision will not be discussed in this report because they lie outside the primary area of responsibility of NMa/ DTe. For instance, we will not discuss any possible environmental effects and no research was conducted into possible effects of the proposed measures on the state's revenues from natural gas or the implementation of the small fields policy.

This report is structured as follows. Firstly, we will describe why a well-functioning TTF which operates well is necessary (chapter 2). After this, we indicate what "a TTF which operates well" means (chapter 3), how the present operation of the TTF compares to this vision of the future (chapter 4), and why we are of the opinion that action is necessary (chapter 5). Chapters 6 and 7 discuss all the necessary steps in relation to the low-calorific and the high-calorific markets respectively, which are ranked in the order in which they must be implemented in chapter 8. In this chapter, the role the government may play in realising these views on the future of the TTF is also described; this is discussed in more detail in the addendum.

Since the importance of the TTF and views on the future as set out in the consultation were drawn up on the basis of NMa/ DTe's vision, NMa/ DTe's views are first discussed in chapters 2 and 3 of this report, after which the market parties' responses are described. Since most of these solutions are provided by the parties, from chapter 4 onwards, with the exception of an occasional introduction, first the views of the market parties are discussed, on the basis of which NMa/ DTe draws conclusions, and solutions are worked out in more detail.

2 The importance of a TTF that operates well

2.1 A marketplace for gas

A well-functioning marketplace contributes to security of supply in the Netherlands.⁵ Liquid marketplaces attract gas because sellers have confidence that their gas will attract buyers for long-term and short-term contracts on these marketplaces. Price signals which arise on the marketplace may also provide incentives for investments in, for instance, pipelines, storage facilities and LNG facilities. As a result, the Netherlands will acquire access to more diverse sources of gas and security of supply will be improved, also during cold winter days.

A well-functioning wholesale market is also a necessary condition for effective competition on the liberalised energy market for end users. On a well-functioning wholesale market, (future) buyers have a choice from an ample supply of gas and gas-related services provided by various suppliers. A liquid marketplace attracts supply, bundles this and, by doing so, makes it accessible to buyers. As a result, suppliers to end users need not have the economies of scale to procure gas independently from producers in, for instance, Russia or Norway.

If a liquid marketplace exists, suppliers to end users can also differentiate themselves from each other by means of their procurement strategy and their portfolio. For instance, one party may opt to procure its entire portfolio far in advance, while another may perhaps hedge its position less far in advance. One party will also provide for flexibility by means of short-term blocks of gas, while another may place greater emphasis on storage contracts. Parties may also differentiate by compiling different customer portfolios: the one may specialise in small consumers, while another may look for synergy precisely between supplying power stations (which they may or may not manage themselves), industry and small consumers. Parties which make good choices on this market can offer their customers better prices than those who do not do so. A liquid marketplace therefore generates freedom of choice.

In this way, a liquid wholesale marketplace promotes the entrance to, growth of and differentiation on the market for the supply of gas to end users. The development of a marketplace for gas is therefore not an aim in itself, but a means of achieving security of supply and actual competition on the gas supply markets. This ensures that buyers have sufficient gas and that they benefit from actual freedom of choice and efficient prices.

⁵ See also the vision of the European Commission, expressed in the DG Competition Report on Energy Sector Enquiry, 10 June 2007

2.2 The TTF

With regard to the Dutch ambition of developing a "gas roundabout", it is of fundamental importance that the TTF becomes the central marketplace of North-West Europe. The TTF can make it possible for the Netherlands to become a North-West European hub for gas and gas-related services, such as flexibility and financial risk injury instruments. This may add value to the gas which flows through the Netherlands and may strengthen the position of the Netherlands as a natural gas country. This will be of benefit to both security of supply, and the Dutch economy and employment in the Netherlands. Inversely, we also believe that a North-West European reach is necessary for a truly liquid TTF.

3 Future vision for the TTF

3.1 Centre for international trade and gas flows; the “gas roundabout”

Procurement and sales

On the international market, shippers procure gas at marketplaces and from producers and sell this on to other shippers or to (suppliers of) end users. A well-functioning TTF therefore has a function as a central procurement and delivery point. This means that a significant part of the gas which flows through the Netherlands has to reach the TTF. After all, only gas delivered to the virtual transfer point, the TTF, can be transferred and traded further on the TTF. Gas which is either purely in transit or is delivered immediately after passing the city gate is on a "parallel road" to the gas roundabout and is therefore not accessible to buyers at the marketplace.

Portfolio optimisation and trade

Secondly, the TTF has a function in relation to portfolio optimisation and proprietary trade. At every moment, the shippers will try to procure or sell gas subject to the most favourable conditions. In this process, contracts are divided, combined, and sold on numerous times, and arbitrage takes place between marketplaces. This ensures that physical resources (gas storage facilities, gas production facilities, import facilities, but also, for instance, gas-fired power stations) are deployed optimally. In this way, the TTF, as a trading point where the traded volume far exceeds the physically delivered volume, has an important role.

An important condition for the emergence of a fully-fledged trading point is that the buyers and sellers can find each other easily⁶ and that gas flows easily between the various marketplaces. If sufficient volume is traded in enough different products by many different parties at an easily accessible marketplace, and this trade is effectively facilitated by exchanges and brokers at low transaction costs, the marketplace may be called liquid. In practice, this means, for instance, that sufficient short-term and long-term products have to be traded and/or delivered.

In this way, long-term bilateral contracts with importers/producers, which are important in guaranteeing security of supply, are certainly consistent with the development of the TTF. After all, with the TTF as the delivery point in a bilateral contract, the foreign producer has security of demand *and* the gas can be traded further on the TTF, if the buyer wishes to do so. Within this framework, we wish to note that GasTerra's contract with Centrica through the pipeline to the UK

⁶ This is the (conceptual) definition of a liquid marketplace. There is a set of numerical indicators, which together indicate the degree of liquidity of the market; however, no single unambiguous (numeric) indicator may be identified.

(the BBL), for instance, is of this nature. This bilateral contract for 8 billion m³ of gas per annum extends over 10 years but has as its delivery point NBP,⁷ the virtual delivery point in the UK.

The TTF is therefore more than simply a trading point for short-term contracts: long-term (standard) contracts can also be traded and a TTF can serve as a delivery point for short-term and long-term bilateral contracts. In this way, the objectives of security of supply and competition can be interlinked.

Flexibility

As a third party, the TTF as part of the "gas roundabout" bundles the demand and supply of flexibility. In addition to the sale and transmission of bulk volumes of gas, the value which the gas roundabout creates for the Netherlands is also derived from services like flexibility. Since the consumption of gas by end users often varies considerably over time, a party which supplies end users requires both bulk gas (the "commodity", which is often mostly purchased more than a year in advance) and the flexibility to be able to deliver this gas at precisely the right moment. Gas storage facilities (seasonal and peak), flexible gas sources, but also, for instance, power stations⁸ may meet this demand for flexibility. The Netherlands has a special position on the flexibility market due to the very flexible nature of the Groningen field. The Netherlands is consequently a net exporter of flexibility, while many other countries import flexibility or can only provide for their needs by means of gas storage. This makes the TTF exceptionally suitable as a trading point for flexibility in North-West Europe.

Balancing

Shippers, who transport gas across GTS's network, must ensure that the quantity of gas which they feed into this network is in balance with their offtake of gas. Deviations from the balance arise from fluctuations in demand, for instance because a gas-fired power station starts producing more and due to fluctuations in supply. If the deviation in the import or offtake of gas is greater than a set tolerance limit, GTS charges a levy. It occurs regularly that shippers have countervailing imbalances: the one shipper feeds too much gas into the network and another too little. By means of short-term trade on the TTF, the shippers can both be in balance. Gas storage operators can offer short-term storage and, by doing so, help balance the system and/or individual shippers on a commercial basis. In this way, balancing effectively amounts to no more than flexibility in the very short term and acquires a cost oriented/ market-oriented price.

⁷ Source: Annual Report GasTerra for 2006

⁸ For instance, if an electricity producer has both gas-fired and coal-fired power stations, under the right circumstances this producer may make flexible gas available to the market by generating electricity using coal and, as a result, can sell the gas which is not used.

Price signal and risk management instruments

Finally, markets in which supply and demand can find each other easily provide for reliable pricing. Prices on the TTF and the fluctuations in these then serve as the reference for other types of contract and as a signal for investments in storage and LNG. These prices can also provide a basis for financial risk management instruments (futures, options etc.), which can be offered by, for instance, banks.

Responses of market parties

With regard to the development of the market, many market parties underline the importance of "The Netherlands as a gas roundabout". An important role is envisaged for the TTF as a procurement and selling point, as a point for portfolio optimisation and as a balancing point. A Dutch shipper states that it "*believes strongly in the development of the Dutch gas roundabout as the regional hub for North-West Europe*". In addition, the parties see a role for the TTF as a source of reliable pricing. In addition, shippers indicated clearly that they regard the TTF as a source of all sorts of possible products, including flexibility: "*it must be possible for all products, also including flexibility products without commodity, to be delivered on the TTF.*"

However, some market parties warned that the success of the Dutch gas market cannot be equated with that of the TTF. As one of the parties notes, "*in a mature, liquid market, both bilateral trading contracts and the TTF contracts play a role.*"⁹ As was argued earlier, NMa/DTe is of the opinion that there is no contradiction between bilateral contracts and TTF contracts. In addition, the role of the TTF as a reliable price indicator for investments in pipelines is called into question by one party because this rests on different economic principles. In this regard, NMa/DTe notes that structural price differences between countries may be an indicator of (contractual or physical) scarcity of transmission capacity.

A number of parties, in particular parties exchanges, also referred to the importance of extending trade on the TTF in order to acquire a stronger competitive position relative to emerging and established hubs in the neighbouring countries of the Netherlands.

3.2 Different ambitions for low-calorific gas and high-calorific gas

Internationally traded and transported is mainly high-calorific. Production of low-calorific gas is limited to the Netherlands only (the Groningen gas field) and in Germany¹⁰ is low-calorific gas

⁹ Note by DTe: This notion is probably based on the assumption that only standard contracts are delivered on the TTF. However, experience in other countries, such as the UK shows that bilateral contracts can also be entered into with the TTF as their delivery point.

¹⁰ Germany does not export low-calorific gas and is a net importer of Dutch lower-calorific gas. Both the production and the reserves of German low-calorific gas fields are clearly lower than those of Dutch gas fields.

Source: "Wholesale Gas Competition in the Netherlands and Implications for Phase III Customers", Brattle, June 2003

produced. Low-calorific gas cannot be converted physically into high-calorific gas, though conversion the other way round is possible. Low-calorific gas is consumed in the Netherlands, in Germany and to a lesser extent in Belgium and northern France. The Netherlands is the only net exporter of low-calorific gas. All the above-mentioned countries also use high-calorific gas. The above means that the primary function of the TTF, as a centre of European gas flows and of gas trade, and international competition for access to gas, involves high-calorific gas mainly.

In addition, domestic demand for low-calorific gas has very different characteristics than the demand for high-calorific gas. The demand for low-calorific gas is temperature dependent and therefore varies considerably throughout the year in accordance with household use of gas of this quality for heating purposes. The demand for high-calorific gas, on the other hand, is relatively stable throughout the year because gas of this quality is mainly used for industrial purposes.

