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Liberalisation of the EU Gas market

Lessons learned from other markets
and other countries

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Liberalisation of the EU Gas Market: Lessons learned from other markets and countries

At the Eurogas Conference in Copenhagen on 23 May 2003 an evaluation of the EU's Gas Directive was requested by the host of the conference. The evaluation of the Gas Directive was presented by FORA's Director, Mr Jørgen Rosted. The speech can be found on www.foranet.dk under the links Analysis/ Publications.

The conclusion in the report is based on several analyses. The Mergers and Acquisition analysis of the restructuring of the European Gas Market was carried out by ECON. The analysis of the consequences on competition and investment was carried out by a FORA team which consisted of Mr Jørgen Rosted, Mr Anders Hertz Larsen, Mr Jacob Ramskov and Mrs Tanja Bisgaard. Mrs Tanja Bisgaard was responsible for compiling and editing the final version of the report.

Dansk resume og konklusioner

Denne rapport vurderer om EU's seneste gasdirektiv skaber de rette betingelser for at øge konkurrencen og gøre det europæisk gasmarked mere velfungerende.

Rapporten tager udgangspunkt i fire områder, som OECD har identificeret som særlige vigtige. Disse områder er: tredje-parts-adgang til transmissionsnettet, adskillelse af monopol aktiviteter og kommercielle aktiviteter (unbundling), samt den regulerende myndigheds rolle og organisering

Rapporten konkluderer, at rammebetingelserne for tredje-parts-adgang og unbundling er tilstrækkelige til at give konkurrence på de nationale markeder. Denne konklusion understøttes af erfaringer fra de europæiske tele- og elmarkeder. Begge disse markeder er blevet liberaliseret og har gennemgået en restrukturering i stil med den, der nu er i gang på gasmarkedet.

Det er derimod usikkert om retningslinierne for den regulerende myndigheds rolle og organisering giver de rigtige rammer for at udvikle et velfungerende europæisk gasmarked. Direktivet åbner vide muligheder for forskelle i den nationale regulering. Det kan blive en hindring for konkurrencen på det samlede europæiske gasmarked, hvis landene hver især laver deres egne reguleringsregler inden for direktivets rammer, men uden hensyn til hvordan reglerne udformes i de andre EU-lande. Sker det, er der risiko for at der ikke realiseres et velfungerende europæisk gasmarked.

En anden risiko er knyttet til de fremtidige investeringer i transmissionnettet. Analyser fra blandt andet OECD's energidirektorat, IEA, og EU-kommissionen viser, at den stigende efterspørgsel efter naturgas vil fortsætte. Derfor bliver det nødvendigt at udbygge transmissionsnettet i de kommende år. I et liberaliseret marked hvor alle gasselskaber har adgang til at benytte gasrørene til transport, vil investeringer i nye rør være mere risikofyldte end tidligere, hvor gasselskaberne havde monopol og dermed større sikkerhed for afsætning. Som kompensation for det tillader EU direktivet, at ejerne af nyanlagte gasrør i en overgangsperiode kan nægte tredje-parts-

adgang til rørene. En sådan løsning kan hæmme de tilsigtede incitamenters for konkurrence i den europæiske gassektor.

Alternativt til direktivets forslag kan den reguleringsform, der benyttes i USA også anvendes i Europa. Her bibeholdes tredje-parts-adgangen. Til gengæld fastsætter den regulerende myndighed et prisloft, der giver investorerne mulighed for at få en "fair" profit. Samtidig er det muligt at lave bindene langtidskontrakter på transport af gassen.

Rapportens samlede konklusion er derfor, at de rammer EU-direktivet stiller op vil føre til konkurrence på de nationale markeder, mens det er mere tvivlsomt, om der kan realiseres et velfungerende europæisk gasmarked inden for rammerne af direktivet. Der skal nye eller harmoniserede regler til for at sikre denne konkurrence.

For at det skal lykkes giver rapporten følgende politikanbefalinger:

- For at sikre at regler implementeres ens i alle EU lande, bør et nyt direktiv sikre samme reguleringsstruktur i alle EU-lande. Endvidere bør der tages stilling til, om kommissionen kan og vil anvende de almindelige konkurrenceregler på gasmarkedet eller om der skal oprettes en særlig reguleringsinstans, der kan overvåge det europæiske gasmarked.
- Tarifferne for gashandel på tværs af landegrænserne bør harmoniseres i EU og ikke blive fastsat af nationale myndigheder alene.
- Der bør ikke gives særlige monopolrettigheder til at bygge ny infrastruktur. Tredje-parts-adgang og unbundling skal også gælde her. Alternativt kan der fastlægges tidsbegrænsede prisloft, der sikrer "fair" profit og der skal være garanteret muligheder for langtidskontrakter.

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Executive Summary and Conclusions

In this report the EU's Gas Directive 2003/55/EC is evaluated to determine whether it lays an adequate regulatory foundation to create and enhance a future competitive gas market in Europe; at a national level as well as across borders. The aim is to enable the gas market to become an integrated part of the European single market. Experiences are drawn upon from other markets, such as the electricity and telecoms markets, and other countries, such as the UK and the US, that have undergone similar liberalisation processes.

A market that is in the transition process from a monopoly to a liberalised market should be subject to a certain kind of regulation which is not applicable to other markets. The regulation might be temporary and change in nature once the market has lived through its transition period. It is important the regulation is designed in a way that gives the market room for developing in the right direction.

The evaluation in this report is based on four requirements deemed important by the OECD for a changing market like the gas market. The four requirements that should be considered when regulating the gas market are third party access to infrastructure, the degree of unbundling, the regulation of tariffs and the type of regulatory authority to oversee the gas market. The evaluation of these four requirements shows that the EU's Gas Directive seems to be adequate for ensuring national competition in the individual European countries since it has clear rules on third party access and unbundling. Experiences from the telecoms and electricity markets are drawn on to show that third party access and unbundling are efficient methods for achieving restructuring which leads to competition.

But achieving third party access and unbundling is not sufficient for ensuring cross-border competition in Europe. The Gas Directive has less clear rules on how to obtain harmonised legislation across European countries. There is no mention of whether the gas market should be regulated by a sector specific authority or the general competition authorities in a country, and there is neither any mention of the European competition authorities' role as a regulator. The main obstacle to competition in the European gas market is the possibility for each member country to create its own type of regulatory authority without simultaneously having a Pan-European regulator that is responsible for enhancing competition in the entire European gas market. It is therefore

unsure whether the EU's Gas Directive will lead to a well functioning and competitive European gas market across borders. New legislation at the Ministerial level is required for the changes to be implemented in a new version of the Gas Directive.

Gas is increasingly becoming a popular fuel, and it is expected that its usage will grow in the near future. As a result, more investments will be needed in infrastructure and particularly in transmission pipelines. To attract future investments, adequate incentives need to be provided in a market that is changing from being dominated by former monopolists. The monopoly situation created some degree of security when large scale investment decisions were being made. There was limited or no uncertainty with respect to who would buy the gas if a new area was explored or new pipelines were built. The returns on investments could to some extent be calculated and the risk involved in the investment decisions were therefore known to a certain degree. In the changing gas market today, third party access enables all the gas companies to fight for the same customers. The investment decision therefore becomes more risky.

In order to create incentives for the building of new infrastructure, the Gas Directive allows a pipeline owner to deny third party access to its infrastructure, based on certain conditions, for a given period of time after the construction of a new pipeline. This gives the pipeline owner monopoly rights on transporting the gas that flows through his pipeline. Instead of promoting competition in the gas market, previous monopoly conditions are revisited. It is evaluated that the Gas Directive lacks the correct type of investment incentives to encourage the development of new infrastructure.

Another way to create the appropriate investment incentives might be to accelerate the development of a competitive and well functioning gas market such as the one that exists in the US. The US gas regulator allows the existence of long-term contracts to create the appropriate investment incentives in the gas infrastructure. In addition, the regulator encourages different producers to supply gas to the same geographical area. By promoting these conditions, the US gas regulator has been able to achieve competition in several parts of the value chain.

The report concludes that the EU's Gas Directive provides sufficient regulation for creating competition in the national gas markets, but that it is vital to provide legislation that will harmonise

rules across Europe and create the appropriate incentives for future investments in the gas infrastructure.

1. Introduction

1.1 Background

Any market has its particular characteristics, and this is also the case for the gas market. The new Gas Directive lays down the rules for how the gas market should be governed in the coming years. In the following it is evaluated whether these rules are adequate to ensure a well functioning gas market with competition and future expansion. The evaluation is based on lessons learned from other markets that have experienced similar transformations. In particular, experiences from the telecoms and electricity markets in Europe, as well as experiences from the US energy market, are drawn upon.

1.2 Report structure

The report is divided up into three main parts in addition to an introduction to the gas market. Chapter *three* describes four requirements considered important by the OECD that should be met when a market such as the gas market is liberalised. The EU Directive is looked at closely to see whether it covers the four recommended requirements. Subsequently the EU Directive is evaluated in order to determine whether it meets the requirements thought to be necessary. Chapter *four* evaluates whether the EU's Gas Directive can ensure efficient national and cross-border markets in Europe. A closer look at the mergers and acquisitions in the gas market as well as other energy markets maps out new company strategies, and draws a picture of how the market structure is changing. In addition, experiences from the liberalisation of the electricity and telecoms markets are drawn upon to determine whether a similar development will be seen in the gas market once it is liberalised. A brief analysis covers what is necessary to achieve a European single market for gas, where national barriers do not hinder cross-country trade. Experiences from the telecoms and electricity markets in Europe are drawn upon to determine whether there are any shortcomings to the EU's Gas Directive that could prevent harmonisation of regulation in Europe. Finally in chapter *five*, based on well known forecasts of Europe's future gas demand, the amount of infrastructure that will be needed to cater for the increase in demand is estimated. The question that needs to be answered is whether there exist incentives to ensure that these investments will take place after the market is liberalised. A closer look is taken at the US in order to learn how a gas market may function on market conditions, and whether the same might be achieved in Europe.

2. Overview of the gas market

2.1 Rationale for the EU Directives

The ongoing economic integration in the European Union is a long process. One of the aims is to create a large integrated single market without national barriers, but with competition on open and fair terms. The latest development in this process is a gradual liberalisation of markets that previously were closed national markets with monopolies or at least with limited competition. This applies, amongst others, to the telecoms market, the electricity market and now the gas market. The evidence of the beneficial effects of liberalisation that were first seen in the telecoms market, and subsequently in the electricity and gas markets, suggested to the EU that the principles of the single market could be extended to these public utilities. As a result, the Gas Directive 98/30/EC was adopted in 1998 (Newbury, 2002*b*). The Gas Directive is also relevant to countries that are part of the European Economic Agreement (e.g. Norway) and all those countries that have entered into negotiations with the EU in view of their accession to the EU. In addition, the Gas Directive will have a certain influence on how the EU countries will conduct trade with countries outside the EU, such as Russia.

The first Gas Directive came into effect in 2000. After it was adopted, the European Council found that there were several unsatisfactory aspects of the current gas reform, and asked the European Commission to accelerate the process of completing the internal market for gas. The Commission proposed to amend the Gas Directive at the European Council in Stockholm in March 2001 (Newbury, 2002*b*). The main changes proposed were to require regulated third party access for gas compared to the previously suggested negotiated access, strengthen the unbundling requirements to legal separation of generation and transmission, and to allow all gas customers to choose their supplier by July 2007. In addition the Directive would require all countries to establish independent regulators to approve transport tariffs (Newbury, 2002*b*). At the beginning of 2003 the EU's second Gas Directive 2003/55/EC was adopted.

2.2 Historical overview

Historically, several factors have had an influence on the development of the market for natural gas in Europe. Three of the most important factors are the two oil crises in the 1970s, the emergence of

environmental policy issues and technological improvements, which all led to increased use of gas in Europe.

As the European country with one of the largest gas resources, the Netherlands was the first country to build a gas transmission grid and use the gas that was being explored. When the first oil crisis occurred in 1973-74 the price of oil rose by a factor of four and led to an increased demand for gas. As a consequence of the oil crises the European countries expressed a (political) wish not to be import dependent on oil from the Middle East. This was the starting point for the expansion of the gas market in Europe. However, the expansion was very costly and resulted in a high price for natural gas compared to oil. When the second oil crisis occurred in 1979 the increased oil prices came at a convenient time for the newly developed gas market.

The second factor that influenced the development of the European gas market was environmental policy issues. When the question of increasing pollution (in the form of acid rain caused by sulphur emissions) was put on the political agenda in the beginning of the 1980s, the International Energy Agency (IEA) put forward a suggestion in 1982 of how the future supply of electricity in Europe should be produced. Nuclear technology was recommended at the expense of natural gas, since it was a cleaner source of energy. However, after the Chernobyl catastrophe in 1986 it became clear that there were high risks involved in developing nuclear energy, and natural gas was preferable (Mabro, 1999). In the 1990s when the discussion of the “greenhouse effect” emerged which focused on the amount of CO₂ emissions, natural gas was again preferred to other sources of energy (fossil fuels) since it is a cleaner source of energy.

The third factor that led to a rise in the use of natural gas in Europe came as a result of technological improvements in equipment used for the exploration of gas. Areas that at first could not be exploited became accessible. This development was particularly important for gas being extracted in Norway and the UK.

2.3 The way the gas market functions

The natural gas market is characterised by several individual markets with its own set of players and prices. The producers who extract the gas are at the starting point in the supply chain and are found up-stream. The gas is then shipped by the transmission companies in large pipelines, who transport

the gas to the distribution companies and to large consumers such as power plants. The distribution companies deliver the gas through a network of pipelines to the end-user market, which consists of different consumer segments such as industrial consumers and retail customers. The gas market today consists of both monopoly parts and competitive parts, thereby differing from many other markets.

The players

The first player in the gas chain is the producer that extracts the natural gas from either offshore drilling platforms in the sea or from gas reserves on land. Producers today are typically private enterprises that operate in co-operation with the government under competitive conditions. This represents a change since the early developments in the gas sector, when several production companies were owned by national governments. The exploration of gas reserves is also the producers' task, which is very costly. The search is often given in concession for a number of years to the producers. During the length of the concession, the producer is obliged to perform a certain amount of drilling. The producer ships the gas from the platform through an upstream pipeline before it continues through the transmission pipelines, where the gas is finally sold to a merchant trader. The price denoted in the first part of the market is the beach price.

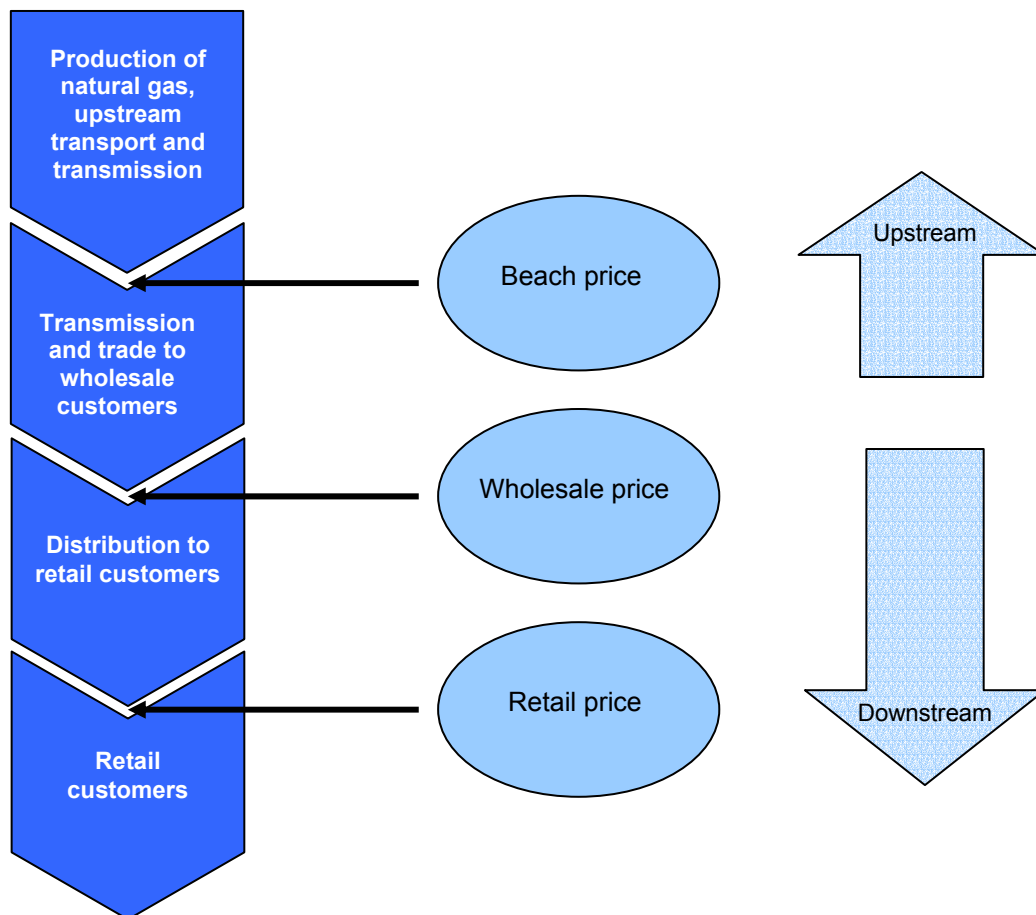
The second player is the transmission company that owns and maintains the transmission grid, and in some cases also the gas processing terminals. If the transmission company also is a gas trader, they can sell gas to distribution companies and to wholesale customers such as large power plants and large industrial consumers. The transmission companies, or the traders, may choose who to buy gas from if there are several producers. If the gas transmission company is not a trader, the company will not own the gas that is being transported through its pipelines. The price denoted in this part of the market is the wholesale price. The wholesale price also consists of the transport price from production to the wholesale market, where the transport price is a regulated tariff. The transmission companies have until recently acted as gas traders as well as operators.

The third player is the distribution company that owns and maintains the local distribution net that connects the end-users to the transmission grid. The distribution companies transport gas directly to smaller industrial consumers and households. Until recently both transmission and distribution companies were often regionally owned, but they are increasingly becoming privatised as a result of

the liberalisation process. The price in the third sub-market is denoted the retail price and the fourth player is the end consumer who pays the retail price. The retail price also consists of the transport price in the distribution pipeline system, where the transport price is a regulated tariff.

The figure below depicts the various players in the gas supply chain in the gas market and the three sub-markets with their own price.

Figure 2.1. The gas supply chain



The different parts of the supply chain might be owned by one or several players depending on whether there is a market with monopoly, competition or something in between. The type of competition in the gas market will also influence the prices¹ in each of the three sub-markets. If

¹ In addition, gas prices will also be determined by the prices of alternative fuels.

there is a national monopoly, the different parts of the supply chain are owned and operated by the incumbent, leaving the consumer with no choice as to who will supply their gas. In this type of environment, the price will not be determined by the market. On the other hand, if there is competition in for example the retail market, each customer would be able to choose their own gas supplier and the price will depend on the market conditions.

2.4 Liberalisation of markets and the need for regulation

Liberalisation changes the conditions for all the players in the gas market. In particular transmission and distribution companies will be undergoing great changes. The liberalisation of the gas market has caused unbundling of the transmission companies' operational function from their sales function. This has been done to separate the monopoly activities from the competitive activities in order to avoid cross-subsidisation. Furthermore the EU directive gives third party access to the transmission grid to ensure that competition can develop.

Moving from a regulated national monopoly to a free market with competition is not the same as moving from a situation of detailed regulation to no regulation. Ensuring open and efficient competition on the gas market *does* require regulation, but another form of regulation. It is not only the parts of the market that are considered monopolistic that need regulation. When a market such as the gas market is being transformed from a national monopoly to consist of several submarkets where some of them aspire to become competitive, the potentially competitive parts of the market must be overseen. The entire market should be regulated in the transition period as a way for the regulatory authorities to assist the players in learning to behave as market players. During this period the authorities should implement a type of regulation that enables them to act as teacher and ensure that the players learn their new roles. This might require giving the players in the market some leeway in order for them to learn the new rules of the game. Once this has been achieved, the favourable regulation should give way to a more demanding regulation where the players are expected to follow the same set of rules and regulation that are found in any other market.

One of the big challenges is therefore to design a regulatory framework that fulfils two requirements. The first one is to ensure a transition period that eventually will lead to a gas market where it is possible to obtain and maintain competition on a national level. The second challenge is to ensure a well functioning cross-border market in the long term which is an integrated part of the

European single market. Only by achieving this, will the gas market become efficient and benefit all the consumers in the European Union. In the following three chapters it is evaluated whether the current European regulatory framework in the form of the Gas Directive fulfils these two requirements by looking at the implications the directive has on a national level as well as cross-border.

3. Regulatory best practice and evaluation of the Gas Directive

Conclusions

If Europe is to achieve an efficient gas market, it is important that the EU's Gas Directive can provide the foundations for the appropriate regulation. According to the OECD there are four regulatory requirements that are necessary for achieving a well functioning market for a market that is in the transition process from a monopoly to a liberalised market, such as the gas market. The four requirements that should be met are regulation of third party access, unbundling, tariffs, and the type of regulator. It is concluded that the EU's Gas Directive fulfils the first two OECD recommendations on providing an appropriate regulatory framework for third party access and unbundling, while the two last requirements on the regulation of tariffs and the determination of the type of regulator are not adequately addressed. The EU's Gas Directive seems to be adequate for ensuring national competition in the individual European countries, but not sufficient for ensuring cross-border competition in Europe.

3.1 Why regulate?

For a market with the characteristics like the gas market to be efficient, there are certain requirements that must be met. No matter what type of competitive environment there exists in the gas sector in a country, it is thought that some form of regulation is necessary. Regulation of the gas sector varies greatly between countries in the OECD from a hands-off approach, to a more detailed approach characterised by strict constraints on activities.

An overview of the regulation instruments in the some of the EU countries is given in table 3.1

Table 3.1 Regulation of the gas network, 2002

	Full opening date	Unbundling TSO ¹⁾	Unbundling DSO ²⁾	Regulation of network access	Transmission tariff structure
Austria	2002	Legal	Legal	Ex-ante	Under review
Belgium	2003/6	Legal	Legal	Ex-ante	Distance
Denmark	2004	Legal	Legal	Ex-post	Postalised
France	-	Accounts	Accounts	n.a.	Distance
Germany	2000	Accounts	Accounts	NTPA ³⁾	Distance
Ireland	2005	Management	Management	Ex-ante	Entry-exit
Italy	2003	Legal	Legal	Ex-ante	Entry-exit
Luxembourg	-	Accounts	Accounts	Ex-ante	Postalised
Netherlands	2003	Management	Accounts	Hybrid	Distance
Spain	2003	Ownership	Legal	Ex-ante	Postalised
Sweden	2006	Accounts	Accounts	Ex-post	Postalised
UK	1998	Ownership	Ownership	Ex-ante	Entry-exit

1) TSO = Transmission System Operator

2) DSO = Distribution System Operator

3) NTPA = Negotiated third party access

Source: COM (2002)

In the following some of the requirements deemed important by the OECD are held up against the EU's Gas Directive to evaluate whether the proposed regulation in Europe is sufficient to encourage and enhance competition in the European gas market (OECD/IEA, 2000). The four recommended requirements that are looked at are third party access, unbundling, setting of tariffs and the type and role of regulators. Firstly, each of the requirements is described and the reason why it is thought they are important is explained. Secondly, a close look is taken at the EU's Gas Directive to determine what it says with respect to the requirement described. And finally, it is evaluated whether the EU Directive follows the recommended requirements by the OECD.

