THE GERMAN PATH TO NATURAL GAS LIBERALISATION

Is it a special case?

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PREFACE

Despite the importance of the German gas market as the second largest gas market in Europe, there is, amazingly, no comprehensive account in English of the steps towards liberalisation through which this market has passed. This book fills that gap in the literature. While many of us know some part of the German story, this is the first study to take us from the start of the Verbandevereinbarung through the E.ON–Ruhrgas merger to entry–exit tariff design and the legal challenge to long-term contracts. Not only does the study explain these events, it also provides a comprehensive picture of all the different market players, their relative positions and strategies.

This study is a logical follow-up to Philip Wright's book on *Gas Prices in the UK: Markets and Insecurity of Supply*, which was published earlier in 2006 by the Gas Research Programme and OUP, and means we have now published very substantial research on the two largest gas markets in Europe. Grateful thanks go to Heiko Lohmann for taking on this very difficult task. Even with his encyclopaedic knowledge of the subject, the ferocious complexity of the German gas market means that this has involved a huge amount of work. Not only did the study turn out to be much longer than expected but the volume of questions and clarifications multiplied in step with the text. His efficiency and good humour in dealing with all of this additional work is much appreciated.

Jonathan Stern
July 2006
Oxford

FOREWORD

This study was mainly written between March 2005 and March 2006. It tries to describe and analyse the major elements of the development of the German gas market since the beginning of liberalisation in the year 2000. It is 'work in progress' because some major issues, which have been under discussion since 2000 are still not settled. These include in particular the model of network access and the future of long-term sales contracts. I have tried to cover events up to the end of March 2006 in depth and to mention, at least briefly, developments which took place in April and May 2006 while I was making the final changes to the manuscript.

The study is largely based on my journalistic work on the German gas market, which I started in May 2001 as a German correspondent for Heren Energy. Most of the information I have used comes from discussions with members of all stakeholding groups in the industry – incumbent companies, new entrants, customers and political institutions. I wish to thank all those who provided me with information, shared their views and analysis of the market and discussed potential developments with me.

But most of all I have to thank Jonathan Stern who not only encouraged me to write the study, but carefully read through different versions of the manuscript, fought with my 'Denglish' and suggested improvements. A number of people working in different sections of the German gas market kindly read draft versions of the manuscript, made me aware of shortcomings and gave their time to comment on the study. They have to remain anonymous since their employers might not be impressed with their close contacts with a journalist. All remaining shortcomings are entirely my responsibility.

Finally I have to thank my girlfriend Judith for her patience regarding the evenings I spent at my computer instead of with her.

Heiko Lohmann

1 INTRODUCTION

1.1 Scope of the Study

The opening of the German gas market to liberalisation and competition could be considered something unique in Europe. Six years after the market was formally opened by the introduction of a new energy law in April 1998 and the amendment of the competition law in the same year the general perception on the European level is still very negative. The EU Commission, in its fourth benchmark report released at the beginning of 2004, bemoaned, not for the first time, the lack of competition in Germany: 'progress in Germany and Austria is still very disappointing'[1] is the straightforward statement in the report. Even the German government concluded in a monitoring report that was published at the end of August 2003: 'competition in the gas sector developed only in the market for big users and even in this sector only to a limited extent. The main reasons are a different supply situation compared to the power market and the lack of a workable model for network access'.[2]

The German incumbents have always expressed a very different view on the proper regulatory framework for the German market, arguing that the German market is different to the rest of Europe for two reasons:

- There is no monopolistic – state-owned – player that dominates the market. Instead, 700 different, often privately-owned, players are active.
- The same holds true for the network. This is owned by different private companies which operate an integrated business of gas sales and network operations.

For these reasons the incumbents demand a form of regulation that is shaped to the German market and fight the 'Einheitswurst' of a unique European regulation, as the CEO of Wintershall, Reinier Zwitserloot, labelled it at the Flame conference in Amsterdam at the beginning of 2005. Concerning competition the incumbents argue that:

- Since the early nineties, when the Russian–German joint venture Wingas entered the market, there has been gas-to-gas competition.
- There is existing and potential pipe-to-pipe and pipe-in-pipe competition because alternatives exist at least on the level of interregional pipeline transportation.
- The German gas market always was competitive because it had to fight for its market share against oil products.
- Since the year 2000, gas companies have experienced fierce competition from different new entrants, which has generally not resulted in customer switching but lower prices and new contract structures with the existing suppliers.
- Potential for gas-to-gas competition is limited on the supply side. In contrast to the UK, Germany has not been supplied by competing producers but from three more or less monopolistic sources: the Netherlands, Norway and Russia.

The difference of views between the German incumbents on the one hand and especially the EU Commission and the UK-based players on the other has been called a 'Clash of Cultures' in a study by Cambridge Energy Research Associates (CERA) on behalf of the German gas majors Ruhrgas and VNG Verbundnetz Gas.[3] CERA describes the German gas industry as 'market-responsive' in that every single company has to take into account in its market behaviour the presence of other companies. This structure has developed organically over the years without any intentional market design. The detailed proposals of the EU Commission for market liberalisation do not combine well with this model of the German gas industry.

The purpose of this study is not to evaluate the development of the German gas market according to normative efficiency criteria, but to describe its development over the last five years – the actors, their interests and their strategies. Although the study is not a comparative one, taking into account other European gas markets, it is fair to say that the German gas market developed differently from other markets. For the EU Commission this is a matter of great concern, as the benchmark reports (referred to above) demonstrate. The focus of this study is rather to identify the driving forces of the market and to try to answer these two fundamental questions:

- Is competition occurring in the industry and, if not, is it likely to develop?
- As far as liberalisation is concerned, is the German industry unique in the sense that it will permanently resist a more competitive structure and a framework that supports competition?

1.2 Structure of the Study

This study will describe the development of the German gas market and the framework conditions since the year 2000. It starts with a description of the market structure at that time. What follows is the long battle for access to the gas network, first as negotiated network access and then as regulated network access. The development of access to the network is supplemented by an analysis of storage access. An important issue for the development of the German market is that of long-term contracts at the wholesale level. This issue is part of the framework of the German market because these contracts were challenged legally and changes of the contractual structure have been induced by order of the German antitrust authority. Market structure has also changed during recent years. The most important change was the takeover of Ruhrgas by E.ON. The merger was cleared by the German Minister of Economics who overruled strong objections from the competition authority (Bundeskartellamt). This demonstrates that the structure and development of the German gas market is partly the result of German industrial policy. But it was not only the takeover of Ruhrgas which changed the market structure. Other important mergers and demergers could have had an impact on the German gas market. Although the general impression is that there is a lack of competition in the German gas market, it will be demonstrated that below the surface of a rigid market there has been, and continues to be, some grassroots movement.

As far as appearances go, the German government has been very proactive in introducing liberalisation to the German gas market:

- In April 1998 a new energy law came into force that allowed every German gas and power customer (residential and industrial) to choose his or her supplier.

- In January 1999 the German competition law was changed. The energy sector was no longer exempted from the general competition rules and the demarcation regime was abolished. In addition the amended competition law made third party access to pipelines possible.

These moves towards formal market opening, however, which preceded the implemenation of the first EU directive on the gas market, had no obvious effect.

The complicated process of liberalising the German gas market and introducing more competition started in 1999. Involving several partly interconnected actions, it was still not finished by mid-2006 and had not produced any ground-breaking results because it seems to be extremely difficult to break up families:

- In July 1998 the first EU directive on the gas market was introduced. It should have been incorporated into national law by July 2000. The directive allowed member states to choose between regulated and negotiated third party access; Germany was the only country that opted exclusively for the negotiated version.
- It took Germany until the beginning of 2003 (when the second EU directive was on the horizon) to incorporate the directive into national law.
- Third party access negotiations among the relevant associations started in late 1999. A first association agreement was finished in July 2000. Amendments and new agreements followed until the negotiations finally broke down in spring 2003. The agreements never met the stated targets and, at the signing ceremony, the representatives of the gas customers admitted that they had signed only so that negotiations could continue.
- In 2000, the first contracts allowing new market entrants to use networks were signed and, over the years, shippers managed in difficult and very time-consuming negotiations to obtain other improvements in network access at least at the level of interregional pipeline owners.
- The second EU directive, which came into force in 2003, finally forced Germany to introduce a regulator and abandon the path of negotiated third party access. It is almost unnecessary to say that Germany did not meet the deadline of July

2004 for incorporating the directive into national law. In July 2005 the law came finally into force after a long discussion process between all stakeholders.

- A model of regulated third party access should have been implemented according to the law before 1 February 2006, but the whole issue is still pending. The implementation is now supposed to be in place before 1 August 2006 but this will certainly not be the end of the story.
- The Competition Directorate of the EU Commission used the Marathon case[4] to impose improvement of network access on the networks of Thyssengas, BEB and Ruhrgas. The agreement between the Commission and BEB led to one of the few significant changes in the German gas market.
- Beginning in 1999 a few Stadtwerke customers started to challenge the long-term contracts with their suppliers. They argued that these contracts, or at least their central clauses, were null and void under the changed German and European competition laws. This dispute is still not finally settled. At the beginning of 2006 the German competition authorities, after almost two years of investigation, formally banned the traditional long-term sales contracts of Ruhrgas. The legal dispute between Ruhrgas and the Bundeskartellamt started in spring 2006.
- The ownership structure of all of the German gas majors has changed since 2000. The most prominent development was the takeover of the dominant German gas company Ruhrgas by E.ON, which was fiercely disputed. Partly as a result of this takeover, and partly independently of it, other important changes of ownership have taken place.
- Since 2000, a number of newcomers have tried to get a foot in the door of the German market. So far none of them have gained a visible market share but some of them continue to try.

I describe these groups of events in more detail in the following chapters. These different sets of moves towards liberalisation demonstrate a second characteristic of the German gas market in addition to its 'family structure': there has never been a clear political commitment to market liberalisation in Germany. The government has not followed a coherent strategy of opening the

market. From the start of the liberalisation process launched by the Commission, the German government pursued a mixture of policy targets which included environmental issues, employment in the energy industry, the creation of national energy champions, the security of supply, the protection of the coal industry and cheaper energy prices.

But it has fiercely opposed the introduction of a true regulatory authority. Even at the beginning of 2003, when it was absolutely clear that the EU would force the introduction of a regulatory regime in all member states, the Minister of Economics, Wolfgang Clement, said (at the main German energy conference, Handelsblatt-Jahreskonferenz Energiewirtschaft, in Berlin) that he believed that, though a regulator was avoidable, the minor necessary regulatory tasks could if necessary be assigned to the Bundeskartellamt.

Notes

1 Report from the Commission, 'Annual Report on the implementation of the Gas and Electricity Internal Market' (COM (2004) 863 final, Brussels 5.1.2005, p. 7.

2 *Bericht des Bundesministeriums für Wirtschaft und Arbeit an den Deutschen Bundestag über die energiewirtschaftlichen und wettbewerblichen Wirkungen der Verbändevereinbarungen (Monitoring Bericht)*, Berlin 1. September 2003, p. 43. In August 2005 the German Ministry of Economics repeated this statement as the main finding concerning the gas market development in its report to DG-TREN for the 2005 benchmarking report of the Comission (Bundesministerium für Wirtschaft und Arbeit, 'Benchmark-Bericht zu den Strom- und Gasmärkten gemäß Anforderung der GD TREN vom 2 June 2005', Berlin, 24 August 2005).

3 Cambridge Energy Research Associates (CERA), 'The Appeal for Liquidity in German Gas Markets'. A CERA White Paper, July 2004.

4 During the 1990s the Norwegian subsidiary of the US oil and gas producer Marathon complained to the EU Commission about the joint refusal by a group of European gas companies, among them the three German companies mentioned, to grant access to continental European gas pipelines. Marathon later withdrew the complaint after an out-of-court settlement with the companies, but the Commission continued the investigation because of a common Community interest. I refer to the individual settlements later.

2 THE GERMAN GAS MARKET

2.1 The Structure of the Industry

The following chapter gives a general overview about the structural characteristics of the German gas market at the beginning of the liberalisation process. It is not easy to identify a start date for this process because:

- Formally the Energy Law of 1998[1] liberalised the German gas market.
- The first association agreement on third party access stipulating rules for access to the networks was in place in August 2000 (see Chapter 3).
- The first EU directive on the opening of the gas markets was not incorporated into German law until the spring of 2003.
- Structural changes in the market, which were driven by the liberalisation of the gas sector, did not take place until 2003.[2]

Therefore I take 2002 as a starting point for a description of the market structure.

The German gas industry is often described as consisting of three tiers (see Figure 1). Although it is not possible to assign every company unambiguously to one of the layers it is useful to start with this description. On the top tier when the liberalisation process started were the five importing gas companies: Ruhrgas, VNG Verbundnetz Gas, Wingas, Thyssengas, and BEB.[3] Because these companies were not only involved in gas wholesale trading but operated the interregional gas network, they are often called interregional transmission companies. In addition there were six main producers that supplied the German gas market. BEB was not only an importer but also the biggest domestic producer. The other five companies were Mobil Erdgas-Erdöl, Wintershall, EEG-Erdgas Erdöl, Preussag Energie and RWE DEA.

Ten regional gas transmission companies form the second tier. Transmission company is perhaps a misleading name because,

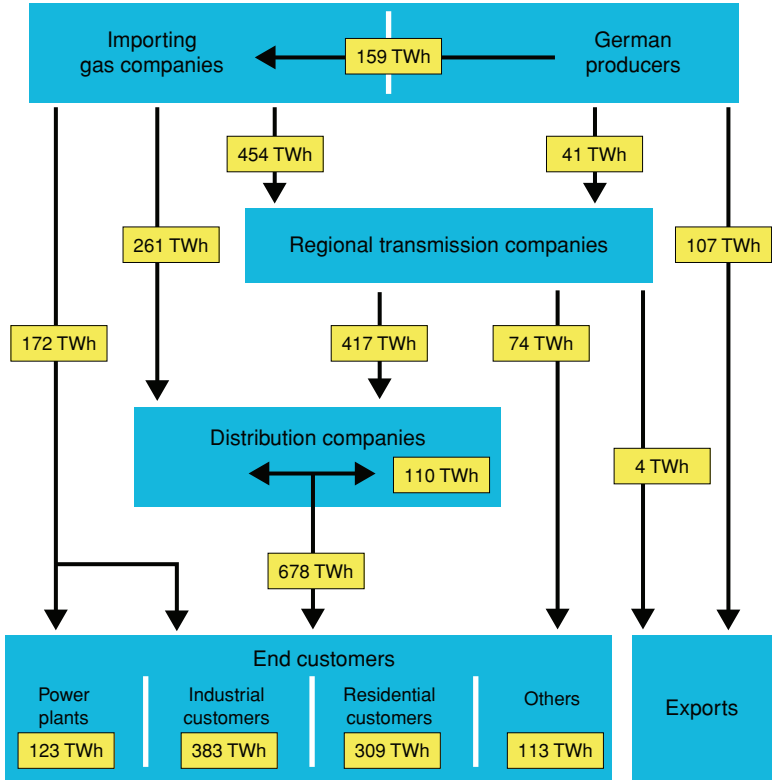

Figure 1: The Structure of the German Gas Industry

Source: Bundesverband der deutschen Gas- und Wasserwirtschaft statistics 2002 (BGW) and own calculations.

like all German gas companies, these companies not only operate a network but also buy and sell gas. The third tier consisted of around 700 distribution companies.[4] Many of these distribution companies not only sold gas to end customers but also to other distribution companies. Therefore these companies can be distinguished as either regional or local distribution companies. The result of this historical structure is a long delivery chain with the gas changing hands up to four times before reaching an end customer. The importing company sells the gas to the regional transmission company, the regional transmission company sells it to the regional distribution company which sells it

to the local distribution company until finally it is sold to the end customer.

2.2 Size of the Companies and Market Shares

The German gas market has an overall volume of around 900 billion kWh per year.[5] From 1990 to 1997 overall demand increased by around 50 percent driven mainly by increasing gas demand in the new German states after the reunification; but since 1996 demand has stagnated at this level and annual changes are mainly related to temperature differences (see figure 2).

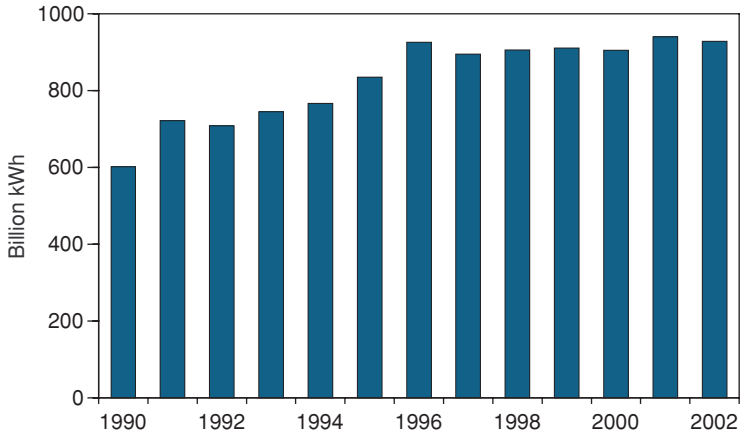

Figure 2: German Gas Demand 1990–2002 (including new states after 1991)

Source: BGW statistics 2002.

The two most important sectors of the market are industrial customers (41 percent) and residential customers (33 percent). Power production including heat production only plays a minor role (13 percent). 12 percent of the total demand is statistically assigned to 'other users'.

The market share of the distribution companies in supplying gas to end customers is more than 70 percent (see the data in Figure 1). The importing gas companies supplied only 18 percent of the overall sales to end customers, mainly to big industrial

sites and power plants directly connected to the network of the importing companies. Regional transmission companies had a share of only 8 percent of the end customer market.

2.2.1 Local Distribution Companies

700 companies all chasing customers looks like fierce competition. But this never was and is never likely to be the case. Every single distribution company is an integrated company, that is, it is operating a network within a community and offers gas exclusively within this network area. In most cases the companies buy gas and the necessary load factor adjustment from one supplier and distribute it to industrial and residential customers. Only a very limited number of local companies own and operate significant underground storage facilities (see Table 1) and are therefore able to balance at least partly their supply and demand.

Table 1: Storage Facilities of German Distribution Companies

Company	*Annual sales (TWh)*	*Storage type*	*Working gas volume (million m³)*
GASAG, Berlin	17.8	Aquifer	895
Swb AG, Bremen	9.3	2salt caverns	78
Stadtwerke Hannover	10	3 salt caverns	146
Stadtwerke Kiel	3	2 salt caverns	74
Hamburger Gaswerke	32	1 salt cavern	50
		Depleted oil field	350
Stadtwerke Munich	17.9	Depleted gas field	150

Source: BGW statistics 2002 and German Ministry of Economics, 'Jahresstatistiken zur deutschen Gaswirtschaft, Erlöse, Investitionen, Speicherkapazitäten', December 2001.

Distribution companies vary significantly in size. According to the BGW statistics, in 2002 the biggest German distribution company, EWE Oldenburg, sold 36 billion kWh of gas,[6] while number 690, Energieversorgung Rottenburg GmbH, sold 4 million kWh in 2002. Around 550 companies have annual sales of less than 1 billion kWh. Two thirds of these distribution companies, which also operated the network, are wholly-owned by the municipalities, which also hold the majority of the shares

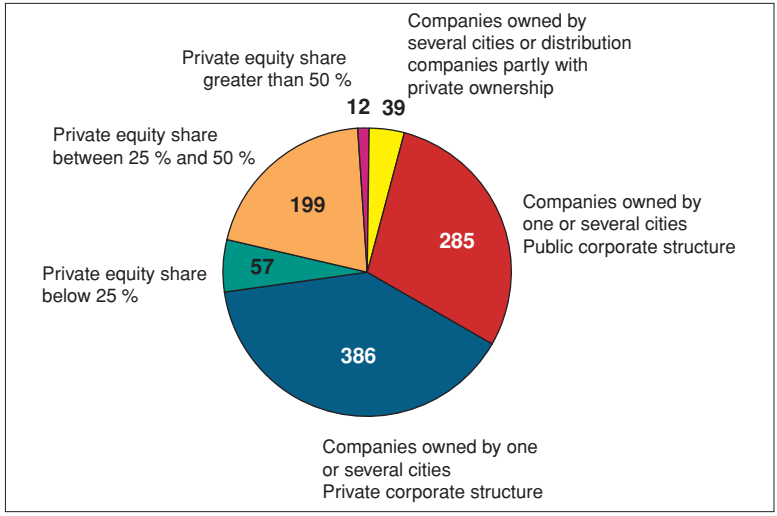

Figure 3: Ownership Structure of Local Distribution Companies

Source: Figure was provided by Verband kommunaler Unternehmen (VKU).

in most of the others. Figure 3 shows the ownership structure of the local distribution companies for the year 2003.

2.2.2 Regional Gas Companies

There were ten regional gas transmission companies according to BGW statistics. Table 2 shows the sales of these companies to the different sectors.