Almost all imports of natural gas into the Netherlands are high-calorific. In addition, low-calorific export gas is usually gas of a slightly different quality¹¹ from domestic consumption. The type of low-calorific gas which is suitable, amongst others, for Dutch households is therefore consumed almost exclusively in the Netherlands. Therefore, the market for the supply of low-calorific gas will therefore remain mainly a national market.

However, the markets are linked through quality conversion, whereby high-calorific gas can be converted into low-calorific gas. Once gas has been converted into low-calorific gas, it cannot physically be converted "back" and is therefore no longer directly part of international trade (in high-calorific gas). Because of quality conversion, competition on the market for low-calorific gas benefits from a well-functioning "gas roundabout" for high-calorific gas; however, the extent to which this is the case is limited by the considerable temperature dependency of demand for low-calorific gas. It is precisely competition on the market for low-calorific gas which is crucial in making households benefit from freedom of choice and efficient prices, as they are connected to the low-calorific network and customers cannot choose to be connected to the high calorific grid. The issue as to when sufficient quality conversion exists and how the temperature dependency of demand plays a role in this will be discussed further below.

The linking of the high-calorific and low-calorific markets (through quality conversion) also means that the low-calorific market benefits from a well-functioning gas roundabout with regard to balancing, price signals and portfolio optimisation. The gas roundabout can fulfil these functions for both markets at the same time because the volumes of gas and flexibility which physically have to be delivered for these functions are small. With regard to the procurement and sale of

¹¹ A further distinction is made within the category of "low-calorific gas" between three qualities. Of so-called "G+ gas", to which households are connected, 99% is intended for domestic consumption. L-gas is intended purely for export; blending occurs close to the border. The final, much smaller gas flow is G-gas, approximately 50% of which is intended for domestic industry and 50% for households. L-gas cannot be physically exchanged for G/ G+ gas.

(bulk volumes) of low-calorific gas and flexibility, however, the effect of the gas roundabout remains small due to physical limitations.

3.3 Low-calorific gas: delivery point

The most important customers on the wholesale market for low-calorific gas¹² are suppliers to domestic consumers (households, small-business customers and industry). The TTF may be a procurement point for these parties in the future for low-calorific gas. This means that gas from the Groningen gas field or converted gas will be supplied under bilateral (standard) contracts on the TTF, after which buyers will transmit it to consumers and power stations or store it in gas storage facilities in order to use it at a later moment. In addition, customers can procure high-calorific gas (or have it procured) on the TTF or import it themselves, and have it converted. By doing so, suppliers to domestic buyers of low-calorific gas can compile a diversified procurement portfolio of long-term and short-term contracts, possibly supplemented by their own wholesale activities, such as gas storage or arbitrage between the various destinations within their portfolios, and can utilise their success at procurement and arbitrage to compete for customers.

Responses of market parties

Many parties see a role reserved for the low-calorific market on the TTF as a source for the procurement of gas and flexibility. A shipper active on the Dutch market stated that *"we agree with the statement that a liquid hub is a necessary condition for flexibility and that such a hub will facilitate retail competition."*

With regard to supply on the low-calorific market, shippers this see an important role reserved for high-calorific gas (originating from a liquid high-calorific gas market on the TTF) which is converted by means of quality conversion. However, shippers also emphasise the importance of an adequate supply of domestically produced gas on the low-calorific market.

Summary

Market	Function of the TTF
Domestic low-calorific gas market	Supply of gas and flexibility
Gas roundabout	Procurement and sale of gas
	Portfolio optimisation and trade
	Flexibility
	Balancing
	Price signal and risk management

¹² Excluding the "export quality", in other words only gas with a Wobbe label of 43.8 or 44.4

4 Situation today

Since its commencement in 2003, the TTF has experienced reasonably quick growth, both with regard to the volumes and the products traded, and the number and type of participants. For instance, both brokers and exchanges (APX for short-term products and Endex for long-term products) are active, physical delivery takes place and proprietary trading, and the prices on APX Gas¹³ are used by the TSO to determine imbalance tariffs. Nevertheless, the TTF is not sufficiently developed by far.

4.1 Domestic market for low-calorific gas

Though-calorific gas, in particular, is hardly delivered at all on the TTF in 2006: less than 1% of the low-calorific gas which flows through the Netherlands reached the TTF.

Background: role of the Groningen gasfield and market characteristics

The Netherlands is a large producer and exporter of natural gas. Domestic production originates from the small gas fields (high-calorific gas) and from the Groningen gas field (low-calorific gas). Most domestic consumption is low-calorific gas. The Netherlands exports both high-calorific gas and low-calorific gas; in this regard, it should be noted that the bulk of the "export quality" low-calorific natural gas is of a different quality than that used for domestic consumption. The Netherlands also imports natural gas; this is almost exclusively high-calorific gas. The gas balance for 2006 is given as figures in Table 1.

Table 1. Gas balance in the Netherlands in 2006, TWh. Source: GTS

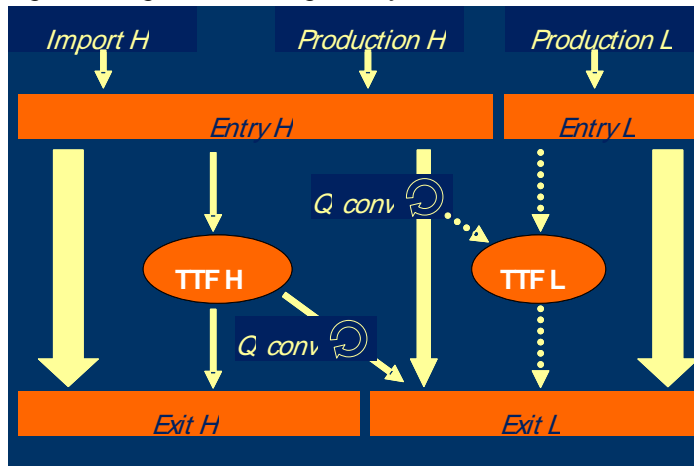
	High-calorific gas (Wobbe label 51.6)	"Export quality" low- calorific gas (Wobbe label 46.5)	Low-calorific gas (Wobbe label 44.4 or 43.8)
Entry total	610	0	348
- Production	382	0	348
- Import	228	0	0
Exit total	364	255	331
- Domestic consumption	124	0	289
- Export	240	255	42

By means of quality conversion, high-calorific gas can be converted into low-calorific gas. At present, the most important source of low-calorific gas is the Groningen gas field; the contribution of converted gas on the market for the supply of low-calorific gas in the Netherlands is very limited.

¹³ In combination with the prices of APX Zeebrugge and NBP

Figure 1 illustrates the role of the TTF with regard to both high-calorific and low-calorific gas, as well as the role of quality conversion. “Production L” in this figure only relates to the Groningen field; quality conversion is abbreviated to “Q conv”.

Figure 1. Diagram illustrating delivery on the TTF.

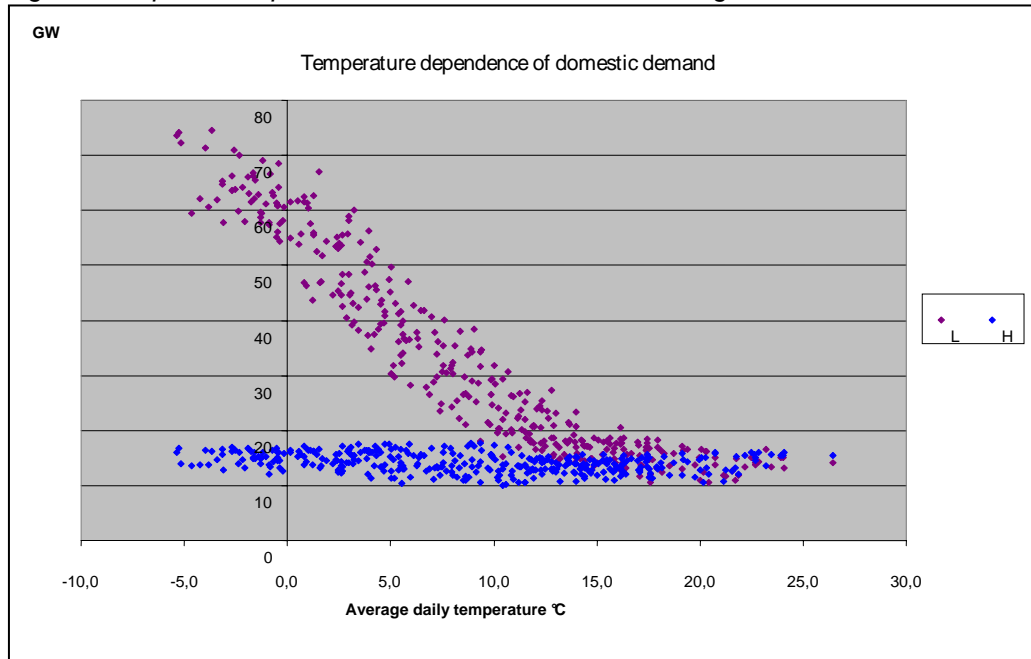


In order to supply Dutch households, in addition to low-calorific gas itself, ensuring that there is sufficient low-calorific flexibility is also important. Due to their gas-fired heating, households show strong fluctuations in their consumption patterns throughout the day and year; as a result, the low-calorific market has a considerable need for seasonal flexibility.¹⁴ The figure below represents domestic consumption of high-calorific and low-calorific gas as a function of temperature. This is the situation applicable in the calendar year 2006; the winters of both 2005-2006 and 2006-2007 were warm. In a colder winter, a higher demand for low-calorific gas is registered. This demand *must* be met immediately; suppliers are obliged to meet the demand for gas from small consumers.¹⁵

¹⁴ For example, in a mild winter, domestic households used twice as much gas per month in the winter than they do in the summer. The harsher the winter, the greater this difference is.

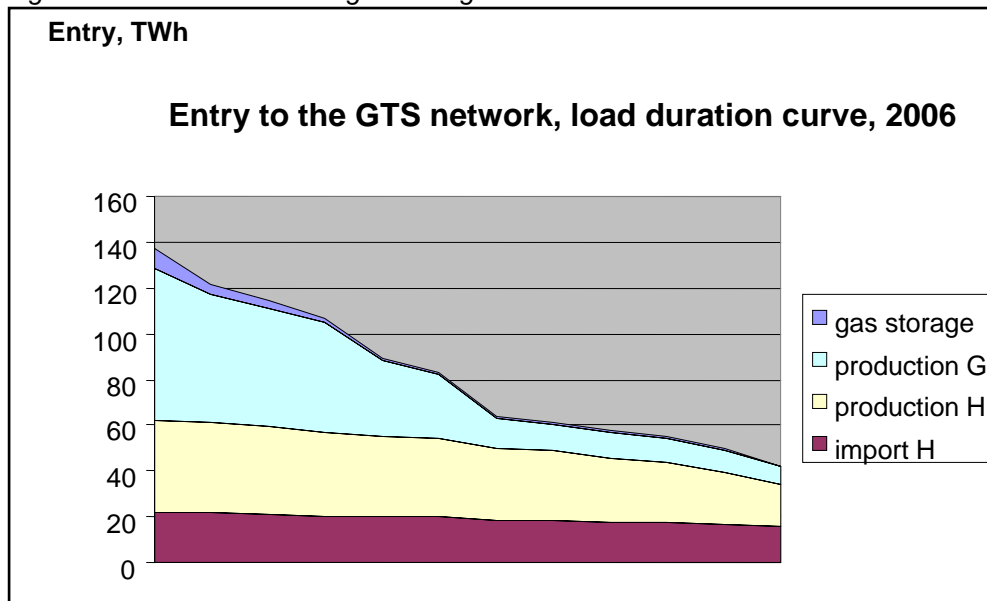
¹⁵ Up to a daily temperature of -9°C on average. The obligation to supply gas is part of the licence which suppliers require, if they wish to supply gas to small consumers.