3.2 Third party access

The starting point for reform is third party access to the transport network, allowing access to the gas transportation system to others than the owner of the infrastructure. Third party access needs to be effective in order to stimulate trade, competition and liquidity in the gas market. At the same time it also needs to be organised so it does not deter potential investments in new infrastructure.

The first question to consider is the nature of natural gas transportation. From a modern perspective on competition policy, it is important to explore whether gas transportation constitutes a natural monopoly from the outset or to what extent there is competition.

The pipeline system can be divided in two main parts: the transmission network and the distribution network. The OECD concludes that in a sufficiently large market the freedom to operate and build pipelines could be economically efficient, and the transmission network can therefore not be considered a natural monopoly (OECD/IEA, 2000). Their basis for this claim comes from taking a closer look at Germany and the USA where the existence of two or more transmission pipelines is not inefficient, but rather creates pipeline-to-pipeline competition. Since a sizeable increase in demand for transmission capacity between two geographical points will require the building of a new transmission pipeline, it is indifferent and irrelevant whether the pipeline is built by the incumbent or another pipeline operator. Further the OECD concludes that with respect to the distribution network this is not the case. The distribution pipeline of natural gas resembles more a natural monopoly, and according to OECD findings, inefficiencies are significantly higher in gas distribution than in transmission (IEA/OECD, 1998). The above indicates that there should be specific and separate modes of regulation for transmission and distribution of gas (OECD/IEA, 2000).

Regulated or negotiated third party access

The OECD's prerequisite for any type of third party access is that terms and conditions of access must be transparent in order to prevent discrimination between users. There are 2 principal types of access regimes; regulated access and negotiated access (OECD/IEA, 2000).

Regulated access requires an active role played by the regulator in the form of explicit controls on how pipeline companies handle requests for access to the network and sets conditions for the use of the pipeline system. This requires the cost structure to be known and defined in order to enable a fair tariff setting. Detailed tariffs and pricing rules are difficult to set because all the costs of a transmission/ distribution companies need to be specified down to the smallest detail. In addition it is problematic to apply centrally set access prices when there are several companies operating in the market. Each transmission/ distribution company will have its own pipeline network and therefore its own cost structure related to the various parts of the network. Setting a common access price

would be a lot easier in a country where there was only one transmission/ distribution company, (such as in the UK which started from a fully integrated grid structure). However, in a country where there are several companies operating, applying centrally set access prices could pose problems.

Negotiated access gives the industry the responsibility of regulating itself, and avoids imposing difficult structural changes. The government may play a role in ensuring that the negotiated access is effective by setting out basic terms and conditions. Under negotiated access, pipeline owning merchant companies would have to establish their cost structure in order to publish their conditions for access. This could be done individually by each company. A key challenge with negotiated access is to arrive at a basic level of non-discriminatory treatment of access seekers, and still allow enough freedom for parties to negotiate access conditions. Non-discrimination can be solved by requiring an audit of the gas companies' accounts, and obliging them to publish indicative tariffs for transport and capacity. If a company has monopoly control on other services such as storage, it should also publish tariffs for these services. Clear, efficient and mandatory procedures of negotiation and access should be set in order to avoid undue delays or barriers to access, or so that a party can exploit its dominant position in the negotiations. There is also a need for the clear definition of the right of access refusal. If the refusal of access is caused by lack of capacity or specific public service obligations, these need to be defined from the outset.

The choice between regulated access and negotiated access on the transmission and distribution parts of the pipeline network depends on key issues such as the degree of monopolisation in the network.

Regarding the transmission network, the OECD concludes that because competition can evolve by building one's own pipeline, it implies that the transmission network is not a monopoly and negotiated third party access is recommended (OECD/IEA, 2000). Negotiated access has the advantage that it makes the gas market more economically efficient since the gas companies themselves are in charge of organising their access to the network and might therefore enable smaller companies to enter the market. Also, by having negotiated access, a country will attract more players in the gas market since each company will be able to negotiate its own terms and conditions of access, encouraging commercial and investment interests. The other type of access to

the transmission network, which is regulated third party access, would probably be less complicated since the conditions would already be set. However, this might reduce the security of supply since price will be the main factor for consumers when choosing a supplier. To remedy for this, certain conditions would have to be set on gas suppliers such as a guarantee for reserve stocks in storage or back-up contracts. But if the conditions that are set on gas sellers are high, there might be less new entrants in the market, leaving only the established companies to compete. In countries where there are companies with highly monopolised and vertically integrated structures, competition could therefore only come from abroad. To remedy for this, the restrictions could be minimised, so that market conditions were not too difficult for new and young companies to enter, and competition and trade could still be encouraged.

But looking at the European gas market today, there is still little evidence of competition developing in the transmission network. Transmission infrastructure investments are large in nature, limiting the access of new players. It could therefore be argued that the transmission network in Europe resembles more of a monopoly, contrary to the OECD conclusion. This means that some degree of regulated third party access should be implemented on the transmission of gas. However, while it is important that regulation prevents the transmission companies from setting too high tariffs, it is also necessary to create the appropriate incentives to ensure that new transmission pipelines are built.

With respect to the distribution network it has already been established that it is a natural monopoly and the OECD concludes that regulated access is recommended (OECD/IEA, 2000). All suppliers will have access to enter the network ensuring a larger choice of suppliers.

Evaluation of third party access in the Gas Directive

The EU's Gas Directive distinguishes between existing and new infrastructure and they are not treated in the same way in the directive.

According to Chapter VI in the EU's Gas Directive, there should be third party access to all existing transmission and distribution systems, LNG facilities, storages and upstream pipeline networks. The transmission and distribution systems as well as the LNG facilities should be made available for access based on tariffs that are published in advance and controlled by regulatory authorities. In

other words, there is regulated access to these parts of the system. With respect to the storage facilities, the Directive allows for the choice of regulated or negotiated access. And when it comes to access to upstream pipeline networks, the type of access is left up to the member state to determine.

With respect to existing infrastructure, it can be concluded that the Gas Directive's requirements for third party access seem to live up to the recommendations made by the OECD. The only area where the Gas Directive differs from the recommendations is with respect to the type (regulated or negotiated) of access to the transmission pipelines where the Gas Directive requires regulated access and the OECD recommends negotiated access. However, to encourage a more competitive market to develop in Europe, it might be preferable to have regulated third party access.

With respect to the appropriate incentives for building new infrastructure, the Gas Directive leaves open the possibility of exemptions from third party access, amongst other rules. This issue is dealt with separately in chapter 5.

3.3 Unbundling

Unbundling is the process of separating natural gas services and supply into components where each part is priced separately. The purpose of unbundling is to ensure access for all companies and to secure non-discriminatory prices by correctly allocating costs to a gas company's different activities. This creates a system where it is possible to charge for the usage of the different services. This is particularly important if the owner of the transport network also is the trader of gas.

According to the OECD there are four basic approaches to unbundling (OECD/IEA, 2000):

1. *Accounting separation*: keeping separate accounts of the commodity purchases and sales from the transport activities within the same vertically integrated entity. This includes a vertically integrated entity charging itself the same prices for transport services, including ancillary services such as balancing and quality fulfilment, as it does others and stating separate prices for the commodity, transport and the ancillary services.

2. *Functional separation*: accounting separation plus 1) relying on the same information about its transport system as the other actors when buying and selling gas and 2) separating employees involved in gas transport from those involved in gas purchase and sales.
3. *Operational separation*: operation of, and decisions about, investment in the transport system are the responsibility of an entity that is fully independent of the gas merchants; ownership of the transmission grid remains with the gas merchant.
4. *Divestiture or ownership separation*: gas sales and transport are separated into distinct legal entities with different management, control and operations and there is no significant common ownership.”

Ownership separation eliminates both the incentive and the ability to discriminate. However, according to the OECD, ensuring non-discrimination has to be balanced against the needs for long-term investments. A concern with ownership separation of transmission and sales is that it may lead to an insufficient amount of investments. This is because the investments are large in nature, and there is always a great element of uncertainty regarding the return on investments. An independent and separate transmission company might not be willing to take the risks of investing in pipelines, unless it is sure that enough gas will be produced to run through the pipes in the future. As a consequence, the OECD suggests that a weaker form of unbundling, such as the unbundling of accounts may be preferable to ownership separation in the case of gas transmission. However, this problem can be solved in a different manner which is discussed later on in this report.

Evaluation of unbundling requirements in the Gas Directive

According to Chapters III and IV in the EU’s Gas Directive, transmission system operators must be independent, at least in legal form, organisation and decision making from other activities not relating to transmission. The same conditions are imposed on distribution system operators, as well as combined operators. To ensure independence there are two important conditions that must be met: 1) the separation of the management between the system operator and the remaining parts of the company and 2) enabling the management of the system operator to act independently. The Gas Directive does not require ownership separation.

In addition, Chapter V of the EU’s Gas Directive requires the unbundling of accounts. Companies that have not been unbundled in legal form due to exemptions from the Gas Directive are still

required to unbundle their internal accounts. All natural gas companies are required to make their annual accounts available for inspection by the national regulatory authorities.

With respect to building new infrastructure in emergent or isolated markets, the Gas Directive leaves open the possibility of exemptions from unbundling of transmission companies, amongst other rules.

The EU's Gas Directive seems to follow the second approach of accounting separation and functional separation as suggested by the OECD in its four basic approaches to unbundling. The Directive does not require ownership separation of former national monopolies who owned a large part of the gas supply chain.

However, it is recommended in this report that ownership separation should be required for all transport (transmission and distribution) companies from sales and trading companies, and that no monopoly rights should be given as a way of encouraging the building of new infrastructure. These issues are dealt with in chapter 5.

3.4 Tariffs

Tariffs for access to the infrastructure should be as transparent and non-discriminatory as possible to give all players in the market a chance of participating in and encouraging market development. But at the same time, they must also provide sufficient incentives for maintaining and upgrading the infrastructure as well as making new investments in the infrastructure. Non-discriminatory does not mean that each shipper pays the same tariff, but that the differences in the tariffs paid can be explained by the differences between their service requirements (OECD/IEA, 2000).

There are two issues to be considered when designing a tariff system. Firstly, it is necessary to define the income the transmission or distribution companies can collect, which will determine their incentives to provide investments in maintenance and development. This requires defining issues such as the value of the assets, their appropriate rate of return, and the period over which costs will be recovered. Secondly, the method used for charging the users of the transport system must be determined. This means allocating costs between the various system users either by using distance-

related tariffs where the cost of transport depends on the distance, or by using non-distance related tariffs such as the entry-exit system.

According to the OECD, the method used for charging the users of the transport system could vary between the transmission network and the distribution network if these are separated (OECD/IEA, 2000). In the transmission network gas flows in long distances under high pressure, and a range of security requirements must be in place. In addition, gas must flow in a particular direction. The operational costs of gas transmission increases with increasing distance, and distance related tariffs are therefore recommended to create incentives for investments in the network system (OECD/IEA, 2000). When it comes to the distribution network, it is difficult to be sure of the route travelled by the gas of a specific shipper because there is more movement by displacement. Therefore a non-distance related tariff system is recommended by the OECD for the distribution network (OECD/IEA, 2000). Regardless of whether the tariffs are distance related or not, there are different methodologies which can be used. These are described in more detail in box 3.1.

Box 3.1. Types of tariffs

When regulating tariffs, the instrument to be chosen depends of the goal of the regulation. In newly established gas sectors where large investments have been carried out the goal of the regulation would often be to settle the debt. Appropriate instruments for a newly established gas sector could be “cost-plus” or “net-back” regulation. The regulation instruments used in a non-liberalised sector might differ from the ones used in a liberalised sector. In a liberalised sector competitive and non-discriminatory considerations could be the goal for the regulator. There are several kinds of regulatory instruments to choose from. In the following the most applied ones are described.

Price-cap and income-cap

Using the price-cap method the regulation authority defines a basic price, which is based on a weighted average of the cost of gas companies’ services. The price will typically be adjusted once a year according to e.g. inflation. A productivity gain factor is subtracted from the price. The price-cap method sets an upper limit for the price that the gas company may charge but not a limit for the gas company’s margin. Thereby an incentive to be more efficient is created, because the gas company may keep the margin of what is earned above costs, in contrast to the cost-plus method where lower production costs only benefited the end-users. A similar method to the price-cap is the

income-cap. The idea is the same but the cap is placed on the income instead of the price. If well designed, the two different schemes (price and income cap) in theory should be able to give equal incentives to invest. However, it may be easier to design the price-cap scheme giving the incentives needed compared to designing the income-cap. Regardless of the method of regulation, it is a theoretical must that historical costs should be ignored, and future costs are the relevant criteria for regulation.

Source: Austvik (2003) and Konkurrencestyrelsen (1998)

Evaluation of tariffs in the Gas Directive

According to Chapter VI in the EU's Gas Directive, connection and access to the transmission and distribution system as well as access to LNG facilities should be based on published tariffs which are non-discriminatory and cost-reflective. In other words, the EU's Gas Directive requires the transportation prices for both the transmission and distribution network to be regulated. However, there is no mention of the method for calculating the tariff or the type of tariff to be used. This is left entirely up to each member country. The only specification made in the Directive, is that the regulatory authority is responsible for approving either the tariffs or the methodology underlying the calculations of the tariffs, and that the tariffs are to be approved in advance.

The Gas Directive lives up to the OECD requirements of ensuring non-discriminatory and cost-reflective tariffs for all players in the market. With respect to the types of methods that should be used the Directive is less clear, and merely requires the methods to be approved by the national regulatory authorities.

However, there is one issue that is not mentioned in the Gas Directive. There is no mention of any standards for setting cross-border tariffs between member countries. This could lead to countries setting different tariffs for gas transportation with the result of hindering efficient cross-border trade and leading to pancaking. These two issues are dealt with in chapter 4.

3.5 Type of regulatory authority

Any new regulatory framework needs appropriate and strong regulatory institutions to manage it, and even more so with the type of framework discussed above. The OECD suggests the regulatory responsibility should lie with an appropriate authority which is independent from the companies

that are being regulated (OECD/IEA, 2000). An important reason for this requirement could be to prevent “regulatory capture²”.

The introduction of competition in parts of the gas market requires that competition law should be applied to the gas supply industry (OECD/IEA, 2000). This means that either the gas regulators, or the competition authorities (or both) must take on the new role to enforce competition in the industry. The relationship between the gas regulator and the competition authorities must be clarified, and effective communication channels need to be set up.

There are both advantages and disadvantages with having a sector specific regulator for a particular market. Sector specific regulation is particularly important in markets where a high level of technical knowledge is important to the quality of the regulation. In a market where particular knowledge is necessary to perform the best regulation, a general competitions authority might not be able to understand all the aspects of the market and evaluate what type of regulation is the best. It might therefore be an advantage to have a sector specific regulator that can make the necessary evaluations and regulatory recommendations. Sector specific regulation might also be preferred in a market that always will remain a monopoly. In other words, if competition is not likely to occur in a particular market, it is better off being regulated by a sector specific regulator with specific knowledge on that market, rather than a competitions regulator whose main interest is to promote and ensure competition.

The way a market is regulated might differ greatly depending on whether a sector regulator or the competition authorities are in charge. This is because it is unlikely that a sector regulator has the same interests at heart when regulating a market as the general competition authorities would have. Therefore, a sector specific regulator is unlikely to be occupied with issues related to enhancing competition in a market, such as preventing monopoly and cartel formations and preventing dominant market players from appearing. In such circumstances there are great disadvantages of having a sector specific regulator.

When deciding whether to choose a sector specific regulator or a general competition regulator for a market such as the gas market, it is important to keep in mind that the market is still young and as it

² Businesses ability to control regulatory institutions (Laffont and Tirole, 1998)

develops and becomes more mature, will change in nature. A sector specific regulator might be more important in a young market where competition has not yet evolved and particular knowledge is important, while a general competition regulator should have more say in the market as it becomes increasingly privatised. It is also important to keep in mind, that the gas market can be considered a European market and it should therefore be regulated on a Europe-wide level, not merely at a national level.

Evaluation of type of regulatory authority in the Gas Directive

According to Chapter VI, Article 25, in the EU's Gas Directive, each member state shall designate one or more competent bodies with the function of regulatory authority. They are responsible for ensuring non-discrimination, effective competition and the efficient functioning of the market. To do this, the authorities must monitor particular movements in the market, such as the effective unbundling of accounts and approving tariffs.

There is no mention of how the regulatory authorities should be organised, neither nationally nor across borders in the Gas Directive. In addition, there are no requirements as to whether the regulator should be independent or part of the general competition authorities. All of the issues are left up to each member state. This could lead to problems even though the Gas Directive requires there to be efficient regulation in each member country. The national differences in regulation might lead to cross-border problems where the member countries are not able to interact with each other or where some countries are at a disadvantage compared to others. In addition, there is no mention regarding the role of the EU as a regulatory body. With no pan-European regulatory body overseeing the entire European gas market, it will be very difficult to ensure that rules are harmonised across countries. These are the areas in particular that the Gas Directive should expand on. All these issues are looked at more closely in the following chapter.

4. Efficient gas markets

Conclusions

Experiences from the telecoms and electricity markets show that third party access and unbundling are efficient methods to use in order to achieve restructuring and competition in former monopolised markets on a national level. But these methods are not sufficient to achieve an efficient European single market across borders. In order to obtain cross-border trade and competition it is important to have harmonised Pan-European rules for the setting of tariffs and type of regulatory authority. The results of the liberalisation process in both the telecoms and electricity markets have already been seen by a convergence of the price level (for the same service) between European countries and, to a certain extent, lower consumer prices within a country as a result of more efficient resource allocation within firms.

The Gas Directive has clear rules on how to obtain third party access and unbundling, which should be adequate to achieve competition on a national level. Evidence of a competitive behaviour in the gas sector can already be seen by the increased amount of mergers and acquisitions. The Gas Directive has less clear rules on how to obtain harmonised legislation across European countries and how to ensure competitive conditions. In other words, the EU's Gas Directive is likely to lead to efficiency and welfare gains on a national level, but maybe less so across borders in the European single market. The solution to this requires new legislation at the Ministerial level, with the changes to be implemented in an improved version of the EU's Gas Directive.

4.1 Why liberalise?

The aim of liberalisation is to achieve welfare gains obtained by a well functioning and efficient gas market with optimal capacity utilisation and lower prices. A future competitive gas market will require large investments made by several large producers. Since most of the countries in EU have only one or few gas companies it is an important condition that the national barriers are removed so the gas in the EU freely can cross the borders.

Before the liberalisation process of the gas market began, it was characterised by national gas monopolies. Liberalisation has already resulted in a restructuring of the market seen in the form of

increased mergers and acquisitions, abolishing many of the national monopolies. This in turn should lead to welfare gains by lower costs and increased competition. For the gas companies to keep their market position they have to optimize their business strategies to be efficient enough to handle the competition. Thereby the threat from entrance of new gas companies in the market can lead to lower retail prices even though the end users do not have the opportunity to choose among several gas companies.

4.2 Liberalisation of the telecoms and electricity markets

The liberalisation of both the telecoms and the electricity markets came with certain regulatory requirements. The two most important ones are third party access and unbundling. These requirements were compulsory in both the telecoms and electricity markets, and proved to be effective methods for creating competition. In the telecoms market the requirements of third party access and unbundling lead to restructuring which also lead to increased competition. In the electricity market, restructuring was also seen.

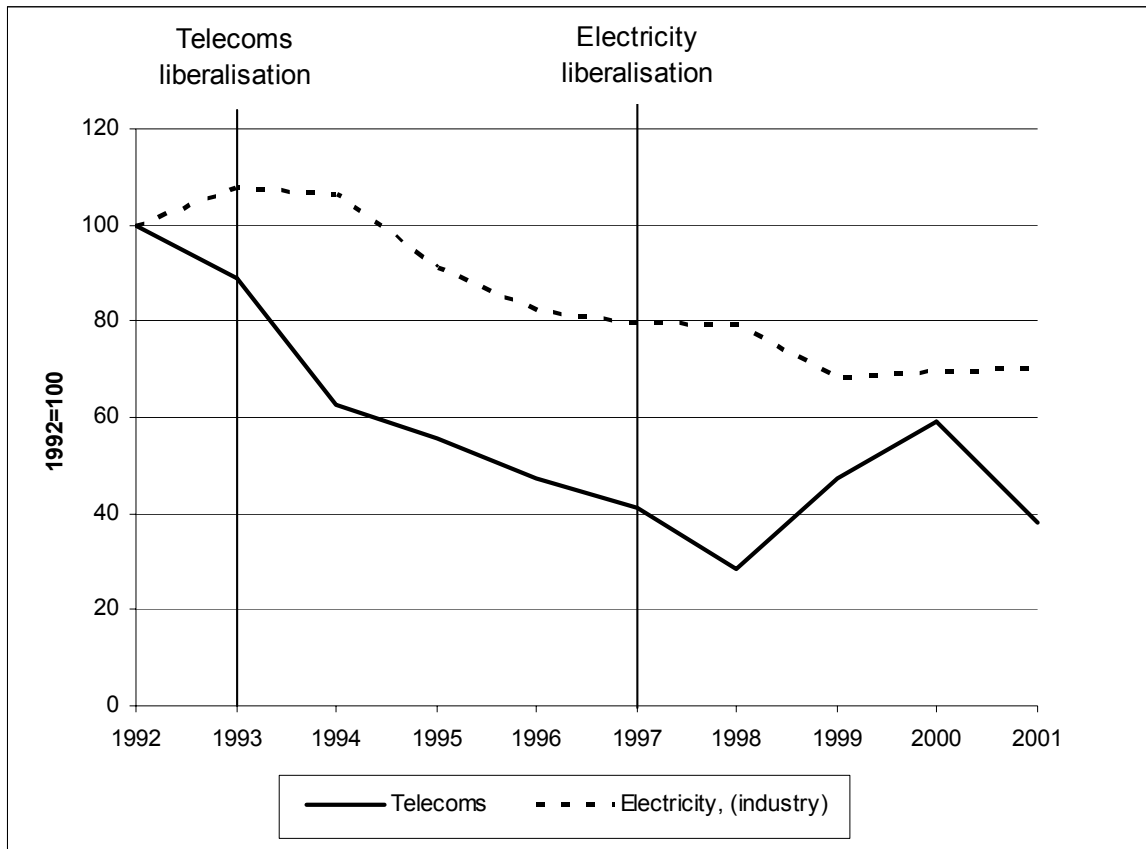
Prices in the telecoms and electricity markets

One of the aims of liberalisation is to achieve welfare gains by creating more efficient national markets and a European cross-border market. It should be possible to measure this effect by looking at the prices between European countries and measuring the convergence of price differences between countries. A convergence of price differences between countries should indicate whether national markets are opening up and becoming a part of the single European market by encouraging national companies to compete with each other. If a market has become an integrated part of the European single market, it is expected that the price differences between European countries would diminish and converge.