Table 2 shows that most of the regional gas companies are mainly supplying distribution companies. Only RWE Gas and Avacon have a share of significantly above 10 percent of end customers in their portfolio. The regional transmission companies are at least partly owned by local or federal public authorities or distribution companies. They buy gas from one or two of the importing gas companies. Ruhrgas has a share in many of the regional companies. During the first wave of mergers at the beginning of the liberalisation process there were some changes concerning the ownership structure. In particular the companies 'Avacon' and 'RWE Gas' were newly formed after mergers.[7] Table 3 shows the ownership structure and the main gas supplier of

Table 2: Sales of German Regional Transmission Companies, 2002 (billion kWh)

Company	*Total sales*	*Sales to industrials*	*Other end customers*	*Distribution companies*	*Exports*
RWE Gas	78	10	23	45	
Erdgas-Verkaufs-Gesellschaft Münster	77	5	3	69	
Gasversorgung Süddeutschland (GVS)	74			74	2
Bayerngas	60	8		52	1
Saar-Ferngas	43	4		39	
Gas-Union	42	1		41	
EWE	41	0		41	
Avacon	38	12	8	18	
Ferngas Nordbayern	29	8		21	
Erdgasversorgungsgesellschaft Thüringen-Sachsen	23	1	2	20	

Source: BGW statistics.

the regional companies.

Except for EWE and Erdgasverkaufs-Gesellschaft Münster (Erdgas Münster) none of the companies had access to gas resources. Erdgas Münster is a special case because it is mainly the sales agency for the German producers of low cal gas. The biggest customer of Erdgas Münster is Ruhrgas. To some extent Erdgas Münster is only an intermediate, selling low cal gas to Ruhrgas. The main role of most of the regional companies is transportation although formally they buy gas from their suppliers and sell it to the customers. Three of these companies had no equity relationship with producers or gas importers (RWE Gas, GVS and EWE). These were the only companies which could, in principle, play a more independent role in the German gas market. But on the supply side all except EWE and Erdgas Münster depended on long-term contracts mainly with Ruhrgas.

Concerning their ability to provide some load balancing by using storage facilities the companies were in different positions. But except for EWE none of the companies had a working gas capacity of more than 5 percent of its annual volume (see Table 4).

Although there were some differences between the companies none of them was really in a position to become a competitor at the beginning of the liberalisation process:

Table 3: Ownership Structure and Suppliers of Regional Transmission Companies, 2002

Company	*Major shareholders*	*Suppliers*[8]
RWE Gas	79.97% RWE 20.03% Municipal shareholders	Ruhrgas Wingas
Erdgas-Verkaufs-Gesellschaft Münster	28.76% Wintershall 27.66% BEB 27.66% Mobil 11% Preussag Energie 4.9% RWE DEA	Shareholders with German low cal gas
Gasversorgung Süddeutschland (GVS)	33.4% Neckarwerke Stuttgart 26.5% MVV Mannheim 25% State Baden-Württemberg	Ruhrgas Wingas
Bayerngas	28% Stadtwerke Munich 22% E.ON Energie 22% Ruhrgas 17.3% Stadtwerke Augsburg	Ruhrgas Wingas
Saar-Ferngas	76.9% RAG Saarberg AG 20% Ruhrgas	Ruhrgas Wingas
Gas-Union	37.70% Mainova AG 25.93% Ruhrgas AG	Ruhrgas Wingas Erdgas Munster
EWE	27.4% E.ON Energie	Not available, partly own imports from the Netherlands
Avacon	66.5% E.ON 33.5% Municipal shareholders	BEB Ruhrgas
Ferngas Nordbayern	53% Ruhrgas	Ruhrgas
Erdgasversorgung-sgesellschaft Thüringen-Sachsen	50% Ruhrgas 50% VNG Verbundnetz Gas	Not available

Source: Annual reports, own assessment.

Table 4: Storage Capacity Operated by Regional Transmission Companies

Company	*Storage type*	*Working gas volume (million m³)*
Saar-Ferngas	Aquifer	63
GVS	Depleted oil field	70
	Aquifer	30
RWE Gas	Aquifer	315
Avacon	Depleted oil field	74
EWE AG	4 salt caverns	65
	16 salt caverns	1,040
Gas Union	2 salt caverns	82
Bayerngas	Depleted gas field	400

Source: Ministry of Economics, 'Jahresstatistiken zur deutschen Gaswirtschaft, Erlöse Investitionen, Speicherkapazitäten', December 2001.

- They had no independent access to gas resources.
- Their business was regionally centralised.
- Most of them had only limited experience in selling gas to end customers.
- Their access to storage was limited and regionally concentrated.
- Ruhrgas had a minority ownership in a couple of these companies.

The dominant players in the German market were the importing gas companies. But, except for Wingas, these companies were interconnected by ownership and gas sales contracts.

2.2.3 Interregional (gas importing) Gas Companies

Table 5 shows the major players, their sales and their customer structure.

Obviously the largest importing company was and is Ruhrgas. It was not only the biggest company but economically and politically the most important player in the German gas industry. Figure 4 shows the ownership structure before E.ON took over the company (see section 6.1).

ExxonMobil and Shell, two of the other major players on the

Table 5: Sales Structures of the Gas Importing Companies, 2002 (in billion KWh)

Company	*Total sales*	*Sales to industrials*	*Other end customers*	*Distribution companies*	*Exports*
Ruhrgas	612	55	8	482	67
BEB	181	11	2	153	15
VNG Verbundnetz Gas	156	27	5	121	3
WINGAS	116	36	1	74	6
Thyssengas	72	15	0	57	0
Mobil Erdgas-Erdöl	65	1	0	57	7

Source: BGW statistics, 2002.

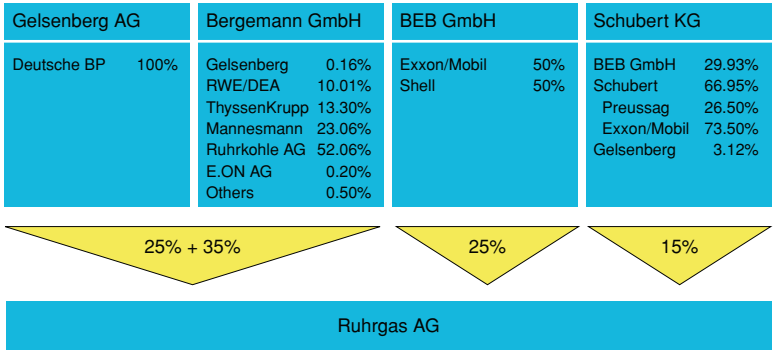

Figure 4: The Ownership Structure of Ruhrgas before the Takeover by E.ON

Source: Company information.

German gas market, had significant shares in Ruhrgas, either directly or through their joint venture BEB, without having control over the company.

BEB was jointly owned by ExxonMobil and Shell and was the biggest German gas producer with an annual production of around 9 Bcm, roughly half of its annual sales. The remaining volumes were imported from the Netherlands, Norway, Denmark and Russia. BEB supplied the other German gas majors through a sales contract with VNG Verbundnetz Gas of around 3 Bcm a year, sales contracts with Ruhrgas with volumes estimated at

around 5 Bcm a year and indirect supplies to Ruhrgas via Erdgas Münster (the biggest customer of Ruhrgas).[9]

VNG Verbundnetz Gas, the East German gas major, created in 1990 out of the East German gas industry, provides the best demonstration of the corporate structure of the gas (and power) industry. The main players of the German gas industry, the suppliers of VNG and municipalities all acquired shares in the company (see Figure 5).

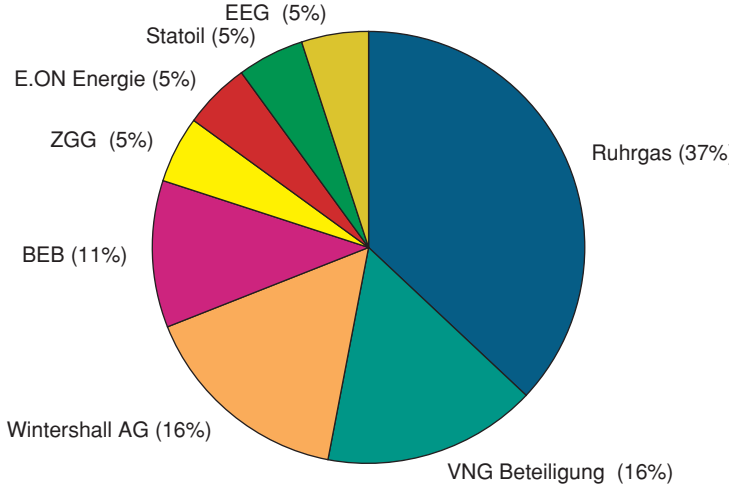

Figure 5: Ownership Structure of VNG

Source: VNG annual report, 2003.

Note: EEG is Erdgas Erdöl GmbH, Berlin a 100% subsidiary of Gaz de France. ZGG is ZGG-Zarubezhgaz-Erdgashandel-Gesellschaft mbH, Berlin, a 100% subsidiary of Gazexport. The VNG Beteiligung is the holding company of eight East German municipalities.

Thyssengas, a rather small player, was owned by RWE Gas (75 percent) and Shell (25 percent).[10]

Mobil Erdgas-Erdöl produced around 25 percent of the German gas and imported smaller volumes. Although the numbers are not published, Ruhrgas was directly and indirectly the major customer but in addition Mobil sold smaller volumes to Thyssengas.

All the players mentioned above were interconnected by ownership relations and gas supply contracts. The only

outstanding independent player was Wingas, the joint venture of Wintershall, a subsidiary of the German chemical major BASF and the Russian Gazprom. Wintershall held a 65 percent share in Wingas and Gazprom the remaining 35 percent.[11] The success story of Wingas is remarkable: in 1991, the company started to invest in its own pipeline system.[12] Through organic growth alone the company managed by 2002 to increase sales to 116 billion kWh, a market share of more than 10 percent. But many market observers believe that by then Wingas had become part of the German club and was no longer an aggressive competitor. The main reason was that the firm's biggest customer group are regional transmission and distribution companies. Wingas signed supply contracts with Hein Gas (Hamburg), RWE Gas, Bayerngas, Gasversorgung Süddeutschland (GVS), Saar Ferngas and Gas Union. All supplies were delivered via the Wingas pipeline system. These contractual relations with regional transmission companies are among the main reasons for the past success of Wingas and the strong increase in volumes. Wingas has come to supply around 10 to 15 percent (in the case of Hein Gas 30 percent) of the annual volume of these companies. As a rule, Wingas first acquired customers further down the delivery chain, such as local distribution companies, thus posing a threat to their previous suppliers, the regional companies, to which Wingas would then offer an agreement to supply them and to stop acquiring their customers. This is obviously not the official story. It was easier to sell greater volumes to a regional distribution company than to acquire a larger number of smaller customers. Where it sells to regional distribution companies, Wingas is very reluctant to make offers to distribution companies and industrial customers because this offends its larger customer.[13] This sometimes frustrates potential customers. But Wingas still actively tries to acquire customers in parts of Germany where the company does not have any contracts with the regional distribution company. In particular, alongside the new WEDAL pipeline connecting Eynatten at the German–Belgian border with the MIDAL system near Bielefeld (see Figure 6) which started operations in October 1998, Wingas acquired a number of new Stadtwerke and industrial customers most of which were previously supplied by Thyssengas.

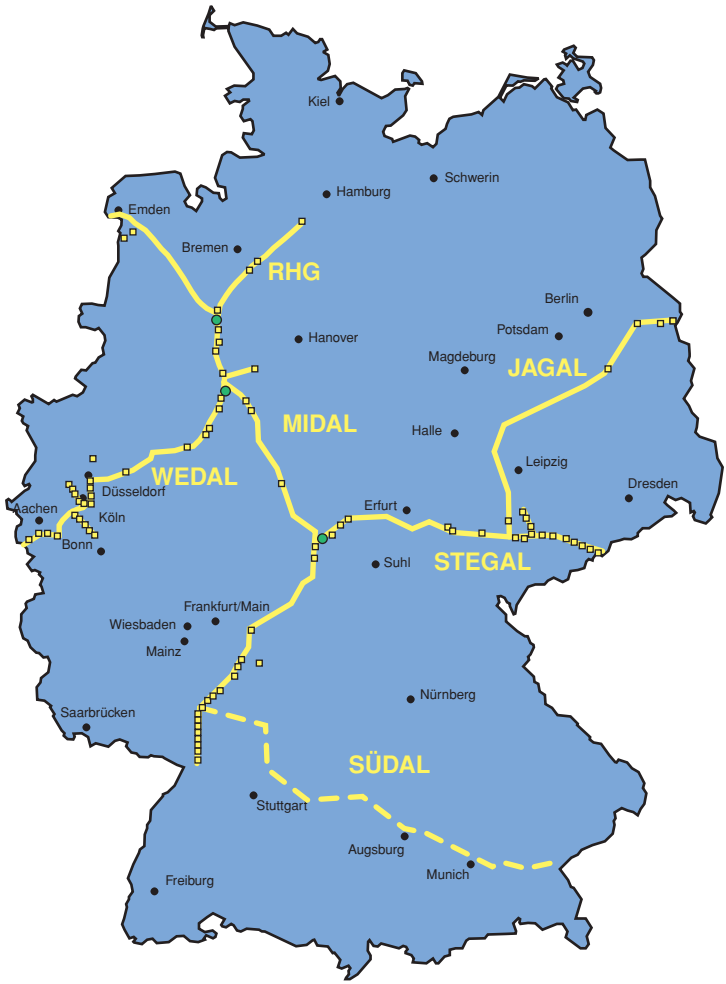

Figure 6: Wingas Pipeline System

Source: Company web page.

Usually, where incumbents act as integrated companies, importers also control the interregional pipelines and most of the gas storage capacity (Tables 6 and 7).

Table 6: Pipeline Systems of the Gas Importing Companies

Company	*Km of pipeline*	*Comment*
Ruhrgas	Around 11,000 km	Concentrated in West and South-Germany
VNG	Around 7,000 km	In East Germany
BEB	Around 2,900 km	Northern Germany
Wingas	Around 2,000 km	5 major pipelines through Germany the border points Bunde, Eynatten, Frankfurt (Oder), Olbernhau to Lampertheim

Source: Annual reports.

Table 7: Storage Capacity of the Gas Importing Companies, 31 December 2001

Company	*Kind of storage*	*Working gas volume in million m³*
Ruhrgas	Depleted gas field	1,300
	32 salt caverns	1,567
	Aquifer	72
	Aquifer	80
	Depleted gas field	500
	3 salt caverns	82
	Depleted gas field	45
	Aquifer	90
VNG	Depleted gas field	426
	18 salt caverns	784
	27 salt caverns	831
	Aquifer	160
	Depleted gas field	200
RWE-DEA/ Mobil/Ruhrgas	Depleted gas field	1,080
Mobil	1 salt cavern	100
BEB	Depleted gas field	2,025
	2 salt caverns	140
	Depleted gas field	660
Wingas	Depleted gas field	4,200
Thyssengas	5 salt caverns	185
	8 salt caverns	193

Source: Ministry of Economics, 'Jahresstatistiken zur deutschen Gaswirtschaft, Erlöse, Investitionen, Speicherkapazitäten'.

2.3 Demarcation and Long-term Contracts

Before the formal liberalisation of the German gas market competition was avoided by vertical and horizontal demarcation contracts. Horizontally, gas companies agreed not to deliver gas into the network area of neighbouring gas companies; vertically, gas suppliers along the delivery chain agreed not to acquire customers by directly bypassing distribution companies. This kind of demarcation was legally supported by the German competition law, which exempted the energy sector from the general competition rules. Gas companies along the delivery chain were linked by long-term contracts with a duration often in excess of twenty years. Generally these long-term contracts contained a commodity and a capacity element. Often the contract was not for a specific volume but for the buyer's total demand. The capacity element was related to the maximum hourly or daily volume. The price of the gas was normally calculated by the principle of 'Anlegbarkeit', that is, in relation to competing fuel, usually gas oil for the final customer. This pricing system operated throughout the delivery chain.

But the relations between the different gas companies along the delivery chain were not based only on contractual relationships. The importing gas companies helped distribution companies and regional companies to promote the marketing of gas by special donations. And usually the importing companies directly helped their customers in negotiations with difficult customers and offered special prices or contract conditions to secure single customers or customer groups. On the other hand, distribution companies often were and are rather inflexible in negotiating independently with customers. I have often heard complaints that companies further down the delivery chain were not able to offer any changed contract conditions without asking their supplier. These requests were passed back up the delivery chain until they reached the top level.

2.4 Gas Quality

Finally, an important characteristic of the German gas market was and remains the differences in gas quality. Figure 7 shows the five main qualities of gas sold in Germany.

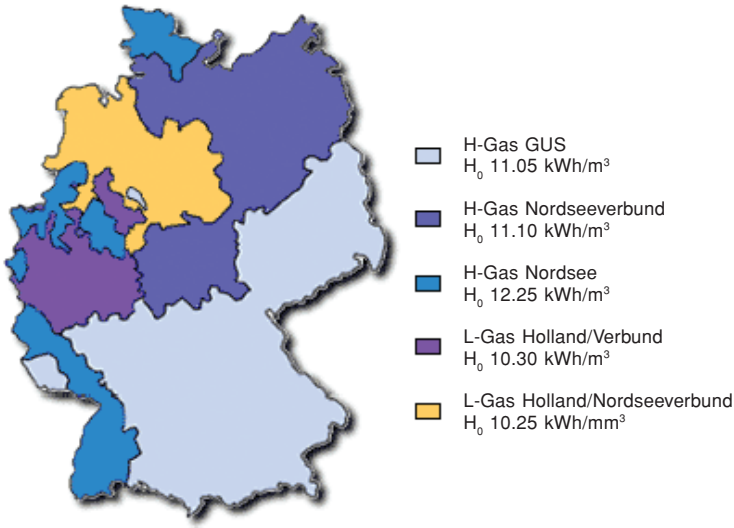

Figure 7: Gas Quality by Region

Source: Web page of Enron in 2001. An identical map (presumably the original) was produced by the German consultancy WIBERA, which has very close contacts with the gas industry.

The extent to which the different gas qualities within the high cal and low cal gas area are an obstacle to a unified gas market differs from network to network:

- BEB operates one high cal and two low cal networks. The division of the low cal networks is due to special low cal gas from some smaller fields that makes it necessary to operate a small separate network.
- VNG Verbundnetz Gas operates one single network with two different qualities of high cal gas (one is a mixture of Norwegian gas blended with German gas, the other is pure Russian gas). But they keep the two gas qualities separately with some exchange in a pendulum zone.
- Ruhrgas operates a high cal system with two different qualities, similar to VNG, and a low cal network with two different qualities.
- Thyssengas operated three mainly separate networks: one for

Norwegian gas, another for Russian gas (both high cal gas), and one for low cal gas.

From a technical perspective only a simple two-way division into high and low cal is necessary. More complex differentiation is mainly to fulfil the requirements of the German measurement and weights administration which for billing purposes allows only very small tolerances (+/– 2 percent in the calorific value). From a technical perspective larger tolerances of 5 percent to 10 percent are feasible, and allow a simple differentiation between two broad gas qualities.[14]

In the past, smaller areas were occasionally switched from low to high cal gas. Within local networks this is not only technically feasible but also economically attractive.[15]

2.5 Summary: the German Gas Industry at the Beginning of Liberalisation

It is perhaps most important to recognise that although at the beginning of the liberalisation process a large number of companies were active in the gas market these companies were never competitors but divided tasks between them:

- Local distribution companies operated the distribution networks serving both residential and small and medium size industrial customers.
- Regional gas companies operated regional gas networks and more or less passed gas from importing to distribution companies.
- Importing gas companies had long-term contracts with producers, operated the interregional pipelines and provided most of the necessary flexibility from their storage facilities.

For the most part gas companies felt part of one family and not potential competitors. This system was not only backed by demarcation contracts and long-term gas contracts but by close co-operation between different companies.[16] Usually, distribution companies taking gas from one supplier formed working groups, which in many cases had close relations with their supplier. These working groups did not purchase gas jointly from the supplier but discussed common issues concerning their gas procurement internally, and with the supplier.

The appearance of Wingas partly disturbed this comfortable scene but in fact the business model of Wingas was not so different from that of the rest of the industry. It was based on long-term procurement contracts and investment in its own pipeline system. It offered contracts to distribution companies which were similar to those of other importing gas companies. By the beginning of the liberalisation era many market observers argued that Wingas had become part of the club.

Notes

1 The law replaced the former energy law, which had remained largely unchanged since 1935!

2 Obviously two main mergers that took place before 2003 were very important for the German energy market: the forming of the RWE group from the merger of the old RWE with VEW and Westfälische Ferngasgesellschaft (WFG) and the forming of the new E.ON group from VEBA (PreussenElektra) and VIAG (Bayernwerk). This had some effects on the number and names of German regional gas companies but is not of relevance for the present study.

3 To be totally correct, the Oldenburg based regional gas company EWE was the sixth gas importing company. EWE has import contracts with the Dutch company Gasunie. But in relation to prices EWE was treated as a regional transmission company. So, compared to Ruhrgas and Thyssengas, it had to pay higher prices.

4 Precisely 689 companies in 2002 according to statistics of Bundesverband der deutschen Gas- und Wasserwirtschaft (BGW).

5 In 2002 demand was 928 billion kWh.

6 EWE is a good example of how the classification of the German gas industry is not always straightforward. In the BGW statistics EWE is listed as a regional distribution company and also as a regional transmission company.