Figure 2. Temperature dependence of domestic demand for natural gas in 2006. Source: GTS



The Groningen gas field is the most important supplier of this flexibility, because the production of this gas field is to date very flexible. This is reflected in the figure below.

Figure 3. Duration load curve of gas entering the GTS network in 2006. Source: GTS



The entry of gas per month for 2006, sorted according to the month with the highest entry (left) to the month with the lowest entry, is reflected in Figure 3. The greater the difference, the greater the flexibility delivered. The two areas at the bottom of the Figure 3 show that the production and import of high-calorific gas has been almost stable. The production of the Groningen field

("Production G"), on the other hand, was clearly much higher for 1/3 to half of the year than for the rest of the year. By implication, this means that the Groningen field supplies low-calorific seasonal flexibility. The low-calorific gas storage facilities supply gas for some weeks only.

Supply of low-calorific gas through imports

A supplier who wishes to ship gas itself for its own low-calorific end users must have a number of physical resources at its disposal: gas, flexibility for the short term and long term, transmission capacity, and quality conversion. High-calorific import capacity is scarce¹⁶ and short-term flexibility for both qualities of gas is hardly available at all to the market.¹⁷ We will discuss this in more detail in the following section. Quality conversion and seasonal flexibility are exceptionally important specifically for the low-calorific market.

Up until now relatively little has been invested in seasonal gas storage in the Netherlands, compared to other North-West European countries. The investments which have been made were made by NAM. Other parties that have invested in gas storage (for instance, Essent and Nuon) have short-term storage at their disposal, suitable only for bridging peaks in demand of a maximum of a week or two, but they do not provide for seasonal storage which must be capable of producing throughout the winter. The Groningen field, however, does provide for this. As a result, it is in a key position in the market for seasonal flexibility in the Netherlands.¹⁸

Quality conversion, which allows high-calorific gas to be converted into low-calorific gas, is also crucial. Many market parties underline the importance of coupling the high-calorific market and the low-calorific market. They refer to the lack of quality conversion capacity as one of the most important barriers to the realisation of this coupling. One shipper states that "*there is an urgent need for more quality conversion.*"

At present, quality conversion capacity must be reserved with GTS and this is sold out until approximately 2010. This capacity is used for both domestic consumption and for the export of low-calorific gas. The present capacity can only provide physically for a small portion of domestic peak demand for low-calorific gas.¹⁹ The TSO, GTS, has stated that it wishes to extend the physical capacity for quality conversion by approximately 50%,²⁰ which must be realised by the end of 2010.

¹⁶ (Almost) all import capacity is high-calorific gas.

¹⁷ Source: *Gasmonitor 2005 (op. cit.)*

¹⁸ It is possible to import seasonal flexibility. Since this results in lower average use of pipelines, however, this is expensive over long distances compared to domestic storage.

¹⁹ Subject to export obligations, shaving off the worst peaks by deploying gas storage and the fact that suppliers of households must be able to supply gas to a temperature of -9°C.

²⁰ Source: presentation at the GTS shipper meeting of 4 April 2007; see

<http://www.gastransportservices.nl/content/documents/shippers/presentations/presentatieshippermeeting.pdf>

We conclude from the facts mentioned above that consumers of low-calorific gas depend on production from the Groningen gas field. This circumstance limits the opportunities for effective competition on the wholesale market for low-calorific gas. In addition, GasTerra is the only shipper with direct access to this source of low-calorific gas and low-calorific seasonal flexibility due to its private-law contract with NAM.²¹ This means that suppliers to small consumers are now largely dependent on GasTerra. There is insufficient import capacity, insufficient (seasonal) flexibility freely available to the market, *and* insufficient quality conversion to allow suppliers to offer households an alternative. These suppliers are therefore "captives": bound to GasTerra. GasTerra is therefore the shipper for a large part of the customers in the "profile segment".²²

Supply behind the city gate

From the fact that only 1% of low-calorific gas reaches the TTF, it can be inferred that GasTerra supplies its low-calorific gas for domestic households almost exclusively on the regional gas network. Many parties agree that this does not benefit the development of the TTF and competition on the low-calorific gas market. One of the suppliers on the market for small consumers notes that *"by continuing to supply gas at the city gate, GasTerra perpetuates market inefficiencies, which result in unnecessary costs which, at present, are passed on to end consumers"*. We explain this below.

As was stated above, low-calorific gas is supplied behind the city gate. After this, it can no longer be returned to the TTF. This often involves contracts for the supply of both the gas itself and flexibility. On the basis of these contracts, GasTerra is responsible for predicting the demand of small consumers for whom this is intended and ensures that it supplies sufficient gas.

The above also means that the gas from the Groningen gas field can no longer be used for portfolio optimisation by the buyer. For instance, on an unexpectedly cold day, a supplier of gas to households, which has power stations at its disposal, may conclude that it would be better to use gas intended for a power station to supply gas to households and instead of this may start up a coal-fired power station or import electricity. Similar decisions may be taken with regard to gas storage facilities, interruptible customers, and the import of gas. A condition for this, however, is that the purpose for which the gas is intended can still be changed. Since this is not the case with regard to the supply of gas behind the city gate, opportunities for optimisation are not fully exploited and the economic efficiency of the energy chain is therefore not maximised. As a result, this situation limits the opportunities for suppliers of gas to small consumers to differentiate prices from each other.

²¹ Short-term flexibility is offered by GTS as a service. According to the Order-in-Council on Security of Supply—the peak gas scheme—GTS is also responsible for ensuring the supply of gas to small consumers on cold days if temperatures reach between -9°C and -17°C.

²² The profile segment includes customers with consumption of less than 170,000 m³ per annum, to which consumer protection applies. All households, but also small business customers, fall into this segment. Profile customers have a single supplier and a single shipper. The shipper may be the same party as the supplier, but this is not necessarily so.

In addition, the lack of low-calorific gas on the TTF is in itself a problem: compiling a varied procurement portfolio which deviates from that of a competitor is hardly possible at all. This also limits the opportunities for price competition.

Since 2003, attention has been drawn to this situation by NMa/DTe on a number of occasions; however, we noted that no improvements have yet been made. A stalemate has been reached whereby GasTerra indicates that it does wish to supply gas on the TTF, but on no occasion agreement has been reached on the conditions and the price.

Coupling with seasonal flexibility

In addition, numerous shippers mentioned the coupling of seasonal flexibility and the offtake of gas at the city gate by GasTerra as an important problem.

As was stated above, for the time being the Groningen gas field is the most important source of seasonal flexibility. At present, this flexibility is supplied behind the city gate in combination with the gas itself; no low-calorific seasonal flexibility is traded on the TTF. Most locations—entry gas fields which are suitable or could be made suitable for seasonal storage also fall at present under NAM's gas production licences. However, this does not detract from the fact that these locations are potentially suitable for gas storage. At present it is not sufficiently clear to what extent and under what conditions newcomers would be able to invest in seasonal storage in the Netherlands.

4.2 Gas roundabout

Procurement and sales

The TTF can also not be qualified as a fully fledged, liquid marketplace for high-calorific gas. Both the monitor report by NMa/DTe and the letter from the Minister referred to above indicate that too little gas is offered on the TTF. In other words, too much gas—almost 90% of the high-calorific gas in 2006—did not reach the TTF and could therefore not be traded. This also limits the diversity of product offerings on the TTF (in particular with regard to contractual terms). The lack of volume supplied and diversity in the product offering is an obstacle mainly to the function of the TTF as a marketplace for procuring gas, as well as being an obstacle to the opportunities for portfolio optimisation. To follow a diversified procurement and sales policy with manageable risks, access to a wider variety of (standard) products is necessary from which the buyer and seller can make choices and compile a portfolio.

Many market parties see the lack of import capacity as one of the greatest obstacles to a liquid, high-calorific market on the TTF. As one shipper explains: "*without sufficient capacity it is impossible to feed gas into or extract gas from the Dutch system and this imposes a limit on the liquidity of the TTF.*" However, there is also a party who is of the opinion that the physical network is not the most important problem and under normal (weather) conditions ought not to be an

obstacle to trade on the TTF. This party explains this claim by stating that "*the existing gas infrastructure is designed to facilitate domestic consumption and international trade under extreme (weather) conditions. Under normal conditions, the capacity of the physical network should therefore not be a problem.*" A different party states that although steps can still be taken to expand (import) capacity, the planned investment projects meet the future need for capacity.

In this regard, domestic producers of natural gas were hardly active at all on the TTF, although they are becoming more active. Since 2006, GasTerra has supplied (high-calorific) gas marketplaces such as the TTF, NBP, and Zeebrugge; in 2006, this was approximately 1% of its gas supply.²³

Portfolio optimisation and trade

As was argued at the beginning of this chapter, some shippers state that the available transmission capacity is not utilised optimally. As a result, opportunities for portfolio optimisation are not fully exploited.

This relates particularly to the fact that import and export capacity in some cases is not utilised, but is also not made available again to the market. There are two reasons for this.²⁴ Firstly, all capacity is sold on a long-term basis, this capacity is sold out, and there is almost no secondary trade at all in this capacity. In addition, as a result of a lack of transparency with regard to the utilisation of the infrastructure, shippers have usually not been able to make sound estimates of the risk of not being able to transmit gas. The "safe option" is then to hold on to contracted capacity. GTS recently expanded its provision of information; the effects of this will become clear in the coming months.

Secondly, credit risk as a result of imbalance is an issue of concern. Numerous parties stated that this is an obstacle to supplying gas on the TTF. This works as follows. At present, a situation may arise where a seller on the TTF, who is balanced, has to take over an imbalance bill of its customer if this customer cannot meet its payment obligations to GTS. Until the buyer's final invoice for imbalance settlement is paid in full, the seller should maintain a financial reserve to cover this risk. The seller has no influence on the settlement of this potential bill, which sometimes takes three years and does not have a definite closing date. Numerous parties state that the financial reserve which needs to be maintained in the meantime acts as an obstacle to physical delivery on the TTF.

We add to the analyses of the market parties that the coupling of TTF and the neighbouring trading platforms, NBP and Zeebrugge, must be improved. The coming into operation of the BBL recently considerably strengthened the link to the British marketplace, referred to as NBP.

²³ Source: Annual Report of GasTerra 2006; no distinction is made between European marketplaces.

²⁴ For an extensive analysis, see the *Gasmonitor, ontwikkelingen in de groothandelsmarkt gas in Nederland in 2005* DTe, September 2006

However, the BBL now flows in one direction: from the Netherlands to the UK. This means that if this pipeline is deployed properly, gas will flow to the UK if prices on the NBP are higher than on the TTF. On the other hand, however, if the prices quoted on the TTF are higher, no gas can physically flow back. A construction such as "backhaul" does not solve this (to a sufficient degree). As yet, NMa/DTe knows of no plans to ensure that gas can also physically flow through the BBL from the UK to the Netherlands.