The price differences between European countries have converged in both the telecoms and electricity markets, indicating that the liberalisation has been successful in these 2 markets. The price difference is measured by subtracting the lowest price from the highest price among all European countries. Telecoms price differences for international calls fell by more than 60%, and electricity price differences for industrial users fell by 30%. The increase in the price differences that was seen in the telecoms sector in 1999 and 2000 was caused by a sharp reduction in price in

the Netherlands while the telecoms prices in Belgium remained at a constant high until 2001. This meant that in 1999 and 2000 the prices did not continue to converge, but diverged as the price differences grew between the Netherlands and Belgium. This can be seen as an upward pointing peak on the graph below (see graph 4.1).

Graph 4.1. Difference between maximum and minimum prices of all EU countries



Note: For electricity year 2001 is based on 8 EU countries
 Source: Eurostat (2003) and IEA (2003)

Based on the figure above, it seems that the liberalisation of these two markets did have an impact on the prices in the telecoms and electricity markets.

4.3 Experiences from the electricity and telecoms markets

The electricity market

The UK pioneered electricity market reforms in 1990 by introducing a competitive spot market, separating generation and transmission and privatising the national monopoly. Norway and Sweden soon followed, and the reforms in these two countries have been, in many ways, at least as extensive as and arguably more successful than in the UK. Electricity market reform has then spread to other parts of Europe, to USA, Latin-America, Australia and New Zealand.

Among major markets, the UK and Germany have gone furthest in liberalisation. In all these markets considerable problems have emerged compared to the relatively smooth operation of the Scandinavian markets (see boxes 4.1 and 4.2 for more detailed information on the developments in the UK and Germany).

Box 4.1 Experiences from the UK

In the UK there was for many years clear signs that the wholesale market – the pool – was ineffective in passing on efficiency gains to consumers. Instead, generator's margins for a period increased to such an extent that the regulator had to impose a price ceiling. Through new regulations and the largest generators being forced to sell some capacity, this problem seems to be diminishing as wholesale prices fell in 2001. Whether the introduction of the New Electricity Trading Arrangements (NETA) in March 2001 or increased competition due to new market entries in the late 1990s was the cause is being debated.

Source: ECON (2002) and Newbery et al. (2003)

Starting with excessive overcapacity helped getting a smooth transition to a market system in the European electricity sector. The liberalisation has worked in terms of getting rid of a large part of the unnecessary overcapacity as companies have sought to become more efficient and decommission any unnecessary overcapacity. However, in parts of Europe, growing demand for electricity soon will require new investments to ensure the security of supply. The market will then have to show whether it will be able to trigger the investments needed to meet the growing demand.

Box 4.2 Experiences from Germany

Germany is among the most advanced countries in the liberalisation process within the EU with respect to market opening. But retail competition was hampered by problematic arrangements for third-party access (TPA) to networks and ineffective unbundling. Excessive high network tariffs allowed incumbent utilities to delay competition through cross-subsidies.

Lack of price transparency and complicated tariffs have also impeded competition in the German end-user market, which nevertheless has seen a large reduction in prices. In 2000-2001 prices were very low compared to the long-run marginal cost. Brunekreeft (2001) argues that the best strategy for vertically integrated generating/transmission companies wishing to deter new entrants on the generation market is to charge only running costs for electricity generation and then recoup fixed costs through transmission tariffs. That strategy is possible when transmission tariffs are negotiated as in Germany, and there is no (sector) regulator to ensure non-discriminatory access. As a result, network tariffs have been high in Germany. However Germany has recently agreed to establish an independent regulator from mid 2004 as the last of the European Union members.

Source: ECON (2002) and Brunekreeft (2001)

The telecoms market

The EU has also been a driving force in putting pressure on Member States to implement the major telecoms directives in the 1990's, such as the Open Network Provision abolishing former national monopolies from 1998 and onwards, and procedures to enforce third party access and unbundling.

From a regulatory point of view it is interesting to observe, that efforts to allow for and to increase competition so far has been concentrated on harmonising rules within the EU. The new telecoms directive to be implemented from 2003 sets out a more detailed framework to define markets applying general competition rules to suggest 12 submarkets within the telecoms sector to be analysed and potentially regulated. The telecom directive allows for national decisions as regards the proper regulatory set-up, but the underlying guideline for regulatory intervention is that apart from technical issues, market pricing and competition should be regulated based on general competition ruling as soon as possible.

4.4 Lessons learned from the electricity and telecoms markets

The Scandinavian countries have been successful in the liberalisation of the electricity markets. In these countries there has been open access to the market place for all players, and effective unbundling has left no room for cross-subsidisation (ECON, 2002). In addition the market concentration is lower in the Scandinavian countries, and the efficiency gains from liberalisation of the electricity market were visible on wholesale prices from the beginning. However, this contrasts with Germany where there are great problems with a lack of unbundling and inefficient negotiated third party access, and the UK where there is high market concentration (ECON, 2002).

Within the telecoms sector, former national monopolies within the EU have been arguing in favour of removing obstacles to enhance competition across borders. Experiences from the past few years indicate that a common framework and a level playing field are to be preferred. Newcomers as well as national incumbents making cross-border investments have spent time and money trying to enforce free access and equal opportunities in other countries, arguing that opening up the home market for international competition in accordance with the general EU-ruling of a common market for telecom services should not be hampered by some countries trying to delay decisions and being less effective in enforcing rules (ECON, SNF, 2003).

It is clear that there are some factors that have been important in both the telecoms and electricity markets and which should be kept in mind as the gas sector is liberalised. The most important ones are:

- Efficient third party access regime
- Efficient unbundling of transmission and distribution
- Monitoring of market concentration and competition conditions
- Harmonised rules between European countries

4.5 Restructuring in the gas market

After looking at the experiences and developments in the electricity and telecoms markets, where third party access and unbundling led to restructuring and increased competition, the natural question to pose is whether it is possible to anticipate a similar development in the gas market.

There have been concerns that the development seen in the telecoms and electricity markets would not take place in the gas market because the current structure would remain and new players would not be able to enter (Ellis et al, 1999). But there does not seem to be any specific barriers in the gas market compared to the telecoms and electricity markets. Since both third party access and unbundling is required according to the Gas Directive, a good base should exist for at least national competition to take place in the European gas market.

In fact, signs of this restructuring are already being seen in the gas market. The announcement in the late 1990s that the gas market would be liberalised resulted in a restructuring that was seen in the form of increased mergers and acquisitions. After the first Gas Directive was passed in 1998, there was a sharp increase in M&A activities compared to previous years (see table 4.1).

Table 4.1. Number of M&As by year and by target country (1998 to 2003)

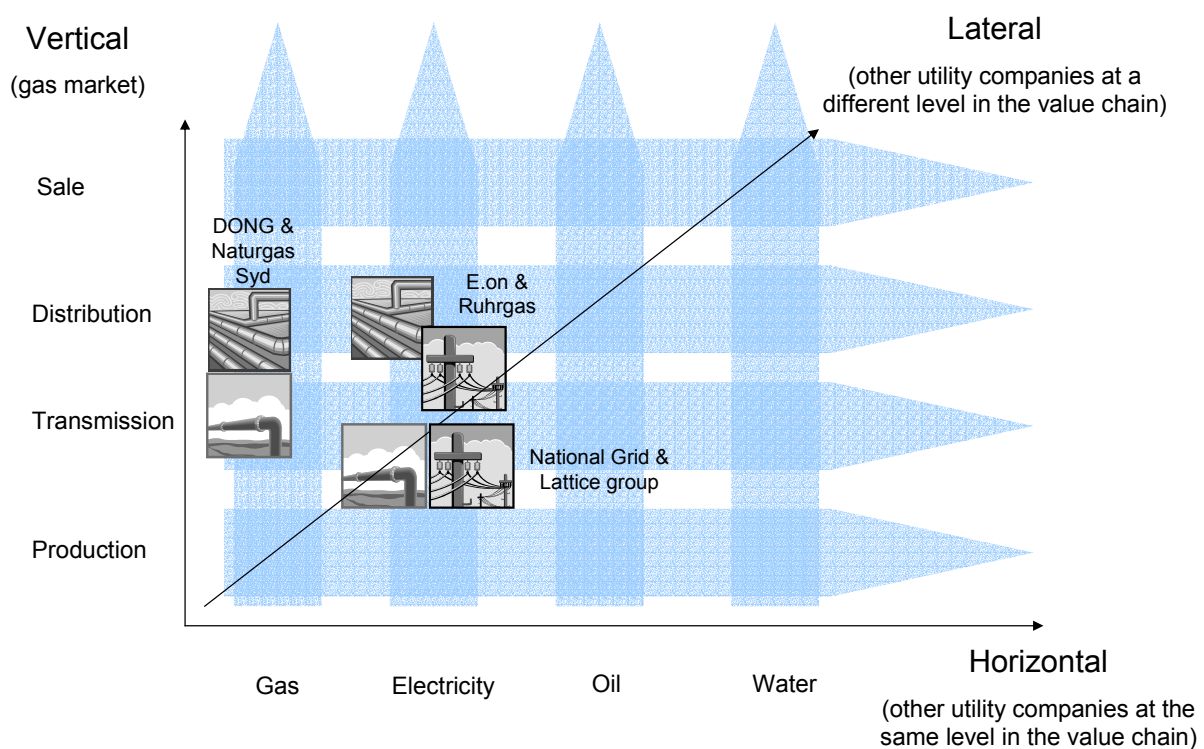
YEAR	1997	1998	1999	2000	2001	2002	2003	Grand Total
Austria							1	1
Belgium		1						1
Czech Republic						1		1
Denmark			1	1		2	1	5
Finland		2	1					3
France		4	1					5
Germany		8	2		1	5	1	17
Hungary			2					2
Ireland		1						1
Italy		3				6		9
Lithuania						1		1
Luxembourg		1						1
Netherlands				1				1
Norway		1	1		2			4
Poland						1		1
Russia		1						1
Slovak Rep.						2		2
Spain		2						2
Sweden		2			4			6
UK	1	7	4	1	1	6		20
Grand Total	1	37	11	2	8	23	2	84

Source: ECON (2003)

There are 3 types of mergers and acquisitions; vertical integration, horizontal integration and lateral integration. Vertical integration is the merger or acquisition of companies within the same industry, but at different levels in the value chain. For example, the merger or acquisition of a gas

transmission company with a gas distribution company is considered vertical integration. Horizontal integration is the merger or acquisition of companies across industries, but at the same level in the value chain. For example, the merger or acquisition of a gas transmission company with an electricity transmission company is considered horizontal integration. Lateral integration is the merger or acquisition of companies across industries and across levels in the value chain. For example, the merger or acquisition of a gas distribution company with an electricity transmission company is considered lateral integration (see Figure 4.1).

Figure 4.1: Mergers and Acquisitions in the gas market



Source: ECON (2003) and own representation

There seem to be two main merger and acquisition strategies in the gas sector. The first strategy seen is that power companies and gas producers move in to gas distribution where they search for new business opportunities as a result of third party access, and falling margins for pipeline owners. The second strategy is for gas transmission and distribution companies seeking to extend their activities along the entire gas chain and also into power generation, to have a broader and more solid base for their activities (see table 4.2).

Table 4.2. Number of M&As by targets' and bidders' core activity (1998 to 2003)

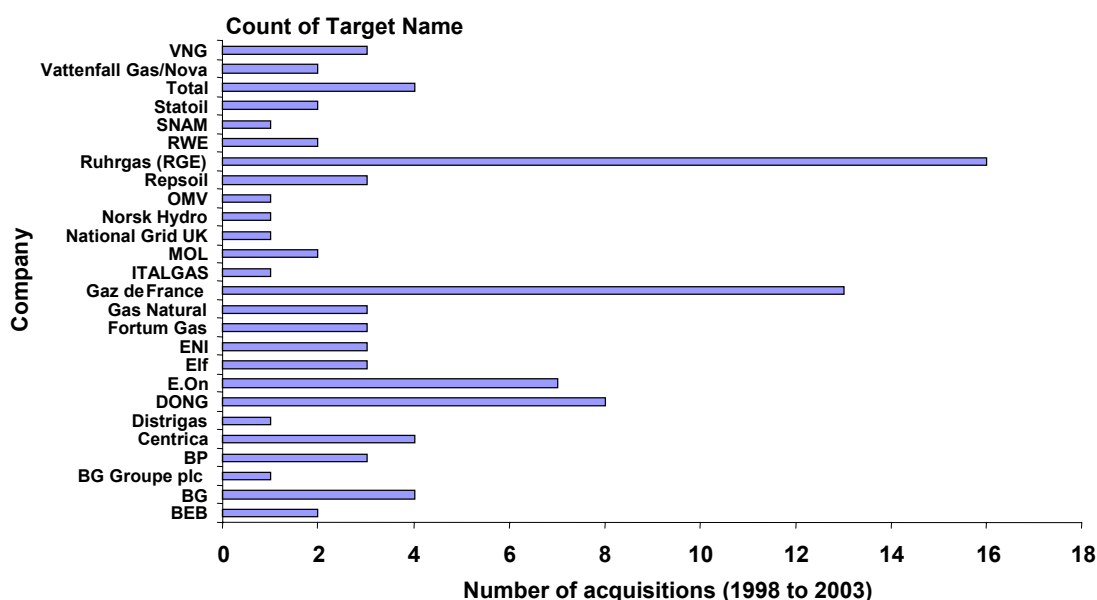
Core business of Bidder	Core business of target company								Grand Total
	Distribution	District heating	Gas storage	Power	T&D	Transmission	Upstream	Utility	
Distribution	3			1		1			5
Power	4					1		1	6
T&D	23	1	1	8	4	3	8	2	50
Upstream	9				1	3	10	1	24
Upstream & T&D						1			1
Grand Total	39	1	1	9	5	9	18	4	86

Note: Transmission refers to dedicated pipeline transportation service companies, while T&D refers to companies that transport gas and also sell to some customers.

Source: ECON (2003)

The result of these M&As is a necessary restructuring of the gas market which will result in increasing competition and it is anticipated that the restructuring will continue in the future as the markets become more competitive. The gas companies Ruhrgas and Gaz de France stands for most of the vertical integration in the gas sector, while the energy company E.ON's acquisition of Ruhrgas and Centrica's move into electricity distribution represent horizontal and lateral integration (see figure 4.2).

Figure 4.2. M&As by bidding company – most active companies (1998 to 2003)



Source: ECON (2003)

Until now German and French companies have been the most active in M&As. About 60% of the total number of M&As in Europe is located in these countries. While one third of the M&As in Germany involve other German companies, the French M&As are directed against companies outside of France. Over one third of the French M&As take place in Germany and the UK (ECON, 2003).

There is always a risk that the restructuring in the market might lead to too high levels of market concentration and result in a lack of competition. As in other markets, the risk of too high market concentration does exist, but there is no reason to believe that the risk is higher in the gas market than in other similar markets. It is important to keep in mind that the gas market in Europe is changing in nature. The national gas markets in Europe are spreading across borders and becoming one large European gas market. It is therefore important that the regulatory authorities in Europe are able to keep up with this significant change.

4.6 Cross-border competition

In addition to ensuring efficient national markets with competition, it is important the EU's Gas Directive can ensure cross-border competition by ensuring trade between EU countries. Today each European country has (or will soon have) its own regulatory authority, in some form or another, to overlook the gas market. The Gas Directive does not mention whether the gas market should be regulated by a sector specific regulator or the general competition authorities. This decision is left up to each country. Each country can, in accordance with the Gas Directive, choose different regulatory methods and the result could be differences between countries with respect to which rules are valid and how they should be enforced.

There is therefore a risk that rules and regulation, such as tariffs for transmission of gas, could be set according to different principles across European countries, and might not be cost-reflective. This could lead to pancaking³, which makes the transportation costs of gas unnecessarily high and uneconomic for the trader of gas. For transit countries in particular there is a risk that cost-effective

³ When a transportation service is using more than one transmission system, there is tariff pancaking if the total amount paid by the system user for the service is not justified by the services rendered individually by each of the transmission operators (GTE, 2001).

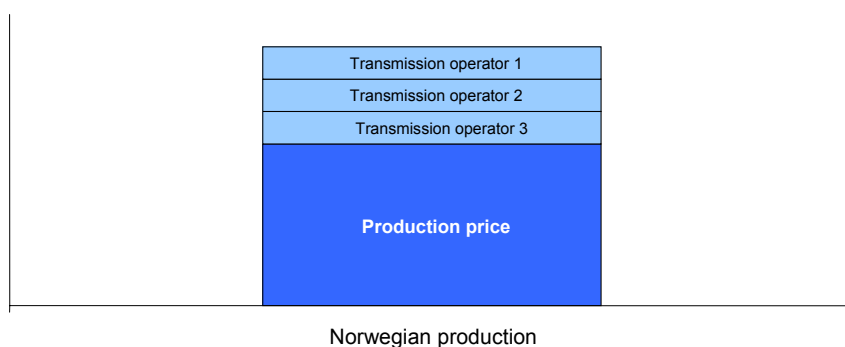
tariffs are not ensured since they are not users of the gas, and there are few consequences for the transit country in setting cost-inefficient tariffs. To prevent these types of problems, the EU's Gas Directive should have clear rules on if and when the EU's competition authority should intervene in the gas market.

One of the outcomes of not having common regulatory guidelines across European countries might be to put some countries' transmission companies at a disadvantage by causing their gas prices to be higher than necessary. The result might have consequences for the entire European gas sector if gas prices are too high, and reduce the competitive advantage of gas. Below a closer look is taken at the effects of pancaking and experiences from the electricity market.

Pancaking

Gas that enters Europe often has to travel long distances before reaching the country of its destination. Travelling long distances often means crossing several national borders and passing through pipeline systems owned by several different transmission companies. Each time a border is crossed or a new transmission system is used, a tariff to that country or operator must be paid. This could mean that gas being transported from Norway to Denmark, might be charged a tariff in Norway, Germany and Denmark, before it is sold to the consumer (see graph 4.3).

Graph 4.3. Pancaking



The same gas which is extracted in Norway is cheaper to buy for the Norwegian consumers, than for the Danish consumers. However, it must be expected that the consumer must bear the cost for transporting a good to Denmark which is produced in Norway. The real issue here is whether the

transmission tariffs that are paid when crossing borders or changing operators reflect the true costs of the service that is used. Gas passing through a country and which is only in transit, is not as costly as gas which needs to be put into or taken out of the pipeline system.

Recent discussions in the Madrid Forum include tariff types and structures. There seems to be a general wish to introduce gas transmission tariffs in Europe based on an entry/ exit system, rather than based on distance (CEER, 2003). If tariffs are distance related, pancaking is not considered a problem since the tariffs increase as the transport distance increases. But if the tariffs are based on an entry/ exit system, there will be one tariff for each new transport system the gas enters, thus increasing in steps. This means that gas being transported in a new system is charged the same tariff no matter how far it is transported. The result is that gas which is transported a short distance in a new system might pay a too high tariff, often referred to as pancaking.

Experiences from the power sector

The electricity market experienced the same type of problems after it was liberalised as seen in the gas market today. The adoption of common rules for cross-border electricity trade represents an important step forward in the integration of national European electricity markets.

The EU Commission spent years trying to get rid of existing cross-border tariffs between the western European electricity system areas. First it was tried through the national regulators, but with little progress. Then in 2001 the task was put on to the Transmission System Operators, organized in Europe in the European Electricity Regulatory Forum. ETSO, which is made up of EU regulators, system operators and industry representatives, agreed that a harmonised tariff for cross-border electricity trade among EU countries, plus Switzerland and Norway, should be adopted (ETSO, 2002). They were able to come up with an acceptable transit solution, which compensated areas with much transit between neighbouring areas, and all import and transit tariffs were abolished. This solution was put in effect by March 2002 and further refined by the start of 2003 with a permanent system that would introduce separate location factors into the tariff structure. However, this goal has not been reached sufficiently and a standardised export tariff has been kept instead. The main point was that market players no longer needed to pay in every country and system through which their transactions went. They just paid once to the System Operator of the exporting country. For 2002 this fee was set to 1 €/MWh, which for 2003 was reduced 0.5 €/MWh.

With no common rules in the EU Directive on how tariffs may be set at a national level in the gas sector, pancaking and less welfare gains must be expected to some degree. The harmonisation of tariffs was a lengthy process for the power sector, and the prospects are that it could be a lengthy process for the gas sector, too.

Experiences from the US gas sector

The tariff structure in the US is divided up into interstate rates, and intrastate rates. Interstate tariffs are regulated by the federal regulator FERC. Intrastate tariffs are regulated by State/ Provincial regulation if they only transport gas in that particular state, otherwise the tariffs fall under federal regulation.

The most common rate structure for interstate pipelines in the US is the cost-of-service based rate methodology. The pipeline tariffs are structured to enable the pipeline owners to recover their incurred costs and an adequate return on their investments. The FERC has set detailed guidelines in Order no 636 on how the cost-of-service tariffs must be set. The tariff is divided up into two parts consisting of one fixed cost part, and one variable cost part. By setting tariffs for interstate routes as a whole it is possible to avoid the issue of pancaking (NERA, 2002a).

Intrastate pipelines have more freedom in setting their rates. The specific regulatory rules are less standardised and detailed than those applying to the interstate pipelines. However, both regulations are based on the same principles (NERA, 2002a).

4.7 Achieving harmonisation in Europe

The most obvious way to ensure that gas prices become and remain competitive in the European gas market is to achieve harmonisation of regulation between countries. However, there is currently no basis for this in the Gas Directive. According to the Directive, each member country may set tariffs as they wish. In other words, European interconnectors are not subject to common rules, making the situation in Europe very different from the one in the US. In Europe, tariffs are set by each country or by the transmission operators, and there is no distinction between pipelines that are involved in cross-border trade and those that are not. Therefore, tariffs are not always perceived as reflecting the underlying costs of the service provided, leading to pancaking (NERA, 2002a).