7 Avacon was formed in 1999 as a result of a merger of some regional gas and power companies with E.ON majority ownership. One company merged into this new group was Ferngas Salzgitter, one of the traditional German regional gas companies. RWE Gas, as the gas arm of the RWE group was formed in 2000. The company was formed mainly from the business of two former regional gas companies VEW and Westfälische Ferngasgesellschaft (WFG). It has to be emphasised that, although RWE was and is aside from E.ON the major player in the German power market, in the gas sector the company was in 2002 no more than a regional player, without any contractual ties with producers.

8 The main supplier is mentioned first. Usually Wingas is only a secondary source supplying around 10 to 15% of the annual volume (see below).

9 In fact Erdgas Münster is used for a commercial arrangement between the German producers of low cal gas and Ruhrgas. The gas is sold directly

from Schubert KG, a joint venture of the German producers to Ruhrgas, but is included in the balance sheet of Erdgas Münster. The volume is around 4 Bcm, roughly a 60% of the total sales of Erdgas Münster.

10 Thyssengas has an interesting history of shareholders, among whom years ago was the Bavarian regional supplier Bayerngas. Until 2001 ExxonMobil had a 25% interest in Thyssengas, which was sold to RWE Gas.

11 Formally the share of Gazprom is held by the German subsidiary of Gazprom ZGG.

12 The overall investment is now 3 billion Euros.

13 In 2001 Wingas did offer gas to distribution companies in the GVS area and won several new customers. The managing director of GVS announced this at an annual press conference and threatened Wingas with cutting the offtake and with breaching the GVS contract with Wingas. As far as I know, since then Wingas has stopped all new marketing efforts in the GVS area.

14 Energiewirtschaftliches Institut an der Universität Köln (EWI), Büro für Energiewirtschaft und Technische Planung (BET), ‚Analyse und wettbewerbliche Bewertung der Verbändevereinbarung Gas zum Netzzugang; Gutachten im Auftrag des Bundesministeriums für Wirtschaft und Technologie', 9 November 2000, S. 34–41.

15 In some cases (Stadtwerke Soltau, Stadtwerke Hameln) Wingas, for example, supported changing the system from low cal to high cal gas and connecting the local distribution systems directly to the high cal Wingas transportation system. In one case Wingas also invested in a conversion plant (Stadtwerke Bielefeld) to supply a low cal user.

16 One particular aspect of this co-operation came under legal fire in January 2006. It was usual for suppliers like Ruhrgas to offer members of the executive and supervisory boards of local distribution companies free trips to Norway or other places. But at the end of January 2006 the public prosecutor's office in Cologne started a formal investigation against E Ruhrgas and RWE because the companies financed these trips. Among the travellers were board members holding public positions. Ruhrgas and RWE are accused of bribing these board members.

3 THE REGIME OF NEGOTIATED THIRD PARTY ACCESS

3.1 Negotiations for Third Party Access (Associations agreement)

3.1.1 The Time Frame of the Negotiations

The first EU directive on a single European gas market allowed member states to choose between negotiated and regulated third party access.[1] Germany opted for negotiated access. The German government followed the same method in the gas sector as it had in the power sector, for which negotiated access was stipulated in the amendment to the Energy Law from 1998, and where the negotiations had led over time to a rather satisfactory access model.

In March 1999, negotiations for access to gas networks began. For the network users the participating associations were Verband der Industriellen Energie- und Kraftwirtschaft (VIK), representing the big industrial gas customers, and Bundesverband der deutschen Industrie (BDI), representing German industry in general. And for the network operators the participants were Bundesverband der deutschen Gas- und Wasserwirtschaft (BGW), representing the gas companies at every level of the delivery chain but dominated by the transmission companies, and Verband kommunaler Unternehmen (VKU), representing the local municipally-owned distribution companies.

There were no formal criteria for the selection of these associations as the relevant stakeholders or competent parties in such a process. They mandated themselves and the Ministry of Economics accepted, at least implicitly, this negotiating framework. In 2000, the European Federation of Energy Traders (EFET) founded a German task force with the aim of influencing the development of a proper framework for third party access. But EFET was never formally invited, or more importantly accepted, as a full negotiating party by all of the associations that took part in the negotiations. For a while EFET took part

in the negotiations as part of the VIK delegation. When EFET realised that it had no real chances of obtaining an access regime that met its non-discriminatory criteria for access, it withdrew from the negotiations.

At a very late stage of the negotiations, the Bundesverband Neuer Energieanbieter (bne) (founded in September 2002 and representing new market entrants aiming to supply end customers) tried to assert a legal right to sit at the negotiating table. In October 2002 it formally requested the four negotiating parties to allow it to be included in the negotiations. After VIK, BDI, BGW and VKU rejected this demand, bne sued the four associations at the Landgericht Berlin. The Berlin court ruled against bne and argued that the negotiations should be ended. The judgement was remarkable: 'the court considers that the agreement and the intended future agreement constitute an illegal cartel, because the suppliers of network capacity seek to agree on joint conditions of network access, thus restricting competition among network operators'.[2]

From the perspective of network users, the four years of negotiations leading up to the final breakdown in spring 2003 were a complete disaster. The target of the VIK was a system of network access similar to that in the power sector, where the customer was only required to book exit capacity and pay an exit fee, with physical transportation managed internally by the network operators independently of where the supplier to the end customer had injected the gas. The difference between these hopes and reality can be judged from a joint press statement of the associations at the beginning of the negotiations.[3] According to this statement the associations hoped for an agreement by the end of 1999 that would encourage competition, be fair, transparent and simple and would lead to the establishment of a gas exchange.

The reality was completely different. In March 2000, the associations agreed on a document outlining the framework of an agreement. In July they reached an initial agreement (Verbändevereinbarung I). This included an annex in which the parties agreed to an immediate continuation of the negotiations since the initial agreement did not meet the criteria laid down at the beginning of the negotiations. In March 2001, the associations agreed on a first amendment of the Verbändevereinbarung I

that did not significantly change the system of network access but included access to storage. A second amendment to the Verbändevereinbarung I, agreed in September 2001, again included an annex extending negotiations on an improved model of network access until 1 October 2002. The major content of the second amendment was a set of rules for the supply of residential customers; these rules, however, never worked in reality because they were too complicated to allow any new entrant to succeed.[4] In May 2002, the associations finally signed a Verbändevereinbarung II which changed the model of network access at the regional level of transmission systems to the same as the one used at the interregional level. The most remarkable chapter was 6.1.5, described as 'miscellaneous', which is worth quoting: 'the current procedure of network access shall be valid only for a transition period from 1 October 2002 to 30 September 2003. By that date the associations will develop an improved procedure that will allow:

- More competition and transparency
- Simpler operational procedures
- The establishment of a gas exchange
- The handling of multiple transactions and the elimination of the need for a contract for every single instance of transportation
- The pooling of customers for balancing purposes
- Allocation of costs according to where they originate.

It appeared that the negotiations had resolved none of the key problems since there is scarcely any difference between the criteria mentioned in the press release at the beginning of the negotiations and the issues still to be resolved in May 2002. In April 2003 the negotiations finally broke down and I return to this story below.

3.1.2 The Content of the Association Agreements

Before trying to analyse why the negotiations failed, at least from the perspective of network users, I summarise the salient features of the model of network access.

In the first association agreement a different model of network access was laid down for each layer of the gas industry:

- At the level of interregional transmission companies a distance-related system was set up. Shippers had to request transportation for a path from a specific injection point to a specific withdrawal point. The transmission companies published fees in DM (later Euro)/m^3/h/km to be paid for the maximum hourly capacity booked. The fee was completely capacity-dependent with no commodity element. These fees where differentiated for a maximum of five different diameter classes.[5]
- Regional gas companies offered network access based on a postalised tariff (independent of distance) for the entire network or different part of the networks. The tariff was, as in the case of interregional transmission companies, only capacity-related, and based on the maximum hourly capacity booked by the shipper.
- Local distribution companies offered a postalised tariff like that of the regional transmission companies. This tariff was composed of a capacity and a commodity element.
- Neither the interregional nor the regional group tariff was cost-based. The tariffs were supposed to be evaluated using international benchmarks. Only the tariffs of local distribution companies were intended to be cost-related. Within the association agreement, guideline figures were included that were calculated from the average cost of the industry.[6] Most local distribution companies published these figures as their network tariffs.
- In addition, at the level of interregional transmission companies a balancing regime was agreed. The companies offered balancing up to 15 percent of the daily volume but restricted hourly balancing to a maximum of 15 percent of the hourly volume. Balancing was only offered for transportation above 100 km.
- To increase transparency the BGW was required to publish a German gas map with all the relevant data (such as pipelines, operators and stations) to facilitate access to the gas systems.[7]

On the level of interregional transmission companies and local distribution companies, this basic model of network access was in operation until the amendment of the energy law came into

force in July 2005 (see section 4.5). At the level of the regional transmission companies the Verbändevereinbarung II switched to a distance-related model that was implemented in different ways. The regional transmission companies introduced a distance-related component but in many cases combined with some caps on the distance and/or a minimum tariff. The change was proposed by VIK. The association demanded a single comprehensive model for both levels of transmission companies to facilitate network access and to avoid the so-called 'pancaking' of tarrifs (the summing of the postalised tariffs for different regional networks if the transportation path passes the network area of more than one operator). But obviously that change was not a step in the direction of the pure 'exit model' that had priority on VIK's agenda and, therefore, it was argued, at least by some market participants, that this was more a step backwards. The switch to a path-dependent model strengthened the argument of the gas industry that this was the proper model of network access.

Concerning the core issue of the model of network access, no significant changes were achieved during the negotiations. Some additional rules concerning issues like the management of bottlenecks or some improvements in transparency were agreed but the basic picture did not change. The only significant feature that was added during three years of negotiations was the access to storage that was agreed in the first amendment of the association agreement. BEB, Ruhrgas, Thyssengas, VNG and Wingas agreed to grant access, based on published access conditions, to a total of 19 storage sites (see Chapter 4).

A final important issue during the whole process of negotiations was the discussion about the method of calculating tariffs. As already mentioned, it was agreed from the beginning that the tariffs of the local distribution companies should be related to cost. The second association agreement was more specific about that issue and contained guidelines for the calculation of cost. For regional and interregional transmission companies, the associations agreed on a benchmarking of tariffs. The gas industry, represented by the BGW, emphasised this issue and argued that effective or potential pipeline competition takes place on this level.[8] VIK never really accepted the argument but signed the second association agreement that again included the

benchmark approach to tariffs at the transportation level, hoping to achieve cost-based tariffs at the level of the transmission pipelines at a later stage.

3.1.3 The Showdown

The second association agreement was signed only very reluctantly by the VIK. Again, as at all other stages of the negotiations, its only hope was to reach a better agreement as a next step. I will show later why VIK was always willing to sign agreements although none of its targets were achieved. After the agreement was signed in April 2002, months passed before the associations started new negotiations for a Verbändevereinbarung III. At the end of October 2002 they finally met to agree on an agenda. Again the VIK wanted to achieve an entry–exit or pure exit model for access to the gas networks and wanted to include the tariffs for transmission companies into a cost-based approach. But, not very surprisingly. during the subsequent months of negotiations no progress was achieved. The gas industry was not willing to accept any real step towards an entry–exit model for the whole German gas industry and the VIK finally realised that it made no sense to constantly agree to interim solutions.

During spring 2003 the main principles of the second set of EU directives for the gas and power markets were published. These new directives obliged each member state to establish a regulatory authority and excluded the option of negotiated access. At the beginning of April 2003 the gas industry decided that it made no sense to continue negotiations with the customers. If a regulatory authority had to be created and the German government was required to change the energy law, it made more sense to try to convince the government that the gas industry's view on network access was correct rather than to try to negotiate on this subject with the stubborn customers. On 10 April 2003, BGW and VKU left the negotiating table never to return.

3.1.4 Why Did the Negotiations Fail?

The main reason why the negotiations failed is very simple. They were from the beginning baseed on an asymmetric bargaining position. Perhaps there was really no bargaining possibility at

all in the sense of both sides possessing something that was of interest for the other side.

The only credible threat of VIK and BDI was to leave the negotiating table, thereby in effect telling the government to regulate third party access. But from the start the associations had signalled that they were convinced that regulated access was not the best solution. At the beginning of the negotiations, they had agreed that '...negotiated agreements were far superior to regulatory interference by the government'.[9]

VIK tried several times during the negotiations to put pressure on the gas industry by leaving the negotiating table, or by not attending one of the frequent meetings where the associations had to report to the Minister of Economics. But as soon as the minister threatened the associations with issuing an ordinance provision to regulate access, they returned to the negotiating table and signed interim agreements that represented no progress.

April 2002 looked like the final showdown. The signing of the Verbändevereinbarung II was scheduled for 15 April and the Minister of Economics at that time, Werner Müller, was supposed to take part in the signing ceremony. But, on the morning of that day, the VIK refused to sign the agreement. There had been rumours that one particular member of the VIK delegation rejected any compromise that did not contain an improvement in conditions. As a result, minister Müller announced that a regulatory authority would be created by 1 January 2003. But he signalled that in the meantime the associations had a last chance to achieve results that could influence the regulatory process. Two weeks later the agreement was signed by representatives of the VIK who looked as if they had been eating lemons. Rumours from inside the negotiations suggested that the president of BDI pressured the dissenting members of the negotiating team to agree in order to prevent the creation of a regulatory authority. Those close to the negotiating process said that the true role of the BDI in the whole process was to make sure that the negotiations would not break down. The BDI is not a specialised representative of energy interests and partly sees its political role as one of preventing any further regulation in general.

This minor event demonstrates a second point that was important for the German path of negotiated third party access.

The government was never really willing to take the responsibility for access to networks or to define the criteria that agreements had to fulfil. Several times the Minister of Economics expressed annoyance about the conflicts between the negotiating parties and the breaking of deadlines but finally accepted every agreement. Immediately after the signing of the first agreement the Ministry of Economics asked the Energiewirtschaftliche Institut der Universität Köln (EWI) and the Aachen-based consulting company BET to evaluate the agreement. Both institutions have long experience and a good reputation on energy issues. The conclusion of the study was clear: 'the conditions for network access and network tariffs that are sketched in the association agreement will not lead to a liquid market for gas'.[10] But the ministry never used the study to formulate any criteria or guidelines for the negotiations. Nor did it make any serious threat to take control of the process towards network access if certain criteria were not met within a reasonable time. Four months after the final breakdown of the negotiations the Ministry of Economics completed a report to the German parliament 'about the impact of the association agreements for competition'. Its conclusion was that 'competition in the gas sector has so far developed only to a limited extent for big industrial users. Important reasons for this are the different supply situation compared to the power sector and the lack of a working model of network access'.[11] Due to a lack of commitment to genuine market opening, the ministry observed the process for a long time without intervening.

From the beginning of the negotiations the gas industry resisted any kind of true entry–exit model. Although there had always been different opinions in the negotiations, none of the German transmission companies favoured this kind of model. In February 2002, Fritz Gautier, at that time in charge of transportation in the executive team of Ruhrgas, when asked by the German energy news provider *powernews* whether the German gas industry could accept a regulatory authority, replied very clearly that ultimately the gas industry was more prepared to accept regulated third party access than to agree voluntarily to an entry–exit system. On the other hand, Gautier expressed the deep suspicion of the interregional transmission companies towards regulation, based in part on their fear of inefficient regulation. This suspiciousness of the major incumbents was never shared

by the whole industry. In internal discussions within BGW and between BGW and VKU, the regional transmission companies and the local distribution companies had always tended to advocate a regulatory regime in preference to negotiating with customers. Local distribution companies had experience of the power sector, where tariffs had always been regulated and expected that regulation would be easy to handle.

Discussions with representatives of transmission companies convinced me that the industry really believed the path-dependent model it offered for the optimisation of transportation was best suited to the German gas market. In August 2003, the European association of transmission companies, Gas Transmission Europe (GTE), released a paper prepared for the Madrid Forum entitled 'Potential shortcomings of the entry–exit system'.[12] As far as I know this paper was mainly written by the German transmission system operators and summarises well the concerns of the German companies. The paper mainly addresses four issues: overly high transmission prices for short distances in entry–exit systems; lack of cost- related prices for long distances; difficulties in the management of internal congestion, due to uncertainty about the combination of entry and exit points; and difficulties of adapting an entry–exit system to countries where multiple transmission system operators and competing transmission networks are involved. The two latter issues in particular were the core arguments of German transmission system operators against entry–exit.

As far as internal congestion was concerned, the gas industry argued that the potential shifting of capacity from one entry point to another, which has to be taken into account in calculating the available firm capacity in the system, would lead to a significant reduction of this capacity compared to the point-to-point system. This would be the case, because the maximum available firm capacity is calculated taking into account the pipeline sector between the two entry points with the lowest capacity.

In relation to the problem of multiple systems the gas industry argued that the implementation of one single entry–exit system would imply obligations that would affect private property rights.

From the perspective of the gas industry these arguments were valid. Tariff distortion between short haul and long distance

transportation is a problem of every entry–exit system and creates incentives for pipeline construction by customers over short distances. Physical bottlenecks may occur and it is much easier for a pipeline operator to run the system in order to minimise the consequences of these bottlenecks. In the 'old world' of integrated companies, the potential shortcomings for trading could be overcome by joint solutions between the trading and transportation departments. From a general economic perspective these arguments are not necessarily convincing. An entry–exit system is considered a prerequisite for a liquid, competitive gas market.[13] The problems mentioned by GTE can be solved by commercial and technical means. Although the operation of a transmission network becomes more challenging and complicated, the overall benefits may outweigh the costs. But the whole process of negotiated agreements (and this is inherent in this approach) created no incentive for the operators to give up any of these positions – quite the opposite. Taking into account these negotiating positions, it was logical that four years of negotiations made no real progress and were often very emotional.

3.2 Third Party Access in Practice

Although most companies considering entry to the German market judged the access system to be unsatisfactory, access did in fact take place from the very beginning. The first contract was negotiated between the German trading company Trianel[14] and Wingas even before the first association agreement was in place. Trianel shipped gas over the enormous distance of seven kilometres from the German–Belgian border point, Eynatten, to the citygate of Stadtwerke Aachen (STAWAG) from May to October 2000. According to the managing director of BGW, Wolf Pluge, between August and December 2000 twenty three transportation contracts were signed.[15] During the following years the number increased significantly. Figures are available from several sources. Table 8 shows the number of transportation contracts for the five importing gas companies up to April 2003.

Table 9 shows the results of surveys carried out by the author of this study to assess the number of contracts for the importing gas companies.

The table shows that BEB and Ruhrgas in particular entered

Table 8: Number of Transportation Contracts

	4 July 2000–30 Sep 2000	*1 Oct 2000–30 Sep 2001*	*1 Oct 2001–30 Sep 2002*	*1 Oct 2002–30 Apr 2003*
Firm transportation	9	51	68	71
Interruptible transportation	0	9	34	46
Total	9	60	102	117
Duration less than 1 Year	1	31	42	93
Duration 1 year	6	25	55	18
Duration more than 1 year	2	4	5	6

Source: Monitoring report of the German Ministry of Economics, 1 September 2003.

Table 9: Transportation Contracts of Gas Importing Companies

Company	*2002*	*2003*	*2004*
BEB	22	50	Change of system
Ruhrgas	90	201	138
Thyssengas	8	8	Company integrated in RWE
VNG	< 10	6	n.a.
Wingas	21 (cumulated since 2000)	n.a.	n.a.

Source: Company information.

into a significant number of contracts. The main reason for the significant increase in the number of contracts in 2003 is most probably related to a corresponding increase in transit business. Transit to Italy in particular started to become an important part of the business after the opening of the Italian market. For the gas year 2003/04, 55 potential shippers asked for a combined capacity of 2 million m3/h on the TENP pipeline that crosses Germany from the Dutch border at Bocholtz to the Swiss border at Wallbach. Ruhrgas has a 51 percent share in this pipeline[16] and offered 60,000 m3 h/y of interruptible capacity for that gas year and allocated it pro rata. The companies do not release data on the share of transit in the transportation contracts but a clue can be found in the Ruhrgas balance sheet. Until 2003, gas transported for third parties was included in the overall sales

volume. On 1 January, Ruhrgas separated off the transportation business into a new company Ruhrgas Transport AG & Co KG. Therefore since 2004 the transport business is no longer included in the sales business. In 2004, the owner company of Ruhrgas E.ON published for comparison revised data for 2003 that did not include the transported volumes. Table 10 shows the original data and the revised data. The difference gives an approximation of transported volumes for transit purposes and for use within Germany.

Table 10: Estimated Transit Volumes

All numbers in billion kWh	*2003 original data*	*2003 revised data*	*Difference (transported volumes)*
Overall volume	639.5	617.4	22.1
Sales in Germany	565.5	552.4	13.1
Sales abroad	74	65	9

Sources: Annual reports of E.ON Ruhrgas, E.ON AG.

According to this data around 40 percent of the volumes transported by Ruhrgas in 2003 were transit volumes.

TPA took place not only at the level of importing gas companies but also at the regional and local level, although not all companies wanted to talk about it. Table 11 shows the results of my attempt to collect data of the number of transportation contracts of regional transportation companies from 2003 to 2005.