At present, gas can flow from the UK to the Netherlands through Belgium. In this case, the gas goes through the import point, Zelzate, on to GTS's network. In GTS's most recent investment plans, Zelzate is referred to as an export point. It is crucial that Zelzate also physically remains an import point to ensure that the TTF does not become isolated. For the position of the TTF, as the centre of the "gas roundabout" of North-West Europe, a good connection with NBP and Zeebrugge, with physical flows in both directions, is necessary.

Flexibility

The parties also mentioned the lack of flexibility on the TTF. In this regard, the effect that short-term flexibility is hardly available at all to third parties is of particular importance: too few physical or virtual storage contracts are offered. GTS does currently offer short-term flexibility through its Combiflex product.

Balancing

During our consultation, numerous market parties indicated that potential suppliers to the TTF, which are not yet active, are deterred by (a perception of) imbalance levies.

As a result, the function of the TTF as a point where parties can manage the balance of their portfolios has not yet developed sufficiently. If the parties on the wholesale market are able to trade imbalance positions, fewer claims would be made to physical sources of balancing (for instance, linepack and short-term storage).²⁵ Parties would nevertheless be able to acquire a position on the wholesale market without access to these physical resources.

Many market parties are of the opinion that the balancing function of the TTF has not developed adequately for a number of reasons. Firstly, the parties state that they do not have the necessary information with regard to their imbalance position due to the lack of information ("steering information" and the "linepack monitor"). It is therefore not clear to these parties what action they must take to balance their portfolio. A shipper active on the Dutch market states that *"making available real-time information with regard to balancing is of considerable importance for the development of the balancing market."*

In addition to a lack of steering information, a number of shippers also see the present hybrid system of hourly and daily balancing as a problem for the development of the TTF as a balancing

²⁵ This effect is observable both in the case of the British NBP and on the Dutch electricity market in the case of TenneT.

tool. As one shipper explains: *"there is an urgent need for a departure from the present hourly balancing system."* The Dutch balancing market with its present structure is inherently a difficult market because every hour of the year is a separate market²⁶ which requires sufficient buyers and sellers for relatively small products. The balancing function of the TTF is important, in particular, to newcomers, who have a relatively large imbalance and relatively fewer physical balancing instruments at their disposal.

Price signal and risk instruments

Due to the lack of liquidity with regard to trade and a lack of a physical "basis", the TTF provides price signals which fall short of what is required. This also limits the supply of risk management instruments by banks. However, these problems are expected to solve themselves with a more liquid TTF.

Summary

Market	Function of the TTF	Situation today
Domestic market for low-calorific gas	Supply of gas and flexibility	Less than 1% of the gas and flexibility through the TTF due to city gate contracts and a lack of available quality conversion and available seasonal flexibility
Gas roundabout	Procurement and sales	Less than 10% of gas through the TTF, due to a lack of available transmission capacity and a lack of supply of domestic production on the TTF
	Portfolio optimisation and trade	Less trade and optimisation than is possible due to underutilisation of existing import capacity, credit risks
	Flexibility	Insufficient flexibility available due to the fact that a low share is TPA available
	Balancing	Insufficient balancing via the TTF due to a lack of transparency and the structure of the balancing regime
	Price signals and risk management	Too unreliable for security of supply

²⁶ GTS applies a hybrid system of hourly and daily balancing.

5 Why should action be taken?

The functioning of the TTF is a reflection of competition on the wholesale market for gas as a whole. A number of reasons mentioned above for the fact that the TTF does not function as a fully fledged marketplace are not due so much to the TTF itself, but to adjacent issues relating to the gas wholesale market. However, this does not detract from the fact that the functioning of the TTF depends on solving the problems mentioned here.

We are of the opinion that solving these problems is urgent. NMa/DTe has drawn attention to most of the matters referred to here on numerous occasions since 2002. However, we note that little progress has been made by the market itself. Some solutions require a lengthy preparation because physical investments are necessary. However, the fact that a lack of transparency and problems in relation to (detailed) regulations have slowed down the development of the TTF is not necessary. Precisely where investments are not required, quick action is possible and necessary to give the parties the confidence that competition will improve with sufficient speed.

For the domestic low-calorific market it is specifically important that the supply of low-calorific gas via the TTF has not yet been sufficiently realised. The stalemate with regard to whether and subject to what conditions low-calorific gas can be supplied on the TTF has lasted for years and, for the time being, has not produced any results. The result is a lack of price competition on the market for the supply of gas to small consumers. In the light of the market relationships and opposing interests, we think that market parties will not resolve these issues on their own. Government measures in this area are therefore required.

Solving problems which may delay the realisation of the ambition to create a "gas roundabout" is of vital importance to security of supply and competition on the national gas market and determines the position of the TTF in relation to other marketplaces in North-West Europe. To make the TTF the Centre of international trade, its development must be accelerated. The gas roundabout exclusively requires measures facilitating (international) trade and gas flows, as these will allow market parties to operate the gas roundabout with a minimum of regulation.

The next two chapters contain an overview of all the steps which are required to promote the functioning of the TTF as a high-calorific "gas roundabout" and to make possible competition between suppliers to low-calorific end users. Some of these steps are already being prepared by market parties or GTS; others are still in their infancy or have not yet commenced and require action from the government.

6 Action required: domestic market for low-calorific gas

To enable domestic end consumers to actually benefit from competition on the market for low-calorific gas within the limitations arising from the considerable role played by the Groningen gas field in the supply of gas and flexibility, more is required than a high-calorific market which operates well. The coupling of the high-calorific market to the low-calorific market, through quality conversion, must be improved, as must the operation of the market for low-calorific gas itself. We will discuss these points in turn.

6.1 Quality conversion

Background nature of the problem

Prior to the split of Gasunie into the present companies, Gasunie N.V. and GasTerra, the conversion balance was monitored by a combination of physical conversion in conversion stations and the alignment of production from the Groningen gas field and the small gas fields to demand for gas of various qualities. In this regard, "export quality" low-calorific gas always had to be physically converted in conversion stations, but domestic demand for low-calorific gas could be met mainly from the Groningen gas field without large-scale conversion.

The splitting of Gasunie changed this situation. In principle, the quantities and qualities of gas which market parties wished to feed into the network (from production and imports) and withdraw from the network (for export and domestic consumption) are given for GTS. GTS uses the conversion stations to provide for the resulting demand for quality conversion, but no longer has a (direct) influence on the production of gas from the Groningen gas field and the small fields. In order to manage the conversion balance, GTS has introduced an allocation system which requires conversion capacity to be reserved with GTS. This capacity is allocated on a "first-come-first-served" basis. GTS has indicated that the (physical) available capacity for quality conversion is fully booked for the coming years.

The quantity of gas which GTS can physically convert in the conversion stations depends on the supply of high-calorific gas, the supply of low-calorific gas, and the nitrogen capacity which GTS has to "dilute" the gas. In this regard, GasTerra's portfolio is so large that it largely determines both the demand for and the supply of physical conversion. After all, if the Groningen gas field supplies more gas, the demand for conversion will decrease; if the Groningen gas field reduces production, the demand for conversion will increase and the supply of conversion will decrease.

Since the splitting of Gasunie, GTS as TSO therefore no longer uses GasTerra's production mix as a means of meeting the demand for conversion. Instead, this mix has become an external factor which determines the conversion capacity available to third parties to a considerable degree. In the meantime, there have been no signals that the physical capabilities of the

Groningen gas field have deteriorated considerably since the splitting of Gasunie. We therefore conclude that the present shortage of quality conversion is a contractual shortage and not a physical shortage. In the medium term, as the production capacity of the Groningen field decreases, a physical shortage of quality conversion capacity will arise.²⁷

Capacity and allocation

Almost all shippers plead for an expansion of quality conversion capacity; no one is opposed to this. In addition, most of the parties state that they wish to work towards a situation where it is no longer mandatory to reserve quality conversion capacity beforehand.

GTS is responsible for ensuring that there is sufficient quality conversion and states that the reservation system can only be abandoned after the investments which it plans to make have been realised. NMa/DTe, however, is of the opinion that this statement indicates that GTS underestimates its opportunities to offer the market more conversion, and that this leads to an unnecessary and undesirable delay. Since this is a contractual problem in the short term, this problem must be resolved contractually. GTS will have to enter into a contractual operational relationship with GasTerra to ensure that shortage of quality conversion is resolved through GasTerra's portfolio. In addition, the portfolios of other companies, such as the large electricity companies, may also to a lesser degree be able to offer GTS contractual conversion services. By following this contractual path, GTS can manage the conversion balance "behind the scenes" and abandon the reservation system.

GasTerra's cooperation in this contractual solution is crucial. If GTS and GasTerra cannot reach agreement independently, consideration must be given to imposing obligations on these parties.²⁸ To achieve this, it is desirable that this measure be anchored in legislation and/or regulations.

As was mentioned above, as the supply of gas in the Netherlands shifts from the Groningen gas field to a greater dependence on imports (of high-calorific gas), the physical demand for more quality conversion will increase. In principle, the fact that GTS is planning to ensure that quality conversion capacity (partly) increases with import capacity is therefore justified.

²⁷ In the longer term—more than 10 years—the question which arises is whether all demand from small consumers must be met through quality conversion if the Groningen gas field is depleted, or whether it would be more advantageous for buyers to switch to high-calorific gas.

²⁸ See section 6.3.8 for an explanation of how the phrase used in this document, "provided that and for as long as GasTerra has a dominant position" is applied.

Allocation of costs

There is a difference of opinion with regard to how the cost of quality conversion must be passed on in a system in which capacity is not reserved. One shipper, for instance, argued that *"the full socialisation of quality conversion capacity"* is a necessary measure. However, a different shipper states that *"it is advisable to start with a 'pay-as-you-use' system rather than making quality conversion a system service, in order to accelerate the process"*. Another shipper warns of the likelihood of higher transmission tariffs and requests a study into the cost of such a measure and the way in which these costs will be recovered from the shippers. Another shipper concurs with this and argues that *"the full socialisation of quality conversion discriminates against a party which feeds G-gas into the network and sells this"*²⁹ In addition, this party refers to the danger that parties may use the socialised quality conversion system to convert high-calorific gas for export to other countries.

Firstly, the availability of quality conversion is important; the cost allocation discussion is secondary to that. Ultimately, the allocation of costs is a choice between a principle of "polluter pays" or "level playing field". If a level playing field is chosen and the costs are consequently socialised, by allocating the costs to all exit points or all low-calorific exit points, parties which have no direct access to the Groningen gas field will not be at a disadvantage compared to GasTerra. However, GasTerra will be obligated to pay for conversion which it does not require itself. On the other hand, in an arrangement where the user pays, the charges for the service are fairly allocated and users have an incentive to use the service efficiently. However, other shippers will have an automatic disadvantage compared to GasTerra because they require relatively more conversion than GasTerra. The allocation of costs will, upon abandoning the reservation system, be laid down in the Gas Codes.

6.2 Flexibility

As stated earlier, access to storage facilities is crucial for the development of the low-calorific (and the high calorific) market. Numerous market parties confirmed the importance of this in the consultation.

At present, only a few percent of the available capacity of existing storage facilities is offered to the market.³⁰ In addition, for historical reasons the majority of locations which are suitable for conversion to seasonal storage in the future fall under NAM's existing gas production licences. This is an obstacle to investment in gas storage by newcomers, who are necessary to strengthen competition on the flexibility market.