In an entry/ exit system, shippers who do not cross any network boundary only have to pay the entry price and the exit price on one network, while shippers who cross a network boundary, even if it is for a short distance on the other side of the boundary, also have to pay the entry price and exit price of a second network (GTE, 2003). The transport service should therefore be priced as a whole. In other words, a tariff should be set for transporting gas over the entire distance, as seen in the US, in order to avoid pancaking (NERA, 2002a). Therefore, without harmonisation of the regulation of cross-border tariffs between European countries, the possibility of pancaking could lead to an inefficient market which is difficult to integrate into one single gas market (IFIEC Europe, 2001).

To achieve harmonisation of rules would require new decisions in the Council of Ministers, and it would be necessary to make an additional adoption of the revised Gas Directive before it could be implemented in the member countries. Even though the administrative process which takes place during the meetings in the Madrid Forum might lead to regulative changes in Europe, it will be several years before harmonisation can be seen.

The need for a detailed regulation would be less if there was competition in all areas of the gas market, in production, transportation and sale/trade of gas. Here the market would determine the prices and prevent large national differences between European countries. However, this pleasant scenario is hardly possible with the existing pipeline structure in Europe where hardly any pipeline-to-pipeline competition is present. A closer look is taken at this topic in the following chapter.

5. Incentives for infrastructure investments in Europe

Conclusions

Forecasts show that gas demand will increase by approximately 50% over the next 20 years, and by about 80% over the next 30 years. This will mean a large increase in the amount of gas the EU imports from just over 40% today, to about 80% by year 2030. To cope with this increase in gas supply and usage, the capacity of the transmission pipelines into Europe, as well as between European countries, will have to be expanded.

In a liberalised gas market, new infrastructure will have to be built on market conditions where governments to a lesser degree participate in the investments. Experiences from the US show that a gas sector on market terms can be achieved by a regulator that encourages pipeline-to-pipeline competition in addition to encouraging competition in all parts of the gas supply chain. However, Europe is still far away from achieving a gas market that resembles the one in the US.

A step in the right direction would be to provide legislation that ensures adequate incentives for the investments in new infrastructure. The current Gas Directive offers monopoly rights for a project owner extending or building new infrastructure. This must be considered a step in the wrong direction if competition is the aim in Europe. In stead Pan-European legislation should ensure harmonised rules that create the appropriate incentives. In addition, it is necessary to develop co-operation between the European countries and the gas producing countries outside of Europe to ensure Europe's future supply of gas.

5.1 Gas demand and supply

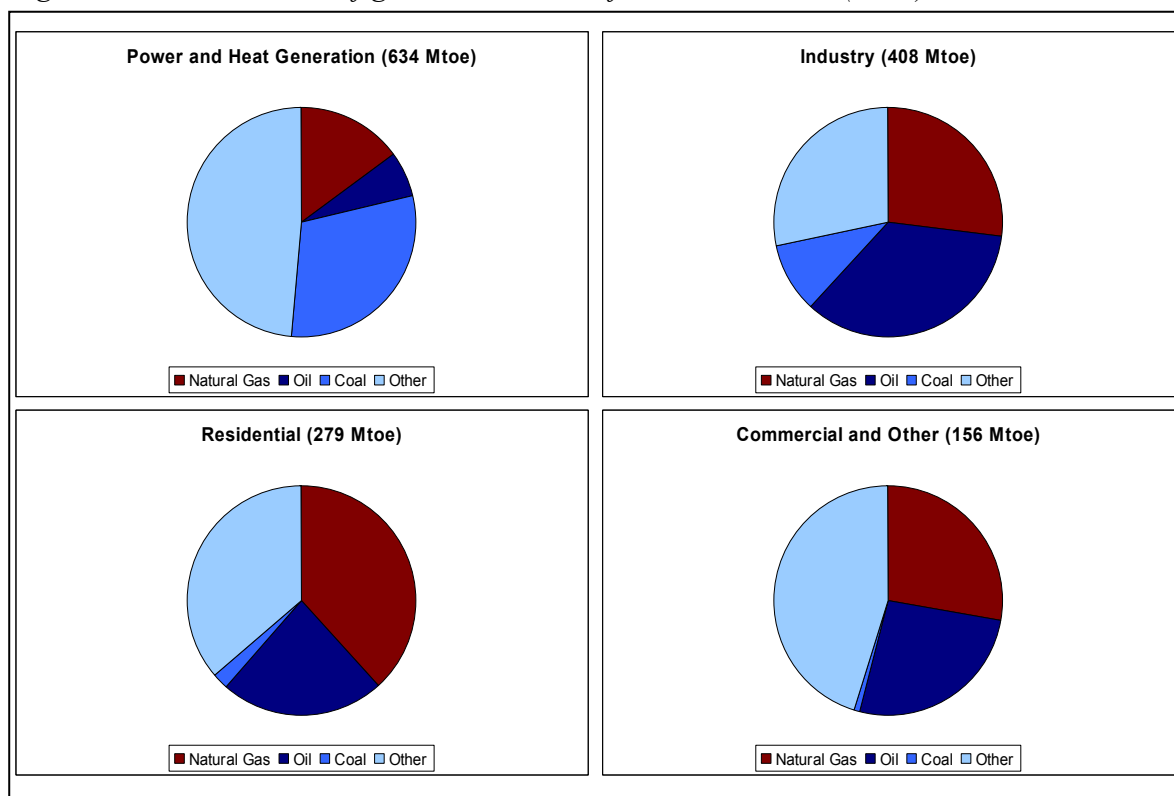
The characteristics of gas demand, in particular the need to remain competitive compared to alternative energy sources, have a strong influence on prices, consumption and trade. As such, the first part of this chapter describes the structure of the supply and demand.

Gas demand

Demand is determined by the competitive position of gas in the market, which is different in each sector. Consequently, the sector composition of gas demand is important. Figure 5.1 adopts the standard classification of demand, which depends on the type of energy service provided and the competing fuels that can supply the same services.

The share of gas demand varies between sectors among the 15 EU countries. Gas has the lowest energy share for heat and power generation of 15 %, while gas has the highest share in the residential energy consumption of 38 %. For industry and commercial and other use gas demand is somewhere in between at similar levels of 27% and 28 % respectively.

Figure 5.1. Market share of gas in each sector for EU-15, Mtoe⁴ (2000)

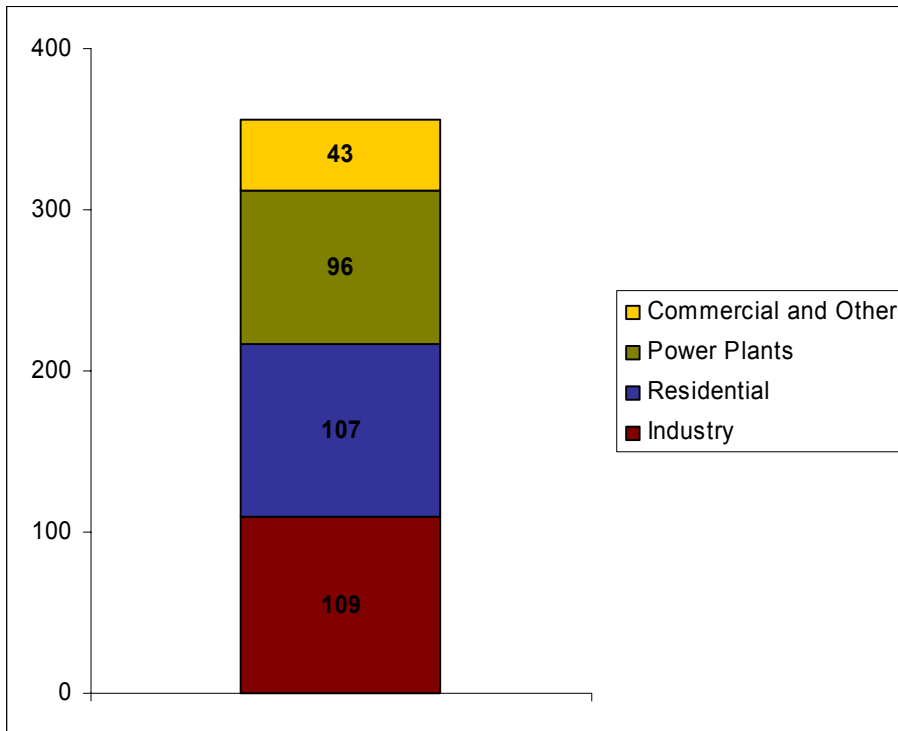


Source: IEA (2002a)

⁴ 1 million ton oil equivalent = 1.044 billion cubic metres (IEA, 2002a)

Comparing the quantity of gas purchased across sectors, it can be seen that the industrial sector and the residential sector are the major consumers of gas, consuming 31% and 30% respectively of the total EU gas demand. Thereafter follows the heat and power generation sector with 27%, and the commercial and other sectors with 12% (see figure 5.2).

Figure 5.2. Sector composition of gas demand for EU-15, Mtoe (2000)



Source: IEA (2002a)

Demand forecasts

When estimating the future gas demand, there are a handful of available studies. In this paragraph we focus on three of the main forecasts for gas purchase in Europe; Eurogas' 2001 Annual Report, the IEA's World Energy Outlook 2002 and the OME's 1999 study, (see table 5.1).

Table 5.1. Gas Demand projections for 2020 (bcm)

	2000	2020	Increase in pct. (2000 to 2020)
Eurogas ^A	338	475	41
IEA ^B	375	585	56
OME ^C	386	597	54
Average	366	552	50

Note A: Eurogas (2001), Total EU-15 demand in 2001 and 2020

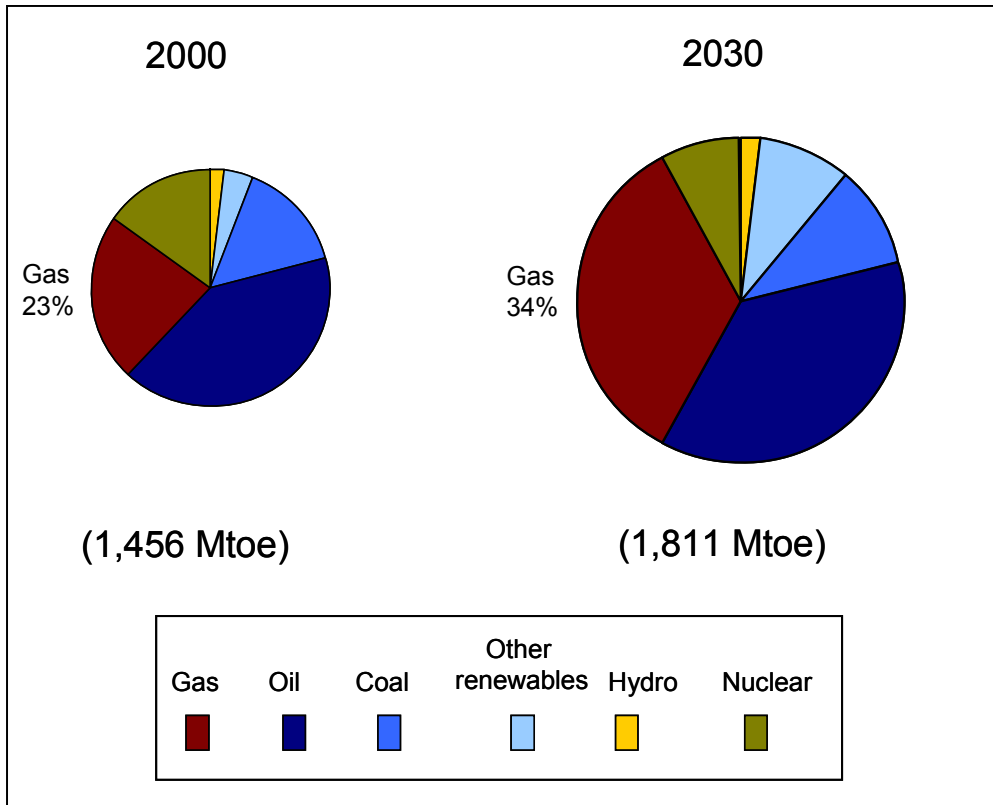
Note B: IEA (2002b), EU-15 demand in 2000 and 2020

Note C: OME (1999), Estimation of total EU-15 demand in 1999 and 2020

According to the three studies, natural gas demand in the EU-15 is expected to increase strongly over the next twenty years. On average the three studies project an increase in EU gas demand of 50% over a 20 year period. There are not great differences in the forecasts between the three studies. The projections of the IEA are the ones that have the longest forecast horizon, until 2030, and will be used in the following.

IEA projections show that compared to the 2000-level the 2030 total energy purchase for the 15 EU member countries is forecasted to be 24% higher. The purchase of natural gas is, however, expected to be significantly higher over the next 30 years, namely 84% (see figure 5.3). For a short presentation of the underlying assumptions please see box 5.1.

Figure 5.3. Gas demand forecast for EU-15



Source: IEA (2002b)

The rapid increase in natural gas consumption in the IEA-study is primarily believed to be generated by a shift in energy purchase from other energy sources towards gas amongst power and heat generators. The potential for an increased gas usage is largest in heating and power generation and one might therefore see the greatest scope for future increases in gas consumption within this sector. The heat and power generators' energy purchase would increase if the generators are rebuilt for using gas as the main energy production source. As it can be seen in figure 5.3 above the significant increases in gas consumption are assumed to cause equivalent decreases in the purchase of especially fossil fuels and nuclear power.

The IEA forecast is taken from the baseline scenario in the IEA's energy forecast. It is in line with forecasts by others. However, the largest uncertainties in the demand forecast are i) to what extent consumers will substitute towards less CO₂-intensive fuels; and ii) the scale of the increased gas usage in the power sector.

Box 5.1. Assumptions for the EIA forecast

This box presents the assumptions behind the forecast for the EU energy market up to 2030. The forecast is employed by the International Energy Agency (IEA), cf. IEA (2002).

The IEA forecast is based on a number of assumptions, which all have high influence on the final outcome. Especially since the forecast goes up to 2030. When forecasting how the 2030 EU energy consumption will be composed of oil, solid fossil fuels, natural gas and others, the IEA is underlining that the forecast should be seen as an indicative study.

- In the period 2000 to 2030 the average GDP-growth for the 15 EU countries is set to be 1.9 percent per year. The growth rate over the period is assumed to equal 2.9 percent per year from 2000 to 2010 and by 1.6 percent from 2010 to 2030.
- The GDP growth is assumed to generate an increase in energy demand of 0.7 percent per year.
- EU and national policies that have already been announced and approved as of mid-2002, including those aimed at meeting emissions-reduction commitments under the Kyoto Protocol In the baseline scenario , are being incorporated in IEA's baseline scenario.
- The EU power sector will purchase an increasing part of the total EU energy use. A majority of these purchases will be gas-fired. The importance of nuclear energy will be less significant since some older plants will close and only few new plants will be built.
- An increasing amount of the energy-fuels will be imported. E.g. net imports of gas will increase from 44% to 81% of the EU's total gas supply in 2030.
- Political demand for a diversified energy supply from most of the 15 EU countries.

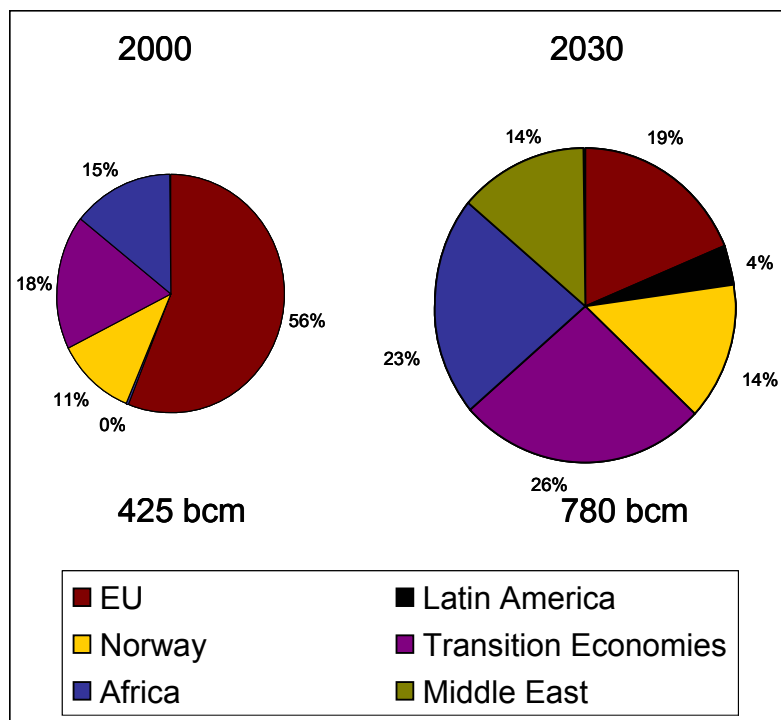
Source: IEA (2002b)

Gas supply forecast

Natural gas resources in the EU are becoming expensive to exploit as the resources are becoming increasingly scarce. The IEA foresee that these resources will be reduces over the coming decades, meaning that EU gas imports will increase. The EU already imports 44% of its current gas purchases. But by 2030 the EIA estimates that 81% of the EU's gas consumption will be imported. Norway will undoubtedly continue to be one of the major gas suppliers, whereas the rest of the

EU's gas imports probably will come from two main suppliers; Russia and Algeria. Further sources are likely to include Libya (via pipeline), Nigeria, Trinidad and Tobago, Egypt and possibly Qatar (all via liquefied natural gas, LNG), see figure 5.4.

Figure 5.4. EU's gas use divided on main suppliers



Source: IEA (2002b) and own calculations

Note: IEA's baseline scenario assumes that EU's total gas capacity will increase over the period. This is partly due to more efficient procedures of gas extraction as well as the inclusion of some gas-holding nations when enlarging the EU. Transition Economies includes Russia, Turkmenistan and Kazakhstan.

5.2 The need for transmission investments

The large increase in gas demand will sooner or later result in a need for increased pipeline capacity. The large increase in the amount of gas which will be transported into the European Union, will mainly reach the borders through the transmission pipeline system, or LNG terminals. It is therefore the transmission network that will need to be expanded between the EU and its main suppliers and between EU countries as consumption increases.

It could be argued that a new pipeline would not be built until the involved investors have a given amount of gas to transport with certainty. For that reason most of the gas sold in the European market is sold on long term contracts. With costly investments in the gas sector, the investors might

have little incentive to build a pipeline with a capacity that is much larger than the contracted amount of gas for sale. Furthermore the gas retail price can be volatile which makes it difficult to calculate the return on the investments. Together with the increasing demand and the declining production of natural gas within the EU this could lead to an infrastructure with not enough capacity.

Up until today the large investments were made by national monopolies which, because of their nature, had a smaller degree of risk. The monopoly situation ensured a gas company return on its investments. In a liberalised market where monopolies will be abolished, the gas players will have to carry the entire risk themselves in an increasingly competitive environment. It is therefore uncertain whether the former monopolies will be able and willing to take the risks that are needed to ensure future investments in the gas infrastructure.

The national transmission grid could also experience bottlenecks in capacity when the demand for natural gas increases. We will, however, not go in depth with that issue, but instead focus on the cross-border transmission grid between the EU countries and the countries that supply the EU with gas.

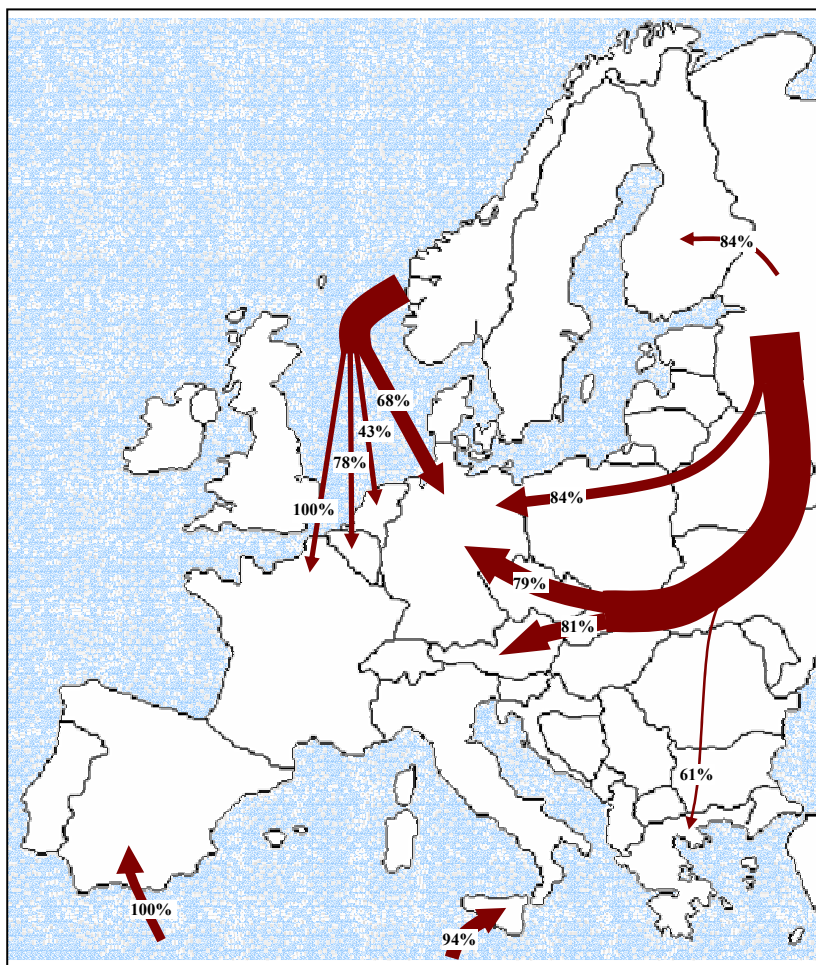
The transmission grid today

Since the introduction of natural gas in Europe in the 1960s the gas demand in the EU member states has increased to 23% of the total primary energy demand. This development of the market has caused an equivalent expansion of the transmission grid. 30 years ago the European transmission grid only consisted of a few pipelines in the Netherlands with one pipeline to Germany and one to France that connected the countries to the Dutch gas field in Groningen. Today the length of the total transmission grid in EU is over 180,000 km. One third of the European transmission grid is located in large transit countries such as e.g. Germany (Munksgaard et. al, 2003).

The main delivery countries of gas via pipelines to EU are Russia with 75 bcm, Norway with 49 bcm and Algeria with 31 bcm a year (BP, 2002). The Russian gas primarily enters the EU via Germany or Austria. The pipelines to Germany go via Poland or via the Czech Republic. The Norwegian gas enters the EU in Germany, Belgium, Netherlands and France. Gas from Algeria is

delivered to either Spain or Italy. The amount of gas transported through the pipelines varies during the year. In the winter season the demand will typically be larger than in the summer season due to larger demand for e.g. heating. Thereby the capacity used in the pipelines will be higher in the winter season when free capacity declines, resulting in a higher load factor in the pipelines. In figure 5.5 the main entry points to the EU are illustrated. The figure also shows the capacity used in the pipelines during peak periods as a percentage of the total capacity available.