It has to be emphasised that the volumes transported by third parties, had always been insignificant compared to the total volumes in the German market.[17] But, from 2003, all the approximately ten real newcomers started to report that organisation of transportation was not the key problem for entry. That was not true from 2000 to 2002. In the beginning, negotiations with the transmission companies were a nightmare and people involved in shipping issues in the new market entrants told story after story about the large and small tricks employed by the transmission companies to make access to the systems difficult. Shippers were experts in detecting the names of metering stations in remote areas of transmission systems. A member of the shipping team of Enron, commented almost with regret that

Table 11: Transportation Contracts of Regional Gas Companies

Company	*Number of contracts*		
	Gas Year 2003	*Gas Year 2004*	*Gas Year 2005*
Avacon, Helmstedt	4	4	8
Bayerngas, Munich	4	several	n.a.
E.ON Hanse*, Quickborn	3	25	40
Erdgas Schwaben, Augsburg	8	12	17
Erdgas Südbayern, Munich	2	12	11
Erdgas Mark Brandenburg, Potsdam	0	0	0
Erdgas Münster, Münster	0	few	n.a.
Ferngas Nordbayern, Nürnberg	0	0	1
Gasunion, Frankfurt	0	0	3
Gasversorgung Süddeutschland, Stuttgart	21	31	41
Gasversorgung Thüringen, Erfurt	1	0	1
MITGAS, Gröbers	2	2	n.a.
Frankengas, Nürnberg	0	0	3
Rhenag AG,Köln, Siegburg	0	0	0
RWE Transportnetz Gas GmbH, Essen**	High single digit to low two digits	20	Change of system
HEAG Südhessische Energie AG, Darmstadt	2	3	2
Total	**47**	**109**	**127**

* 2003 only Heingas and Hansegas, not Schleswag
** 2003 only RWE Gas, 2004 includes former Thyssengas

Source: author.

with the appearance of the first transparent grid maps of the transmission companies his individual knowledge of the secrets of transmission systems was devalued. Enron was one of the most important players in 2000 and 2001. When the company went bankrupt in late 2001, it had around 20 transportation contracts exclusively with Ruhrgas.

The first transportation contracts were enforced by legal action and legal expertise was as important as shipping expertise. But through bilateral negotiations with the transmission companies, shippers imposed workable solutions for many operational problems and the number of complaints decreased. And in most cases shippers were eventually able to organise the necessary

transportation to supply customers. Shippers still complain in particular about the behaviour of local distribution companies, which (in their opinion) charge prohibitive transportation tariffs. And local distribution companies often show a lack of experience concerning third party access. This causes negotiations to be more drawn out and solutions to be more complicated. The more general concerns of shippers at 2005 were the refusal of firm access due to a lack of capacity at entry points, special requirements for metering along with the high cost of metering devices, a lack of clear rules for balancing among different network operators and a lack of standardisation at interconnection points.[18]

But the opinion expressed by the members of the executive board of the Potsdam-based wholesaler natGAS, that the current system works in principle, is shared by other shippers.[19]

This system, however, creates high entry costs. Companies, such as natGAS, that were committed to enter this market accepted that cost and experienced a steep learning curve. A staff member of another newcomer, who had experience in other European markets, expressed surprise about what was possible in the German transmission system. This was not because the system was transparent with clear obvious rules, but rather because a small number of people and companies gained competence and managed to find solutions to their individual transportation problems.

3.3 Improvements Imposed by the EU Commission

Perhaps the most important changes to the system of network access in Germany were induced by the EU Commission. But in the enforcement of concrete improvements it was not the directorate of Transportation and Energy (DG TREN) but the directorate of Competition (DG COMP) which played the most important role. DG COMP used a complaint by the Norwegian affiliate of the American oil and gas producer Marathon to force improvements in network access of the five European transmission companies, BEB, Gasunie, Gaz de France, Ruhrgas and Thyssengas. Although Marathon reached a commercial settlement with the companies and withdrew the complaint, the Commission continued the investigation.

3.3.1 Improvements by Thyssengas – Confirmation of the German Path

The first agreement was with Thyssengas in November 2001. Thyssengas offered improvements in five areas:[20]

- Improvement of balancing with the introduction of online balancing and extended balancing service.
- Short-term transportation contracts down to one day and the possibility of trading capacity rights.
- A 'use it or lose it' principle for its own gas trading branch to avoid capacity hoarding.
- Increased transparency by publishing a map showing available capacity at the main entry points.
- Improved handling of requests by introducing standard contracts and procedures.

All of these changes – except perhaps the use it or lose it principle – were in line with the path-dependent model of network access that was in force in Germany. Therefore the management of Thyssengas expressed satisfaction with these results. The managing director at that time, the late Christian Heinrich, said that from the perspective of Thyssengas they were able to explain to DG COMP the advantages of the German system of network access. Differences of view remained between the Commission and Thyssengas about the use it or lose it regime. Heinrich always denied that the company agreed to this; from Thyssengas' perspective only an 'anti-hoarding principle' was agreed.[21] In fact there had been a case where a Thyssengas customer attempted to enforce this principle in negotiations with the company to buy part of its gas requirements from a new supplier. The attempt was unsuccessful and Thyssengas refused to release pipeline capacity from Bunde to the customer for the new supplier. Due to the generally good relations between the customer and Thyssengas the case was never brought to court.

3.3.2 Improvements by BEB – the Start of Regime Change

It was more than eighteen months after the agreement with Thyssengas before the commission was able to reach another agreement with a German company. The settlement between the EU Commission and BEB, dating from 29 July 2003, was

the starting point for the most significant change of the system of network access. BEB agreed to introduce an entry–exit system at the latest by mid-2004. Again the settlement involved five issues:[22]

- The introduction of an entry–exit regime.
- Increased transparency through the publication of available transport capacity in absolute figures for all major entry and exit points and storage facilities.
- Introduction of free online balancing and a bulletin board facilitating optimisation of transportation and storage requirements by bundling of contracts.
- Introduction of an online screen-based booking procedure by July 2005.
- Introduction of an use it or lose it principle and the facilitation of secondary trading of capacity.

In the immediate aftermath of this settlement potential shippers were very satisfied with the outcome. Despite pressure within the Madrid Forum (where DG TREN, the regulators, the governments and the relevant interest groups meet to discuss the European gas market) the German government refused to move in the direction of an entry–exit system.[23] Participation in the Madrid Forum during this period was hard for the German government and transmission company representatives, who continued to maintain that the German situation was unique, using the arguments presented above in the account of the process of negotiated access. But the agreement between DG COMP and BEB made it possible now to introduce for the first time an entry–exit system in Germany.

Not long after the agreement, however, some disappointment emerged among potential shippers. They learned that the meaning of entry–exit was ambiguous. When BEB's first comments about concrete implementation became known, shippers started to fear that BEB would either divide the total network into a significant number of sub-systems or would impose severe restrictions on the possibility of unrestricted combinations of entry and exit points. Discussions with BEB in late August 2003 revealed that first simulations of gas flows suggested that even small shifts between different entry points would lead to bottlenecks within the system. Or, to put it differently, one of the main arguments

of the gas industry against an entry–exit system (that it results in a significant decrease in available firm capacity) holds true. But the reservations of potential shippers proved to be premature. In March 2004, BEB presented the model at a small VIK conference and, for the very first time, representatives of that association reacted positively to a proposal on network access from the gas industry. Spontaneously the system was judged to be a big improvement on the existing model of network access and a big step towards the kind of system the industrial customers and shippers had always wanted. The three most important features of the BEB system are:

- BEB divided the network into one system for high cal gas, one system for low cal gas and a third, insignificant, system for a special low cal gas quality (LL gas).
- Within each system the flexible combination of every entry and exit point is possible with almost no restrictions. BEB only evaluates when entry or exit capacity is booked whether capacity is available but does not evaluate the physical possibility of the connection of entry and exit points.
- BEB introduced a kind of title transfer facility called virtual entry or exit point that facilitates OTC trading. Even market participants who are not shippers in the BEB system can book these virtual points and participate in OTC trading.

The key mechanism for overcoming potential bottlenecks is the guarantee by shippers of a certain minimum gas flow at major entry and exit points and pipeline sections. This guarantee secures a minimum flow in important sectors of the system and enables BEB to maximise firm capacity at the entry and exit points. BEB buys this guarantee at a so far undisclosed price mainly from the two most important shippers in the system, Shell and ExxonMobil.

After the introduction of this system, the reactions among traders, shippers and the industrial customers were almost unanimously positive. And this positive mood has continued. Shippers report that the system is working smoothly and allows customers to be supplied much more easily than previously. Since it started on 1 July 2004 BEB has reacted to demands from shippers and introduced some improvements. From late October 2004, limited OTC trading started. Although the volumes are still insignificant

this demonstrates that in principle the BEB system supports the development of a liquid market.[24]

There are two major points of criticism. The first is that transportation over short distances is much more expensive than under the old point-to-point transportation system. This is inherent in all entry–exit systems. The second is that firm entry capacity is barely available at many major entry points. According to BEB the situation had not changed compared to the old system and increasing scarcity at points such as Ellund at the German–Danish border is the result of increasing demand.

The reactions of the gas industry were less positive. Very harsh words were exchanged between representatives of other major German transmission companies and BEB. The principal reason is that BEB demonstrated that it is possible to introduce a flexible entry–exit system in Germany. This was always denied by the major German transmission companies and their association BGW. The criticism, led by E.ON Ruhrgas, concentrated in particular on the introduction of the minimum flow guarantees. In August 2004, in a paper addressed to the Ministry of Economics with the title 'Entry–exit model of BEB no model for Germany', E.ON Ruhrgas listed the arguments against the BEB approach:[25]

- The waiver on the separate evalutation of the physical transportation between booked entry and exit points is nothing new and it only holds true for existing business. There is almost no firm capacity available for new transportation at the entry points.
- BEB is marketing not only physical capacity but, in addition, virtual capacity. This is only possible in the BEB system due to the splitting of the trading activities between Shell and ExxonMobil and the strategic interest of those two companies in the German gas market. Moreover, Shell and ExxonMobil are only able to use the transportation system in a flexible way and provide flexibility to the network operator because they have access to indigenous German production.
- The introduction of trading elements contradicts the unbundling of transportation and trading activities.
- It endangers the security of supply because it creates new risks of interruption, which are not related to technical considerations.

- It eliminates proper investment incentives because the existence of physical bottlenecks no longer creates incentives for new investment.

These are strong words and although the arguments were rejected by BEB, they show the intensity of the fight against a true entry–exit system.

It is true that the specific situation of BEB, with two major shippers instead of one, makes it easier to introduce a system that relies partly on services from these shippers, but the arguments of E.ON Ruhrgas demonstrate an unwillingness to think about a new business model. Against E.ON Ruhrgas it can be argued:

- Every shipper within a transportation system can in principle offer 'virtual capacity' to the transmission system operator.
- The argument that this must be related to indigenous production does not hold true for the high cal network, because German production is only of low cal gas.
- The kind of service provided by the shippers does not contradict unbundling, because it is based on clear contractual relations between the system operator and the shipper.
- It might be a source of new risk, but this must be evaluated against the new opportunities which it presents.

Perhaps the more interesting question is: why did BEB introduce a model that on one hand shifted the whole discussion about the model of network access in Germany (see section 4.4), and on the other hand put the company in opposition to the whole German gas industry? There are two probable reasons. Firstly, the division of the trading business of the 'old BEB' between ExxonMobil and Shell created a new situation for the remaining transportation business. BEB was the first, and is so far the only, truly unbundled transportation company that is not controlled by a single shareholder, who dominates the trading business in the network. ExxonMobil and Shell may have been more interested in creating an efficient non-discriminatory nationwide system of access rather than preventing the transportation companies from offering proactive access to networks. And both shareholders had to make sure that they could obtain access to the BEB system on equal and fair terms, allowing them to optimise their trading business. Secondly, even under the regime of negotiated third party access many shippers said that BEB was

the most co-operative transmission company in Germany. The company started very early an unbundling of its 'mentality' and the transportation department moved to optimise its business. Therefore the company was perhaps more prepared than others to find innovative solutions and break some of the old ties to the German gas family.

3.3.3 Improvements by Ruhrgas – the Setback

Ruhrgas was the last company to settle the Marathon case with the commission. In November 2003, according to market and political sources, Ruhrgas made a proposal to the Commission that was passed to market participants for a market test. Although most of the reactions were negative[26] DG COMP came to a final agreement with the company on 30 April 2004. This was an only slightly amended version of the first proposal. The main commitments of Ruhrgas were:[27]

- The introduction of an entry–exit system, where entry and exit capacity could be booked separately.
- The total transportation system was divided into six tariff zones (4 H-gas zones and 2 L-gas zones). Ruhrgas promised to reduce the number of tariff zones to five before May 2005 and to four before May 2006.
- Ruhrgas agreed to extend the entry–exit system to the majority-owned regional transmission company Ferngas Nordbayern. It offered the system to some other regional transmission companies in which it has a minority stake.
- Ruhrgas agreed to allow its customers to create balancing areas of the same size as the tariff zone.
- Ruhrgas agreed to introduce an online flow-balancing system.
- In addition to these principal commitments, Ruhrgas agreed to improve the overall situation with regard to transparency, handling of requests for network access and bottleneck management. To that end, Ruhrgas agreed to publish on its web site a list of all entry and exit points, as well as the capacities and quality of gas available. In addition Ruhrgas agreed to maintain free balancing services as agreed in the association agreement for its transport customers until 1 November

2008, thus beyond the duration of the 'Verbändevereinbarung Erdgas II'. Finally, Ruhrgas promised to introduce a use it or lose it principle into all its transport contracts, including contracts with its trading branch.

The whole agreement was scheduled to be in place at the latest by 1 November 2004.

When Ruhrgas introduced this new system of network access in November 2004 it immediately drew sharp criticism from shippers and potential shippers. Critics endorsed all the reservations that were mentioned during the market testing of the first Ruhrgas proposal. The criticism centred on the following points:

- Although Ruhrgas introduced only five (rather than six) tariff zones, shippers still thought that it was not reasonable to have more than three zones.
- Ruhrgas did not allow the flexible combination of booked entry and exit points after the booking of entry and exit capacity. Prior to physical transportation, the company evaluates whether the intended combination is feasible. From the perspective of shippers this is still a path-dependent system and, in comparison with the BEB system, not a true entry–exit system.
- As with the earlier arrangements there are still many parts of the system with bottlenecks where firm capacity is practically unavailable.
- Although the transportation of gas through more than one tariff zone is possible, at least between zones of the same gas quality, by using interconnection points, this could lead to a pancaking of tariffs because in both zones the entry and exit tariff must be paid.
- For certain important transportation routes tariffs increased significantly.

After evaluating their individual positions, shippers were divided in their opinions about the tariffs. Some shippers made a lot of money by converting their existing transportation portfolio to the new system, others had the opposite experience.

Ruhrgas refuted all the criticisms and did not make any changes. In relation to the number of tariff zones and the absence of flexible use of entry and exit capacity without prior

evaluation of the physical feasibility, Hans-Peter Floren, the managing director of E.ON Ruhrgas Transport,[28] emphasised when the new system was introduced that it took into account the technical restrictions. Using the arguments already presented above, he underlined that Ruhrgas Transport was not willing to introduce, as BEB had done, any 'trading elements' to increase the flexibility of the system. Floren's argument is in line with the general reservations of the incumbents towards the introduction of an entry–exit model of access to the German gas network. In line with this reasoning, Ruhrgas did not introduce any kind of title transfer facility to enable trading activities within the system. Floren argued that 'trading will take place at physical hubs; the task of transmission companies is to offer the best services for physical transportation'.

Although trading is not generally supported, limited single trades between shippers occur at points where all of the parties have a transportation portfolio. The German market participants natGAS and EnBW Trading did a pilot deal. Both reported that it was rather difficult to organise but that Ruhrgas was helpful in organising the necessary transportation contracts quickly. In general, however, the sceptical assessment of shippers did not change after the system was introduced in November 2004. In the spring of 2005, shippers reported that it had become more and more difficult to book firm transportation capacity for the gas year 2005/06. The problem was judged serious enough to approach the German Ministry of Economics for advice.

One really positive aspect of the Ruhrgas model should not be forgotten. The inclusion of the network of the regional transmission company Ferngas Nordbayern (FGN) represented significant progress. This whole network was included as exit points within the Ruhrgas system. For the first time since the beginning of discussions on third party access one of the layers of the German system had been erased.

Why did Ruhrgas introduce a model that the industry agreed represented several steps back compared with that of BEB? As always in relation to Ruhrgas, it is easy in Germany to find conspiracy theories, specifically the idea that Ruhrgas is opposed to market opening and has tried to delay the whole process for as long as possible. And there are developments that support such a view. Although Ruhrgas formally unbundled its transportation

and sales businesses from the beginning of 2004, this unbundling is not perceived by market players. Most market observers and participants still think that the interests of Ruhrgas and Ruhrgas Transport are identical, and that the business of Ruhrgas Transport is driven by the trading interests of the group. Unlike BEB, Ruhrgas did not release any detail of the new system prior to its introduction and so far has not convoked any shippers' forum to discuss possible improvements. This demonstrates that Ruhrgas is less interested in consultations with customers and potential customers. But, as described previously, there seems to be a deep conviction within the company that any regime shift towards a true and flexible entry–exit system will decrease the stability of the network.

One final, but not unimportant, point: Ruhrgas introduced the new model two weeks after the Ministry of Economics released the latest version of the model of network access as part of the amendment to the energy law. This model encompassed many elements of the BEB system that were opposed by the other transmission companies led by Ruhrgas. It would have adversely affected the lobbying position of the gas industry to go any further than the minimum commitment to the EU Commission.

3.4 Negotiated Third Party Access in Germany – a Summary

Although some newcomers became accustomed to the system and adapted their business models to it, it is still hard for a number of reasons to claim that the story of negotiated third party access has been a success story:

- During the negotiations, customers and shippers were not able to achieve any significant improvement or meet any of their targets in relation to the organisation of network access.
- The system remained significantly lacking in transparency and this created barriers to entry. Nevertheless, experienced shippers were able to negotiate improvements.
- The number of transportation contracts remained limited and there was no OTC trading of significant liquidity.
- Improvements were mainly enforced by cases settled between the companies and DG COMP in Brussels.

- The system allowed the different transmission companies a significant degree of freedom which led to a lack of transparency and standardisation.

But I will show below that transportation is not the only reason why no competitive, transparent and liquid market for gas has developed. Therefore it would be premature to say that lack of network access was the only obstacle to this development.

Germany has finally abandoned the path of negotiated access – the last of the pre-2004 member states of the European Union to do so. But it has to be emphasised that this was not the result of a decision of the German government, based on the conclusion that this form of access had failed. It was imposed by the EU Gas Directive of June 2003. The German path towards regulated third party access is the next chapter of my study.

Notes

1 See Directive 98/30/EG of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas, Official Journal L 204/1, 21 July 1998, Article 14 and 15.

2 Landgericht Berlin, Geschäftsnummer 16 O 78/03, Berlin, 6 March 2003. The decision of the Berlin court never had any impact, because the negotiations broke down a few days later. It is debatable whether the argument of the court is finally valid, but it demonstrates that the whole negotiations never had a proper institutional framework which was obviously a major shortcoming.

3 Joint press statement of BDI/VIK and BGW/VKU, 18 March 1999.

4 The associations agreed on a analytical load profile and procedures for the balancing of volumes for non-metered customers that would have exposed every new entrant to incalculable risk. But it is very doubtful whether on the other hand any local distribution company would have been able to handle these profiles. There were a lot of internal discussions within VKU about this topic.

5 In practice the interregional transmission operators coped in different ways with the association agreement. Ruhrgas divided its network into only two different diameter classes and BEB published tariffs for different network sectors.

6 The network tariffs were not related to the specific cost of each company or to any kind of benchmark cost. The average cost, that was derived as guidelines ('Anhaltewerte') for the network tariffs was calculated in a way that made it easy to achieve for the whole industry.

7 The map with the 1994 data can be still found on the internet at *www.gasnetzkarte.de*.

8 The avoidance of cost-based tariffs has been one of the most important issues for the interregional transmission operators, BEB, Ruhrgas, VNG, Thyssengas and Wingas, during the whole process of regulation. The main argument of these companies is that cost-based tariffs will not allow a return on investment which is attractive for the shareholders of the companies.
9 See joint press release of the associations, 18 March 1999.
10 Energiewirtschaftliches Institut an der Universität Köln (EWI), Büro für Energiewirtschaft und Technische Planung (BET), 'Analyse und wettbewerbliche Bewertung der Verbändevereinbarung Gas zum Netzzugang; Gutachten im Auftrag des Bundesministeriums für Wirtschaft und Technologie', 9 November 2000, S. 46.
11 Bericht des Bundesministeriums für Wirtschaft und Arbeit an den Deutschen Bundestag über die energiewirtschaftlichen und wettbewerblichen Wirkungen der Verbändevereinbarungen (Monitoring-Bericht), p. 43.
12 GTE draft report, 'Potential shortcomings of the entry-exit-system', Brussels, 6 August 2003.
13 This argument is often repeated by regulators and the EU Commission. See the conclusions of the various Madrid Forums. For example, the fifth Madrid Forum concluded (item 10): 'the representatives of the CEER, the Commission, consumer organisations, traders and GEODE considered that an 'entry–exit' tariff structure would in principle meet the above general criteria and best facilitate the development of competition in the European gas market'.
14 I describe in more detail newcomers and their market behaviour and successes in Chapter 8.
15 *www.powernews.org*, 19 December 2000.
16 The remaining part is owned by the Italian ENI. ENI auctioned TENP capacity several times. The first auctions at least were done using non-transparent procedures.
17 These third parties are new market entrants or Wingas (see Chapter 7).
18 The Potsdam-based wholesaler natGAS, which entered into as many as 180 transportation contracts for the gas year 2005, complains that there are more than 50 different types of contract at interconnection points.
19 The management of natGAS argued repeatedly that it would be preferable to improve the current system in order to eliminate the shortcomings mentioned, rather than to implement a totally new system of network access. NatGAS is the most experienced shipper in Germany (see section 7.4.3).
20 See press release of DG COMP, 23 November 2001 (IP/01/1641).
21 The Thyssengas management always insisted on this point. Thyssengas offered unused capacity of the trading department on an interruptible base. But the sales department was allowed to book capacity above the current need if it could demonstrate a sound interest. This means that no formal rule was applied, that the sales department would lose capacity if it was not used for a certain time.
22 See press release of DG COMP, 29 July 2003 (IP/03/1129).
23 The conclusions of the fifth and sixth Forum emphasised that an entry–exit

system was the best way to facilitate a liberalised gas market. Item 9 of the sixth Forum stipulates: 'the representatives of the CEER, the Commission, Member States, consumers, traders and GEODE therefore invited the relevant national authorities in close liaison with the TSOs to take appropriate action with respect to the implementation of an entry–exit regime as soon as possible and where practical under the next tariff review'. This was mainly addressed to Germany, although the polite political language of the forum and the consensus principle did not allow the country to be mentioned explicitly.