²⁹ G-gas = low-calorific gas

³⁰ Partly through GTS on the basis of NMA's method decision in relation to flexibility services. Existing storage capacity was contracted through GasTerra to GTS for public tasks such as the peak gas scheme.

To make empty gas fields suitable for gas storage, available to third parties and, by doing so, improve the opportunities for investment, a revision of the Mining Act [*Mijnbouwwet*] is necessary.

6.3 Quality conversion and investment are not sufficient

Even if there is no longer a need to reserve quality conversion, sufficient freedom of choice for suppliers of low-calorific gas to small consumers will not arise automatically and in the short term. After all, this only solves the shortage of quality conversion; access to gas and (seasonal) flexibility continue to be necessary. In this regard, we note that the measures referred to in the previous section are meant to improve the investment climate; it will then take many years to realise these investments. The same applies to measures, focused on increasing physical import capacity, that are addressed in chapter 7.

On the grounds of the above reasoning, we conclude that although quality conversion and improving the investment climate for flexibility may make an important contribution to the development of competition on the market for low-calorific gas, it is not realistic to think that dependence on the Groningen gas field will decrease considerably in the coming years. If research shows that GasTerra has a (partly continuing) dominant position on the market for low-calorific gas and/or flexibility, supplementary measures will be necessary to promote competition between suppliers to small consumers.

A number of measures listed in this document is only necessary in case GasTerra has a dominant position. Such measures are accompanied by the qualification "provided that and for as long as GasTerra has a dominant position".

6.4 Low-calorific gas and flexibility via the TTF

As was argued above, physically there is sufficient low-calorific gas and flexibility in the Netherlands. However, because this is supplied directly "behind the city gate" and does not flow through the TTF, the gas is not tradeable and cannot be freely deployed, and the opportunities for suppliers to differentiate themselves from each other are therefore limited.

Most shippers are in favour of a scheme which ensures that more gas from the Groningen gas field flows through the TTF. One shipper even goes so far as to state that "*as of 1 January 2008, all the gas and flexibility should be supplied on the TTF.*" Although other shippers are less absolute, many expressed a strong wish for supplying low-calorific gas on the TTF and a measure such as this has priority for some. At the same time, some parties stated that they do not wish to be obliged to trade on the wholesale market themselves with all the duties and obligations which this implies. GasTerra stated that it is important to ensure that it does not become dominant on the TTF. GasTerra also warns that if too much gas is supplied on the TTF, this gas could flow

away to other countries. One party also stated that it would like to supply low-calorific gas on the TTF, but that there is no demand for this.

Standard low-calorific (annual) contracts are now offered on the TTF without flexibility. Due to the considerable demand for seasonal flexibility on the market for low-calorific gas, such contracts are not an alternative for suppliers to small consumers.³¹ The fact that there is no demand for "flat" gas under year contracts is therefore not surprising, according to NMa/DTe. Seasonal flexibility for low-calorific gas is not offered on the TTF at present; the only party which could offer a significant quantity of this is GasTerra.

Choice for buyers

To improve the functioning of the wholesale market for low-calorific gas and competition between suppliers to consumers, it is crucial that shippers/suppliers have the opportunity to construct a portfolio comprising meaningful quantities of TTF gas, and converted import gas. They must also be able to cover the risks and costs of peak demand and balancing by means of flexibility contracts. As was argued above, to achieve this it is essential that gas from the Groningen gas field and flexibility are supplied in the right quantities and at the right moment on the TTF.

6.4.1 Package of structural measures

Transfer on the TTF

One way of ensuring that gas from the Groningen gas field is supplied to the TTF may be derived from the market model for electricity. In the electricity model, the supplier or the party directly connected to the grid is responsible for predicting the offtake of its customers and providing for this.³² This party may outsource this "programme responsibility"; many parties which are directly connected do so. We will call the equivalent in the gas market "balance responsibility".

If a model such as this is applied to gas, the effect will be that if the transfer of ownership of the gas within the Dutch system occurs before the household gas meter, this takes place by definition on the TTF, provided the seller of the gas does not also take over balance responsibility from the buyer. The decoupling of gas supply and balance responsibility is desirable to ensure that programme responsibility is not outsourced as a standard procedure by making use of a "balancing trading relationship" and that as a result nothing in fact changes. To make this arrangement possible, further regulations are necessary. Alignment with usual international practice is important in this regard.

³¹ Some of these suppliers have storage, but the storage facilities are intended for hourly, daily and weekly flexibility and are not sufficiently large to supply seasonal flexibility.

³² In principle, the buyer itself is responsible, but in the case of parties which are not directly connected, this responsibility is automatically outsourced to the supplier.

Other ways of doing business: more modularity

The present gas-entry-point contracts, however, cannot simply be transferred to the TTF. After all, these are often "all-in" contracts, in which everything is supplied by the seller (gas, flexibility, prediction of demand, imbalance and connection costs) and the buyer adds little further value. On the TTF, these contracts would become unmanageable. In the future, however, portfolios should be constructed in a much more modular fashion with different types of contracts. This means that (combinations of) block contracts for gas, virtual storage contracts, and balancing contracts may arise and be traded, by means of which suppliers to end-users will construct a portfolio. This may be of considerable benefit to trade. The block contracts may cover an entire spectrum of low-calorific products, for instance from year products three to five years ahead, to day and hour products for the following day. The bulk of seasonal flexibility may also be provided by means of blocks of gas for a month, week or day. This principle is illustrated in Figure 4.

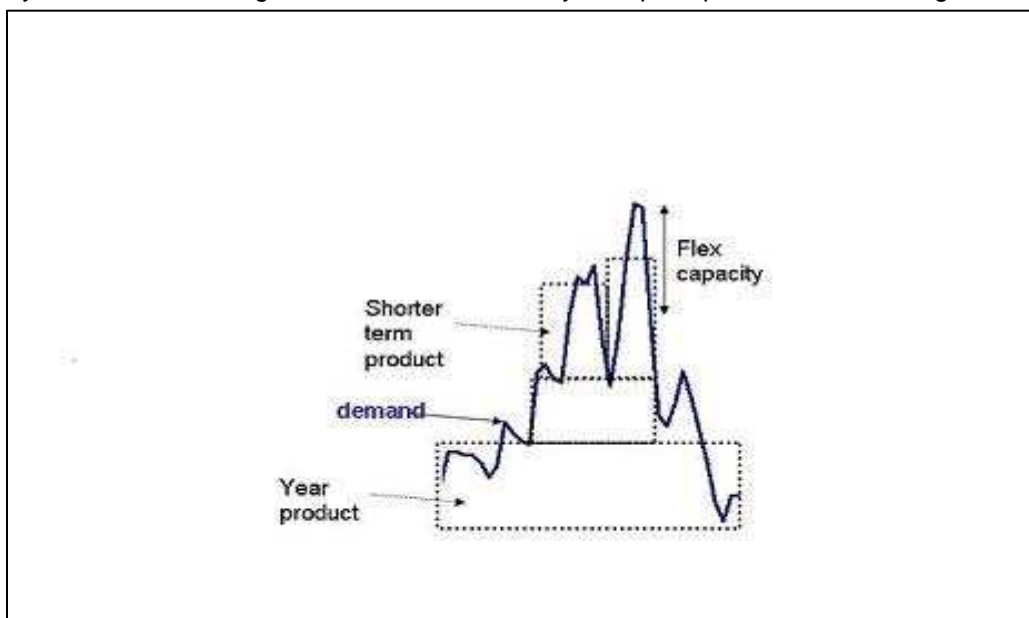


Figure 4. Meeting the need for flexibility using "blocks" of gas and flexibility services

All the different blocks can be traded separately and have their own price. A block of "month gas January" is a different product, and probably more expensive, than "month gas June". The total demand of, for instance, 3 January at 1400 hrs is therefore largely met from part of a year contract, part of a month contract, etc. up to and including the product "gas at 1400 hrs on the date of delivery".

Virtual storage contracts, and the flexibility products already offered by GTS, are necessary for the remaining demand for flexibility. Virtual storage contracts are volume neutral and are structured as storage contracts, but their delivery point is the TTF. A buyer can "store gas virtually" and withdraw it later. A virtual storage contract specifies a storage capacity (volume) and the speed with which gas can be fed into or withdrawn from the network. These contracts may vary from very short-term contracts to seasonal storage. The advantage of virtual storage above physical

storage is that the seller can itself decide how it deploys its portfolio in order to supply flexibility. As a result, the seller's portfolio remains bundled and the seller's portfolio advantage therefore remains intact.

Proposals from the sector

It is important that agreement is reached within the sector on precisely what products are required, and subject to which contractual conditions, in order to be able to switch as quickly as possible to this new way of doing business. (Some form of) standardisation improves the tradeability of products. A sector-wide industry forum is necessary for this, in which all interested parties (including shippers, suppliers, large consumers, producers and exchanges) are represented. This forum could be facilitated by NMa/ DTe; the contents of the standard, however, must primarily be determined by the sector.

To ensure that agreement is reached quickly enough and that the desired degree of standardisation becomes a reality, further regulations are desired. These could include a provision that master contracts and/or standard products for low-calorific gas and flexibility exist, from which parties may freely deviate without the government taking on the role of testing these. The industry forum could work out and propose the standard; NMa/ DTe will then approve this standard and ensure its quality. Through standardisation, this arrangement would aim to increase the credibility of low-calorific gas and flexibility, while retaining contractual freedom. It is expressly not the intention to impose limitations on the contractual freedom of market parties; for this reason, derogations from the standard must remain possible and the initiative for adopting the standard should remain a matter for the sector. We are of the opinion that (some form of) standardisation will strengthen tradeability and, by doing so, competition and that a "quality mark" issued by NMa/ DTe can promote the emergence of a good standard.

The degree of detail of these standards—what is contained in the standard and what is not—must be examined in more detail. If the degree of detail is too great, after all, this may result in a standard which is too rigid and, as a result, gives the wrong signal, as if the government is attempting to regulate the contractual conditions of low-calorific gas; a standard which is too liberal, may possibly not result in an improvement in the tradeability of gas and flexibility. The desired degree of detail must therefore be assessed carefully and may develop over time.

Role of the Groningen gas field and GasTerra

The above-mentioned arrangement is a major change to the way in which low-calorific gas and flexibility are traded. All sellers will make adjustments to their product offering. Due to the considerable role played by gas from the Groningen gas field in the supply of gas to Dutch households, it is crucial that GasTerra supplies the market with all the right products in the right quantities. GasTerra has a key position in this, which appears, for instance, from its high market share. In a transition to a new way of doing business, it is therefore necessary that GasTerra adopt an active and constructive approach and make every effort to accommodate the new model according to the wishes of its customers.

It is necessary that there is an "arbiter" to resolve conflicts between GasTerra and its customers, provided that and for as long as GasTerra has a dominant position on the market for low-calorific gas and flexibility. An arrangement such as this already exists for network operators, whereby NMa has the formal role of an arbiter in the event of a dispute between a network operator and an interested party. This arrangement was introduced with the idea in mind that grid operator is a natural monopoly and customers therefore by definition are in a weak negotiating position. A safety net such as this would also have to apply to GasTerra, provided that and for as long as GasTerra has a dominant position. In relation to the balancing shipper relationship, dispute resolution may also be instrumental in guaranteeing freedom of choice for market parties. In order to make sound arrangements for dispute resolution, it is necessary to anchor this in legislation and all regulations. Also, an assessment framework must be designed.