Figure 5.5: Main transmission grid to EU and capacity used (2001).



Note: The percentages shown correspond to the capacity used in the peak periods. It will however be possible to increase the capacity in the pipelines temporarily by increasing the pressure in the pipeline. The load factor in the pipelines is assumed to be 0.85.

The maximum capacities at normal pressure for the depicted pipelines are (bcm/year):
 Norway-Germany: 33; Norway-Netherlands: 14; Norway-Belgium: 12; Norway-France: 15;
 Russian Fed.-Germany (via Poland): 15; Russian Fed.-Germany (via Czech Republic): 46;
 Russian Fed.-Austria: 34; Russian Fed.-Finland: 6; Algeria-Italy: 26; Algeria-Spain: 8.

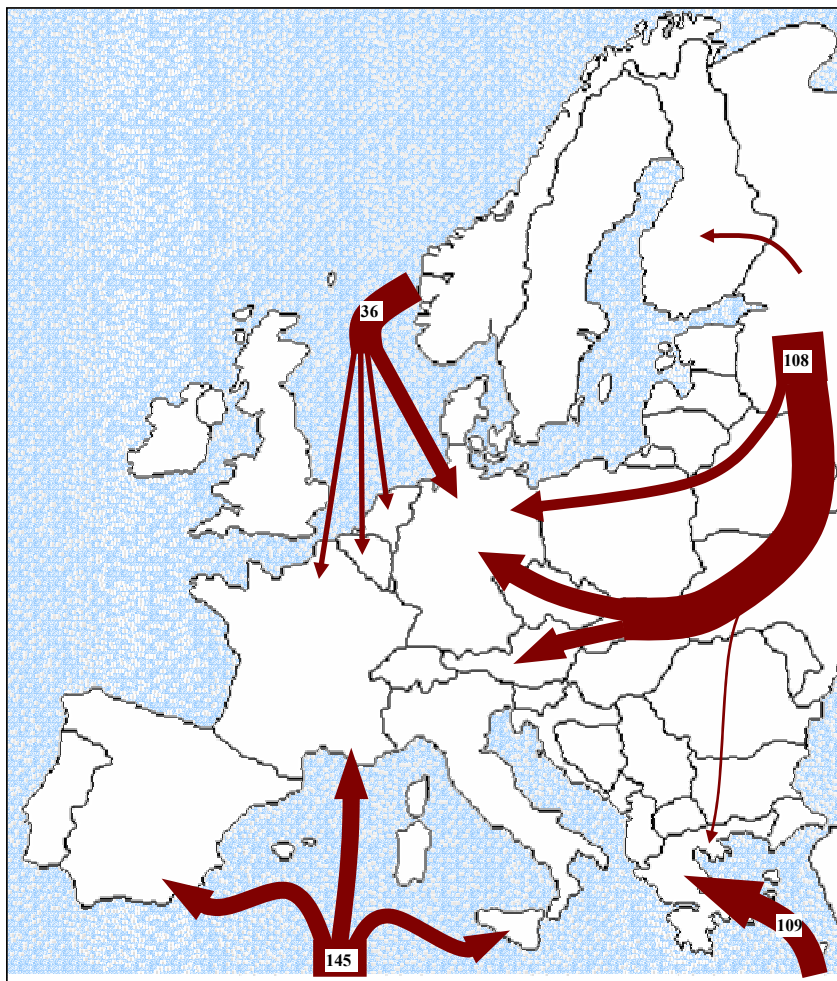
Source: BP (2002), www.gte.be and own calculations

The figure clearly shows that bottlenecks already have appeared in the transmission grid today. The pipeline from Algeria to Spain and the pipeline from Norway to France are utilised to their maximum. The pipelines from Russia to the European continent are close to their limits, too.

The need for future transmission capacity

In figure 5.6 the need for additional transmission capacity is illustrated for year 2030 based on IEA forecasts. From figure 5.6 it can be seen that the pipeline capacity from Norway to the EU needs to be expanded by 49%, while the pipeline capacity from Russia needs to be more than doubled compared to the capacity today. From North Africa the need for new pipelines is more than four times the present capacity. To fulfil the forecasted demand in the EU, an alternative might be to build new transmission pipelines in order to import gas from the Middle East, in addition to the gas that the EU buys from its current suppliers. Today there are no pipelines between the Middle East and Europe. The predicted forecast shows that it would be necessary to invest in pipelines between Europe and the Middle East with a capacity of 109 bcm. This is similar to the required capacity expansions from Norway to the EU, or about half of the required capacity expansion from Russia to the EU (see figure 5.6).

Figure 5.6: Additional pipeline capacity to the EU in year 2030, bcm



Source: IEA (2002), www.gte.be and own calculations

Alternative ways to relieve capacity constraints

Besides importing gas through pipelines, the EU also imports gas as LNG. By transporting gas as LNG, gas reserves from distant areas can also be used. This way of transporting gas is more flexible than pipelines since it is easier to redirect the delivery of gas to another gas terminal if needed. The use of LNG is generally expected to increase, in particular in southern Europe since most of the LNG terminals are located in Spain (COM, 2001). LNG can be used to relieve a pipeline where the capacity is running short and the gas demand is high. However, it is more expensive to transport gas as LNG than via pipelines for distances shorter than about 4000 km (Austvik, 2003).

The scarcity of capacity in the pipeline can also be reduced by swap agreements. This means that if two countries both import from and export to each other, the gas companies in the two countries can

make a swap agreement where only the net traded amount of gas is physically transported⁵. An example of this is the gas traded between Denmark and Germany. These countries both export and import gas to and from each other. Here a swap agreement is made so that the imported gas in Denmark is not physically moved from Germany to Denmark, but just subtracted from the German gas exported to Denmark. Thereby the Danish customers who buy gas in Germany actually use Danish gas. In that way the physical gas units transported is reduced and more capacity is freed up in the pipeline between Denmark and Germany despite the two countries having increased their trade.

For swap agreements to work it requires that the countries both import and export gas from each other. However, this is hardly likely between the EU and the main exporting countries of gas to the EU. This means that swap agreements only can rectify the scarcity of capacity problems inside the EU, between European countries, but not between the EU and the countries outside of the EU.

5.3 The cost of building transmission pipelines

Transmission pipelines are very costly to build. During the last four decades over US\$⁶ 200 billion has been invested in the transmission pipelines in Europe. If the upstream part of the sector and the distribution grid also are included the amount sums up to about US\$ 750 billion invested in the gas sector. It can be seen in figure 5.6 that the future investments will primarily be needed for supplying gas to Europe from Russia, Northern Africa and the Middle East. The magnitude of these investments has been estimated to be roughly US\$ 10 billion per year over the next 20 years. This is between half and two-thirds of the annual investments in transmission pipelines in the gas sector during the last four decades (OME, 2002). If the same assumption is used to estimate the investment over the next 30 years, the annual investment in transmission pipelines alone will be at around the same level as the annual investment in the entire gas sector until today.

⁵ Financial swap agreements where gas is not physically transported in the pipelines are also used. This could mean that it is not necessary for two countries to be connected by a transmission pipeline in order to trade gas.

⁶ Costs are shown in US\$ in accordance with the OME report. The costs in Euro would be similar to the costs in US\$ if the exchange rate from 1 January 2001 is used where 1 US\$ = 1.06 Euro (www.oanda.com).

Uncertainties for investments in transmission pipelines

The large investment risks in transmission pipelines is linked to primarily two issues; the uncertainty of the future sales price and the quantity of gas which is sold. This means that incentives to invest will be influenced by the future prices in the gas market and the types of contracts that are negotiated between the producers and transport companies.

Liberalisation of the natural gas market is going to change the pricing structure in all parts of the market. Before the liberalisation started the price of natural gas was calculated on the basis of fuel substitutes. The liberalisation of the market will tend to do away with this connection so the price of natural gas can be determined on its own market conditions. Firstly, liberalisation will do away with the link to the oil price. Secondly, even though the prices in each sub-market of the gas market will be linked, liberalisation will make the prices less dependent on each other as a result of unbundling. However, it is expected that the gas price still will be linked to oil since the two fuels are substitutes, be it a weaker link than earlier.

Today the gas retail price is linked to the retail price of oil, with a time lag. Therefore all the fluctuations in the oil price have an impact on the price of natural gas as the price of gas also fluctuates. The fluctuations in the gas retail price are also passed on to the companies upstream in the gas supply chain. In other words, the wholesale price as well as the production price experience uncertainties because of the uncertainties caused by the fluctuations in the oil retail price.

The uncertainty in price makes it difficult for both the production and transmission companies to evaluate whether their costs will be covered or not since they no longer will have a monopoly on supplying gas to customers. Knowing to some degree or another how many customers will buy gas, makes it possible for the production and transmission companies to estimate the returns on their investment. But third party access to the gas infrastructure will allow any gas company to provide end-customers with gas. As a result, investment decisions will be burdened by a large element of uncertainty making them risky. The question to be asked then is whether these risky investments will take place in a market that no longer is dominated by national monopolists but by private gas companies that are all competing for the same customers.

One way of dealing with this type of risk, is for a production company to establish long-term take-or-pay contracts with a transmission company and thereby ensure that a certain amount of gas is bought according to a certain price formula set up by the production company and the transmission company. These contracts are widely used in the upstream part of the gas sector (Munksgaard et al, 2003). Long-term contracts will to some extent guarantee the production company some amount of security on the return on their investments and will therefore create some incentives to invest in infrastructure.

Another way to increase the quantity of gas that is used and transported might be to make gas more favourable compared to other fossil fuels. This can e.g. be done by implementing CO₂ quotas or green taxes. The emissions of CO₂ NO_x and SO₂ are lower for natural gas than for its closest substitutes like oil and coal. A green tax that reflects the difference in costs based on emissions could create an economic incentive, as well as an environmental incentive, to use natural gas instead of other energy sources.

Especially in the electricity and industry sector there will be an economic incentive to change the portfolio of fuels in production. Today they have a relative large use of coal and oil. In the electricity sector alone the gas in the portfolio of fuels will increase by about 70% by year 2020 if a green tax that corresponds to the environmental damages of the emission is implemented⁷. By increasing the demanded quantity of gas, incentives to invest in gas infrastructure might also be created.

Even though long-term contracts and CO₂ quotas or green taxes create incentives to invest in infrastructure, this might not be enough. This is why the EU's Gas Directive allows a pipeline owner to deny third party access to its infrastructure for a given period of time after the construction of a new pipeline if certain conditions are met. In other words, this gives the pipeline owner a monopoly right on transporting all the gas that passes through his pipeline. However, permitting monopolistic situations in a market that is changing into becoming more competitive does not seem to encourage competitive behaviour. It is therefore questionable whether the exemptions permitted in the Gas Directive are a wise method of creating incentives to invest in gas infrastructure.

⁷ The result is based on a partial equilibrium model for the Nordic countries and Germany (Munksgaard and Ramskov, 2002).

Another solution to creating investment incentives might be to accelerate the development of a competitive gas market, if this is desirable in Europe, by ensuring that certain conditions are in place. An example of this is the US gas market where competition exists in all parts of the gas value chain; between producers, between transmission companies (in the form of pipeline-to-pipeline competition) and between sales companies giving consumer the opportunity of choosing whom to buy gas from. In the following paragraph a closer look at taken at the gas market in the US.

5.4 US case study

There are 2 important questions to raise with respect to the investments in the gas infrastructure. Firstly, will the investments take place at all; and secondly, if they do take place, will they create an infrastructure which enhances competition in Europe. With respect to both of these questions the US experience might be of interest and there might be some lessons that can be learned from the more mature American gas market (NERA, 2002*a* and 2002*b*).

How the US gas grid was born

Before World War 2, the oil pipeline network in the US was created from a series of small interconnected pipelines. During the war the demand for oil increased tremendously, and as a result Congress requested the major oil companies to cooperate in developing a plan to build enough pipelines to fulfil the demand.

After WW2 Congress decided to rebuild large parts of the obsolete oil transportation pipelines to transport gas instead. After a while, the daily responsibility for the gas pipes was handed over to a number of private actors. This was done so that there were no conflicts of interests between producers, pipeline operators and distributors

US gas regulation paves the way for competition

However, the private ownership of the pipelines did not in itself ensure future projections of new pipelines. In the first decades after WW2, the US gas-regulating authority (which later developed into FERC) focused on extending gas supply to areas of the country that were not yet served. One

of the primary issues facing the US gas-regulator in certificating new pipeline projects during this time period was the relative importance of creating and enhancing competition. Thus, in its certification process the US gas regulator's main interest was to create a competitive market where one geographical location could be supplied with gas from several locations, i.e. create pipeline-to-pipeline competition by encouraging the building of multiple pipelines (see box 5.2 below for further details of the application procedure for new pipelines).

Box 5.2. The application procedure for new pipelines

In sum, the process of new pipeline projections can be described as follows:

- A pipeline operator assesses the interest for a new line and draws a number of long-term contracts that can finance the investment. This is done in a so called 'open season'. Open season means that the capacity of the pipes is allocated on a non-discriminatory basis (in a transparent way, where contract bids for access are announced on the web)
- The pipeline operator applies to the FERC for a certificate to construct the new facility.
 - First the FERC makes an economic evaluation to assess whether it is feasible to achieve competition on a particular pipeline route by encouraging the construction of more than one pipeline.
 - Thereafter, FERC conducts an Environmental Impact Review and a safety approval.

If the application passes these evaluations, the FERC will generally certificate it.

Source: NERA (2002a)

The issue of whether to choose competition by encouraging more than one pipeline company to supply gas to an area, or economies of scale by allowing only one company to supply gas to an area, played a significant role in the US gas regulator's 1968 decision involving two applications to bring gas to the Californian market. El Paso Natural Gas and Transwestern Pipeline Company both filed an application to bring gas from West Texas to Southern California, with each of the two proposals supplying only part of the anticipated demand. The US gas regulator refused the

applications for certificates of one large pipeline over the proposed route, and instead decided to certificate both pipelines in order to keep the market open for some degree of competition.

Similarly, the adoption of common pricing principles by the FERC has been important for the development of competition in the US. In Order No 636 the FERC sets a detailed guideline on how cost-of service tariffs must be set. The FERC traditionally examines pipelines' capital and operating costs and sets a rate that covers the cost of service plus a fair and reasonable return to investors; according to the standards set by the US Supreme Court's 1944 *Hope* decision. In the more recent order no. 637, the FERC has removed the price cap on short-term transactions (that are shorter than one month). Before that, the price of capacity released for one day was restricted to 1/365 of the annual price. Hence, when assets are fully depreciated, tariffs only cover the associated running costs, and offer no further margin for capital costs. Order no. 637 seeks to encourage competition and price arbitrage between geographical areas by providing a liquid market for transport which is based on short-term transactions. The transport tariffs in the US are not regulated. This is possible because there are many pipelines which offer similar transport services.

The US market structure

In the North American market transmission capacity is always defined on a point-to-point basis (i.e. from receipt point to delivery point). Investment contributions are linked to real capacity via long-term contracts between the pipeline owner and i) the producers in one end of the pipe, feeding the pipe with gas; and ii) local gas distributors and big gas purchasers in the other end of the pipe, contracting with the end consumers. Since the producer, the pipeline owner and the distributor are all separate legal entities there is no vertical integration in the US gas market, but the players are fully unbundled.

The term of a typical contract with a power plant is about 10 to 15 years. The pricing terms of such contracts (between gas producers and distributors/ purchasers) are normally indexed to the prices of the US short-term gas prices or gas spot prices that are determined at the market places for gas, such as Henry Hub in Chicago, The New York Mercantile Exchange (NYMEX) and the AECO-C/NIT Hub in Canada (National Energy Board, 1997).

Gas trade in the US

The development of a market for release pipeline capacity led to more frequent trading in gas and transportation rights and benefited a diverse group of market participants. Market centres for gas trade have tended to develop where large numbers of pipelines already interconnect and nearby storage facilities exist. The first US market centre was Henry Hub, located in Louisiana, which began operating in 1988. Now, forty or more market centres exist in North America. Henry Hub, the Chicago Centre in Illinois, and the Leidy Hub in Pennsylvania are the most active market centres in the US. In Canada, the AECO-C/NIT Hub is the main pricing point.

The New York Mercantile Exchange (NYMEX) launched the world's first natural gas futures contract in April 1990. In October 1992, NYMEX launched options on natural gas futures, giving market participants additional flexibility in managing their market risk. Natural gas futures trading started roughly two years after trading was first initiated.

Previous to trading natural gas futures, NYMEX had a very successful crude oil contract. With the volatility in gas prices that accompanied the growth of the natural gas spot market, NYMEX saw a need for the kind of risk management it could offer through futures trading; significant amounts of price volatility in a market support the development of futures markets because of the great price risk in such markets (NERA 2002a, Makhholm, 1994 and 1995).

Lessons from the US

The US gas industry would not be what it is today if the regulatory process had not facilitated pipeline rivalry in the industry's early days. Pipelines today would not be competing to serve each new market or seeking to remove capacity constraints, and customers would suffer without the efficiency gains that such competition promotes.

The FERC is responsible for fulfilling 3 important objectives in the gas market. The first one is to stimulate the gas market in all parts of the supply chain in order to encourage competition in the production, transportation and sale/trade of gas. This creates a market place where prices become competitive. The second objective is to ensure that one geographical area can be supplied by gas from several different producers, located in several different areas. This is done by creating

incentives to compete such as encouraging the construction of more than one pipeline. Thirdly, the FERC creates incentives for pipeline investments by allowing long-term contracts on the quantity of gas to be transported through the new pipeline. By fulfilling these 3 objectives a well functioning gas market has been achieved.

5.5 Obtaining pipeline-to-pipeline competition in Europe

The EU gas market is organised differently from the US market. Until recently most services in the gas sector were bundled. The gas companies in Europe were mainly national monopolists that owned all the parts of the value chain. International trade in Europe has been dominated by a very few large national and semi-national sales companies from Russia, Norway, Algeria and the Netherlands. On the buyers' side, there have been equally few companies. Until recently each country or region had a single vertically integrated national/regional gas company that in effect acted as the gatekeeper for the gas market in that country. In many cases these actors have negotiated large-scale long-term take-or-pay gas purchase contracts. A real market for gas could not be developed in a market where one company owned all the part of the gas value chain and where all trade was made with long-term contracts (Newbery, 2002a).

Looking at the current infrastructure in Europe, it is not possible that widespread pipeline-to-pipeline competition will occur. The current infrastructure is not designed in a way that makes it possible to set market prices in the same way as in the US. Another important difference between the US and Europe, is that a large part of the pipeline network that needs to be constructed, is built outside the European borders where the European countries have no direct influence. Because of these differences it is not obvious that the US experience can be relevant for Europe. If we are to have a similar development in Europe, certain conditions need to be fulfilled. There needs to exist an ambition and a will in Europe to create a well functioning single market with pronounced competition at all levels. Competition on all levels will not come by itself. But if the ambition exists, the US experience illustrates that it could be possible. However, the challenges in Europe might be greater than in the US because of the existing infrastructure and the dependence on decisions in countries outside of Europe. Despite all the challenges, it is still thought that it would be possible to achieve competition in Europe.

The first condition that should be fulfilled in Europe is a stronger common regulatory authority. It is hardly possible to create the conditions for a well functioning single market with strong independent national regulatory authorities.

A second condition is the need to establish some kind of cooperation between the European countries and the countries outside of Europe with gas reserves. Here there might be a potential conflict of interest. Gas producing countries might have a national interest in having a monopoly on gas exploration as well as upstream and transmission pipelines. But this conflicts with the European wish for competition. However, the gas producing countries are dependent on large private producers. Without these producers it will be difficult for countries with large gas reserves to exploit their gas resources. In addition, they are to some extent dependent on the European countries to sell it. Even though the EU does not have a direct influence on the countries outside its borders, it might have an indirect influence.

A third condition is to carefully evaluate which means are applied when creating incentives for investments in the gas infrastructure. The EU's Gas Directive is open for the possibility that the national regulatory authority could be exempted from third party access and unbundling. In this way it would be possible to reduce the investment risk but at the same time maintain a monopoly, at least for as long as the dispensation remains. However, this leads to the opposite goal of achieving competition. An alternative form of regulation to the Gas Directive's possibility of temporary monopoly is the US regulation, where third party access and unbundling existed from the beginning. In stead there are price ceilings which allow investors to have a fair profit and the possibility to make binding long-term contracts on the quantity of gas transported.

The experiences from the US which were described in the case study show that if these three rather demanding conditions can be fulfilled, it could be possible to have the necessary investments and also create a well functioning competitive gas market in Europe. However, to succeed in achieving these requirements the countries in the EU must show a will and determination that signals their commitment to achieving the final goal of a competitive European gas market. Even though it is possible to accomplish and implement many changes through administrative processes, such as in the Madrid Forum, this decision should be made at the Ministerial level where the appropriate

European authorities can be appointed to oversee and regulate the gas market with the backing of the member countries.

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Appendix

Mergers and Acquisitions in the Gas Industry – Executive Summary

EU Gas Directive 2003/55/EC

Executive Summary

Abstract

The report looks at the mergers and acquisitions within the European gas industry over the past five years in order to gain an insight into the strategies emerging and the implications for the structure of the industry. The tentative conclusions that can be drawn are that much of the activity is within the existing gas sector and incumbent players and that there is a strong desire to protect supply routes and vertically integrate to lock-in supplies and customers. Links between power and gas have been slow to develop, but that may be changing with the E.ON-Ruhrgas merger and Gas Natural's bid on Iberdrola. What is clear is that Shell and Exxon's position at the centre of the European gas market has not been disturbed, but declining public sector ownership has been used to increase the presence of Gazprom and RWE. Looking at the trends in corporate strategy, we expect a high level of activity in mergers and acquisitions in the future. Oil companies are strengthening their activity in sales, both wholesale and retail, while transmission and distribution companies will move in all directions: horizontal to consolidate, upstream to secure their own supply of gas and downstream to secure the consumer base. In addition, it is expected that there will be an increasing number of entries into new business areas such as electricity, water, waste management, etc, while actors in the power sector will make moves into the gas sector.

Background

The maturing of the European gas markets, the liberalisation, reform and privatisation process are contributing to a changing dynamic in the gas industry. The question is, what impact do these themes have on the character of the gas markets; are they becoming more or less concentrated and are they becoming more or less competitive, and indeed what form a competition will they take? The starting point in this process is the review the behaviour of firms in entering new markets and in defending their existing position. The purpose of this study is to provide a brief overview of the trends that have been observed across Europe in terms of mergers and acquisition activity in order to shed light on the issue of company strategies and changes in industry structures. Further, some comments on latest trends are presented.