24 See section 8.7.3.

25 'Entry/Exit-Modell der BEB kein Modell für Deutschland', informal paper presented to the German Ministry of Economics, 2 August 2004. Representatives of E.ON Ruhrgas Transport repeated the main arguments of the paper on several occasions.

26 The German subsidiary of the organisation of European Energy traders, EFET, summarised its concerns in a letter to DG COMP on 4 November 2003: 'the commitments of Ruhrgas are aiming in the right direction but are no significant improvement of the current system of network access. It is no real regime shift from a point-to-point system to a workable entry–exit system'.

27 See press release of DG COMP, 30April 2004 (IP/04/573).

28 Ruhrgas Transport AG & Co KG was founded on 1 January 2004. Since July 2004 the official name is E.ON Ruhrgas Transport AG & Co KG taking into account the ownership and corporate spirit of E.ON. The unbundling was one of the obligations imposed by the Ministry of Economics as a condition of its approval of the takeover of Ruhrgas by E.ON (see section 7.1).

4 THE PATH TO REGULATED THIRD PARTY ACCESS

It was shown above that, during the proceedings on negotiated access, the German Minister of Economics threatened market participants several times with the introduction of a regulated system of network access. But I personally doubt that the ministry ever had a real 'plan B' in its drawer. Serious discussions about regulated access and a workable model for network access in Germany did not start until it finally became clear that it was not possible to avoid the creation of a regulatory authority required by the 2003 Gas Directive.

4.1 The Timetable of the Process towards Regulation

The June 2003 EU directive required member states to transpose the measure into national law by the 1 July 2004.[1] Not surprisingly Germany did not meet the deadline and the necessary law did not come into force until July 2005.[2] The reasons for the long and complicated discussions of the law are not related only to the gas sector. But the drafting of the proposals for network access and the method of calculation of tariffs for the gas networks always lagged behind the drafting of the other parts of the law and the accompanying ordinance provisions. Box 1 below contains the timetable, which shows the major milestones of the law-making process.

4.2 The Main Topics of Debate

The sheer number of paragraphs in the new law shows the difficulties of switching from negotiated to regulated access. The draft of the law that was finally passed by the parliament contained 118 paragraphs (not taking into account the new ordinance provisions) compared with the 19 paragraphs of the previous version of the law. From the perspective of the gas industry the main topics of the discussion were the legal unbundling between the network sector and the trading and sales

Box 1: Schedule of the Law-making Process for the Second Amendment of the Energy Law

1 September 2003: Publication of the report on the impact of negotiated third party access on competition in the gas and power sector (Monitoring Report). The report was compiled by the German Ministry of Economics on behalf of the German parliament (Bundestag) and contained first ideas for the necessary amendment of the energy law.

24 February 2004: The draft version of the energy law of the Ministry of Economics was finished. It was almost silent on the model of network access. The conditions of network access and the calculation of tariffs were to be regulated in separate ordinance provisions, a sub form of the law that has the advantage that it can be amended more easily than the law itself. The secretary of state at the Ministry of Economics announced that the provisions were scheduled to be finished at the end of March.

11 May 2004: A first working draft of an ordinance provision on access to gas networks is informally circulated. The main elements were presented to the associations concerned on 19 May 2004.

12 July 2004: A totally revised working draft of the provision on access to gas networks was circulated.

28 July 2004: The cabinet passed the draft of the new energy law. The official draft versions of the relevant ordinance provisions were still not ready.

30 August 2004: A new working draft of the ordinance provision on network access to gas with minor amendments was discussed in the Ministry of Economics.

24 September 2004: The Bundesrat (House of the Federal States) which must approve the new law rejected the official draft version as 'totally inadequate'.

8 October 2004: The Ministry of Economics produced the final draft versions of the ordinance provisions on network access and the method of calculation of network tariffs for the power sector.

15 October 2004: The Ministry of Economics published the draft

of the provision on network access to gas on its homepage. But the draft was still not agreed with the Ministries of Justice, Environment and Consumer Protection.

28 October 2004: First reading of the energy law in the German parliament.

30 November 2004: The Ministry of Economics finished the draft of the ordinance provision on the calculation of tariffs for the gas networks. Like the draft version concerning network access it was not agreed with the relevant ministries. The draft was sent to the concerned associations but was not published by the ministry.

22 February 2005: Discussion on the controversial issues in the working drafts of the law and the four ordinance provisions began between the Social Democratic Party and the Green Party, the two parties of the governing coalition at that time.

11 March 2005: Final compromise agreement between the Social Democratic Party and the Green Party on the law and the four provisions.

15 April 2005: The German parliament (Bundestag) passed the law.

29 April 2005: The German Bundesrat refused approval and referred the law to the arbitration panel of the two houses.

2 June 2005: Negotiations started in the arbitration panel.

10 June 2005: Agreement in the arbitration panel with significant changes of the law concerning access to gas networks and other amendments.

15 June 2005: Formal announcement of the arbitration panel's compromise.

16 June 2005: The Bundestag finally passed the law.

17 June 2005: The Bundesrat approved the law.

8 July 2005: The government provisions on network access and the calculation of tariffs were finally passed by the Bundesrat.

13 July 2005: The new energy law came into force.

29 July 2005: The ordinance provisions came into force.

sector of the companies as required by the EU directive, the model of network access, the method of calculation of network tariffs and, finally, the rights of the new regulatory authority to change or to influence the framework conditions – or, to put it differently, how far the new authority would be restricted to the provisions of the law.

The following section concentrates on the development of a model of network access during the process of the implementation of the regulatory framework.

4.3 From the Monitoring Report to the First Model of Network Access in the New Energy Law

The Ministry of Economics was required by an amendment of the energy law passed in the spring of 2003[3] to deliver a 'report on the impact of negotiated third party access on competition in the gas and power sector' (Monitoring Report). Somewhat by chance, this report became the starting point for the next amendment of the energy law. Germany (like all other EU member states), following the provisions of the 2003 Gas Directive, had to shift from a regime of negotiated third party access to a regime of regulated third party access. The report recommended that regulated access should not be based on the path-dependent model that was agreed during the association agreement. The clear conclusion of the Monitoring Report was that 'it leads to high transaction costs, a fragmentation of the market and not to effective competition'.[4] The report recommended the introduction of an entry–exit model with large balancing zones unrelated to the property rights of network operators. The zones should be delineated either in relation to lasting physical bottlenecks between network sectors, or by different gas qualities or by other restrictions in the interoperability of networks. Tariffs should be related to entry and exit points at the citygates of the local distribution networks. The authors of the Monitoring Report knew that such a model would make co-operation between the network operators necessary and that it would be difficult to enforce far reaching co-operation: 'in the interest of implementing a workable system within a short time, solutions developed and implemented voluntarily by the market participants are preferable'[5] was a conclusion of the report.

When it became clear that some form of entry–exit system would be introduced, the discussion concentrated on whether a system with large balancing zones allowing the flexible use of capacity would be feasible. The German branch of the European Association of Energy Traders, EFET, published a model that was based on three zones, one for the high cal gas system, one for the low cal gas system and a separate zone for the Wingas system. Within each system a flexible combination of entry and exit points would be possible.[6] In October 2003, however, the gas industry associations, BGW and VKU, presented their model under which every interregional and regional network operator would introduce its own entry–exit system. Although entry and exit points could be booked independently, the transmission operator, prior to physical transportation, would check whether the combination of the points was technically feasible.[7]

In May 2004, long after the release of the first draft version of the energy law itself, a first working version of the ordinance provision on access to gas networks, encompassing a model of network access, circulated and was presented to the relevant associations.[8] This draft lagged far behind the recommendations of the ministry itself in the monitoring report. It proposed an entry–exit model but, in line with the model of BGW/VKU, it allowed every network operator to introduce its own system. In addition, it allowed further fragmentation of the network. Transmission companies could form sub-networks in case of non-compatible gas quality and the existence of compressor stations. Even within sub-networks there was no obligation to reach every exit point from every entry point. Network operators had to publish a withdrawal matrix showing the possibility of reaching exit points from each entry point.

The ministry itself was not totally happy with the draft. Representatives of the ministry complained in particular about a lack of co-operation from the gas industry association, BGW. They blamed the association for not offering any ideas for improving access but only saying what was unsatisfactory. But by contrast the ministry was not willing to follow the ideas of EFET or other proposals for a more comprehensive and flexible model of access for two main reasons which have already been mentioned several times during this study: first, the ministry feared that a comprehensive entry–exit model could really decrease security

of supply by reducing firm capacity within the network; and, second, it was not willing to touch the property rights of the network operators.

Both issues were controversial and the ministry was not willing to risk a serious conflict with the gas industry. According to sources close to the ministry, it was mainly Wingas that advised the ministry in developing a first model. The draft demonstrates on one hand that the ministry was willing to introduce its own ideas, more innovative than those of BGW, but showed reluctance to risk a completely different approach from that of the gas industry.

The introduction of the BEB model, however, totally changed the political discussion.

4.4 The BEB Access System as a Model for Network Access in Germany

The introduction of the BEB entry–exit system produced an amazing change in the whole discussion of network access. BEB demonstrated that it was possible, even in Germany, to introduce a flexible entry–exit system (similar to the Dutch system) without dividing the network into fragmented sub-systems. Perhaps even more important for politics and politicians, network access now had a label and was linked to a buzzword which could be used in political discussions without the need for complicated explanations.[9]

The ministry closely observed the development of the BEB model and in July presented a completely new version of the ordinance provision on access to gas networks which contained a model very similar to that of BEB.

The model was still based on a single entry–exit system for each network operator and still allowed the division of the network into sub-networks for every operator. But the criteria for the formation of sub-networks were much more restricted than in the previous version. The formation of sub-systems was now only foreseen as a last resort if the degree of flexibility needed to combine entry and exit points across the whole system was not feasible. The new version of the ordinance provision asked network operators to use commercial mechanisms to increase available firm capacity. This was adapted from BEB. Network

operators should purchase from shippers guarantees of certain minimum flows in pipeline sectors or agree on interruptions or the use of storage.

The official draft version published by the ministry in October 2004 was based on the draft from July with some refinements. From the perspective of the gas industry one of the main achievements was that the use of guarantees, which the industry labelled 'trading tools', was voluntary; the gas industry managed successfully to avoid any compulsory introduction of such tools. Although the model that was finally proposed by the ministry in the official working draft was in general judged as an advance on previous models it did not change the main fundamental problem of network access. The entry–exit system was still restricted to the networks of individual network operators and still allowed each network operator to divide its system into sub-networks.

When Ruhrgas published its network access system in November 2004 representatives of new market entrants felt that all their fears about the lasting and, from their perspective, unnecessary fragmentation of the system were justified. This view was further justified at the end of April 2005 when RWE Transportnetz Gas released an entry–exit model, which divided the network into nine different sub-networks with different gas qualities and missing physical interconnections.[10]

After the ministry released the official working draft of the law and the ordinance provisions, discussion concentrated on the enforcement of stricter obligations for transmission system operators to co-operate to reduce the number of sub-systems. The Green Party even tried to introduce a provision in the law that would have reduced the number of balancing zones to two per interregional transmission operator, requiring the regional transmission system operators and distribution system operators to introduce balancing zones that would encompass the network of more than one operator.

The version of the law that was passed by the Bundestag still contained a system of network access for each individual network operator. The law itself and the ordinance provision on network access to gas obliged the network operators to co-operate on interoperability of the networks and the calculation of available capacity. But this kind of co-operation was not close enough to create a comprehensive system of network access beyond the

property boundaries of network operators.The BEB system was a model for the organisation of network access within a single network, but it could not serve as a model to overcome the general problem of the fragmented system of access to the network.

But due to the organisation of the political process both the Bundestag and the Bundesrat had to approve to the law. The Bundesrat refused to do so at the end of April 2005 and referred the law to an arbitration panel between the two houses.

4.5 Regulated Network Access: the Final Showdown

After the law was passed to the arbitration panel the resolution of the whole issue became considerably more urgent due to the developments in German politics. In May 2005, the Chancellor, Gerhard Schröder, announced premature general elections after the parties of the governing coalition lost the state elections in North Rhine-Westphalia. Schröder's decision to dissolve the parliament at the beginning of July prompted all political parties and the federal states to decide that they wanted to pass the energy law before the dissolution of the parliament.[11] Two reasons for this were given: one was to avoid a formal reference by the EU Commission resulting from failure to transpose the directives into national law by the specified date; and the other was that politicians wanted to get rid of this rather complicated issue before the election. Due to the election schedule the parties had only two weeks to find a compromise.

At the first meeting of the working group on 2 June, the so called B-Länder (federal states governed by the Christian Democratic Party (CDU)) and the representatives of the CDU/CSU and the Liberal Party (FDP) in the Bundestag asked for far reaching changes in the law.[12] During a night session the representatives of the parties of the governing coalition and the representatives of the A-Länder (governed by the Social Democratic Party (SPD)) agreed in principal to most of these changes. During a hectic week the question of whether these changes were possible was evaluated and on 10 June a final agreement of the changes in the wording was made. On 15 June the arbitration committee officially announced the compromise.

Among the changes demanded by the opposition was a significant amendment to the model of network access. During

the arbitration process, the B-Länder and the parliamentary representatives from CDU/CSU and FDP demanded a new model of network access much more closely related to the power sector model. This was rejected by the Social Democratic Party (SPD) and the Green Party at the beginning of the discussion but in the course of the evening of 2 June the parties of the governing coalition changed their minds. The new model was proposed and defended mainly by Joachim Pfeiffer, one of the energy spokesmen of the CDU/CSU in the Bundestag. Lobbying groups of local distribution companies (represented by perhaps the most influential energy law firm in the energy sector, Becker Büttner Held[13]) and of industrial customers were able to convince Pfeiffer to impose a new model. After Ludwig Stigler, the vice-chairman of the SPD in the Bundestag, signalled his support during a late-night session of the arbitration panel, arguing that what is possible in the power market must be possible in the gas market, the new model proposed by the B-Länder prevailed. The three main features of the model are:

- Shippers have to sign only one contract for entry capacity and one contract for exit capacity. The transmission system operators are in charge of transportation between the entry and the exit point.
- Operators are obliged to co-operate to facilitate transportation. In principle a shipper can connect every entry point with every exit point in Germany. Only if the co-operation of transmission system operators is not possible due to technical constraints, or because it is not economically feasible, can further restrictions be imposed.
- Basically, the tariffs of network operators along the delivery chain are to be shifted to the exit tariff (although this is not clearly stated in the law).

What makes the provisions for network access in the context of the whole legal framework very complex is the two layer structure of the energy law. The first layer is the law itself that contains the general provision on network access, just described, in paragraph 20 1b.[14] The second layer contains the two ordinance provisions on network access and the calculation of network tariffs. These provisions contain more detailed regulation on the two issues

derived from the more general stipulation of the law. Formally these provisions did not have to be approved by the Bundestag but only by the Bundesrat.

Figure 8 gives an overview of these different layers and of the energy law and the ordinance provisions assigned under the law to different political institutions.

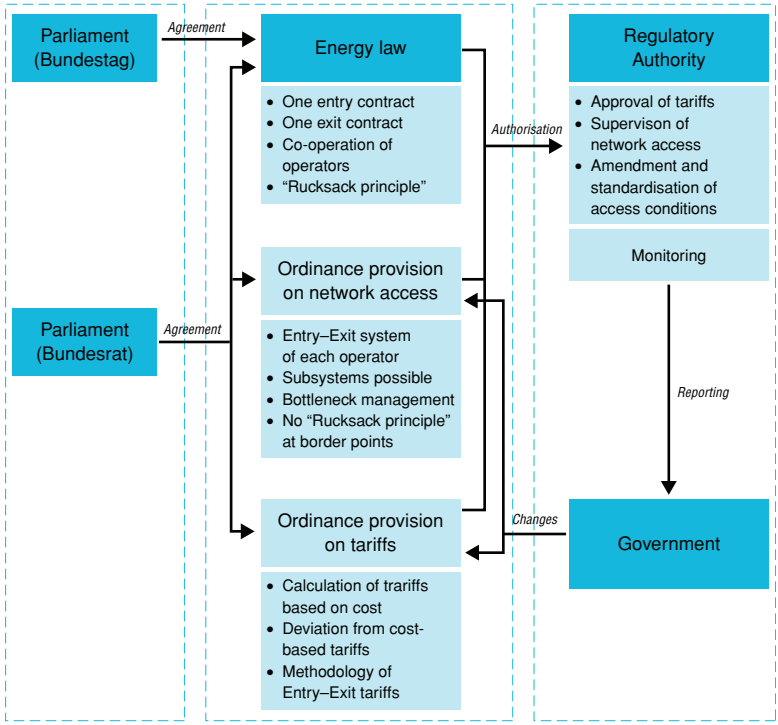

Figure 8: Embedding of the German Energy Law in the Institutional Infrastructure

The model of network access defined within the law (§ 20 1b) was superimposed on the model of network access in the ordinance provision for access to gas networks. This provision remained largely unchanged during the arbitration process. This means that individual network operators still can under certain conditions divide their networks into sub-systems where the flexibility to combine entry and exit points is restricted to

each sub-system. To make the story even more complicated the general provisions concerning the introduction of an entry–exit model are only applicable to the interregional and regional transmission system operators. At the level of local distribution companies the ordinance provision proposes only an 'exit model' with more simple rules.[15]

A new model of network access that fulfils both the provisions of the law and the ordinance provisions was required to be introduced by the network operators six months after the law is in force, that is, by 1 February 2006. The new regulatory authority named Bundesnetzagentur (BNetzA) was endowed with some power to influence development of the model on an operational level. But it should be emphasised that the industry is ultimately responsible for the development and introduction of a model which complies with the law and the provisions. The major task of the BNetzA is to evaluate this model and impose changes if it is not in line with the law.

There is, however, a basic contradiction between the law and the ordinance provision (see Figure 8). The provision is based on the networks of every single network operator and the possible restrictions related to physical conditions. The law is based on a comprehensive German model independent of particular networks and ownership boundaries. Binding co-operation among network operators is meant to enable the implementation and operation of this system. The ordinance provision on the calculation of network tariffs contains a similar contradiction with the law. Even the final version does not stipulate any shift from transportation tariffs to a exit fee at the final withdrawal points. These contradictions had a crucial effect on the subsequent conflicts about proper implementation.

After the political compromise was agreed, advisors of the CDU therefore expected major changes in both ordinance provisions to adapt them to the outcome of the political arbitration process.[16] The ministry sent to the political parties the final versions of the provisions that contained – from its perspective – the results of the arbitration process on 14 June. The advisors of the CDU and the B-Länder immediately criticised the contradictions and the failure to adapt the ordinance provisions to the new provisions on network access in the law. Two days later they proposed far reaching changes to the provisions,

but the opposition decided not to confront the ministry with these proposals. Politicians feared embarrassing the ministry and endangering the completion of the law-making process before the elections. Therefore by June 16 only marginal changes had been introduced and the economic committee of the Bundesrat agreed to the provisions on June 23.

Obviously conspiracy theories spread around Berlin about the behaviour of the ministry. One such theory was that the gas industry, which has some influence in the ministry, convinced it not to change the provisions to the disadvantage of the industry. But one has to take into account the very tight time constraint. The ministry had less than one week to adapt the provisions, and this was just not enough time to make major changes.[17]

Within the gas industry the prevailing mood after this final outcome was a certain degree of helplessness. 'Open mouthed and speechless' is how a representative of the gas industry characterised the reaction. The outcome is labelled as the 'Hartz IV' of the gas industry, a comparison with the government's attempt to reorganise the handling of unemployment, which led to significant and unexpected increases in costs. The companies did not know either how to handle the model or what cost and potential restrictions on available capacity it might give rise to. In addition it was argued in the industry that the model did not take into account existing competition among pipeline operators or that it made it impossible to increase competition in future. In addition the transition period of half a year was judged to be too short. The gas industry association BGW tried up to the very last moment to prevent the outcome. After the agreement in the arbitration committee the association wrote a letter to the heads of the parliamentary groups of the parties and the prime ministers of the federal states trying convince them not to pass the law. Among others Burckhard Bergmann, the CEO of Ruhrgas (and a board member of E.ON), and Wolf Pluge, the managing director of BGW, who signed the letter, said that the final model would make it difficult for the industry to guarantee security of supply. But this final attempt to influence the process only irritated the political parties.