6.4.2 Expected effects of the structural package

Competition

We expect that the above-mentioned package, in combination with the measures referred to in section 6.1 and the measures aimed at accelerating the "gas roundabout" in Chapter 7, will result in more trade, more freedom of choice for suppliers to small consumers and more price competition between these suppliers. The "transfer on the TTF" rule may result in an increase in the reach of the TTF and therefore in a potentially higher trading volume; (some form of) standardisation of contracts is an important condition for liquid trade. This makes the composition of a diversified portfolio possible.

Security of supply

The most important concern in relation to schemes which result in more gas on the TTF, which was expressed by market parties in consultation, is that this will result in the selling off of Dutch gas and therefore to a shortage of gas for domestic consumers. In this regard, we wish to note the following.

Firstly, this concern is eliminated because an obligation to supply unlimited amounts of gas on the TTF is not proposed. Transferring gas on the TTF is still possible in this structural package on the basis of bilateral (standard) contracts, in which the quantities are agreed between the buyer and the seller. This is a very different arrangement to, for instance, a "gas release", whereby a party would be obliged to make gas available through the exchange. In an arrangement such as this, the quantity of gas which is purchased may suddenly be higher, for instance due to an error in the estimate of the price; in the case of delivery on the TTF under bilateral contracts, this is not possible.

Secondly, at the time of the consultation, a distinction had not yet been made between low-calorific and high-calorific gas. As was argued earlier, most international trade and gas

transmission occurs in the form of high-calorific gas and in the form of "export quality" high-calorific gas, which is not consumed in the Netherlands. The concern about a "sale" is removed by only applying the programme to low-calorific gas of the quality used in the Netherlands (Wobbe label 43.8 and 44.4)³³.

With regard to low-calorific gas, the opportunities for arbitrage and flow away to other countries are limited. The gas itself is only used in a few countries and is usually shipped without many detours to end users; there are no large international transit flows of low-calorific gas. The physical export capacity for this gas is limited and largely sold out in the long term. GasTerra itself is one of the largest exporters;³⁴ other parties therefore have hardly any scope to purchase more low-calorific gas from GasTerra with a view to selling this in other countries.

In addition, we note that the arrangement described above can even have the effect of making clear improvements to security of supply in the medium term. Since trade becomes possible in (standard) contracts, better price signals and new opportunities arise for companies. Offering gas storage on a commercial basis, for instance, will become much more attractive if, in principle, all these suppliers to end consumers could purchase such a service and if the feasibility of such an undertaking can be determined with sufficient certainty on the basis of good price signals.

6.4.3 Reasonableness of the proposed measures

The arrangement proposed here would be a major change for almost all parties involved.

The proposed change is considerable, particularly for GasTerra. In fact, GasTerra will no longer deliver its gas "to the front door", but on the TTF. The responsibility and the added value of predicting demand *and* adequately procuring gas will also switch from GasTerra to its customers. Instead of this, GasTerra will obtain revenues from the sale of (combinations of) standard blocks of gas on the TTF, commercial storage and balancing services.

Since in the new arrangement gas from GasTerra will be delivered on the TTF and GasTerra can continue determining which resources in its portfolio are deployed to meet this demand, it retains its portfolio advantage. However, the peak in demand for gas from GasTerra will probably be lower because its customers will also be able to deploy other resources either to shave off these peaks, or to supply gas to meet demand. In this way, both GasTerra's portfolio and that of its customers will be deployed with maximum efficiency.

NMa/DTe deems it reasonable that more rules are imposed on GasTerra than on other parties, provided that and for as long as GasTerra has a dominant position on the market for low-calorific

³³ Reports in the spring of 2006 on the fact that GasTerra's gas was sold out also related to high-calorific gas.

³⁴ Source: Annual Report of GasTerra 2006

gas and/or flexibility. In the Gas Act, GasTerra is assigned a special role as the party exploiting the Groningen gas field. When the gas market was liberalised, GasTerra, in fact, inherited these valuable activities. In NMa/DTe's opinion, this justifies measures which ensure that the special position occupied by GasTerra does not have adverse consequences for competition further on in the chain, provided these measures are fair and proportionate.

The proposed package may create an inefficiency for small suppliers to end users. After all, if they wish to outsource their programme management responsibility, they will have to enter into an additional contract for this, in addition to their gas contract. These small suppliers will also be able to optimise their own portfolios less than large players with, for instance, their own electricity generation facilities. On the other hand, however, they have access to a broader spectrum of products on the TTF and are also expected to have a choice from competing suppliers of balancing services. Small suppliers, who procure gas well (at the right moments) can offer their customers relatively cheaper gas.

6.4.4 Alternatives

Earlier in this chapter (section 6.3), it was argued that focusing only on the expansion of quality conversion and gas storage is a disproportionately expensive and time-consuming solution. However, there are still three other possibilities: terminating the exclusivity of GasTerra's contract with NAM, making re-entry possible, and imposing specific demands with regard to the volumes and prices which GasTerra offers for low-calorific gas on the TTF.

The GasTerra-NAM contract

The private-law contract between NAM and GasTerra means that all the gas from the Groningen gas field is sold to GasTerra. If NAM were to supply numerous shippers, buyers would have more choice with regard to the wholesaler from which they procure gas. The contract between NAM and GasTerra, however, is a long-term contract which will not expire soon. In addition, a measure such as this has far reaching effects on the structure of the "gas construction" and possibly on the small fields policy. This possible measure therefore is not preferred at present. The market parties are overwhelmingly of the opinion that such a "gas release programme" for NAM is not the desired solution.

Re-entry

One Dutch party is in favour of a re-entry programme, while others only see this as a temporary measure. Re-entry means that it will become possible administratively to return gas that has been supplied behind in the city gate to the TTF. As a result, the gas will once again be tradeable and can be delivered to different destinations to make arbitrage possible. This would be an alternative to the principle of "transfer on the TTF". A further investment by GTS in information technology would be necessary to make this possible. It would also result in a greater administrative burden on market parties and GTS. GTS is not in favour of this measure; the measure also cannot be implemented easily *and* is inadequate as a means of achieving the desired result.³⁵ It would therefore be better to put the cart before the horse by changing the way of doing business rather than behind the horse by means of re-entry.

Further demands on GasTerra

The success of the above structural package of measures in the proposed arrangement depends to a considerable degree on the way in which GasTerra deals with the proposed measures. After all, GasTerra will play a prominent role in the new (standard) contracts which will be entered into. There is a risk that ways can be found which make it possible for the model proposed here not to be realised or only to be realised after a considerable delay, that is results in higher costs for shippers and ultimately for end users.

An alternative to the voluntary industry standard is the imposition of further demands on the low-calorific sales of GasTerra. Although it could be argued that such measures are the logical consequence of GasTerra's position, as set out in the Gas Act, this alternative only relates to GasTerra and, in addition, may have the effect of distorting the market. Introducing such a far-reaching and discriminatory measure by means of regulation in advance must be given careful consideration. In this regard, we would request the Minister to consider initiating the processes referred to below at this stage, while making their commencement conditional, with a view to minimising the preparatory period.

Firstly, a temporary obligation may be imposed on GasTerra with regard to the volumes of the various products which it offers, provided that and for as long as it has a dominant position. After all, a wide range of products is necessary in order to source a portfolio; a shortage of one crucial product may be sufficient to cause problems for a supplier to small consumers. This obligation requires further legislation and regulations.

The above-mentioned measure does not deal with the pricing of products. The volume requirement therefore receives all the more strength if pricing is also regulated. This will ensure that it does not appear that there is "no demand" for a product because it is offered at too high a price. This is avoided by obliging GasTerra, for instance, to be a price follower on the TTF. A measure such as this is drastic and will therefore have to be prepared and considered carefully.

³⁵ Many of the present "city gate contracts" cannot simply accommodate re-entry.

7 Action required: gas roundabout

To make the TTF the centre of the gas roundabout, the TTF must become a better marketplace for procurement and selling, the possibilities for portfolio optimisation and trade must be improved, and balancing must be made easier.³⁶ All of these conditions have the aim of ensuring that the international gas market does its work with a minimum of regulation.

7.1 Improving the function of the TTF as a marketplace for procurement and selling

Increasing physical import capacity

The necessity of increasing supply to the TTF by making gas transmission to the Netherlands easier is supported by all parties. The task of ensuring that there is sufficient transmission capacity lies with GTS. Almost all the parties agree that more physical import capacity is required to increase the supply of gas. Numerous parties give this measure the highest priority, not a single party is opposed to this measure. GTS notes that *"a stable regulatory regime which makes responsible investment possible"* is necessary.

Some parties add that the allocation of (fixed, primary) transmission capacity must take place in a manner which market-related. One party explains that *"there is a need for a fair allocation mechanism which is market-related and which allocates the capacity in a non-discriminatory and efficient way; auctions are a possibility."*

In her letter mentioned above, the Minister also states that increasing the size of the market to at least a North-West European scale is crucial. NMa/DTe conclude, building on earlier standpoints,³⁷ that increasing the import capacity of pipelines and making it possible for LNG to enter the gas network in the Netherlands is necessary. This will make actual competition between domestic production and imports. This in turn may lead to diversification of supply. This may have far-reaching positive effects on the market structure, and may place the Netherlands at the centre of international gas flows.

GTS recently decided to expand transmission capacity through pipelines, and various private initiatives have commenced for the construction of LNG facilities. These initiatives may result in a considerable increase in gas flows in the Netherlands from approximately 2010 to 2012. Apart

³⁶ Flexibility has already been discussed in chapter 6; as was explained in chapter 4, price signals and risk management followed from the improved liquidity. These two topics are therefore not discussed separately in this chapter.

³⁷ See, for instance, *"Informele zienswijze uitbreiding H-Gas transportsysteem"* (Informal opinion on expansion of the H-Gas transmission system), DTe, September 2006, in which DTE notes that the present transmission capacity on the H-gas network is inadequate to guarantee security of transmission and supply in the future.

from working out the regulatory framework for GTS in more detail, as announced by the Minister, and the regular tasks of NMa/DTe, no further action is required of the government to ensure that these investments take place.

Harmonisation of transmission procedures

In addition to physical expansion, many parties are of the opinion that harmonisation of the transmission procedures of GTS and with those of TSOs in the neighbouring countries of the Netherlands are important. No opposing voices have been heard in this regard.

NMa/DTe concurs with the parties that it is necessary to harmonise the transmission procedures which GTS applies at present with those of the TSOs in the neighbouring countries of the Netherlands. Within the framework of the Gas Regional Initiative (hereinafter "GRI"), GTS is participating in a project to harmonise the transmission procedures at one interconnection point, Oude Stanzijl (NL-D), with those of the other TSOs. It is important in this regard that the Minister and NMa/DTe, through the Pentalateral Forum and the GRI respectively, continue to state that harmonisation is necessary. With regard to harmonisation itself, the initiative lies with GTS and its fellow TSOs.

7.2 Strengthening trade and portfolio optimisation

in addition to facilitating the transmission of gas to the Netherlands and delivery on the TTF, the opportunities for (short-term) trade and portfolio optimisation must be strengthened. It is only possible to trade with gas which flows through the Netherlands if (a significant part of) the gas is actually delivered on the TTF. In this regard, we refer to the situation in the United Kingdom, where approximately half of the gas on the high-pressure network is delivered at the virtual transfer and trading point, NBP. By way of comparison, in the Netherlands slightly more than 10% of the high-calorific gas which flows through the Netherlands is delivered on the TTF. We do not believe that a considerable increase in this percentage will occur without further measures.