Problem statement

To review the merger and acquisition activity between 1998 and 2003 in order to:

- Assess the strategic behaviours of incumbents and new entrants;*
- Determine the impact on the European gas structure and ownership;*
- Review of trends in M&A activity and corporate strategy.*

Conclusions

Mergers and acquisitions

In total there have been around 84 major mergers and acquisitions within the European Union and the accession countries between 1998 and 2003. The countries where most target companies reside were the UK and Germany, and most activity has taken place in 1998 and again in 2002.

The overall geographical focus of acquisitions has been centred on Northern and Central Europe. In terms of the activities of the acquiring and acquired companies, most of the acquiring companies have been transmission and distribution companies (T&D), whilst most companies being bought are downstream distribution companies.

Germany's Ruhrgas and France's Gaz de France stand out as the most active M&A companies.

Two strategies seem to be emerging: one whereby the T&D companies seek to extend their influence along the entire gas chain and into power generation; and another whereby power companies and upstream producers seek to acquire distribution companies.

The links to power generation have not been as great as might have been expected given the synergies and potential for new gas market growth. The current over capacity in the European power market has undermined the need for additional gas-fired power and, at least in the short term, restricted the growth of gas in power generation. Low electricity prices and poor margins on electricity distribution have also added to the general perception that now is not the right time for gas companies to be moving into the power market. E.ON's acquisition of Ruhrgas and Centrica's move into electricity distribution and retail seem to be the exceptions rather than the rule. Nevertheless, they could well signal the way for future developments, at least for some companies.

Structural changes to the European gas industry

In terms of the structure and concentration of the European gas sector, supply remains largely in the hands of four or five companies owning controlling stakes in upstream and downstream gas companies. At the centre are Shell and Exxon who have been key in developing the European gas industry. These have been joined by Russia's Gazprom and Algeria's Sonatrach on the upstream side, and by Eni and RWE on the downstream.

Through the mechanism of reduced public sector involvement in the gas industry, and privatisation of State assets, a few companies have been able to increase their downstream market share without undermining the position of the existing players. Germany's RWE and Russia's Gazprom have both gained a larger downstream presence through this process. In the future Statoil could also join their ranks on the back of expanding Norwegian gas production, while acquisitions could propel Germany's BASF and France's TotalFinaElf into the first rank. For the moment these latter two sit in the second tier along with BP, Centrica and Tractebel.

Trends in M&A and strategy

The official statements of companies and the observations of the M&A activity made in this report indicates the following trends in the strategies of the actors:

- Upstream companies are moving downstream to get closer to the consumer and reduce their exposure to middle-man risk, i.e. that the mid-stream company gets squeezed and loses market share, which feeds back up the supply chain so that one producer loses out to another. This might mean that mid-stream assets are getting less important and that the oil companies will engage themselves directly in both wholesale and retail.
- Mid-stream companies (typical T&D) are expanding in all directions; upstream to secure supplies, downstream to lock-in consumers and horizontally to maintain control of supply routes. Mid-stream is also attempting to avoid being squeezed between upstream and downstream linking up and leaving mid-stream as a regulated sector with low profitability.
- Downstream companies are looking to get closer links to upstream companies and focused on both horizontal integration and lateral integration into new business areas to secure consumer base.

DIRECTIVE 2003/55/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 26 June 2003

concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF
THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 47(2), Article 55 and Article 95 thereof,

Having regard to the proposals from the Commission ⁽¹⁾,

Having regard to the Opinion of the European Economic and Social Committee ⁽²⁾,

Having consulted the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Treaty ⁽³⁾,

Whereas:

- (1) Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas ⁽⁴⁾ has made significant contributions towards the creation of an internal market for gas.
- (2) Experience in implementing this Directive shows the benefits that may result from the internal market in gas, in terms of efficiency gains, price reductions, higher standards of service and increased competitiveness. However, significant shortcomings and possibilities for improving the functioning of the market remain, notably concrete provisions are needed to ensure a level playing field and to reduce the risks of market dominance and predatory behaviour, ensuring non-discriminatory transmission and distribution tariffs, through access to the network on the basis of tariffs published prior to their entry into force, and ensuring that the rights of small and vulnerable customers are protected.

- (3) At its meeting in Lisbon on 23 and 24 March 2000, the European Council called for rapid work to be undertaken to complete the internal market in both electricity and gas sectors and to speed up liberalisation in these sectors with a view to achieving a fully operational internal market. The European Parliament, in its Resolution of 6 July 2000 on the Commission's second report on the state of liberalisation of energy markets, requested the Commission to adopt a detailed timetable for the achievement of accurately defined objectives with a view to gradually but completely liberalising the energy market.

- (4) The freedoms which the Treaty guarantees European citizens — free movement of goods, freedom to provide services and freedom of establishment — are only possible in a fully open market, which enables all consumers freely to choose their suppliers and all suppliers freely to deliver to their customers.

- (5) In view of the anticipated increase in dependency as regards natural gas consumption, consideration should be given to initiatives and measures to encourage reciprocal arrangements for access to third-country networks and market integration.

- (6) The main obstacles in arriving at a fully operational and competitive internal market relate to, amongst other things, issues of access to the network, access to storage, tariffication issues, interoperability between systems and different degrees of market opening between Member States.

- (7) For competition to function, network access must be non-discriminatory, transparent and fairly priced.

- (8) In order to complete the internal gas market, non-discriminatory access to the network of the transmission and distribution system operators is of paramount importance. A transmission or distribution system operator may consist of one or more undertakings.

- (9) In case of a gas undertaking performing transmission, distribution, storage or liquefied natural gas (LNG) activities and which is separate in its legal form from those undertakings performing production and/or

⁽¹⁾ OJ C 240 E, 28.8.2001, p. 60 and OJ C 227 E, 24.9.2002, p. 393.

⁽²⁾ OJ C 36, 8.2.2002, p. 10.

⁽³⁾ Opinion of the European Parliament of 13 March 2002 (OJ C 47 E, 27.2.2003, p. 367), Council Common Position of 3 February 2003 (OJ C 50 E, 4.3.2003, p. 36) and Decision of the European Parliament of 4 June 2003 (not yet published in the Official Journal).

⁽⁴⁾ OJ L 204, 21.7.1998, p. 1.

supply activities, the designated system operators may be the same undertaking owning the infrastructure.

- (10) In order to ensure efficient and non-discriminatory network access it is appropriate that the transmission and distribution systems are operated through legally separate entities where vertically integrated undertakings exist. The Commission should assess measures of equivalent effect, developed by Member States to achieve the aim of this requirement, and, where appropriate, submit proposals to amend this Directive.

It is also appropriate that the transmission and distribution system operators have effective decision making rights with respect to assets necessary to maintain and operate and develop networks when the assets in question are owned and operated by vertically integrated undertakings.

It is important however to distinguish between such legal separation and ownership unbundling. Legal separation implies neither a change of ownership of assets and nothing prevents similar or identical employment conditions applying throughout the whole of the vertically integrated undertakings. However, a non-discriminatory decision-making process should be ensured through organisational measures regarding the independence of the decision-makers responsible.

- (11) To avoid imposing a disproportionate financial and administrative burden on small distribution companies, Member States should be able, where necessary, to exempt such companies from the legal distribution unbundling requirements.
- (12) In order to facilitate the conclusion of contracts by a gas undertaking established in a Member State for the supply of gas to eligible customers in another Member State, Member States and, where appropriate, national regulatory authorities should work towards more homogenous conditions and the same degree of eligibility for the whole of the internal market.
- (13) The existence of effective regulation, carried out by one or more national regulatory authorities, is an important factor in guaranteeing non-discriminatory access to the network. Member States specify the functions, competences and administrative powers of the regulatory authorities. It is important that the regulatory authorities in all Member States share the same minimum set of competences. Those authorities should have the competence to fix or approve the tariffs, or at least, the methodologies underlying the calculation of

transmission and distribution tariffs and tariffs for access to liquefied natural gas (LNG) facilities. In order to avoid uncertainty and costly and time consuming disputes, these tariffs should be published prior to their entry into force.

- (14) The Commission has indicated its intention to set up a European Regulators Group for Electricity and Gas which would constitute a suitable advisory mechanism for encouraging cooperation and coordination of national regulatory authorities, in order to promote the development of the internal market for electricity and gas, and to contribute to the consistent application, in all Member States, of the provisions set out in this Directive and Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity ⁽¹⁾ and in Regulation (EC) No 1228/2003 of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity ⁽²⁾.
- (15) In order to ensure effective market access for all market players including new entrants, non discriminatory and cost-reflective balancing mechanisms are necessary. As soon as the gas market is sufficiently liquid, this should be achieved through the setting up of transparent market-based mechanisms for the supply and purchase of gas needed in the framework of balancing requirements. In the absence of such a liquid market, national regulatory authorities should play an active role to ensure that balancing tariffs are non-discriminatory and cost-reflective. At the same time, appropriate incentives should be provided to balance in-purchase and off-take of gas and not to endanger the system.
- (16) National regulatory authorities should be able to fix or approve tariffs, or the methodologies underlying the calculation of the tariffs, on the basis of a proposal by the transmission system operator or distribution system operator(s) or LNG system operator, or on the basis of a proposal agreed between these operator(s) and the users of the network. In carrying out these tasks, national regulatory authorities should ensure that transmission and distribution tariffs are non-discriminatory and cost-reflective, and should take account of the long-term, marginal, avoided network costs from demand-side management measures.
- (17) The benefits resulting from the internal market should be available to all Community industry and commerce, including small and medium-sized enterprises, and to all Community citizens as quickly as possible, for reasons of fairness, competitiveness, and indirectly, to create employment as a result of the efficiency gains that will be enjoyed by enterprises.

⁽¹⁾ See p. 37 of this Official Journal.

⁽²⁾ See p. 1 of this Official Journal.

- (18) Gas customers should be able to choose their supplier freely. Nonetheless a phased approach should be taken to completing the internal market for gas, coupled with a specific deadline, to enable industry to adjust and ensure that adequate measures and systems are in place to protect the interests of customers and ensure they have a real and effective right to choose their supplier.
- (19) Progressive opening of markets towards full competition should as soon as possible remove differences between Member States. Transparency and certainty in the implementation of this Directive should be ensured.
- (20) Directive 98/30/EC contributes to access to storage as part of the gas system. In the light of the experience gained in implementing the internal market, additional measures should be taken to clarify the provisions for access to storage and ancillary services.
- (21) Storage facilities are essential means, amongst other things of implementing public service obligations such as security of supply. This should not lead to distortion of competition or discrimination in the access to storage.
- (22) Further measures should be taken in order to ensure transparent and non discriminatory tariffs for access to transportation. Those tariffs should be applicable to all users on a non discriminatory basis. Where a storage facility, linepack or ancillary service operates in a sufficiently competitive market, access could be allowed on the basis of transparent and non-discriminatory market-based mechanisms.
- (23) In the interest of security of supply, the supply/demand balance in individual Member States should be monitored, and monitoring should be followed by a report on the situation at Community level, taking account of interconnection capacity between areas. Such monitoring should be carried out sufficiently early to enable appropriate measures to be taken if security of supply is compromised. The construction and maintenance of the necessary network infrastructure, including interconnection capacity, should contribute to ensuring a stable gas supply.
- (24) Member States should ensure that, taking into account the necessary quality requirements, biogas and gas from biomass or other types of gas are granted non-discriminatory access to the gas system, provided such access is permanently compatible with the relevant technical rules and safety standards. These rules and standards should ensure, that these gases can technically and safely be injected into, and transported through the natural gas system and should also address the chemical characteristics of these gases.
- (25) Long-term contracts will continue to be an important part of the gas supply of Member States and should be maintained as an option for gas supply undertakings in so far as they do not undermine the objectives of this Directive and are compatible with the Treaty, including competition rules. It is therefore necessary to take them into account in the planning of supply and transportation capacity of gas undertakings.
- (26) In order to ensure the maintenance of high standards of public service in the Community, all measures taken by Member States to achieve the objectives of this Directive should be regularly notified to the Commission. The Commission should regularly publish a report analysing measures taken at national level to achieve public service objectives and comparing their effectiveness, with a view to making recommendations as regards measures to be taken at national level to achieve high public service standards.
- Member States should ensure that when they are connected to the gas system customers are informed about their rights to be supplied with natural gas of a specified quality at reasonable prices. Measures taken by Member States to protect final customers may differ according to households and small and medium sized enterprises.
- (27) The respect of the public service requirements is a fundamental requirement of this Directive, and it is important that common minimum standards, respected by all Member States, are specified in this Directive, which take into account the objectives of consumer protection, security of supply, environmental protection and equivalent levels of competition in all Member States. It is important that the public service requirements can be interpreted on a national basis, taking into account national circumstances and subject to the observance of Community law.
- (28) Measures implemented by Member States to achieve the objectives of social and economic cohesion may include, in particular, the provision of adequate economic incentives, using, where appropriate, all existing national and Community tools. These tools may include liability mechanisms to guarantee the necessary investment.
- (29) To the extent to which measures taken by Member States to fulfil public service obligations constitute State aid under Article 87(1) of the Treaty, there is an obligation according to Article 88(3) of the Treaty to notify them to the Commission

- (30) Since the objective of the proposed action, namely the creation of a fully operational internal gas market, in which fair competition prevails, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale and effects of the action, be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity and proportionality as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve that objective.
- (31) In the light of the experience gained with the operation of Council Directive 91/296/EEC of 31 May 1991 on the transit of natural gas through grids ⁽¹⁾, measures should be taken to ensure homogeneous and non-discriminatory access regimes for transmission, including cross-border flows of gas between Member States. To ensure homogeneity in the treatment of access to the gas networks, also in the case of transit, that Directive should be repealed, without prejudice to the continuity of contracts concluded under the said Directive. The repeal of Directive 91/296/EEC should not prevent long-term contracts being concluded in the future.
- (32) Given the scope of the amendments that are being made to Directive 98/30/EC, it is desirable, for reasons of clarity and rationalisation, that the provisions in question should be recast.
- (33) This Directive respects the fundamental rights, and observes the principles, recognised in particular by the Charter of Fundamental Rights of the European Union.
- (34) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾,

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER I

SCOPE AND DEFINITIONS

Article 1

Scope

1. This Directive establishes common rules for the transmission, distribution, supply and storage of natural gas. It lays down the rules relating to the organisation and

functioning of the natural gas sector, access to the market, the criteria and procedures applicable to the granting of authorisations for transmission, distribution, supply and storage of natural gas and the operation of systems.

2. The rules established by this Directive for natural gas, including liquefied natural gas (LNG), shall also apply to biogas and gas from biomass or other types of gas in so far as such gases can technically and safely be injected into, and transported through, the natural gas system.

Article 2

Definitions

For the purposes of this Directive:

1. 'natural gas undertaking' means any natural or legal person carrying out at least one of the following functions: production, transmission, distribution, supply, purchase or storage of natural gas, including LNG, which is responsible for the commercial, technical and/or maintenance tasks related to those functions, but shall not include final customers;
2. 'upstream pipeline network' means any pipeline or network of pipelines operated and/or constructed as part of an oil or gas production project, or used to convey natural gas from one or more such projects to a processing plant or terminal or final coastal landing terminal;
3. 'transmission' means the transport of natural gas through a high pressure pipeline network other than an upstream pipeline network with a view to its delivery to customers, but not including supply;
4. 'transmission system operator' means a natural or legal person who carries out the function of transmission and is responsible for operating, ensuring the maintenance of, and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transportation of gas;
5. 'distribution' means the transport of natural gas through local or regional pipeline networks with a view to its delivery to customers, but not including supply;
6. 'distribution system operator' means a natural or legal person who carries out the function of distribution and is responsible for operating, ensuring the maintenance of, and, if necessary, developing the distribution system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the distribution of gas;

⁽¹⁾ OJ L 147, 12.6.1991, p. 37. Directive as last amended by Commission Directive 95/49/EC (OJ L 233, 30.9.1995, p. 86).

⁽²⁾ OJ L 184, 17.7.1999, p. 23.

7. 'supply' means the sale, including resale, of natural gas, including LNG, to customers;
8. 'supply undertaking' means any natural or legal person who carries out the function of supply;
9. 'storage facility' means a facility used for the stocking of natural gas and owned and/or operated by a natural gas undertaking, including the part of LNG facilities used for storage but excluding the portion used for production operations, and excluding facilities reserved exclusively for transmission system operators in carrying out their functions;
10. 'storage system operator' means a natural or legal person who carries out the function of storage and is responsible for operating a storage facility;
11. 'LNG facility' means a terminal which is used for the liquefaction of natural gas or the importation, offloading, and re-gaseification of LNG, and shall include ancillary services and temporary storage necessary for the re-gaseification process and subsequent delivery to the transmission system, but shall not include any part of LNG terminals used for storage;
12. 'LNG system operator' means a natural or legal person who carries out the function of liquefaction of natural gas, or the importation, offloading, and re-gaseification of LNG and is responsible for operating a LNG facility;
13. 'system' means any transmission networks, distribution networks, LNG facilities and/or storage facilities owned and/or operated by a natural gas undertaking, including linepack and its facilities supplying ancillary services and those of related undertakings necessary for providing access to transmission, distribution and LNG;
14. 'ancillary services' means all services necessary for access to and the operation of transmission and/or distribution networks and/or LNG facilities and/or storage facilities including load balancing and blending, but excluding facilities reserved exclusively for transmission system operators carrying out their functions;
15. 'linepack' means the storage of gas by compression in gas transmission and distribution systems, but excluding facilities reserved for transmission system operators carrying out their functions;
16. 'interconnected system' means a number of systems which are linked with each other;
17. 'interconnector' means a transmission line which crosses or spans a border between Member States for the sole purpose of connecting the national transmission systems of these Member States;
18. 'direct line' means a natural gas pipeline complementary to the interconnected system;
19. 'integrated natural gas undertaking' means a vertically or horizontally integrated undertaking;
20. 'vertically integrated undertaking' means a natural gas undertaking or a group of undertakings whose mutual relationships are defined in Article 3(3) of Council Regulation (EEC) No 4064/89 of 21 December 1989 on the control of concentrations between undertakings ⁽¹⁾ and where the undertaking/group concerned is performing at least one of the functions of transmission, distribution, LNG or storage, and at least one of the functions of production or supply of natural gas;
21. 'horizontally integrated undertaking' means an undertaking performing at least one of the functions of production, transmission, distribution, supply or storage of natural gas, and a non-gas activity;
22. 'related undertakings' means affiliated undertakings, within the meaning of Article 41 of the Seventh Council Directive 83/349/EEC of 13 June 1983 based on the Article 44(2)(g) ^(*) of the Treaty on consolidated accounts ⁽²⁾, and/or associated undertakings, within the meaning of Article 33(1) thereof, and/or undertakings which belong to the same shareholders;
23. 'system users' means any natural or legal persons supplying to, or being supplied by, the system;
24. 'customers' means wholesale and final customers of natural gas and natural gas undertakings which purchase natural gas;
25. 'household customers' means customers purchasing natural gas for their own household consumption;
26. 'non-household customers' means customers purchasing natural gas which is not for their own household use;
27. 'final customers' means customers purchasing natural gas for their own use;
28. 'eligible customers' means customers who are free to purchase gas from the supplier of their choice, within the meaning of Article 23 of this Directive;

(*) The title of Directive 83/349/EEC has been adjusted to take account of the renumbering of the Articles of the Treaty establishing the European Community in accordance with Article 12 of the Treaty of Amsterdam; the original reference was to Article 54(3)(g).

⁽¹⁾ OJ L 395, 30.12.1989, p. 1. Regulation as last amended by Regulation (EC) No 1310/97 (OJ L 180, 9.7.1997, p. 1).

⁽²⁾ OJ L 193, 18.7.1983, p. 1. Directive as last amended by Directive 2001/65/EC of the European Parliament and of the Council (OJ L 283, 27.10.2001, p. 28).

29. 'wholesale customers' means any natural or legal persons other than transmission system operators and distribution system operators who purchase natural gas for the purpose of resale inside or outside the system where they are established;
30. 'long-term planning' means the planning of supply and transportation capacity of natural gas undertakings on a long-term basis with a view to meeting the demand for natural gas of the system, diversification of sources and securing supplies to customers;
31. 'emergent market' means a Member State in which the first commercial supply of its first long-term natural gas supply contract was made not more than 10 years earlier;
32. 'security' means both security of supply of natural gas and technical safety;
33. 'new infrastructure' means an infrastructure not completed by the entry into force of this Directive.

CHAPTER II

GENERAL RULES FOR THE ORGANISATION OF THE SECTOR

Article 3

Public service obligations and customer protection

1. Member States shall ensure, on the basis of their institutional organisation and with due regard to the principle of subsidiarity, that, without prejudice to paragraph 2, natural gas undertakings are operated in accordance with the principles of this Directive with a view to achieving a competitive, secure and environmentally sustainable market in natural gas, and shall not discriminate between these undertakings as regards either rights or obligations.

2. Having full regard to the relevant provisions of the Treaty, in particular Article 86 thereof, Member States may impose on undertakings operating in the gas sector, in the general economic interest, public service obligations which may relate to security, including security of supply, regularity, quality and price of supplies, and environmental protection, including energy efficiency and climate protection. Such obligations shall be clearly defined, transparent, non discriminatory, verifiable and shall guarantee equality of access for EU gas companies to national consumers. In relation to security of supply, energy efficiency/demand-side management and for the fulfilment of environmental goals, as referred to in this paragraph, Member States may introduce the implementation of long term planning, taking into account the possibility of third parties seeking access to the system.

3. Member States shall take appropriate measures to protect final customers and to ensure high levels of consumer protection, and shall, in particular, ensure that there are adequate safeguards to protect vulnerable customers, including appropriate measures to help them avoid disconnection. In this context, they may take appropriate measures to protect customers in remote areas who are connected to the gas system. Member States may appoint a supplier of last resort for customers connected to the gas network. They shall ensure high levels of consumer protection, particularly with respect to transparency regarding general contractual terms and conditions, general information and dispute settlement mechanisms. Member States shall ensure that the eligible customer is effectively able to switch to a new supplier. As regards at least household customers these measures shall include those set out in Annex A.

4. Member States shall implement appropriate measures to achieve the objectives of social and economic cohesion, environmental protection, which may include means to combat climate change, and security of supply. Such measures may include, in particular, the provision of adequate economic incentives, using, where appropriate, all existing national and Community tools, for the maintenance and construction of necessary network infrastructure, including interconnection capacity.

5. Member States may decide not to apply the provisions of Article 4 with respect to distribution insofar as their application would obstruct, in law or in fact, the performance of the obligations imposed on natural gas undertakings in the general economic interest and insofar as the development of trade would not be affected to such an extent as would be contrary to the interests of the Community. The interests of the Community include, inter alia, competition with regard to eligible customers in accordance with this Directive and Article 86 of the Treaty.