The consequences of the contradicting stipulations of the law and the ordinance provisions became clear very shortly after the law came into force. In August the new BNetzA and

the different associations of the industry started to express very different views about the proper model of network access that would result from the law and the provisions. This process of implementation is described in section 4.7.

4.6 Regulated Network Access: Unbundling and Tariffs

Although the controversial discussion during the law-making process concentrated on network access, and this is the most relevant issue for the present study, important additional provisions should be mentioned: first, in line with the EU directive, the German energy law will introduce a legal unbundling of sales and transportation activities for all interregional and regional gas companies and local distribution companies with more than 100,000 customers; and, second, in principle the network tariffs will be regulated on the basis of the cost for the efficient use of the networks.

Both provisions were opposed by the German gas industry. In particular Wingas fiercely opposed the introduction of the unbundling and threatened at an early stage of the process to take the issue to court. The position of Wingas is understandable since it developed an integrated business, building pipelines and looking for customers to use their capacity. Unlike most German companies, Wingas built pipelines before it had the necessary contracts in place. The managing director of Wingas, Rainer Seele, emphasised repeatedly that the company believed it possible to offer greater value to the market, based on this integrated model, through which Wingas controls the whole value chain.

The interregional transmission companies and the association, BGW, fought hard to convince the Ministry of Economics to grant an exemption from cost-based tariffs in the relevant ordinance provision. They argued that over a major part of the German interregional pipeline system competition either exists or is potentially possible. The ministry followed the arguments of the industry and the first draft of the ordinance provision contained a very generous concept of exemption from cost-based tariffs for almost all transmission operators. Their network tariffs were to be evaluated by comparing them to relevant German

and international tariffs. Throughout the whole lawmaking process there had been a very controversial discussion as to what extent competition between transmission operators existed either as pipe-to-pipe competition or as pipe-in- pipe competition.[18] For example, the German competition authority Bundeskartellamt denied that any visible pipeline competition existed in Germany.[19] So far the question has not been investigated in a thorough independent study. Certainly in some sectors this kind of competition exists.[20] Capacity auctions on the TENP pipeline by the Italian company ENI and on the MEGAL pipeline by the French company Gaz de France show that the owners of some of the main German north/south and east/west pipelines have started their own marketing activities. On the other hand new market entrants only very rarely reported cases of competitive offers from pipeline operators.

The deviation from cost-based tariffs was still disputed during the arbitration process but the final version still favours most of the interregional pipeline operators: operators of interregional pipelines can deviate from cost-based tariffs if the predominant part of the network is exposed to existing or potential competition. The minimum criteria for competition are that the predominant number of exit points of the networks are in areas that can be reached by the interregional pipelines of third parties, or that the predominant volume of transported gas is withdrawn in areas that can be reached by interregional pipelines of third parties.

The regulatory authority evaluates whether these criteria apply and approves deviations from cost-based tariffs. In such cases the tariffs will be supervised by using international benchmarks in a comparative market approach.[21]

Pipeline operators had until 31 January to apply for an exemption from cost-based tariffs and thirteen did so. Among them were the German operators BEB, E.ON Ruhrgas Transport, Erdgas Münster, RWE Transportnetz Gas, VNG and Wingas. Foreign companies operating pipelines in Germany like Statoil, ENI and Gaz de France also applied. The evaluation by the BNetzA, in co-operation with the Bundeskartellamt, of the reality of pipeline competition was still pending as this study was finalised.[22]

4.7 Process of Implementation of the Model of Network Access

4.7.1 Organisation of the Bundesnetzagentur

The BNetzA was able to start work more or less immediately after the law came into force in mid-July 2005. The former regulatory authority for telecommunication and postal services (RegTP) started to set up a provisional organisation in July 2004 when the Minister of Economics assigned the task of the regulation of the energy markets to that authority.[23] This provisional organisation gave way to the formal new structure in mid-July 2005.[24] The agency now has eight departments in charge of energy regulation. The structure of the regulation agency of the gas sector is shown in Figure 9.

The president of the agency, Kurth (a former president of the RegTP), has long experience in specific sector regulation and is very committed to making energy regulation a success. Since 2003

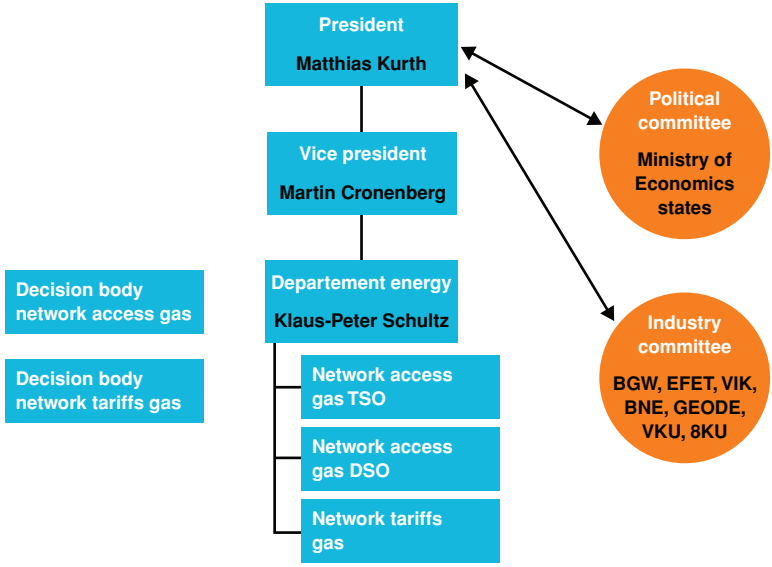

Figure 9: Structure of the BNetzA for Gas Sector Regulation

Source: Bundesnetzagentur.

he has given speech after speech advocating a strong regulatory authority and has presented the agency very skilfully in public. Vice-President Cronenberg is a former staff member of the Ministry of Economics. He is experienced in energy regulation because he was one of the leading figures at the ministry during the drafting of the first new energy law in 1998.

The head of the energy department, Schultz, was head of the energy department at the Bundeskartellamt, and held positions at the Ministry of Economics where he led a network access task force and was then responsible for the drafting of part of the ordinance provisions of the new energy law. From January 2005, he was in charge of the provisional energy group at the RegTP.

The eight departments are in charge of the day-to-day activities. For formal decisions, procedures and complaints from market players the separate decision bodies (Beschlusskammern) are responsible. Their decisions have legal status but can be challenged in court.

4.7.2 Disputes about the Model of Network Access for the Gas Market

After the first informal talks between the BNetzA and representatives of the gas industry and their associations, it became clear that there were significant divergences between the two sides as to how to interpret the law and the ordinance provisions, and how to transfer these provisions into a model of network access. Because the wording of the paragraph 20 1b is so crucial for the model of access, Box 2 contains the full text.

From the perspective of the BNetzA the law demands access to the gas networks similar to access to the power networks in Germany and the implementation of the 'lowest possible number of (largest possible) market areas, encompassing the networks of different network operators'.[25] BGW's view was that co-operation should concentrate on facilitating transportation through the individual entry–exit systems which should be introduced by every network operator.[26]

According to the law and the ordinance provision the network operators have to implement a model of network access and the BNetzA can only evaluate whether these models meet the prerequisites of the legal framework. In October 2005,

Box 2: Stipulation of § 20 1b of the Energy Law about Access to the Gas Networks

§ 20 1b energy law: To grant network access, the operators of gas networks have to offer entry and exit capacity, which permit access without any reference to a concrete, transaction-dependent transportation route. It must be possible to use and to trade each unit of entry and exit capacity independently. To manage access to gas networks it is necessary to conclude a contract with the network operator into whose networks gas is injected (injection contract). In addition a contract must be signed with the operator of the network from which the gas is withdrawn (withdrawal contract). A withdrawal contract with the operator of a distribution network must not refer to a concrete point of withdrawal. All operators of gas networks are obliged to co-operate as necessary to organise transport of gas for one shipper through different networks that are connected by interconnection points using only one injection and one withdrawal contract. The co-operation is limited to cases where it is technically feasible and economically affordable. To make transportation through different networks possible, operators have to co-operate closely in calculating and offering capacity, providing system services and assigning costs and tariffs. Taking into account technical constraints and economic viability, they should develop common standard contractual procedures for network access and to use all possibilities of co-operation with other network operators to keep the number of different networks or sub-networks and balancing areas as low as possible. Operators of networks that are connected by interconnection points should co-operate in the calculation and provision of available technical capacity with the aim of offering maximum combined capacity in the connected networks. If a customer switches supplier, and if the new supplier is not able to supply the customer according to its contractual obligation and if he can demonstrate this to the previous supplier, the new supplier can demand from the previous supplier the transfer of entry and exit capacity that is necessary to supply the customer. Operators of transmission systems are obliged to offer rights for the use of capacity so that the shipper is able to inject gas at any entry point for withdrawal at any exit point of the system, or, in the case of lasting bottlenecks, every sub-system (entry–exit system). Operators of local distribution systems must offer network access according to an ordinance provision, following § 24 on the access to gas transportation systems by taking the gas at entry points to their networks for every exit point connected to their network.

when the agency became aware that it was not very likely that network operators would suggest a model in line with BNetzA's interpretation of the law, it created a group of relevant associations to 'support the gas industry in the compliance to the legal framework and increase awareness of the plans of the relevant stakeholders'.[27] At the first meeting of the reference group in October 2005, BGW presented the basic idea of the future model of network access and, to the surprise of all participants,

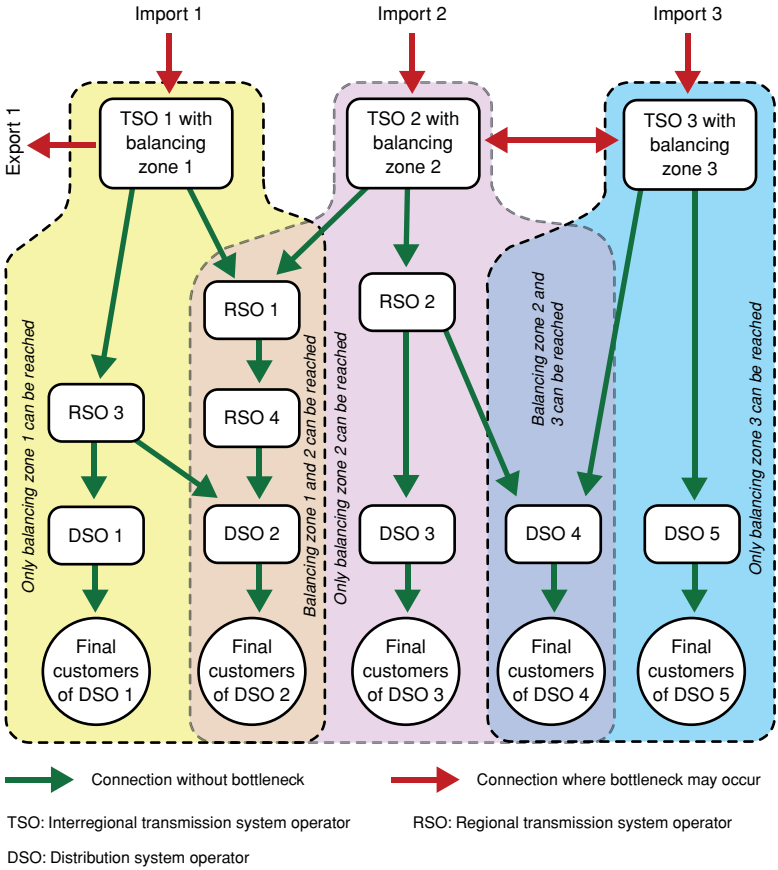

Figure 10: The Structure of the GEODE Model of Network Access

Source: Presentation of GEODE at the first meeting of the reference group 26 October 2005.

GEODE (Groupement Européen des Entreprises et Organismes de Distribution d'Energie) also proposed a model. GEODE is an European association of independent distribution companies and in late 2005 organised the 'kommunale Aktion Netzzugang' (municipally-owned companies' netword action initiative), in which around 100 companies participated. GEODE made its first public appearance during the arbitration process for the new energy law (see section 4.5). Therefore it was consistent for GEODE to suggest a complete model of network access, mainly derived from the German power sector. The focal point is the formation of so called balancing zones of the operators of interregional networks. The networks of regional and local operators that can be reached by pipelines within one balancing zone will be integrated into that zone. Within one zone there are no restrictions concerning the combination of entry and exit points. At the level of the balancing zone, joint balancing will be introduced for every shipper or group of shippers which permits the balancing of the total portfolio within one zone. The storage sites of all market participants in a balancing zone will be integrated into these balancing groups.

Figure 10 shows the basic structure of the model which has the following consequences:

- On the level of regional network operators there are no entry but only exit tariffs.
- Balancing takes place entirely at the balancing zone level. At the lower level at each interconnection point injected volumes equal withdrawn volumes.
- Every customer has a uniform exit tariff that is dependent on the number of networks between the exit and the entry point but independent of the transportation path. This leads to constant tariffs if the customer switches supplier.
- The delivery point for all contracts, including the current contracts, is at the level of the balancing zone.
- At that level a virtual market place will appear, where volumes can be exchanged without further restrictions.

The central assumption of the model is that gas flows within one balancing zone are constant and a change of the entry point for a physical delivery does not change these flows.

After some internal discussions following the first meeting of the reference group, all associations of network users started to support the GEODE model.[28] The crucial point of controversy between the representatives of the BGW on the one hand and GEODE on the other was whether the central assumption, that gas flows remain constant within one balancing zone, holds. Throughout the debate on network access, this question had recurred: to what extent do physical bottlenecks within the network system exist, and to what extent do they really restrict the implementation of a flexible nationwide entry–exit system similar, for example, to the Dutch system?

In December the BNetzA abandoned its moderating role and presented its own model of network access, derived, it argued, from the law and the ordinance provisions and taking into

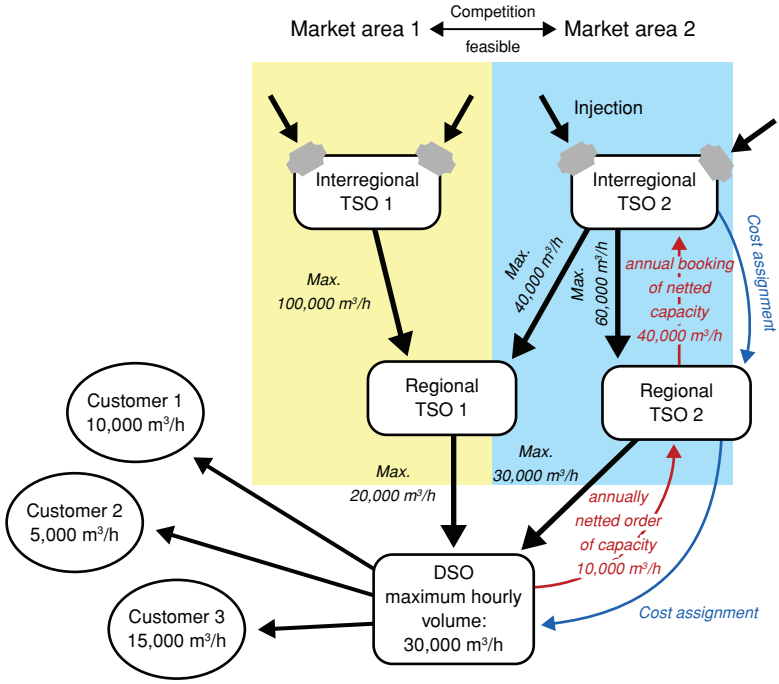

Figure 11: Basic Model of Network Access Proposed by the BNetzA

Source: presentation of the BNetzA at the reference group, December 2005.

account potential restrictions in gas flows. Figure 11 shows the basic idea of this model.

The picture looks very similar to the GEODE model and in fact the basic idea of vertically integrated market areas was taken from it. Network access (as stipulated in the law) involves only two contracts: an entry contract to the interregional pipeline system and an exit contract at the final withdrawal point of the gas. The BNetzA presented the model to the reference group as a compromise. The agency argued that the model takes into account the transmission system operators' concerns about technical restrictions in gas flow by assigning an explicit maximum hourly capacity to each interconnection point between the different layers of the network system within one market area. In order to manage capacity the local distribution network operator should, once a year, book the netted total capacity for all end customers through the different networks, from the local up to the interregional network level. Again, very like GEODE, the BNetzA wanted to enforce the following procedural rules:

- The delivery point for every contract should be at the level of the interregional pipelines. This should include balancing services and storage contracts. In each market area a virtual trading point should be implemented on the interregional pipeline sector to facilitate the trading of gas and flexibility.
- The number of market areas should be minimised. The BNetzA wanted to start with less than ten market areas.

Very controversial discussions between the BNetzA and the associations of the network operators BGW and VKU on these two issues started in January 2006. The two associations were not willing to accept these proposals. They refused to discuss these topics in the reference group and insisted on bilateral discussions with the BNetzA.[29]

Their major point of concern was about the fulfilment of contracts at the virtual trading point. Although some of their arugments were technical and operational, there were two crucial issues for both associations. First, they believed, such a change of contractual relations would endanger the traditional citygate contracts and would ultimately allow distribution companies to optimise their portfolios by trading and diversification of

suppliers. And, second, the regional gas companies would totally lose their role as gas sales companies in such a model. Even their transportation business would be restricted to shipping a fixed volume of gas is shipped through their pipelines with no other services.

To protect the traditional business models, BGW and VKU proposed a so-called 'option model'. As an alternative to the BnetzA's proposed procedure, it should be possible for shippers to book entry and exit capacity separately in each single network system top down from the interregional level to the citygate. This procedure would retain the current contractual relations between gas suppliers and local distribution companies. The current supplier transports the gas to the citygate where it is delivered to the local distribution company. The local distribution company only transports gas through the distribution network to the end customer.

Related to this option model was the refusal of BGW and VKU to integrate all German storage facilities physically or virtually at the interregional pipeline level and to provide storage service only at the virtual trading point. The two associations demanded that storage service should be offered on the pipeline network to which the storage is physically connected.

BGW and VKU insisted on 20 market areas as a starting point. The major pipeline operators argued that most of them were not able to provide the necessary flexible unrestricted combination of entry and exit points even within the part of the system with the same gas quality, without further division of these networks into sub-networks. BEB needed two sub-systems (one low cal one high cal), E.ON Ruhrgas five sub-systems (three high cal, two low cal), RWE four sub-systems (two low cal and two high cal), VNG only one and Wingas four (all high cal). These sixteen different market areas would be supplemented by additional areas of international pipeline operators (Statoil, ENI, Gaz de France). Some of the regional pipeline operators wanted to implement their own market areas.[30]

The network operators' associations fiercely opposed the demands of BGW and VKU to modify and supplement the BNetzA model.[31] They were concerned that the option model would significantly limit liquidity at the virtual trading points, because distribution companies would not be able to optimise

their procurement at these points and would still be tied to traditional long-term contracts.[32] In addition, the two-tier model of network access might lead to discrimination against shippers that transport gas under the regime of the two contract model because the rules of the game are not equal for all players.[33] Finally, the number of market areas would limit the liquidity in each area.

4.7.3 Unsolved Disputes and Weak Agreements

Clearly, as this chapter has shown, network access remained a complicated and controversial issue under the newly established regime of regulated third party access. The main reasons for this were, first, that both the law and the ordinance provisions were partly unclear and contradictory and, second, that the regulator, the BNetzA, lacked the legal competence to prescribe a model of network access.

And so the old game of negotiations, or discussions between the different stakeholders, continued during the first six months of regulated third party access, while the network operators tried to enforce a model that did not harm the position of the incumbents, based on technical arguments that were never objectively evaluated.[34] The BNetzA was in a better position to deal with the network operators than were the associations of network users during the time of negotiation agreements, even taking into account the above mentioned weaknesses. And the BNetzA has a clear commitment to enforce a model of network access that is in principle able to support competition. The 'two contract model' which the BNetzA wants to enforce is, at least from the perspective of network users and traders, a significant improvement. But given the institutional framework it is an open question to what extent and how quickly it will be introduced.

On 31 January 2006 the president of the BNetzA, Matthias Kurth, announced at a press conference the basic elements of the future model of network access from the perspective of the BNetzA. He said that these had been derived largely in agreement with the gas industry associations of the BGW and VKU. Box 3 summarises his views in twelve points.