Marketing of short-term import capacity

Many shippers state that the availability of import capacity in the short term may provide a major boost to trade on the TTF. Short-term capacity may be deployed for portfolio optimisation. In this regard, many shippers referred to the necessity of making the secondary market for import capacity more liquid and the necessity for GTS to make capacity available in the short term. One shipper expects that "*the improved operation of the secondary market for transmission capacity by means of the introduction of day-ahead capacity auctions*" will have a positive effect on the development of the TTF.

At present, the import capacity of GTS has been sold entirely and long term.³⁸ This capacity is not always fully utilised and at the same time unused capacity is not always timely available as firm

³⁸ DTe, *Gasmonitor 2005*

capacity to the market. As a result, this cannot be utilised for portfolio optimisation. To stimulate short-term trade on the TTF and to increase network efficiency, it is important that transmission capacity, both primary and secondary, is available in the short term ('day-ahead' up to one year) for market parties. This is possible if GTS releases capacity which would otherwise remain unutilised, available, or through trading capacity between shippers in the short term.

However, both options run up against obstacles in the present gas market. At the relevant import points, capacity for longer periods is sold out entirely and GTS's present regular transmission conditions make trade in secondary capacity in the very short term impossible.³⁹ The NMa has asked the TSOs jointly to propose a better "use-it-or-lose-it" scheme which will facilitate this trade. In addition, at present GTS participates in a GRI project based on a proposal made by the European Federation of Energy Traders (EFET) to auction capacity on a day-ahead basis on a number of European interconnection points, including Oude Statenzijl.⁴⁰ One of the matters that will be considered is improving the secondary market in the very short term. NMa/DTe sees it as a positive development that GTS is committed to realising a European project to make capacity available to shippers in the short term, but emphasises that the problem will not be solved entirely only by means of day-ahead capacity. For instance, the supply or procurement of a "week gas" product or "month gas" product remains difficult on this basis, because capacity would have to be secured separately for every day. These slightly larger "blocks" occur precisely in the winter, when the demand from week to week may vary considerably depending on the weather. This means that there will be demand for capacity products with a duration of, for instance, a week or a month.

To ensure that sufficient short-term capacity is available without harming existing contracts, it is probably necessary that GTS builds additional capacity to be kept available for short-term allocation. In this regard, GTS should be allowed to realise a reasonable return on its investments. The way in which GTS reserves and finances short-term capacity still has to be worked out by the parties involved.

Transparency

Many shippers expressed a need for more and more accurate information regarding gas flows in the transmission system and the probability that interruptions will occur. One shipper describes how the availability of information regarding gas flows in the British network stimulated the development of the British marketplace, NBP. Not a single party raised objections; however, one party did refer to the importance of complying with the 'lesser-than-three rule' to protect commercially sensitive information.

³⁹ Article 2.8.5 of the GTS Transmission Conditions TSC 2007-1 stipulates that a period of at most 10 days is necessary to enable GTS to ratify the transfer of capacity entitlements between shippers. This is too long to make parallel trade in capacity possible on a short-term basis.

⁴⁰ EFET proposal for 'Daily Cross Border Auctions in the NEW region', obtainable from: <http://www.efet.org/default.asp?Menu=283>

NMa/ DTe subscribe to the importance of information on the opportunities for trade which the physical system offers. This relates particularly to a reliable estimate of the probability that transmission will not take place. To give shippers a better opportunity to estimate what the likelihood of their being interrupted is, it is important that the correct information is released in time with regard to gas flows in the network and the historic frequency of interruptions. Of course, it is important to ensure that commercially sensitive information is protected.⁴¹

At the time of the consultation, the transparency requested was not yet available; however, this recently changed. In June of this year, GTS started publishing data on a number of import and export point with regard to, for instance, actual interruptions on the network. By doing so, GTS took a step forward in its market facilitation role. In the coming months, it must become clear whether the quality, timeliness and user-friendliness of the data are good enough to draw the conclusion that the desired transparency with regard to the use of import and export points has been reached and complies with the guidelines set out in European Regulation 1775/ 2005 and the future results of the work on transparency done by the Gas Regional Initiative.

Reducing the credit risk of imbalances

Finally, the reduction in credit risk is mentioned as a means of facilitating trade on the TTF. One party regards the reduction in credit risk associated with delivery on the TTF as a very important measure. Most market parties do not have an opinion on this or have a slightly positive opinion and give the measure little priority. GTS is not a proponent of this measure, since it would mean that it would have to take over (part of) the financial risk, while it is not solely responsible for the underlying cause. We explain this issue below.

The parties which are in favour of reducing the credit risk argue that firstly the period within which GTS draws up the balancing invoice can be reduced significantly. One shipper states that *"it should not be too difficult to draw up a (provisional) balancing invoice within a maximum of six weeks"*

Although this measure is a small step towards improving liquidity on the TTF, we are of the opinion that the credit risk incurred by the seller must be eliminated, since the seller does not cause the risk, nor can it influence the settlement of this. This is important, in particular for the development of Endex, because the exchange⁴² is the central counterparty in all TTF transactions which take place through the exchange. A barrier to entry by newcomers is also removed by this means.

⁴¹ In this regard, it is important that information is not traceable to individual companies at moments that this is sensitive.

⁴² To be precise, the Clearing House contracted by the exchange.

A maximum period (a couple of months) must be determined, after which the risk of imbalance is transferred to GTS. GTS does not have full control of the settlement of imbalance invoices,⁴³ but does have a central role in this regard and is consequently the most appropriate party to bear this risk. The settlement of imbalance takes too long at present, with extremes of up to three years after delivery. By way of comparison, the settlement of imbalance in the United Kingdom takes a maximum of 2.5 months and this is stipulated in the British "Grid Code".

It is also important that shippers have already had to show GTS that they have sufficient financial means at their disposal at the time of acquiring a shipper status. We see no reason why the risk referred to should not fall under these existing guarantees. However, it is necessary for this that the existing guarantee scheme, as set out at present in the Transport Services Conditions (hereinafter "TSC") is made more transparent and/or is amended. The present scheme offers shippers too little certainty with regard to the extent of the guarantee which they must give; there is also no clarity with regard to which risks are and which risks are not covered by the existing scheme. NMa determines the technical conditions (the "gas codes") and in settling proposals for amendments will address the credit risk of imbalance.

Improvement of the connections with NBP and Zeebrugge

As the last item under the heading of portfolio optimisation and trade, we refer to the connections with the UK and Belgium. In order to conduct actual international trade, the TTF must have a good link to marketplaces in neighbouring countries. To ensure a good coupling of the TTF with the NBP and Zeebrugge, it is of the greatest importance that both BBL and Zelzate become bidirectional connections. In assessing GTS's quality and capacity plans, for instance, this will be taken into account explicitly.

7.3 Balancing

A shipper with a physical position must ensure that the quantities of gas fed into and withdrawn from the network are equal. To do so, both physical sources, such as gas storage, can be used, and any imbalances can be traded on the TTF. Most shippers indicated in the consultation that they wished to be able to balance their physical position through the TTF, but lack steering information to do so. They also indicated that balancing through the TTF can result in a considerable increase in liquidity. In this regard, GTS maintains the system balance in order to guarantee the integrity of the network. To do so, GTS has entered into contracts "at the source" with the managers of flexibility resources.

Balancing on the TTF by shippers

In principle, shippers have three methods of balancing their portfolio. Firstly they can trade imbalances with each other using short-term products. Secondly, they can make use of short-term

⁴³ The data of regional network managers are also necessary.

flexibility products (gas storage and Combiflex). Thirdly, it is possible for large buyers and power stations to make adjustments to their level of demand.

For all these methods, the primary condition is that the shipper has insight into its balance position at any moment. The information required for this is referred to as "steering information". Many parties stated that they consider sufficient steering information to be crucial in order to determine their balancing position and to estimate the possible imbalance risks which they incur. An association of interested parties states that *"good steering information eliminates a barrier for entry to shippers to the short-term gas trade and will result in substantially more liquidity of the day-ahead and intra-day gas markets"* For some parties, this is even the most important measure for the development of the TTF. Although no parties are opposed to this measure, GTS states that if they were to make less tolerance available, the value of the information would increase. As a result, the problem of investment would be solved earlier. GTS also states that steering information will partly have to come from regional network managers. Cooperation between GTS and shippers, regional network managers and metering companies to analyse the need for information and to provide information is necessary.

NMa/DTe is of the opinion that balancing on the TTF by shippers is an important step in attracting physical trade. Steering information with regard to both the individual balancing position of a shipper and general information on the system balance as a whole is necessary. For comprehensive insight into the balancing position of a shipper, both information from GTS and information from regional network operators is necessary. In this regard, we refer to the fact that European Regulation 1775/2005 contains an obligation that TSOs provide this information. In this regard, initiative by the so-called "Progas" group has been taken in the sector, but the realisation of this has been delayed. Due to the considerable importance of this information, the fact that this has not yet been realised is not acceptable.

In addition, we note that the most important physical source of flexibility in the Netherlands is GasTerra's portfolio. For the time being, the source is indispensable. After all, on an unexpectedly warm or cold day, the imbalances of shippers will all point in the same direction and this cannot therefore be solved by mutual trade. For the time being, the storage facilities of third parties are inadequate. As a result of article 10a of the Gas Act, GTS offers flexibility products, which it purchases on the market. The more gas—also low-calorific gas—which is supplied through the TTF, the greater the demand for GTS's flexibility products. It is therefore important to ensure sufficient availability of these services in the transition to a market-based system and to ensure that supply is aligned to demand. NMa monitors and regulates this.

Shippers can also help to manage GTS's system balance, provided they have information on its status (the "linepack monitor"). If a shipper can itself enter into a state of imbalance to improve the system balance, this benefits the entire system. To make this possible, it is necessary that the so-called "linepack monitor" is realised as soon as possible *and* that shippers have a financial incentive to contribute to the system balance. Both are not the case at present; in this regard,

NMa/DTe notes that considerable delays have occurred in the preparation of joint proposals by the joint network operators.

The balancing mechanism

In the discussions with the sector, the balancing system, as applied in the electricity market, was often referred to as an example. A brief comparison is called for here.⁴⁴

TenneT contracts regulating power from several large producers; these capacity costs are incorporated into the system tariff. The cost of the commodity—the actual imbalance of the individual market parties—is settled separately through a bid ladder system on a market with TenneT as the central counterparty. The commodity settlement is cost neutral for TenneT, although typically the higher the system imbalance, the higher the costs incurred by market parties. In the case of GTS, however, the costs which it incurs for capacity are recovered through levies on the commodity. Where TenneT has certainty that the capacity costs will be recovered, this is only the case with regard to GTS if sufficient shippers have an imbalance and/or the levies are high enough. In the case of TenneT, prices on an "ordinary" marketplace on the day of delivery are themselves comparable⁴⁵ to balancing prices; in the case of GTS, the commodity levies for balancing are "contaminated" by a capacity component and are therefore not comparable to a "pure" commodity price. Comparability strengthens the liquidity of trade on the day of delivery itself. Finally, in the case of TenneT, due to the publication of the so-called "delta signal", market parties may themselves decide to enter into a situation of imbalance in order to restore the system balance. In TenneT's imbalance system, this may be advantageous to market parties; in the case of GTS, this is not so. In the case of TenneT, many market parties contribute in this way to managing the cost of balancing; GTS bears the burden of balancing by itself.