6. Member States shall, upon implementation of this Directive, inform the Commission of all measures adopted to fulfil public service obligations, including consumer and environmental protection, and their possible effect on national and international competition, whether or not such measures require a derogation from the provisions of this Directive. They shall notify the Commission subsequently every two years of any changes to such measures, whether or not they require a derogation from this Directive.

Article 4

Authorisation procedure

1. In circumstances where an authorisation (e.g. licence, permission, concession, consent or approval) is required for the construction or operation of natural gas facilities, the Member States or any competent authority they designate shall grant authorisations to build and/or operate such facilities,

pipelines and associated equipment on their territory, in accordance with paragraphs 2 to 4. Member States or any competent authority they designate may also grant authorisations on the same basis for the supply of natural gas and for wholesale customers.

2. Where Member States have a system of authorisation, they shall lay down objective and non discriminatory criteria which shall be met by an undertaking applying for an authorisation to build and/or operate natural gas facilities or applying for an authorisation to supply natural gas. The non discriminatory criteria and procedures for the granting of authorisations shall be made public.

3. Member States shall ensure that the reasons for any refusal to grant an authorisation are objective and non discriminatory and are given to the applicant. Reasons for such refusals shall be forwarded to the Commission for information. Member States shall establish a procedure enabling the applicant to appeal against such refusals.

4. For the development of newly supplied areas and efficient operation generally, and without prejudice to Article 24, Member States may decline to grant a further authorisation to build and operate distribution pipeline systems in any particular area once such pipeline systems have been or are proposed to be built in that area and if existing or proposed capacity is not saturated.

Article 5

Monitoring of security of supply

Member States shall ensure the monitoring of security of supply issues. Where Member States consider it appropriate, they may delegate this task to the regulatory authorities referred to in Article 25(1). This monitoring shall, in particular, cover the supply/demand balance on the national market, the level of expected future demand and available supplies, envisaged additional capacity being planned or under construction, and the quality and level of maintenance of the networks, as well as measures to cover peak demand and to deal with shortfalls of one or more suppliers. The competent authorities shall publish, by 31 July each year at the latest a report outlining the findings resulting from the monitoring of these issues, as well as any measures taken or envisaged to address them and shall forward this report to the Commission forthwith.

Article 6

Technical rules

Member States shall ensure that technical safety criteria are defined and that technical rules establishing the minimum technical design and operational requirements for the connection to the system of LNG facilities, storage facilities,

other transmission or distribution systems, and direct lines, are developed and made public. These technical rules shall ensure the interoperability of systems and shall be objective and non-discriminatory. They shall be notified to the Commission in accordance with Article 8 of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society Services ⁽¹⁾.

CHAPTER III

TRANSMISSION, STORAGE AND LNG

Article 7

Designation of system operators

Member States shall designate or shall require natural gas undertakings which own transmission, storage or LNG facilities to designate, for a period of time to be determined by Member States having regard to considerations of efficiency and economic balance, one or more system operators. Member States shall take the measures necessary to ensure that transmission, storage and LNG system operators act in accordance with Articles 8 to 10.

Article 8

Tasks of system operators

1. Each transmission, storage and/or LNG system operator shall:
 - (a) operate, maintain and develop under economic conditions secure, reliable and efficient transmission, storage and/or LNG facilities, with due regard to the environment;
 - (b) refrain from discriminating between system users or classes of system users, particularly in favour of its related undertakings;
 - (c) provide any other transmission system operator, any other storage system operator, any other LNG system operator and/or any distribution system operator, sufficient information to ensure that the transport and storage of natural gas may take place in a manner compatible with the secure and efficient operation of the interconnected system;
 - (d) provide system users with the information they need for efficient access to the system.
2. Rules adopted by transmission system operators for balancing the gas transmission system shall be objective, transparent and non-discriminatory, including rules for the

⁽¹⁾ OJ L 204, 21.7.1998, p. 37. Directive as amended by Directive 98/48/EC (OJ L 217, 5.8.1998, p. 18).

charging of system users of their networks for energy imbalance. Terms and conditions, including rules and tariffs, for the provision of such services by transmission system operators shall be established pursuant to a methodology compatible with Article 25(2) in a non-discriminatory and cost-reflective way and shall be published.

3. Member States may require transmission system operators to comply with minimum requirements for the maintenance and development of the transmission system, including interconnection capacity.

4. Transmission system operators shall procure the energy they use for the carrying out of their functions according to transparent, non-discriminatory and market based procedures.

Article 9

Unbundling of transmission system operators

1. Where the transmission system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to transmission. These rules shall not create an obligation to separate the ownership of assets of the transmission system from the vertically integrated undertaking.

2. In order to ensure the independence of the transmission system operator referred to in paragraph 1, the following minimum criteria shall apply:

- (a) those persons responsible for the management of the transmission system operator may not participate in company structures of the integrated natural gas undertaking responsible, directly or indirectly, for the day-to-day operation of the production, distribution and supply of natural gas;
- (b) appropriate measures must be taken to ensure that the professional interests of persons responsible for the management of the transmission system operator are taken into account in a manner that ensures that they are capable of acting independently;
- (c) the transmission system operator shall have effective decision-making rights, independent from the integrated gas undertaking, with respect to assets necessary to operate, maintain or develop the network. This should not prevent the existence of appropriate coordination mechanisms to ensure that the economic and management supervision rights of the parent company in respect of return on assets regulated indirectly in accordance with Article 25(2) in a subsidiary are protected. In particular, this shall enable the parent company to approve the annual financial plan, or any equivalent instrument, of the transmission system operator and to set global limits on the levels of indebtedness of its subsidiary. It shall not

permit the parent company to give instructions regarding day-to-day operations, nor with respect to individual decisions concerning the construction or upgrading of transmission lines, that do not exceed the terms of the approved financial plan, or any equivalent instrument;

- (d) the transmission system operator shall establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded, and ensure that observance of it is adequately monitored. The programme shall set out the specific obligations of employees to meet this objective. An annual report, setting out the measures taken, shall be submitted by the person or body responsible for monitoring the compliance programme to the regulatory authority referred to in Article 25(1) and shall be published.

Article 10

Confidentiality for transmission system operators

1. Without prejudice to Article 16 or any other legal duty to disclose information, each transmission, storage and/or LNG system operator shall preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its business, and shall prevent information about its own activities which may be commercially advantageous from being disclosed in a discriminatory manner.

2. Transmission system operators shall not, in the context of sales or purchases of natural gas by related undertakings, abuse commercially sensitive information obtained from third parties in the context of providing or negotiating access to the system.

CHAPTER IV

DISTRIBUTION AND SUPPLY

Article 11

Designation of distribution system operators

Member States shall designate, or shall require undertakings which own or are responsible for distribution systems to designate, for a period of time to be determined by Member States, having regard to considerations of efficiency and economic balance, one or more distribution system operators and shall ensure that those operators act in accordance with Articles 12 to 14.

Article 12

Tasks of distribution system operators

1. Each distribution system operator shall operate, maintain and develop under economic conditions a secure, reliable and efficient system, with due regard for the environment.
2. In any event, the distribution system operator shall not discriminate between system users or classes of system users, particularly in favour of its related undertakings.
3. Each distribution system operator shall provide any other distribution system operator, and/or any transmission, and/or LNG system operator, and/or storage system operator with sufficient information to ensure that the transport and storage of natural gas takes place in a manner compatible with the secure and efficient operation of the interconnected system.
4. Each distribution system operator shall provide system users with the information they need for efficient access to the system.
5. Where distribution system operators are responsible for balancing the gas distribution system, rules adopted by them for that purpose shall be objective, transparent and non-discriminatory, including rules for the charging of system users for energy imbalance. Terms and conditions, including rules and tariffs, for the provision of such services by system operators shall be established pursuant to a methodology compatible with Article 25(2) in a non-discriminatory and cost-reflective way and shall be published.

Article 13

Unbundling of distribution system operators

1. Where the distribution system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its legal form, organisation and decision making from other activities not relating to distribution. These rules shall not create an obligation to separate the ownership of assets of the distribution system from the vertically integrated undertaking.
2. In addition to the requirements of paragraph 1, where the distribution system operator is part of a vertically integrated undertaking, it shall be independent in terms of its organisation and decision making from the other activities not related to distribution. In order to achieve this, the following minimum criteria shall apply:
 - (a) those persons responsible for the management of the distribution system operator may not participate in

company structures of the integrated natural gas undertaking responsible, directly or indirectly, for the day-to-day operation of the production, transmission and supply of natural gas;

- (b) appropriate measures must be taken to ensure that the professional interests of persons responsible for the management of the distribution system operator are taken into account in a manner that ensures that they are capable of acting independently;
- (c) the distribution system operator shall have effective decision-making rights, independent from the integrated gas undertaking, with respect to assets necessary to operate, maintain or develop the network. This should not prevent the existence of appropriate coordination mechanisms to ensure that the economic and management supervision rights of the parent company in respect of return on assets, regulated indirectly in accordance with Article 25(2), in a subsidiary are protected. In particular, this shall enable the parent company to approve the annual financial plan, or any equivalent instrument, of the distribution system operator and to set global limits on the levels of indebtedness of its subsidiary. It shall not permit the parent company to give instructions regarding day-to-day operations, nor with respect to individual decisions concerning the construction or upgrading of distribution lines, that do not exceed the terms of the approved financial plan, or any equivalent instrument;
- (d) the distribution system operator shall establish a compliance programme, which sets out measures taken to ensure that discriminatory conduct is excluded, and ensure that observance of it is adequately monitored. The programme shall set out the specific obligations of employees to meet this objective. An annual report, setting out the measures taken, shall be submitted by the person or body responsible for monitoring the compliance programme to the regulatory authority referred to in Article 25(1) and shall be published.

Member States may decide not to apply paragraphs 1 and 2 to integrated natural gas undertakings serving less than 100 000 connected customers.

Article 14

Confidentiality for distribution system operators

1. Without prejudice to Article 16 or any other legal duty to disclose information, each distribution system operator shall preserve the confidentiality of commercially sensitive information obtained in the course of carrying out its business, and shall prevent information about its own activities which may be commercially advantageous from being disclosed in a discriminatory manner.

2. Distribution system operators shall not, in the context of sales or purchases of natural gas by related undertakings, abuse commercially sensitive information obtained from third parties in the context of providing or negotiating access to the system.

Article 15

Combined operator

The rules in Articles 9(1) and Article 13(1) shall not prevent the operation of a combined transmission, LNG, storage and distribution system operator, which is independent in terms of its legal form, organisation and decision making from other activities not relating to transmission LNG, storage and distribution system operations and which meets the requirements set out in points (a) to (d). These rules shall not create an obligation to separate the ownership of assets of the combined system from the vertically integrated undertaking:

- (a) those persons responsible for the management of the combined system operator may not participate in company structures of the integrated natural gas undertaking responsible, directly or indirectly, for the day-to-day operation of the production and supply of natural gas;
- (b) appropriate measures must be taken to ensure that the professional interests of persons responsible for the management of the combined system operator are taken into account in a manner that ensures that they are capable of acting independently;
- (c) the combined system operator shall have effective decision-making rights, independent from the integrated gas undertaking, with respect to assets necessary to operate, maintain or develop the network. This should not prevent the existence of appropriate coordination mechanisms to ensure that the economic and management supervision rights of the parent company in respect of return on assets, regulated indirectly in accordance with Article 25(2) in a subsidiary are protected. In particular, this shall enable the parent company to approve the annual financial plan, or any equivalent instrument, of the combined system operator and to set global limits on the levels of indebtedness of its subsidiary. It shall not permit the parent company to give instructions regarding day-to-day operations, nor with respect to individual decisions concerning the construction or upgrading of transmission and distribution lines, that do not exceed the terms of the approved financial plan, or any equivalent instrument;
- (d) the combined system operator shall establish a compliance programme, which sets out measures taken to ensure that

discriminatory conduct is excluded, and ensure that observance of it is adequately monitored. The programme shall set out the specific obligations of employees to meet this objective. An annual report, setting out the measures taken, shall be submitted by the person or body responsible for monitoring the compliance programme to the regulatory authority referred to in Article 25(1) and shall be published.

CHAPTER V

UNBUNDLING AND TRANSPARENCY OF ACCOUNTS

Article 16

Right of access to accounts

1. Member States or any competent authority they designate, including the regulatory authorities referred to in Article 25(1) and the dispute settlement authorities referred to in Article 20(3), shall, insofar as necessary to carry out their functions, have right of access to the accounts of natural gas undertakings as set out in Article 17.
2. Member States and any designated competent authority, including the regulatory authorities referred to in Article 25(1) and the dispute settlement authorities, shall preserve the confidentiality of commercially sensitive information. Member States may provide for the disclosure of such information where this is necessary in order for the competent authorities to carry out their functions.

Article 17

Unbundling of accounts

1. Member States shall take the necessary steps to ensure that the accounts of natural gas undertakings are kept in accordance with paragraphs 2 to 5. Where undertakings benefit from a derogation from this provision on the basis of Article 28(2) and (4), they shall at least keep their internal accounts in accordance with this Article.
2. Natural gas undertakings, whatever their system of ownership or legal form, shall draw up, submit to audit and publish their annual accounts in accordance with the rules of national law concerning the annual accounts of limited liability companies adopted pursuant to the Fourth Council Directive

78/660/EEC of 25 July 1978 based on Article 44(2)(g) (*) of the Treaty on the annual accounts of certain types of companies ⁽¹⁾. Undertakings which are not legally obliged to publish their annual accounts shall keep a copy of these at the disposal of the public at their head office.

3. Natural gas undertakings shall, in their internal accounting, keep separate accounts for each of their transmission, distribution, LNG and storage activities as they would be required to do if the activities in question were carried out by separate undertakings, with a view to avoiding discrimination, cross-subsidisation and distortion of competition. They shall also keep accounts, which may be consolidated, for other gas activities not relating to transmission, distribution, LNG and storage. Until 1 July 2007, they shall keep separate accounts for supply activities for eligible customers and supply activities for non-eligible customers. Revenue from ownership of the transmission/distribution network shall be specified in the accounts. Where appropriate, they shall keep consolidated accounts for other, non-gas activities. The internal accounts shall include a balance sheet and a profit and loss account for each activity.

4. The audit, referred to in paragraph 2, shall, in particular, verify that the obligation to avoid discrimination and cross-subsidies referred to in paragraph 3, is respected.

5. Undertakings shall specify in their internal accounting the rules for the allocation of assets and liabilities, expenditure and income as well as for depreciation, without prejudice to nationally applicable accounting rules, which they follow in drawing up the separate accounts referred to in paragraph 3. These internal rules may be amended only in exceptional cases. Such amendments shall be mentioned and duly substantiated.

6. The annual accounts shall indicate in notes any transaction of a certain size conducted with related undertakings.

CHAPTER VI

ORGANISATION OF ACCESS TO THE SYSTEM

Article 18

Third party access

1. Member States shall ensure the implementation of a system of third party access to the transmission and distribution system, and LNG facilities based on published

(*) The title of Directive 78/660/EEC has been adjusted to take account of the renumbering of the Articles of the Treaty establishing the European Community in accordance with Article 12 of the Treaty of Amsterdam; the original reference was to Article 54(3)(g).

⁽¹⁾ OJ L 222, 14.8.1978, p. 11. Directive as last amended by Directive 2001/65/EC of the European Parliament and of the Council (OJ L 283, 27.10.2001, p. 28).

tariffs, applicable to all eligible customers, including supply undertakings, and applied objectively and without discrimination between system users. Member States shall ensure that these tariffs, or the methodologies underlying their calculation shall be approved prior to their entry into force by a regulatory authority referred to in Article 25(1) and that these tariffs — and the methodologies, where only methodologies are approved — are published prior to their entry into force.

2. Transmission system operators shall, if necessary for the purpose of carrying out their functions including in relation to cross-border transmission, have access to the network of other transmission system operators.

3. The provisions of this Directive shall not prevent the conclusion of long-term contracts in so far as they comply with Community competition rules

Article 19

Access to storage

1. For the organisation of access to storage facilities and linepack when technically and/or economically necessary for providing efficient access to the system for the supply of customers, as well as for the organisation of access to ancillary services, Member States may choose either or both of the procedures referred to in paragraphs 3 and 4. These procedures shall operate in accordance with objective, transparent and non-discriminatory criteria.

2. The provisions of paragraph 1 shall not apply to ancillary services and temporary storage that are related to LNG facilities and are necessary for the re-gaseification process and subsequent delivery to the transmission system.

3. In the case of negotiated access, Member States shall take the necessary measures for natural gas undertakings and eligible customers either inside or outside the territory covered by the interconnected system to be able to negotiate access to storage and linepack, when technically and/or economically necessary for providing efficient access to the system, as well as for the organisation of access to other ancillary services. The parties shall be obliged to negotiate access to storage, linepack and other ancillary services in good faith.

Contracts for access to storage, linepack and other ancillary services shall be negotiated with the relevant storage system operator or natural gas undertakings. Member States shall require storage system operators and natural gas undertakings to publish their main commercial conditions for the use of storage, linepack and other ancillary services within the first six months following implementation of this Directive and on an annual basis every year thereafter.

4. In the case of regulated access Member States shall take the necessary measures to give natural gas undertakings and eligible customers either inside or outside the territory covered by the interconnected system a right to access to storage, linepack and other ancillary services, on the basis of published tariffs and/or other terms and obligations for use of that storage and linepack, when technically and/or economically necessary for providing efficient access to the system, as well as for the organisation of access to other ancillary services. This right of access for eligible customers may be given by enabling them to enter into supply contracts with competing natural gas undertakings other than the owner and/or operator of the system or a related undertaking.

Article 20

Access to upstream pipeline networks

1. Member States shall take the necessary measures to ensure that natural gas undertakings and eligible customers, wherever they are located, are able to obtain access to upstream pipeline networks, including facilities supplying technical services incidental to such access, in accordance with this Article, except for the parts of such networks and facilities which are used for local production operations at the site of a field where the gas is produced. The measures shall be notified to the Commission in accordance with the provisions of Article 33.

2. The access referred to in paragraph 1 shall be provided in a manner determined by the Member State in accordance with the relevant legal instruments. Member States shall apply the objectives of fair and open access, achieving a competitive market in natural gas and avoiding any abuse of a dominant position, taking into account security and regularity of supplies, capacity which is or can reasonably be made available, and environmental protection. The following may be taken into account:

- (a) the need to refuse access where there is an incompatibility of technical specifications which cannot be reasonably overcome;
- (b) the need to avoid difficulties which cannot be reasonably overcome and could prejudice the efficient, current and planned future production of hydrocarbons, including that from fields of marginal economic viability;
- (c) the need to respect the duly substantiated reasonable needs of the owner or operator of the upstream pipeline network for the transport and processing of gas and the interests of all other users of the upstream pipeline network or relevant processing or handling facilities who may be affected; and
- (d) the need to apply their laws and administrative procedures, in conformity with Community law, for the grant of authorisation for production or upstream development.

3. Member States shall ensure that they have in place dispute settlement arrangements, including an authority independent of the parties with access to all relevant information, to enable disputes relating to access to upstream pipeline networks to be settled expeditiously, taking into account the criteria in paragraph 2 and the number of parties which may be involved in negotiating access to such networks.

4. In the event of cross border disputes, the dispute settlement arrangements for the Member State having jurisdiction over the upstream pipeline network which refuses access shall be applied. Where, in cross border disputes, more than one Member State covers the network concerned, the Member States concerned shall consult with a view to ensuring that the provisions of this Directive are applied consistently.

Article 21

Refusal of access

1. Natural gas undertakings may refuse access to the system on the basis of lack of capacity or where the access to the system would prevent them from carrying out the public service obligations referred to in Article 3(2) which are assigned to them or on the basis of serious economic and financial difficulties with take-or-pay contracts having regard to the criteria and procedures set out in Article 27 and the alternative chosen by the Member State in accordance with paragraph 1 of that Article. Duly substantiated reasons shall be given for such a refusal.

2. Member States may take the measures necessary to ensure that the natural gas undertaking refusing access to the system on the basis of lack of capacity or a lack of connection makes the necessary enhancements as far as it is economic to do so or when a potential customer is willing to pay for them. In circumstances where Member States apply Article 4(4), Member States shall take such measures.

Article 22

New infrastructure

1. Major new gas infrastructures, i.e. interconnectors between Member States, LNG and storage facilities, may, upon request, be exempted from the provisions of Articles 18, 19, 20, and 25(2), (3) and (4) under the following conditions:

- (a) the investment must enhance competition in gas supply and enhance security of supply;

- (b) the level of risk attached to the investment is such that the investment would not take place unless an exemption was granted;
- (c) the infrastructure must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that infrastructure will be built;
- (d) charges are levied on users of that infrastructure;
- (e) the exemption is not detrimental to competition or the effective functioning of the internal gas market, or the efficient functioning of the regulated system to which the infrastructure is connected.

2. Paragraph 1 shall apply also to significant increases of capacity in existing infrastructures and to modifications of such infrastructures which enable the development of new sources of gas supply.

- 3. (a) The regulatory authority referred to in Article 25 may, on a case by case basis, decide on the exemption referred to in paragraphs 1 and 2. However, Member States may provide that the regulatory authorities shall submit, for formal decision, to the relevant body in the Member State its opinion on the request for an exemption. This opinion shall be published together with the decision.
 - (b) (i) The exemption may cover all or parts of, respectively, the new infrastructure, the existing infrastructure with significantly increased capacity or the modification of the existing infrastructure.
 - (ii) In deciding to grant an exemption consideration shall be given, on a case by case basis, to the need to impose conditions regarding the duration of the exemption and non-discriminatory access to the interconnector.
 - (iii) When deciding on the conditions in this subparagraph account shall, in particular, be taken of the duration of contracts, additional capacity to be built or the modification of existing capacity, the time horizon of the project and national circumstances.
 - (c) When granting an exemption the relevant authority may decide upon the rules and mechanisms for management and allocation of capacity insofar as this does not prevent the implementation of long term contracts.
 - (d) The exemption decision, including any conditions referred to in (b), shall be duly reasoned and published.
 - (e) In the case of an interconnector any exemption decision shall be taken after consultation with the other Member States or regulatory authorities concerned.

4. The exemption decision shall be notified, without delay, by the competent authority to the Commission, together with all the relevant information with respect to the decision. This information may be submitted to the Commission in aggregate form, enabling the Commission to reach a well-founded decision.

In particular, the information shall contain:

- (a) the detailed reasons on the basis of which the regulatory authority, or Member State, granted the exemption, including the financial information justifying the need for the exemption;
- (b) the analysis undertaken of the effect on competition and the effective functioning of the internal gas market resulting from the grant of the exemption;
- (c) the reasons for the time period and the share of the total capacity of the gas infrastructure in question for which the exemption is granted;
- (d) in case the exemption relates to an interconnector, the result of the consultation with the Member States concerned or regulatory authorities;
- (e) the contribution of the infrastructure to the diversification of gas supply.