It must be emphasised that in March 2006, when this study

Box 3: Basic Elements of the BNetzA Model of Network Access

1. In principal, network access shall be granted based only on two contracts: one exit and one entry contract.
2. The procedural rules shall be similar to network access in the German power sector. The exit contract encompasses access to all the tiers of the network from the exit point up to the interregional pipeline. Costs and tariffs of all these tiers shall be allocated to the exit tariff.
3. A maximum of 20 market areas will be established and all networks shall be vertically integrated.
4. Introduction of one virtual trading point in each market area.
5. Price transparency: publication of all tariffs from the virtual trading point to the final exit point.
6. Switch of supplier: this should be feasible within one market area without additional evaluation of available capacity.
7. First assignment of end customers: all end customers shall be assigned to one market area according to transparent criteria.
8. Transportation through more than one market area: entry and exit capacity must be booked for this type of transportation.
9. Balancing groups: balancing groups shall be organised in each market area by the operators of the interregional networks; all volumes shall be balanced at this level.
10. Integration of storage: this will be possible within the two contract model. In addition to the entry and the exit contract a storage contract must be agreed.
11. Booking of capacity separately in each network: an alternative to the two contract model is separate booking of capacity at each interconnection point between the networks on the different layers of the pipeline system. But this option may not disturb the two contract model and must be non-discriminatory.[35] This demands that the load factor of all customers is taken into account and that the transportation tariff must be equal in both models.
12. Switch of supplier: it must be possible for residential customers to switch their supplier. Proper operational procedures for this need to be agreed between the BNetzA and the transmission and distribution system operators.

Source: script of the speech of Matthais Kurth at the BNetzA press conference, 31 January 2006.

was concluded, these views were not backed by any written agreement with the gas industry associations. There was common understanding on some issues but divergent views about the correct implementation of others.[36]

Box 3 shows that the BNetzA was not successful in enforcing a small number of market areas. The system will start with around 20 market areas and perhaps even more. The BNetzA was optimistic about reducing this number, but it will not be an easy task and there has been no hint of co-operation from network operators.[37]

The key problem will be the relevance of the option model. Kurth mentioned it only as a minor issue (number 11). From the perspective of the BNetzA the 'two contract model' is the basic one and the only one in line with the law and the ordinance provisions. Network operators have to implement this model to comply with the law and the ordinance provisions. The booking of capacity in individual networks (option model) is only an 'add-on', which network operators can implement.

From the perspective of the gas associations, the option model will be the backbone of future organisation of network access. The BGW/VKU paper emphasises that it leaves current gas supply transportation and storage contracts untouched.[38] The relevance of the option model is related to the question of how storage will be integrated into the system of network access. According to the BNetzA principles, it must be possible to integrate storage facilities into the two contract model. The BGW/VKU paper states very clearly that the associations expect that each storage will be connected to the transportation system as an entry and exit point within the interregional, regional or local networks. These entry and exit points will be booked separately.

At the beginning of March, as this study was completed, there was more confusion than clear expectation as to how the new model of network access will be implemented by 1 October 2006. The BNetzA and BGW/VKU agreed on the following timetable:

until 23 March 2006:	delivery of written draft versions of the necessary contracts to the BNetzA; first evaluation and agreement of the contracts with BNetzA;

from 15 April 2006:	consultation process among all network users about contracts;
1 June 2006:	publication of all contracts;
1 August 2006:	implementation of the new model of network access (start of the system);
1 October 2006:	start of the next gas year (this will not change, but is included in the time table).

Whether and how quickly a transparent, non-discriminatory and efficient system of network access emerges will depend on the following issues:

- the extent to which the option model is implemented. In particular local distribution companies that are represented by GEODE could refuse to implement the option model and implement only the two contract model. If the current supplier refuses to offer a supply contract at the virtual trading point, and insists on the current citygate contract, conflict is unavoidable.
- whether the two contract model is implemented smoothly;
- the procedures for balancing within balancing groups and the extent of sub-balancing groups at different layers of the network;
- the potential integration of storage at the virtual trading points;
- the number of market areas;
- the design of virtual trading points and the development of liquidity in the market areas. This will have consequences for the merger of market areas;
- the supply situation at the virtual trading points;
- the assignment of customers to different market areas.

In the short run the situation is very unsatisfactory. The implementation is lagging behind the requirements of the law which stipulates that a new model should be in operation by 1 February 2006.[39] There is no certainty about the new model because an unambiguous binding agreement and a clear-cut description of the necessary processes are both still lacking. As a result no uniform and coherent model will be implemented.

In the long-run the two contract model will prevail if the

BNetzA, as Kurth announced, uses this model to evaluate network access. The agency is in the best position to impose its views and will be backed and supported by Brussels. In principle the two-tier model is not a stable situation and will cause operational problems.

Two developments seem possible:

- If the incumbents are able to enforce the option-model, competition and market orientation will remain extremely limited. In this case a change in the BNetzA model seems inevitable.
- On the other hand, if the two contract model plays a significant role, the option model will be abandoned because it will be too difficult and inefficient to operate different systems. The two contract model will be improved, if necessary, to allow more efficient operation of network access.

According to the energy law, the BNetzA has until mid-2007 to prepare a monitoring report, which includes a report on the status of third party access. The report will include recommendations about necessary improvements in the legal framework.

The resistance of the industry to major changes that threaten the existence of some players (particularly on the regional level) is understandable, but this will only delay the inevitable. Nonetheless it is unlikely that significant development towards a workable system of network access will occur before 1 October 2007.[40]

Although network access was perhaps the most prominent area of discussion during the past few years it was not the only impediment to market entry from the perspective of market players. On the contrary, as I noted above, many new players stated repeatedly that network access has certainly become easier. In the next chapter I describe access to storage as one of the areas of concern for new entrants.

Notes

1 Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal gas market and repealing Directive 98/30/EC, *Official Journal of the European Union*, L 176/57, 15 July 2003.

2 Germany was not the only country unable to meet the deadline. In October 2004 the Commission opened a procedure for non-compliance against 18

member states (see press release IP/05/319, 16 March 2005).

3 The development of the German energy law since the beginning of the market liberalisation would be a study in itself. The old law from 1935(!) was first amended in April 1998. In the spring of 2003 a second amendment came into force that included in particular the transfer of the requirements of the first gas directive into national law (with a delay of almost three years).

4 *Bericht des Bundesministeriums für Wirtschaft und Arbeit an den Deutschen Bundestag über die energiewirtschaftlichen und wettbewerblichen Wirkungen der Verbändevereinbarungen (Monitoring Bericht)*, 31 August 2003, p. 50.

5 *Monitoring Bericht*, 31 August 2003, p. 51

6 EFET Deutschland, 'Beschreibung des Entry/Exit Netzzugangsmodells Erdgas', September 2003

7 Bundesverband der deutschen Gas- und Wasserwirtschaft (BGW), Verband kommunaler Unternehmen (VKU), 'Entry-/Exit-Modell der deutschen Gaswirtschaft', 27 October 2003.

8 Formally this was a first draft version of the ordinance provision on access to the gas networks. Like all papers during the whole law-making process it was not an authorised version. The whole discussion process between the ministry and the relevant associations took place behind closed doors. This is perhaps one of the biggest shortcomings of the whole discussion in Germany.

9 In the first reading of the energy law in September 2004 the Bundesrat explicitly asked to use the BEB model as a starting point for the development of a model of network access. Politicians, like the energy spokesman of the Social Democratic Party in the Bundestag, Rolf Hempelmann, said on several occasions that, contrary to the arguments of the gas industry, the BEB model demonstrated that flexible network access was possible.

10 RWE was not enforced to introduce the system at that stage. According to sources close to RWE, it was Harry Roels, the CEO, who decided, more or less alone, that RWE should support a competitive gas market and introduce the system prior to the new law. It required a major effort for the company to fulfil the demands of its top executive.

11 The German constitution makes it relatively hard to dissolve parliament. Schröder asked for a confidence vote and, although the governing coalition still had the majority in parliament, he agreed that his party's members of parliament should vote against him. After losing the vote in this way he asked the president to dissolve parliament.

12 The written document with the list of requests for amendments is dated 31 May 2005: 'Forderungen der B-Seite nach Änderungen des Gesetzes und der Entwürfe der Netzzugangs- und Netzentgeltverordnungen Strom und Gas', Berlin.

13 86 distribution companies worked on a model of network access in a group named Municipal Action for Network Access (Kommunale Aktion Netzzugang) under the umbrella of the European association Groupement Européen des Entreprises et Organismes de Distribution d'Energie (GEODE). The Vice-President of GEODE is Christian Held one of the partners of Becker Büttner Held. A former BEB manager told me that he

thinks that during the first years of formal liberalisation Becker Büttner Held, through legal action, has achieved more changes in the framework of the gas sector than the German government.

The emergence of GEODE demonstrates the division of interest among local distribution companies. They are in principle represented by VKU. VKU, a more old fashioned association, mainly fights for the status quo of the industry. But some distribution companies recognised that they may – as in the power sector – profit from a more open gas market. These companies joined GEODE but interestingly did not leave VKU. Most of them are also members of BGW but in early 2006, during a later stage of the conflict about network access, five GEODE members left BGW.

14 This is a very important paragraph because its provisions were the starting point for very controversial discussions about implementation, that started after the law came into force. For the text of the paragraph see Section 5.7.2.

15 One of the points of discussion during the whole process of law-making was about how access to the local distribution systems should be regulated. Each version of the ordinance provision made different proposals. The final model only emerged during the arbitration process.

16 Advisors of the opposition drafted a new ordinance provision with the amendments essential, in their view, to adapt the ordinance provision to the law. The emphasis of the changes was to switch the perspective from one of network access for every single operator to one of access to the network as a whole and to specify the forms of co-operation among operators required to achieve this aim.

17 This was widely acknowledged in all discussions about the law and the provisions after they came into force (see slide 16 of the BNetzA presentation, given by Wolfgang Schmidt of the BNetzA, about access to the gas network at the first information meeting with the industry on 8 September 2005): 'due to time constraints', he argued, 'the full adaptation of the ordinance provisions to the law (increased co-operation duties, changed wording) was not possible'.

18 Pipe-in-pipe competition refers to pipeline systems like NETG, NETRA, MEGAL or TENP which are owned by pipeline companies with several owners and where the different owners have capacity rights in the pipelines. In 2002, Prof. Dr. Günter Knieps, in a study carried out for Ruhrgas, tried to develop a concept of pipeline competition and concluded that major parts of the German regional and interregional network are either exposed to pipe-to-pipe or pipe-in-pipe competition. (Günter Knieps, *Wettbewerb auf den Ferntransportnetzen der deutschen Gaswirtschaft, wirtschaftswissenschaftliches Gutachten im Auftrag der Ruhrgas AG*, Freiburg, 1 March 2002; a condensed version with the same title was published as a University of Freiburg discussion paper in August 2002). Another study was done by bremer energie institut (Wolfgang Pfaffenberger and Ulrich Scheele, *Gutachten zu Wettbewerbsfragen im Zusammenhang mit §3, Absatz 2, Satz 1 GasNEV,* Bremen, December 2005). This study was carried out on behalf of BEB, E.ON Ruhrgas, RWE Transportnetz Gas and VNG.

19 This was the clear statement of the Bundeskartellamt at a hearing of

the economic committee of the German Bundestag on the Energy Law: 'Stellungnahme des Bundeskartellamtes zur öffentlichen Anhörung von Sachverständigen zur Novelle des Energiewirtschaftsrechts unter dem Gesichtspunkt der Gasnetzentgeltkalkulation' im Ausschuss für Wirtschaft und Arbeit des Deutschen Bundestages amMittwoch, Berlin, 15 December 2004, p. 3.

20 For example Ruhrgas determined the entry and exit tariffs in Bunde and Steinitz, which are connected via the NETRA system in order to compete with BEB and to acquire additional business for the not fully used pipeline. From February 2006 BEB changed the tariff structure significantly. According to the company this was done in reaction to pipeline competition from Wingas and E.ON Ruhrgas

21 It is not yet clear whether this regulation is in line with the EU Directive and the EU provision on interregional pipelines that will come into force in July 2006 (Regulation (EC) No 1775/2005 of the European Parliament and of the Council of 28 September 2005) on conditions for access to the natural gas transmission networks (*Official Journal* L 289, 3 November 2005). The economic committee of the German Bundesrat recommended removing the possibility of deviating totally from cost-based tariffs (see minutes of the meeting of the economic committee on the second amendment of the energy law, 26 April 2005). The deviation from cost-based tariffs was potentially in conflict with the EU provision. (The minutes stated: 'the possible relief of operators of interregional transmission systems from cost-based tariffs contradicts the European directive'.) Similar concerns were raised within the energy directorate of the Commission.

22 It will not be an easy task to evaluate the state of pipeline competition. So far no thorough study is available and the studies by Knieps and Pfafffenberger/Scheele do not present any numerical analysis.

23 It was disputed whether the RegTP or the Bundeskartellamt was the right organisation and the presidents of both organisations lobbied hard to be assigned the task. An argument in favour of the Bundeskartellamt was their experience with energy related questions which the RegTP lacked. But the Ministry of Economics decided to develop the RegTP into a super authority for regulating all network sectors (including railways). There are sound arguments for this decision and it is now generally regarded as common sense.

24 At the same time the authority was formally renamed. The new name was controversial during the law-making process and some staff members still do not like it.

25 Presentation of the BNetzA at the first meeting of the reference group, 26 October 2005.

26 Presentation of BGW at the first meeting of the reference group at the 26 October 2005.

27 E-mail invitation from the Vice-President of the BNEtzA for the first meeting of the reference group. The main associations invited were: Bundesverband Neuer Energieanbieter (BNA), EFET Deutschland, VIK, VBundesverband der Energie-Abnehmer (VEA), Groupement Européen des Entreprises et Organismes de Distribution d'Energie (GEODE), VKU,

8KU (representing the eight biggest local distribution companies in Germany) and, of course, BGW.

28 At the second meeting of the reference group all associations of network users formally backed this model now labelled 'Entry-Exit-Netzzugangsmodell Gas für Deutschland' (presentation of the associations of network users at the 2nd meeting of the reference group, 24 November 2005).

29 The whole atmosphere changed during January 2006. From October to December 2005 there had been intensive discussions with the reference group, where representatives of the different associations had felt that a base for jointly developing a model for network access was worked out. In January 2006 BGW and VKU stopped attended these meetings and representatives of the network users started to fear that the experiences during the times of negotiations for an association agreement were going to be repeated. BGW and VKU wanted to determine the future rules of the game unilaterally, without taking into account the interests of the network users (see, for example, a press release of EFET Deutschland dated 16 January 2006 in which Jörg Spicker, the chairman of EFET Deutschland, commented: 'BGW is acting as it did five years ago during the association agreement').

30 If the wishes of the interregional pipeline companies, the international companies and the regional transmission companies are counted together it becomes clear that even 20 was an ambitious target from the BGW perspective. This became one of the problems in later discussions.

31 When it became clear at the end of January 2006, that BGW/VKU will at least party be able to impose their ideas, EFET, VIK and bne raised these concerns in press briefings.

32 This argument is shared by proactive distribution companies. In January 2006 five distribution companies (Aachen, Ludwigshafen, Soest, Unna and Rosenheim) announced they were leaving BGW because the association did not represent the interests of local distribution companies.

33 New entrants fear, for example, that switching procedures and the transfer of transportation capacity are much more difficult if the previous supplier followed the 'option model'.

34 One should keep in mind that German gas companies are integrated companies. So far the formal unbundling of trading and transportation activities, which is in place in many companies in accordance with the law, did not change their attitude.

35 These provisions will be introduced to avoid any discrimination between the two procedures for network access.

36 A BGW/VKU document, informing their members about their understanding of the results of the discussions with the BNetzA shows a lot of different interpretations of major issues (BGW/VKU, 'Eckpunktepapier für ein Netzzugangsmodell Gas', 30 January 2006). In this section I address the main issues.

37 The BGW/VKU document mentions the number of market areas but is silent about any potential reduction of that number. On the contrary, within BGW it was not possible to agree on 20 areas. Interregional transmission companies, regional transmission companies and international

companies which operate pipelines in Germany insisted on introducing 28 or 29 market areas. This conflict remained unresolved up to mid-2006.

38 Hans-Peter Floren, general manager of E.ON Ruhrgas Transport, said at a press conference that he expects that 90% of the gas will be transported according to this model.

39 On 1 February 2006 Ontras GmbH, the newly founded transportation company of VNG-Verbundnetz Gas, finally introduced an entry–exit system for its network, E.ON Ruhrgas Transport amended the existing entry–exit systtem and some regional transmisssion system operators introduced entry–exit systems. Thus the companies conformed with the demands of the ordinance provision on network access, but not the model of the law itself.

40 Developments between March 2006 and May 2006 confirm this assumption. As agreed, at the end of March BGW and VKU delivered the first draft version of the necessary co-operation contracts to the BNetzA. But the co-operation agreement did not follow the principles for network access as presented by Kurth at the end of January. In particular the proposed agreement was not based on the two-contract model as the basic model for network access.The usual round of negotiations, accusations and denials began again. Because this happened after the main manuscript of this study was completed, it cannot be described in greater detail.

5 ACCESS TO STORAGE

5.1 Negotiated Access to Storage under the Regime of the Verbändevereinbarung

As I described in section 3.1.2, access to storage was part of the association agreement. The willingness of BEB, Ruhrgas, Thyssengas, Wingas and VNG to grant access to storage sites made around 75 percent of the working gas volume available for third party access from April 2001.[1] The storage operators published access conditions on their websites that varied significantly from operator to operator, taking into account the different technical conditions of the storage sites and different business models. Different operators offered either bundled or unbundled services. Apart from Ruhrgas, they all offered physical services related to a specific storage site. Transportation to and from the storage had to be arranged separately. Ruhrgas offered a virtual storage service for its entire portfolio, including transportation to injection and withdrawal points. Most of the operators published minimum flow restrictions and restrictions on injection and withdrawal due to technical constraints.

But this had no impact on the gas market. Between March 2001 and March 2005, less than five storage contracts were signed with third parties.[2] The first of several reasons for this is that storage is too expensive to manage the necessary flexibility for customers in a commercially feasible way. This holds true particularly in combination with the point-to-point transportation system because the maximum capacity of the required flexibility has to be booked from the storage site to the withdrawal point of the customer. Also, storage conditions are not flexible enough because they are offered as a bundled service with restrictions on injection and withdrawal. And, finally, minimum flow restrictions for some storages makes their use impossible below a certain size of supply portfolio.

For these reasons new market players have usually preferred to use an extended balancing service offered by the transmission companies instead of booking storage capacity. Under this

service, transmission companies offer to adjust a temporary imbalance between injection and withdrawal to a greater extent than in the basic service. The concrete service and the tariffs differ between the different transmission companies. This service has the characteristics of virtual storage.

5.2 The Future of Negotiated Storage Access

In accordance with the new energy law Germany continues to rely on negotiated third party access to storage. The new law obliges a storage operator to grant non-discriminatory access only if it is necessary for efficient transportation to end customers. And the law stipulates minimum requirements for the publication of information on storage sites. But the law is silent about how services should be offered. That means that in addition to those storage operators that agreed to grant access as part of the association agreement, almost all other storage operators have to open their storage sites formally.[3] All these operators of underground storage facilities are now obliged to offer third party access but the offered services and procedures are mainly subject to negotiation.

The EU Commission may have more influence on the future development of the framework of the market for storage than the German government or the BNetzA. In March 2005 the Guidelines of Good TPA Practice for Storage System Operators (GGPSSO) that were agreed by the working group of the Madrid Forum and have been in force since 1 April 2005. The major German storage operators say that the services offered since 2001 already comply with around 90 percent of the guidelines. But the guidelines may have an impact on the services provided and the information published by the regional and local storage operators. The implementation of the guidelines is voluntary, and most of the regional and local operators of underground storage sites were not directly involved in the negotiation process. But the president of the European association of storage operators Gas Storage Europe (GSE), Klaus-Dieter Barbknecht, a VNG director, urged the local and regional storage operators to comply with the Guidelines mainly to avoid formal European regulation.[4] In May 2005, the German regulatory authority sent the European Regulators

Group for Electricity and Gas (ERGEG) questionnaire to all German operators as the basis for a first monitoring report on the guidelines. This action indicated that the regulatory authority expects these companies to comply with the guidelines. This is the expectation of ERGEG too. The first monitoring report complains about the lack of compliance by the local and regional storage system operators.[5]

Although the new energy law formally authorises the government to issue an ordinance provision to switch from negotiated to regulated storage access, it is not likely that this will be happen quickly because the government and the regulatory authority will be more concerned about network access. But in Germany many storage operators expect that ERGEG will attempt to introduce a binding European regulation on storage access similar to the EU provision on access to transmission systems. They argue that the very early timing of the monitoring report is a clear sign that ERGEG intended to demonstrate that voluntary guidelines would not be sufficient.

But the representatives of the government emphasised at the meeting of the joint working group on 18 March in Brussels, where the guidelines were agreed, that they are concerned about formal regulation.[6] And the market for storage is more complex than that for network access. Therefore it may take some time before German companies are forced either by the Commission or by the government to switch to regulated access to storage. A senior manager from a storage provider assessed it the following way: 'if network access works and competition in Germany is still not visible, then regulation of storage will be high on the agenda'. The first monitoring report did not contain a clear recommendation about the regulation of storage. The monitoring process will continue in 2006 and a final recommendation will be based on the results of this monitoring.

5.3 The Market for Storage Sites

The latest development concerning storage projects in Germany demonstrates that, besides third party access to storage, it is possible to develop new storage sites, which may make this sector more dynamic. Table 12 shows the different projects and their status.