A number of shippers favour a system whereby GTS settles imbalance on the basis of a market-based system. One party states that *"we support physical balancing by GTS on the TTF."* The same party, however, warns that this may not result in commercial activities by GTS on the TTF. For the same reason, one party is opposed to this measure. GTS itself indicates that this measure can only be introduced if sufficient steering information is available. GTS itself is involved in a pilot in which part of the system balance is supplied through the TTF. GTS also makes a link to existing tolerance limits: the less "free" tolerance is made available to the market, the greater the possible market for balancing.

NMa/DTe is of the opinion that the present coupling of commodity and capacity in a single levy is suboptimal and inefficient, as is the lack of opportunities and incentives for shippers to restore the system balance. NMa/DTe also note that the joint grid operators have not acted with

⁴⁴ For a complete explanation of the document, "*programmaverantwoordelijkheid*" published by TenneT:

http://www.tennet.nl/images/toelichting_pv_algemeen_tcm41-11965.pdf [in Dutch only].

⁴⁵ In the sense that the products are comparable. This does not mean that the prices are equal to each other.

sufficient decisiveness. The evaluation of the balancing regime by GTS is also inadequate in this regard.

Integrated approach to steering information, the linepack monitor and the balancing regime

On all three of the above-mentioned issues, which are closely related to each other, insufficient result has been achieved in recent years. NMa's Code process, whereby the initiative lies with the joint grid operators, does not appear to result in action with sufficient speed. To achieve visible results in the gas year 2009, a proposal for amendments to the technical conditions must be submitted at the beginning of 2008. If the grid managers do not submit a joint proposal this autumn, NMa will explicitly consider drawing up a proposed amendment in which steering information, the linepack monitor and the balancing regime are addressed. To ensure that this is properly anchored, further legislation and/or regulations are called for.

Daily balancing

A final step towards improving the balancing regime may be a switch from a hybrid system of hourly and daily balancing to a system of only daily balancing. Some parties call this an important step in facilitating trade on the TTF.

Firstly, the system is simpler and therefore more manageable for shippers. As a result, the Netherlands will become attractive as a transit country and a trading country. Secondly, more trade can take place because the trade is more concentrated in a single product per day rather than being fragmented across 24 different hours each day. In this regard, international agreements are also important; if neighbouring countries switch to daily balancing in a coordinated way, the Netherlands, with its hybrid system, may perhaps become unattractive.

However, at this moment it is not clear what the costs and risks are of introducing a system of daily balancing in the Netherlands are, following the expansion of the transmission system planned by GTS and after the integrated approach to transparency and the balancing system. If it appears that a market-based system of hourly balancing results in a good balancing market and an attractive Dutch market, which is well integrated with neighbouring countries, investments in transmission capacity in order to introduce daily balancing may perhaps not be opportune.

Summary

Market	Function of the TTF	Situation today	Proposed action
Domestic market for low-calorific gas	Supply of gas and flexibility	Less than 1% of gas and flexibility through the TTF, due to city gate contracts and a lack of available quality	<ul style="list-style-type: none"> • Abandon prior reserving of quality conversion through a contract between GTS and GasTerra • Investment in quality conversion • Improvements to the investment

		conversion and available seasonal storage	<p>climate for gas storage</p> <ul style="list-style-type: none"> • Structural package of transfer on the TTF, a new way of doing business and dispute resolution • Possible further demands on GasTerra
Gas roundabout	Procurement and sales	Less than 10% of gas through the TTF, due to a lack of available supply capacity and a lack of delivery of domestic production on the TTF	<ul style="list-style-type: none"> • Investment in transmission capacity and LNG • Harmonisation of transmission procedures
	Portfolio optimisation and trade	Less trade and optimisation is possibly due to underutilisation of existing import capacity, credit risks	<ul style="list-style-type: none"> • Ensuring that short-term transmission capacity is available to the market • Improvement of transparency on the utilisation of infrastructure • Improving connections to NBP and Zeebrugge • Reducing credit risks
	Flexibility	Insufficient flexibility due to the fact that a low share is TPA available	<ul style="list-style-type: none"> • Improving the investment climate for gas storage
	Balancing	Insufficient balancing through the TTF due to a lack of transparency and the structure of the balancing regime	<ul style="list-style-type: none"> • Integrated approach to steering information, the linepack monitor and the balancing regime
	Price signals and risk management	Too unreliable for security of supply	None

8 Action plan

8.1 Order

The solution referred to in the previous chapters differ from each other with regard to the time required, the investment required and the expected effect. Some of these solutions are already being carried out by market parties or the government; others are still in their infancy and require additional action.

Firstly, there are a number of measures that can be carried out quickly and without major investments, by means of which a considerable improvement can be realised. The realisation of these should have an effect on the market on 1 January 2009. The most important of these is the transition to a new way of doing business in relation to low-calorific gas: the "transfer on the TTF" model, combined with standard types of contracts and master contracts, which are proposed by the sector, and dispute resolution. The effect of these measures could be visible from 2009 onwards since many parties have already purchased gas for 2008 and the effects of these types of contract demand time. The reservation system for quality conversion capacity should also have been abolished at the latest by 1 January 2009.

Other measures, which could be taken quickly, are improvements to the balancing regime and transparency (steering information and the linepack monitor), and the reduction of credit risks in relation to imbalance. These measures will provide a strong boost to competition on the low-calorific and high-calorific markets from which buyers may benefit and which may vastly improve the opportunities for trading high-calorific gas and the opportunities for portfolio optimisation. This may benefit the gas roundabout.

Secondly, there are measures which can be implemented within a period of two to three years without physical investment, but that requires more coordination. These measures will considerably improve the opportunities for optimising international gas flows as well as competition on the market for low-calorific gas. With regard to the ambition to create a gas roundabout, this relates to the harmonisation of transmission procedures, further improvements to transparency and making short-term transmission capacity available.

Finally, there are measures which require considerable lead time for investment and implementation. These include the expansion of import capacity, the entry of LNG into the network, and investments in physical quality conversion. In this regard, we note that all of these measures are being prepared and no additional measures appear to be necessary. However, the investments will only become available to the market from 2010 onwards. With regard to stimulating investments in (seasonal) storage, it is important that the necessary amendments to regulations are carried out quickly, after which investments can be prepared and made. With regard to making the connections with NBP and Zeebrugge bidirectional, no plans are known as

yet; with regard to the connection with Zeebrugge, NMa/DTe will consult GTS within the regular quality and capacity planning.

8.2 Role of the government

A detailed action plan containing all the measures, including the possible role of the government, is attached as an addendum.

On the basis of its own mandate, NMa/DTe can take up a number of matters with the joint grid operators. For instance, the credit risk of imbalance can be regulated through the Gas Codes in cooperation with the joint grid operators, as can abandoning the system of reserving quality conversion and the improvement of (transparency of) the balancing regime. Through the Gas Regional Initiative, NMa/DTe will also continue to take steps to promote further transparency, the auctioning of short-term import capacity and the harmonisation of transmission procedures. In 2008, NMa/DTe will give priority to quality conversion and to the balancing regime (including transparency) and may facilitate the process of formulating an industry standard for low-calorific gas (or will ensure that this process is facilitated).

For other matters, however, action is required from the Minister of Economic Affairs. These measures are instrumental to the success of the low-calorific market and to the freedom of choice and competition in favour of buyers. First and foremost, action is required from the Ministry of Economic Affairs in order to introduce the structural package of measures to improve the low-calorific market. This may relate both to amendments to the Gas Act and subordinate regulations.

In addition, the continuous support of the Minister for the internationalisation of the market through the Pentalateral Forum is required, as is ensuring a stable investment climate. For seasonal storage, this means, for instance, that it must be possible to allocate potential storage locations to investors in storage in accordance with the Mining Act [*Mijnbouwwet*].

Addendum

Action plan for the implementation of measures to improve the liquidity of TTF and the gas wholesale market

I/gas roundabout	Measure	Intro. as of	Expected effect	Effective as of	Implementing party	Action by the Minister	Action by NMa/DTe
Quick introduction							
L	Abandoning reservation of quality conversion	2008	Better coupling of the low-calorific market with the high-calorific market	1/1/09	GTS + GasTerra	Legislation and/or regulations	<ul style="list-style-type: none"> - Possible amendment to the Codes - Research into the position of GasTerra
Gas roundabout + L	Improvement in investment opportunities (seasonal) flexibility	2008	Broader supply of flexibility services of more suppliers	20013-2015	Investors in gas storage	Legislation and/or regulations	Clarify the applicable regulatory framework for gas storage
L	Transfer on the TTF	2008	More gas and flexibility through the TTF	1/1/09	Not applicable	Possible legislation and/or regulations	Possibly through Codes
L	Standard (master) contracts for low-calorific gas	2008	Better tradeability of low-calorific gas and flexibility	1/1/09	Industry Forum + NMa/DTe	Legislation and/or regulations	<ul style="list-style-type: none"> - Facilitation of the Forum - Stipulating the proposed standard
L	Dispute resolution	2008	Better balance in market relationships	1/1/09	tbd	Legislation and/or regulations	<ul style="list-style-type: none"> - Research into the position of GasTerra
L	Possible further demands on	2008	More gas and flexibility via the TTF	1/1/10	NMa/DTe	Legislation and/or regulations	<ul style="list-style-type: none"> - Research into the position of GasTerra

	GasTerra						- Operationalisation of scheme
Gas roundabout	Improvement of the balancing regime, steering information and the linepack monitor	2008	Making balancing costs manageable for shippers	1/1/09	GTS and regional grid operators	Possible legislation and/or regulations	If a timely result is not achieved, design of a proposal for amendment of the Codes
Gas roundabout	Further improvements to transparency with regard to utilisation of infrastructure, if necessary	2008	Improvement in the possibilities for portfolio optimisation	1/7/08	GTS		Monitoring whether transparency is sufficiently improved
Gas roundabout	Reduction in the credit risk of imbalance	2008	Improvement in the trading climate on the TTF	1/7/08	GTS		Amendments to the gas codes
More coordination required							
Gas roundabout	Harmonisation of transmission procedures in the North-West European market	2009	Improvement in the trading climate on the TTF	2009	GTS	Support in the Pentelateral Forum	Monitoring and steering the GRI process
Gas roundabout	Making room for offering short-term transmission capacity (imports and	2008	Better utilisation of capacity; more opportunities for portfolio optimisation	2009-2010	GTS	Support in the Pentelateral Forum	- Monitoring and management of GRI process of 'day-ahead-capacity- auctions' pilot

	exports) through improving the UIOLI and GRI initiative						- Anchoring UIOLI scheme in the Codes
Longer term							
L	Investment in quality conversion	Continuous	Improvement of the coupling of the low-calorific and the high-calorific markets	2010-2012	GTS	Legislation and/or regulations	
Gas roundabout	Investment in LNG and pipelines	Continuous	More supply of high-calorific gas	2010-2012	GTS + private parties	Legislation and/or regulations	
Gas roundabout	Making BBL and Zelzate bidirectional	Continuous	Better connection with NBP and Zeebrugge	2010-2012	GTS + private parties		Inclusion in the KCD process with GTS