Within two months after receiving a notification, the Commission may request that the regulatory authority or the Member State concerned amend or withdraw the decision to grant an exemption. The two month period may be extended by one additional month where additional information is sought by the Commission.

If the regulatory authority or Member State concerned does not comply with the request within a period of four weeks, a final decision shall be taken in accordance with the procedure referred to in Article 30(2).

The Commission shall preserve the confidentiality of commercially sensitive information.

Article 23

Market opening and reciprocity

- 1. Member States shall ensure that the eligible customers are:
 - (a) until 1 July 2004, the eligible customers as specified in Article 18 of Directive 98/30/EC. Member States shall publish by 31 January each year the criteria for the definition of these eligible customers;
 - (b) from 1 July 2004, at the latest, all non-household customers;
 - (c) from 1 July 2007, all customers.

2. To avoid imbalance in the opening of gas markets:

- (a) contracts for the supply with an eligible customer in the system of another Member State shall not be prohibited if the customer is eligible in both systems involved;
- (b) in cases where transactions as described in point (a) are refused because the customer is eligible in only one of the two systems, the Commission may, taking into account the situation in the market and the common interest, oblige the refusing party to execute the requested supply, at the request of one of the Member States of the two systems.

Article 24

Direct lines

1. Member States shall take the necessary measures to enable:

- (a) natural gas undertakings established within their territory to supply the eligible customers through a direct line;
- (b) any such eligible customer within their territory to be supplied through a direct line by natural gas undertakings.

2. In circumstances where an authorisation (e.g. licence, permission, concession, consent or approval) is required for the construction or operation of direct lines, the Member States or any competent authority they designate shall lay down the criteria for the grant of authorisations for the construction or operation of such lines in their territory. These criteria shall be objective, transparent and non-discriminatory.

3. Member States may make authorisations to construct a direct line subject either to the refusal of system access on the basis of Article 21 or to the opening of a dispute settlement procedure under Article 25.

Article 25

Regulatory authorities

1. Member States shall designate one or more competent bodies with the function of regulatory authorities. These authorities shall be wholly independent of the interests of the gas industry. They shall, through the application of this Article, at least be responsible for ensuring non-discrimination, effective competition and the efficient functioning of the market, monitoring in particular:

- (a) the rules on the management and allocation of interconnection capacity, in conjunction with the regulatory authority or authorities of those Member States with which interconnection exists;
- (b) any mechanisms to deal with congested capacity within the national gas system;
- (c) the time taken by transmission and distribution system operators to make connections and repairs;
- (d) the publication of appropriate information by transmission and distribution system operators concerning interconnectors, grid usage and capacity allocation to interested parties, taking into account the need to treat non-aggregated information as commercially confidential;
- (e) the effective unbundling of accounts as referred to in Article 17, to ensure there are no cross subsidies between transmission, distribution, storage, LNG and supply activities;
- (f) the access conditions to storage, linepack and to other ancillary services as provided for in Article 19;
- (g) the extent to which transmission and distribution system operators fulfil their tasks in accordance with Articles 8 and 12;
- (h) the level of transparency and competition.

The authorities established pursuant to this Article shall publish an annual report on the outcome of their monitoring activities referred to in points (a) to (h).

2. The regulatory authorities shall be responsible for fixing or approving prior to their entry into force, at least the methodologies used to calculate or establish the terms and conditions for :

- (a) connection and access to national networks, including transmission and distribution tariffs. These tariffs, or methodologies, shall allow the necessary investments in the networks to be carried out in a manner allowing these investments to ensure the viability of the networks;
- (b) the provision of balancing services.

3. Notwithstanding paragraph 2, Member States may provide that the regulatory authorities shall submit, for formal decision, to the relevant body in the Member State the tariffs or at least the methodologies referred to in that paragraph as well as the modifications in paragraph 4. The relevant body shall, in such a case, have the power to either approve or reject a draft decision submitted by the regulatory authority.

These tariffs or the methodologies or modifications thereto shall be published together with the decision on formal adoption. Any formal rejection of a draft decision shall also be published, including its justification.

4. Regulatory authorities shall have the authority to require transmission, LNG and distribution system operators, if necessary, to modify the terms and conditions, including tariffs and methodologies referred to in paragraphs 1, 2 and 3, to ensure that they are proportionate and applied in a non-discriminatory manner.

5. Any party having a complaint against a transmission, LNG or distribution system operator with respect to the issues mentioned in paragraphs 1, 2 and 4 and in Article 19 may refer the complaint to the regulatory authority which, acting as dispute settlement authority, shall issue a decision within two months after receipt of the complaint. This period may be extended by two months where additional information is sought by the regulatory authorities. This period may be extended with the agreement of the complainant. Such a decision shall have binding effect unless and until overruled on appeal.

6. Any party having a complaint against a transmission, LNG or distribution system operator with respect to the issues mentioned in paragraphs 1, 2 and 4 and in Article 19 may refer the complaint to the regulatory authority which, acting as dispute settlement authority, shall issue a decision within two months after receipt of the complaint. This period may be extended by two months where additional information is sought by the regulatory authorities. This period may be extended with the agreement of the complainant. Such a decision shall have binding effect unless and until overruled on appeal.

7. Member States shall take measures to ensure that regulatory authorities are able to carry out their duties referred to in paragraphs 1 to 5 in an efficient and expeditious manner.

8. Member States shall create appropriate and efficient mechanisms for regulation, control and transparency so as to avoid any abuse of a dominant position, in particular to the detriment of consumers, and any predatory behaviour. These mechanisms shall take account of the provisions of the Treaty, and in particular Article 82 thereof.

9. Member States shall ensure that the appropriate measures are taken, including administrative action or criminal proceedings in conformity with their national law, against the natural or legal persons responsible where confidentiality rules imposed by this Directive have not been respected.

10. In the event of cross border disputes, the deciding regulatory authority shall be the regulatory authority which has jurisdiction in respect of the system operator, which refuses use of, or access to, the system.

11. Complaints referred to in paragraphs 5 and 6 shall be without prejudice to the exercise of rights of appeal under Community and national law.

12. National regulatory authorities shall contribute to the development of the internal market and of a level playing field by cooperating with each other and with the Commission in a transparent manner.

CHAPTER VII

FINAL PROVISIONS

Article 26

Safeguard measures

1. In the event of a sudden crisis in the energy market or where the physical safety or security of persons, apparatus or installations or system integrity is threatened, a Member State may temporarily take the necessary safeguard measures.

2. Such measures shall cause the least possible disturbance to the functioning of the internal market and shall not be wider in scope than is strictly necessary to remedy the sudden difficulties which have arisen.

3. The Member State concerned shall without delay notify these measures to the other Member States, and to the Commission, which may decide that the Member State concerned must amend or abolish such measures, insofar as they distort competition and adversely affect trade in a manner which is at variance with the common interest.

Article 27

Derogations in relation to take-or-pay commitments

1. If a natural gas undertaking encounters, or considers it would encounter, serious economic and financial difficulties because of its take-or-pay commitments accepted in one or more gas-purchase contracts, an application for a temporary derogation from Article 18 may be sent to the Member State concerned or the designated competent authority. Applications shall, according to the choice of Member States, be presented on a case-by-case basis either before or after refusal of access to the system. Member States may also give the natural gas undertaking the choice of presenting an application either before or after refusal of access to the system. Where a natural gas undertaking has refused access, the application shall be presented without delay. The applications shall be accompanied by all relevant information on the nature and extent of the problem and on the efforts undertaken by the natural gas undertaking to solve the problem.

If alternative solutions are not reasonably available, and taking into account the provisions of paragraph 3, the Member State or the designated competent authority may decide to grant a derogation.

2. The Member State, or the designated competent authority, shall notify the Commission without delay of its decision to grant a derogation, together with all the relevant information with respect to the derogation. This information may be submitted to the Commission in an aggregated form, enabling the Commission to reach a well-founded decision. Within eight weeks of its receipt of this notification, the Commission may request that the Member State or the designated competent authority concerned amend or withdraw the decision to grant a derogation.

If the Member State or the designated competent authority concerned does not comply with this request within a period of four weeks, a final decision shall be taken expeditiously in accordance with the procedure referred to in Article 30(2).

The Commission shall preserve the confidentiality of commercially sensitive information.

3. When deciding on the derogations referred to in paragraph 1, the Member State, or the designated competent authority, and the Commission shall take into account, in particular, the following criteria:

- (a) the objective of achieving a competitive gas market;
- (b) the need to fulfil public service obligations and to ensure security of supply;
- (c) the position of the natural gas undertaking in the gas market and the actual state of competition in this market;
- (d) the seriousness of the economic and financial difficulties encountered by natural gas undertakings and transmission undertakings or eligible customers;
- (e) the dates of signature and terms of the contract or contracts in question, including the extent to which they allow for market changes;
- (f) the efforts made to find a solution to the problem;
- (g) the extent to which, when accepting the take-or-pay commitments in question, the undertaking could reasonably have foreseen, having regard to the provisions of this Directive, that serious difficulties were likely to arise;
- (h) the level of connection of the system with other systems and the degree of interoperability of these systems; and
- (i) the effects the granting of a derogation would have on the correct application of this Directive as regards the smooth functioning of the internal natural gas market.

A decision on a request for a derogation concerning take or pay contracts concluded before the entry into force of this Directive should not lead to a situation in which it is impossible to find economically viable alternative outlets. Serious difficulties shall in any case be deemed not to exist when the sales of natural gas do not fall below the level of minimum offtake guarantees contained in gas purchase take or pay contracts or in so far as the relevant gas purchase take-or-pay contract can be adapted or the natural gas undertaking is able to find alternative outlets.

4. Natural gas undertakings which have not been granted a derogation as referred to in paragraph 1 shall not refuse, or shall no longer refuse, access to the system because of take-or-pay commitments accepted in a gas purchase contract. Member States shall ensure that the relevant provisions of Chapter VI namely Articles 18 to 25 are complied with.

5. Any derogation granted under the above provisions shall be duly substantiated. The Commission shall publish the decision in the *Official Journal of the European Union*.

6. The Commission shall, within five years of the entry into force of this Directive, submit a review report on the experience gained from the application of this Article, so as to allow the European Parliament and the Council to consider, in due course, the need to adjust it.

Article 28

Emergent and isolated markets

1. Member States not directly connected to the interconnected system of any other Member State and having only one main external supplier may derogate from Articles 4, 9, 23 and/or 24 of this Directive. A supply undertaking having a market share of more than 75 % shall be considered to be a main supplier. This derogation shall automatically expire from the moment when at least one of these conditions no longer applies. Any such derogation shall be notified to the Commission.

2. A Member State, qualifying as an emergent market, which because of the implementation of this Directive would experience substantial problems may derogate from Articles 4, 7, 8(1) and (2), 9, 11, 12(5), 13, 17, 18, 23(1) and/or 24 of this Directive. This derogation shall automatically expire from the moment when the Member State no longer qualifies as an emergent market. Any such derogation shall be notified to the Commission.

3. On the date at which the derogation referred to in paragraph 2 expires, the definition of eligible customers shall result in an opening of the market equal to at least 33 % of the total annual gas consumption of the national gas market. Two years thereafter, Article 23(1)(b) shall apply, and three years thereafter, Article 23(1)(c). Until Article 23(1)(b) applies the Member State referred to in paragraph 2 may decide not to

apply Article 18 as far as ancillary services and temporary storage for the re-gaseification process and its subsequent delivery to the transmission system are concerned.

4. Where implementation of this Directive would cause substantial problems in a geographically limited area of a Member State, in particular concerning the development of the transmission and major distribution infrastructure, and with a view to encouraging investments, the Member State may apply to the Commission for a temporary derogation from Article 4, Article 7, Article 8(1) and (2), Article 9, Article 11, Article 12(5), Article 13, Article 17, Article 18, Article 23(1) and/or Article 24 for developments within this area.

5. The Commission may grant the derogation referred to in paragraph 4, taking into account, in particular, the following criteria:

- the need for infrastructure investments, which would not be economic to operate in a competitive market environment,
 - the level and pay-back prospects of investments required,
 - the size and maturity of the gas system in the area concerned,
 - the prospects for the gas market concerned,
 - the geographical size and characteristics of the area or region concerned, and socioeconomic and demographic factors.
- (a) For gas infrastructure other than distribution infrastructure a derogation may be granted only if no gas infrastructure has been established in this area, or has been so established for less than 10 years. The temporary derogation may not exceed 10 years from the time gas is first supplied in the area.
- (b) For distribution infrastructure a derogation may be granted for a time period which may not exceed 20 years for the distribution infrastructure from the time gas is first supplied through the said system in the area.

6. Luxembourg may benefit from a derogation from Articles 8(3) and 9 for a period of five years from 1 July 2004. Such a derogation shall be reviewed before the end of the five year period and any decision to renew the derogation for another five years shall be taken in accordance with the procedure referred to in Article 30(2). Any such derogation shall be notified to the Commission.

7. The Commission shall inform the Member States of applications made under paragraph 4 prior to taking a decision pursuant to paragraph 5, taking into account respect for confidentiality. This decision, as well as the derogations referred to in paragraphs 1 and 2, shall be published in the *Official Journal of the European Union*.

8. Greece may derogate from Articles 4, 11, 12, 13, 18, 23 and/or 24 of this Directive for the geographical areas and time periods specified in the licences issued by it, prior to 15 March 2002 and in accordance with Directive 98/30/EC, for the development and exclusive exploitation of distribution networks in certain geographical areas.

Article 29

Review Procedure

In the event that the report referred to in Article 31(3) reaches the conclusion whereby, given the effective manner in which network access has been carried out in a Member State — which gives rise to fully effective, non-discriminatory and unhindered network access —, the Commission concludes that certain obligations imposed by this Directive on undertakings (including those with respect to legal unbundling for distribution system operators) are not proportionate to the objective pursued, the Member State in question may submit a request to the Commission for exemption from the requirement in question.

The request shall be notified, without delay, by the Member State to the Commission, together with all the relevant information necessary to demonstrate that the conclusion reached in the report on effective network access being ensured will be maintained.

Within three months of its receipt of a notification, the Commission shall adopt an opinion with respect to the request by the Member State concerned, and where appropriate, submit proposals to the European Parliament and to the Council to amend the relevant provisions of the Directive. The Commission may propose, in the proposals to amend the Directive, to exempt the Member State concerned from specific requirements subject to that Member State implementing equally effective measures as appropriate.

Article 30

Committee

1. The Commission shall be assisted by a Committee.
2. Where reference is made to this paragraph, Articles 3 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.
3. The Committee shall adopt its rules of procedure.

Article 31

Reporting

1. The Commission shall monitor and review the application of this Directive and submit an overall progress report to the European Parliament and the Council before the end of the first year following the entry into force of this Directive, and thereafter on an annual basis. The report shall cover at least:

- (a) the experience gained and progress made in creating a complete and fully operational internal market in natural gas and the obstacles that remain in this respect including aspects of market dominance, concentration in the market, predatory or anti-competitive behaviour;
- (b) the derogations granted under this Directive, including implementation of the derogation provided for in Article 13(2) with a view to a possible revision of the threshold;
- (c) the extent to which the unbundling and tariffication requirements contained in this Directive have been successful in ensuring fair and non-discriminatory access to the Community's gas system and equivalent levels of competition, as well as the economic, environmental and social consequences of the opening of the gas market for customers;
- (d) an examination of issues relating to system capacity levels and security of supply of natural gas in the Community, and in particular the existing and projected balance between demand and supply, taking into account the physical capacity for exchanges between areas and the development of storage (including the question of the proportionality of market regulation in this field);
- (e) special attention will be given to the measures taken in Member States to cover peak demand and to deal with shortfalls of one or more suppliers;
- (f) a general assessment of the progress achieved with regard to bilateral relations with third countries which produce and export or transport natural gas, including progress in market integration, trade and access to the networks of such third countries;
- (g) the need for possible harmonisation requirements which are not linked to the provisions of this Directive.

Where appropriate, this report may include recommendations and measures to counteract negative effects of market dominance and market concentration.

2. Every two years, the report referred to in paragraph 1 shall also cover an analysis of the different measures taken in Member States to meet public service obligations, together with an examination of the effectiveness of those measures, and in particular their effects on competition in the gas market. Where appropriate, the report may include recommendations as to the measures to be taken at national level to achieve high public service standards or measures intended to prevent market foreclosure.

3. The Commission shall, no later than 1 January 2006, forward to the European Parliament and Council, a detailed report outlining progress in creating the internal gas market. The report shall, in particular, consider:

- the existence of non-discriminatory network access;
- effective regulation;
- the development of interconnection infrastructure, the conditions of transit, and the security of supply situation in the Community;
- the extent to which the full benefits of the opening of the market are accruing to small enterprises and households, notably with respect to public service standards;
- the extent to which markets are in practice open to effective competition, including aspects of market dominance, market concentration and predatory or anti-competitive behaviour;
- the extent to which customers are actually switching suppliers and renegotiating tariffs;
- price developments, including supply prices, in relation to the degree of the opening of markets;
- whether effective and non-discriminatory third party access to gas storage exists when technically and/or economically necessary for providing efficient access to the system;
- the experience gained in the application of the Directive as far as the effective independence of system operators in vertically integrated undertakings is concerned and whether other measures in addition to functional independence and separation of accounts have been developed which have effects equivalent to legal unbundling.

Where appropriate, the Commission shall submit proposals to the European Parliament and the Council, in particular to guarantee high public service standards.

Where appropriate, the Commission shall submit proposals to the European Parliament and the Council, in particular to ensure full and effective independence of distribution system operators before 1 July 2007. When necessary, these proposals shall, in conformity with competition law, also concern measures to address issues of market dominance, market concentration and predatory or anti-competitive behaviour.

Article 32

Repeals

1. Directive 91/296/EEC shall be repealed with effect from 1 July 2004, without prejudice to contracts concluded pursuant to Article 3(1) of Directive 91/296/EEC, which shall continue to be valid and to be implemented under the terms of the said Directive.

2. Directive 98/30/EC shall be repealed from 1 July 2004, without prejudice to the obligations of Member States concerning the deadlines for transposition and application of the said Directive. References made to the repealed Directive shall be construed as being made to this Directive and should be read in accordance with the correlation table in Annex B.

Article 33

Implementation

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive not later than 1 July 2004. They shall forthwith inform the Commission thereof.

2. Member States may postpone the implementation of Article 13(1) until 1 July 2007. This shall be without prejudice to the requirements contained in Article 13(2).

3. When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

Article 34

Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Article 35

Addressees

This Directive is addressed to the Member States.

Done at Brussels, 26 June 2003.

For the European Parliament

The President

P. COX

For the Council

The President

A. TSOCHATZOPOULOS

ANNEX A

Measures on consumer protection

Without prejudice to Community rules on consumer protection, in particular Directives 97/7/EC of the European Parliament and of the Council ⁽¹⁾ and Council Directive 93/13/EC ⁽²⁾, the measures referred to in Article 3 are to ensure that customers:

- (a) have a right to a contract with their gas service provider that specifies:
- the identity and address of the supplier;
 - the services provided, the service quality levels offered, as well as the time for the initial connection;
 - if offered, the types of maintenance service offered;
 - the means by which up to date information on all applicable tariffs and maintenance charges may be obtained;
 - the duration of the contract, the conditions for renewal and termination of services and of the contract, the existence of any right of withdrawal;
 - any compensation and the refund arrangements which apply if contracted service quality levels are not met; and
 - the method of initiating procedures for settlement of disputes in accordance with point (f).

Conditions shall be fair and well known in advance. In any case, this information should be provided prior to the conclusion or confirmation of the contract. Where contracts are concluded through intermediaries, the above information shall also be provided prior to the conclusion of the contract:

- (b) are given adequate notice of any intention to modify contractual conditions and are informed about their right of withdrawal when the notice is given. Service providers shall notify their subscribers directly of any increase in charges, at an appropriate time no later than one normal billing period after the increase comes into effect. Member States shall ensure that customers are free to withdraw from contracts if they do not accept the new conditions, notified to them by their gas service provider;
- (c) receive transparent information on applicable prices and tariffs and on standard terms and conditions, in respect of access to and use of gas services;
- (d) are offered a wide choice of payment methods. Any difference in terms and conditions shall reflect the costs to the supplier of the different payment systems. General terms and conditions shall be fair and transparent. They shall be given in clear and comprehensible language. Customers shall be protected against unfair or misleading selling methods;
- (e) shall not be charged for changing supplier;
- (f) benefit from transparent, simple and inexpensive procedures for dealing with their complaints. Such procedures shall enable disputes to be settled fairly and promptly with provision, where warranted, for a system of reimbursement and/or compensation. They should follow, wherever possible, the principles set out in Commission Recommendation 98/257/EC ⁽³⁾;
- (g) connected to the gas system are informed about their rights to be supplied, under the national legislation applicable, with natural gas of a specified quality at reasonable prices.

⁽¹⁾ OJ L 144, 4.6.1997, p. 19.

⁽²⁾ OJ L 95, 21.4.1993, p. 29.

⁽³⁾ OJ L 115, 17.4.1998, p. 31.

ANNEX B

Correlation table

Directive 98/30/EC	This Directive	
Article 1	Article 1	Scope
Article 2	Article 2	Definitions
Article 3	Article 3	PSOs and Customer protection
Article 4	Article 4	Authorisation procedure
—	Article 5	Monitoring of security of supply
Article 5	Article 6	Technical rules
Article 6	Article 7	Designation of TSOs
Article 7	Article 8	Tasks of TSOs
—	Article 9	Unbundling of TSOs
Article 8	Article 10	Confidentiality for TSOs
Article 9(1)	Article 11	Designation of DSOs
Article 10	Article 12	Tasks of DSOs
—	Article 13	Unbundling of DSOs
Article 11	Article 14	Confidentiality for DSOs
—	Article 15	Combined operator
Article 12	Article 16	Right of access to accounts
Article 13	Article 17	Unbundling of accounts
Article 14-16	Article 18	Third Party Access
—	Article 19	Access to storage
Article 23	Article 20	Access to upstream pipeline networks
Article 17	Article 21	Refusal of access
—	Article 22	New infrastructure
Article 18 and 19	Article 23	Market opening and reciprocity
Article 20	Article 24	Direct lines
Article 21(2)-(3) and 22	Article 25	Regulatory authorities
Article 24	Article 26	Safeguard measures
Article 25	Article 27	Derogations in relation to take-or-pay commitments
Article 26	Article 28	Emergent and Isolated Markets
—	Article 29	Review procedure
—	Article 30	Committee

Directive 98/30/EC	This Directive	
Article 27 and 28	Article 31	Reporting
—	Article 32	Repeals
Article 29	Article 33	Implementation
Article 30	Article 34	Entry into force
Article 31	Article 35	Addressees
	Annex A	Measures on consumer protection