Table 12: New Storage Projects in Germany or Relevant to the German Market

Company	*Storage Site*	*Storage type*	*Volume*	*Status / Comment*
EEG (Gaz de France)	Peckensen (near Steinitz and the NETA system)	Salt cavern	160	Final investment decision made for two caverns. The first will be in operation 2009, second in 2011. EEG operates one salt cavern in Peckensen.
E.ON Hanse	Ludwigslust	Salt Cavern	10	Formal approval was granted by the state authority. So far E.ON Hanse have made no investment decision.
Essent	Epe	Salt Cavern	200	The operation of the storage started in November 2005. The storage is connected to the Dutch system. Essent is negotiating with E.ON Ruhrgas a connection to the German system.
EWE	Rüdersdorf	Salt cavern	400	Starts operation from 2006 (first of three new caverns).
	Nüttermoor	Salt cavern	140	EWE is developing two new caverns in addition to the 16 caverns operated at Nüttermoor. They will be in operation in 2007.
Gas Union	Reckrod	Salt cavern	n.a.	In addition to the two caverns in operation a third cavern was almost finished at the end of 2005.
Gelsen-wasser	Epe	Salt cavern	n.a.	The German regional supplier announced at the beginning of 2006 that it will develop caverns at Epe jointly with some of its customers.
IVG	Etzel	Salt cavern	500	Planned conversion of caverns currently used for oil storage. In November 2005 IVG and Etzel Gaslager consortia agreed on converting the storage sites.
IVG	Etzel	Salt cavern	Up to 2,400	Potential development. First discussions with potential customers started. First development of caverns started in late 2005.

Table 12: *continued*

Company	*Storage Site*	*Storage type*	*Volume*	*Status/Comment*
Stadtwerke Kiel	Rönne	Salt cavern	70	Development of a second salt cavern. Construction started. Complete utilisation from 2011.
Nuon	Epe	Salt cavern	n.a.	The installation of the equipment is under way. The storage will be connected to the Dutch system.
Trianel			n.a	Trianel started investment in storage in spring 2005. The site will be in operation in 2007. The company has not revealed the location, but it is almost certain that it is at Epe.
Wingas/ Gazprom/ RAG	Haidach (Austria)	Depleted gas field	2,100	The storage will be in operation in 2007. It will be connected to the German border point Burghausen (80 km). Wingas will market 1/3 of the capacity.
VNG	Bernburg	Salt cavern	328	Bernburg will be expanded over the coming years. The process will be finished in 2011.

Sources: Company and press reports.

The geographical dispersion of storage sites over Germany is shown on the map in Figure 12.

In addition to the projects mentioned in the table, some German storage providers are considering expansion of their facilities either for their own or their customers' requirements.

There are geological opportunities to develop new salt cavern storages in particular in Northern Germany. Even the formal procedures are in some cases not an obstacle. For example at Epe, where E.ON Ruhrgas and RWE operate storage facilities, and Essent and Nuon have just invested, there is a salt mining industry. The mining is carried out by a subsidiary of the Belgian chemical company Solvay, Salzgewinnungsgesellschaft mbH. New caverns for gas storage with all the necessary permits are created frequently after the salt has been excavated. Installation of the necessary technical equipment and filling the storage for the first time takes approximately three years. A bigger problem

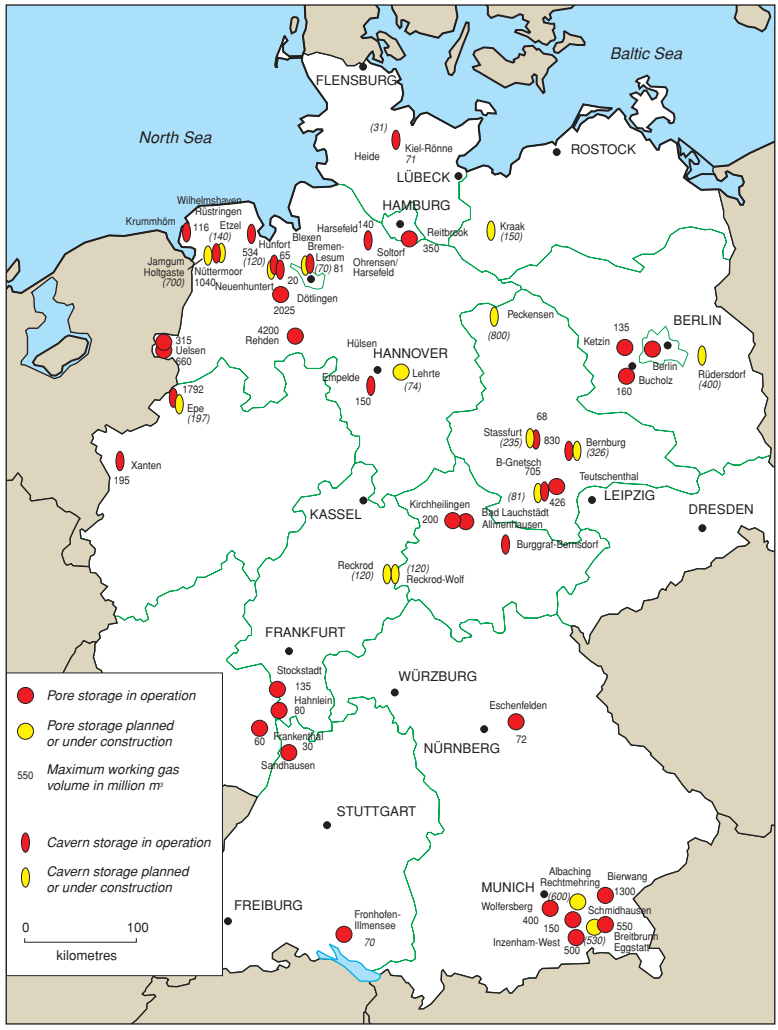

Figure 12: Storage Locations and Projects in Germany

Source: R. Sedlacek, 'Underground Gas Storage in Germany', Erdöl, Erdgas, Kohle, 121, Jg. 2005, Heft 11.

than developing the storage facilities seems to be connection to the network system. Essent has been negotiating since March 2005 with E.ON Ruhrgas Transport about a connection from

its Epe site to the low cal transportation system of Ruhrgas. And even if a connection is possible, the current constraints indicated by the transmission companies may make it difficult to obtain capacity.[7]

Two of the companies mentioned in the table are independent storage operators:

- IVG is a real estate company, previously state-owned but privatised in 1993, which always operated the storage site at Etzel, where gas and oil is stored. The German state had used the Etzel storage for a strategic oil reserve against potential cuts in supply. In 2005 it sold Etzel to IVG. The existing caverns, used for gas storage, are leased under long-term contract until 2043 to Etzel Gaslager consortia.[8]
- EEG, Erdgas Erdöl GmbH, is fully owned by Gaz de France. Since October 2002 the company has operated one salt cavern with a working gas volume of 60 million m3 at Peckensen. One third of the volume is leased under long-term contract to the regional gas company Avacon. The rest is leased on a medium-term basis to an undisclosed party.

Both operators – as shown in the above table – are extending their storage facilities and offer opportunities for new market players to invest in storage.

Notes

1 In Chapter 2 it was shown that, in addition to the gas majors, storage operators can be found at every level of the German gas industry. But the underground storage facilities of these companies were not included in the association agreement.

2 The only publicly known user of storage was the Aachen-based trading company Trianel, which booked storage capacity at Ruhrgas. Trianel managed a full service supply of a German local distribution company (Viernheim, near Mannheim) based on these contracts. The responses of German operators to a questionnaire from ERGEG (part of the monitoring of the Guidelines of Good Practice for Storage Operators) also confirm that storage is used by third parties only to a limited extent. Most of the operators reported less than three users (see ERGEG Final 2005 Report on Monitoring the Implementation of the Guidelines for Good TPA Practice for Storage System Operators (GGPSSO), December 2005, p. 11–12). In early 2006, however, BEB reported an increase of the use of storage by third parties. The number of users increased to 12. VNG also reported increasing demand and an increasing number of users in 2006.

3 This encompasses all regional and local distribution companies that operate storage sites (see Chapter 2).
4 German members of GSE are BEB, Ruhrgas, RWE Energy, VNG and Wingas. Many of the regional or local operators are linked to the German GSE members by capital relations and should have been involved indirectly in the negotiations during the Madrid process.
5 See ERGEG Final 2005 Report on Monitoring the implementation of the Guidelines for Good TPA Practice for Storage System Operators (GGPSSO) (Ref: E05-STO-06-03, 7 December 2005, p 6), where all the regional and local storage operators were named among the companies with poor compliance.
6 Minutes of the meeting of the Joint Working group, Brussels, 18 March 2005.
7 For this reason the German regional utility Gelsenwasser, which will invest in storage at Epe, intends to supplement this investment by constructing its own pipeline from Epe to the Ruhr Valley, where the customers of Gelsenwasser are located.
8 The owners of the Etzel Gaslager consortium are E.ON Ruhrgas 74.8%, Statoil (operator) 20.1% and Norsk Hydro, Total and ConocoPhillips. The original contract had a duration up to 2012 and was extended in November 2005.

6 LONG-TERM GAS CONTRACTS AND THEIR IMPACT ON COMPETITION

6.1 The Contractual Structure of the Gas Industry prior to Liberalisation

The German delivery chain is dominated by long-term contracts between the different layers of gas companies. Long-term contracts between the major gas importing companies and the producers are passed through to regional and local gas companies. Before the start of formal liberalisation even industrial customers usually had long-term contracts with their suppliers. In recent years most contracts with industrial customers became more short-term (up to a maximum of five years but usually one to two). Gas companies, however, still have contracts with a duration up to twenty years or more with their suppliers.[1]

Aside from the duration, the following generalisations can be applied to contracts between interregional and regional gas companies and local distribution companies:

- Older contracts did not specify a concrete volume but stipulated that the whole demand of the customer would be included. Over the past few years, this was usually replaced by agreement of a maximum volume related to the maximum demand of the customer in a very cold winter.
- Contracts stipulate a capacity element related to a maximum hourly or daily volume. Usually no maximum capacity has to be booked but the effective maximum capacity has to be paid.
- Prices are composed of a capacity and a commodity element. The capacity element is either linked to German wages or an investment index, adjusted once a year. The commodity element is usually linked to heating oil prices in Germany. The most usual reference is still the monthly prices published by the federal statistical office for household deliveries of gas oil. This index is based on a weighted average of the prices for Düsseldorf, Frankfurt (Main) and Mannheim/Ludwigshafen,

known as Rheinschiene prices. The most usual method of gas price adjustment is still to oil product prices, taking the six month average of the Rheinschiene prices with a time lag of three months. The contracts are adjusted each quarter. To give an example: for adjustment of the prices on 1 October the average of heating oil prices from January to June is taken into account.[2]

Figure 13 gives a rough idea of the price differential between German import prices and procurement prices of local distribution companies, showing the evolution of average German border prices and the commodity price of a typical German Stadtwerke procurement contract without tax.

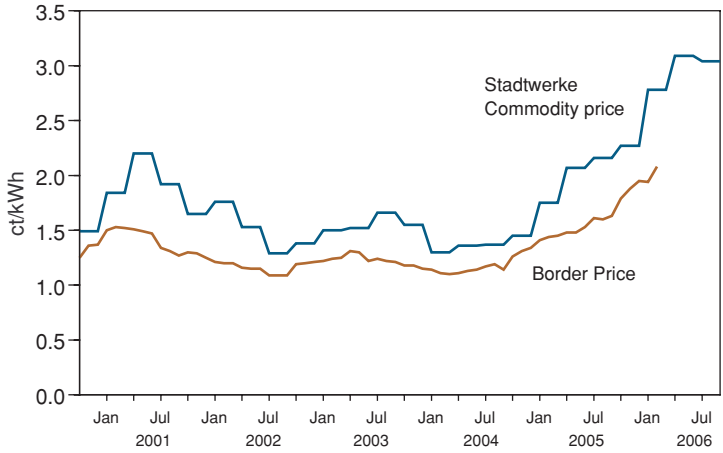

Figure 13: German Border Price and Procurement Price of a Typical Stadtwerke Contract

Source: Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA), author's calculations.

6.2 Changes of Contract Structure after Formal Liberalisation

Starting in the late nineties, due to perceived legal pressure as a result of changed competition law and some competitive pressure, importing companies started to offer different contract structures.

In 1998 and 1999 Thyssengas started to offer their customers a release of 20 percent of volumes under long-term contracts. A few Thyssengas distribution company customers used this contractual freedom to buy part of their supply from Wingas.[3] Since October 2002 Thyssengas has offered new long-term contracts that encompass only 80 percent of the demand of the customer, with a additional swing of 10 percent. Thyssengas made short-term offers at market-responsive prices for the remaining volumes.

Other companies responded in different ways:

- From October 2001, BEB offered to split traditional contracts with 80 percent of the volume remaining under long-term contract with the traditional pricing formula. For the rest of the volume a one-year contract was offered. According to BEB customers, in the gas year 2001/2, the company offered, for volumes under short-term contract, a standard rebate on the commodity price of about 0.1–0.2 ct/kWh compared to the price under long-term contract. In addition BEB offered rebates on summer volumes and a rebate on the capacity element of the price if the customer shifted to a maximum nominated capacity.
- From 2001 VNG offered a rebate of around 0.2 ct/kWh on the commodity element of the price for 20 percent of the volumes plus a release of 20 percent of the volumes under long-term contracts.
- The regional supplier in South-West Germany Gasversorgung Süddeutschland (GVS) offered all distribution companies short-term contracts from October 2004. The exact contractual duration is not known, but is probably between one and three years. According to company sources that was the final result of a condition imposed by DG COMP for approval of the takeover of GVS by a consortium of ENI and EnBW. The commission demanded early cancellation rights for all local distribution companies that were customers of either GVS, Neckarwerke Stuttgart or EnBW Gas, subsidiaries of EnBW.[4] GVS finally decided to put an end to the use of long-term contracts.
- For the first time during the second quarter of 2001 Ruhrgas started to offer rebates (0.6 ct/kWh) for 20 percent of volumes.

But this rebate was conditional on the customer purchasing all of its demand from Ruhrgas. This rebate policy was continued until October 2003. Over time the rebate was reduced to 0.4 ct/kWh. From October 2003, Ruhrgas was forced by the Ministry of Economics to offer a separate one-year contract for 20 percent of the customer's demand. This was one of the ministerial conditions for approving the takeover of Ruhrgas by E.ON.[5] For the short-term contract Ruhrgas offered a new pricing system linked not only to fuel oil, but also to gas oil. The price was below the price for the volumes in the long-term part of the contract.

- BEB and Thyssengas formally split their contracts and customers started to negotiate the price in the short-term contract each year. The rebates offered by Ruhrgas and VNG, by contrast, were not negotiated but fixed by the company.

These changes of the contracts did not lead to significant switches of customers to new suppliers except in the case of Thyssengas. In BEB's area up to 2005 only a very limited number of customers used the additional contractual freedom to switch their supplier. From the perspective of customers there are two main reasons for this lack of switching – first, the restriction to 20 percent of the volume and other restrictions on flexibility and, second, the fact that rebates, particularly in the case of Ruhrgas, were only offered if the total volume was bought from that supplier.[6]

The rebates were intended to reflect prices which would have ruled if the gas had been at the Zeebrugge and Emden–Bunde trading hubs (and later in the Netherlands).[7] The competition authorities examined the rebate mechanism because dominant market players are not permitted to use these kinds of 'loyalty rebate', but they were never formally banned. The 20 percent restriction on the release of volume under long-term contracts led to legal challenges.[8]

6.3 Legal Challenges to Long-term Contracts

The long-term contracts had been concluded prior to the liberalisation of the energy markets and prior to the consequent changes in German and European energy law. From the beginning of the liberalisation, legal experts questioned whether this

kind of contract could be maintained under the new framework conditions. The first legal case about this issue came not from the gas, but from the power market where similar long-term contracts existed between local distribution companies and their suppliers. In April 1999 the court of Mannheim (Landgericht Mannheim) declared the power procurement contract between Stadtwerke Waldshut-Tiengen and EnBW to be null and void. EnBW appealed to a higher court but withdrew because the development of competition swept away long-term contracts in the power sector.

In the autumn of 1999 Stadtwerke Aachen (STAWAG) challenged its long-term gas procurement contract with Thyssengas (now RWE). STAWAG reorganised procurement and from October 1999 bought one third of its demand from Wingas, and from 2000 around one third from the spot market. STAWAG reduced the off take from the Thyssengas contract accordingly and argued that the contract provision that required STAWAG to purchase the overall demand of roughly 3 TWh[9] from Thyssengas was contrary to German and European competition law. Thyssengas sued STAWAG but in two instances courts decided in favour of STAWAG. Thyssengas finally appealed to the German High Court (Bundesgerichtshof) for a final decision but had to withdraw the appeal one day before the decision was scheduled in November 2003 because of pressure from one of its shareholders. Many observers speculated that Thyssengas was forced by this shareholder to withdraw the appeal to avoid a final high court judgement, in order to keep the question of long-term contracts undecided for as long as possible. This view is supported by the second case that was brought to the high court. Stadtwerke Schwäbisch Hall had a similar conflict with Gasversorgung Süddeutschland (GVS) about the duration of contracts and the obligation to buy the overall volume under long-term contracts. In this case Stadtwerke sued GVS in 2001 with the aim of obtaining legal confirmation that the contract was null and void.[10] The lower court declared the long-term duration to be null and void but argued that the two parties were obliged to try to adapt the contract to the changed legal framework. Schwäbisch Hall appealed to the high court and wanted to terminate the contract since it had already signed a new contract with Wingas. In May 2003, one day before this

case was scheduled to be decided by the High Court, Schwäbisch Hall and GVS reached an out-of-court settlement, very favourable to Schwäbisch Hall, and the company withdrew the appeal.

Therefore until now no high court decision has ever been handed down on long-term contracts. The two decisions of the lower courts stated specifically that the combination of long-term duration and a high share of the overall demand is not consistent with German and European competition law. But there is still uncertainty about what part of the volume can be contracted under long-term contracts and what are the procedures by which contracts should be adapted. Although at least one of the leading law firms in the energy sector advised customers to declare contracts null and void, customers were reluctant to risk a legal conflict.

In those circumstances the Bundeskartellamt (Federal Competition Authority) stepped in to resolve the question.

6.4 Competition Procedures against Long-term Contracts

Immediately after the withdrawal of Thyssengas at the High Court the German Bundeskartellamt published a press release in which the president of the authority, Ulf Böge, expressed his regret about the lack of a decision from the High Court: 'the withdrawal [of the cases] does not stop the Bundeskartellamt from taking up complaints from market participants and starting its own investigation'.[11]

Indeed the competition authority started an investigation shortly after the failed high court decision. In 2004 the authority evaluated around 750 supply contracts of 16 German gas companies at the regional and interregional level with local distribution companies. According to the assessment of the Bundeskartellamt, more than 75 percent of the contracts were anti-competitive and amounted to an abuse of market power because they prevented newcomers from entering the market. Given the lack of nation-wide competition, the Bundeskartellamt argues that the 'relevant market' is the regional market defined by the network area of each company.[12] Therefore the regional supplier is always dominant because it has a market

share of close to 100 percent in its network area. The contracts are anti-competitive if they have either a duration of more than two years and a volume that satisfies more than 80 percent of the total demand of the customer or a duration of more than four years and a volume that satisfies more than 50 percent of the total demand of the customer.

But the Bundeskartellamt did not immediately present a legal challenge to any of these contracts because it believed that such proceedings would be too time-consuming. Instead the authority adopted a strategy of persuading the companies to change their contracts voluntarily. To achieve true market opening and increasing competition, the authority not only wanted companies to restrict long-term contracts but also wanted to impose more structural regulation on future contracts. The Bundeskartellamt argued that the way the release of volumes had been handled during recent years demonstrated that it was aimed at restricting the ability of customers to switch suppliers. In particular, some in the authority said that the way Ruhrgas shaped the contracts in order to fulfil the ministerial requirement showed that a formal release of volumes is not sufficient to enable customers to switch suppliers.[13] Therefore, in January 2005, the Bundeskartellamt published a paper setting out fundamental principles for future gas sales contracts.[14] This paper included five principles for contract provisions that are in line with competition law, allowing distribution companies effectively to use at least one other supply source:

1. The volume under the main contract must be based on the effective annual demand and not on the annual demand of a reference year with a particularly cold winter. A second supplier must be assured that it will definitely be allowed to supply a certain percentage of the annual volume.
2. The volumes for additional peak winter demand must be equally shared between the different contracts.
3. Different contracts of one supplier with different durations are judged as one contract. Therefore the usual approach of suppliers to split the total delivery volume into long-term and short-term contracts would no longer be allowed.
4. Provisions that allow the current supplier a 'last call' (to match the best new offer) would no longer be allowed.

5. Contracts that include an extension of the duration without explicit new negotiations will be banned.

The basic approach of the authority is to enforce a 'multiple supplier model', in which, if one company supplies part of the volumes under a long-term contract, it is not allowed to make offers for the remaining volumes, not even under a short-term contract. The Bundeskartellamt thinks that this is the only way to create effective competition. One of the main arguments of the authority is that the total lack of customer switching after Ruhrgas changed its contract structures demonstrated that the so called 'tool-kit model' or 'stapling model', in which one supplier offers the total volume under different contract structures, does not work.[15]

The Bundeskartellamt invited all stakeholders to comment on the paper. It received more than ninety responses, some of them lengthy. Obviously new market entrants supported the Bundeskartellamt proposals. According to the authority it received additional support from academics who sent comments. The association of the gas industry, BGW, and most of the interregional and regional gas companies sharply criticised the proposals. They argued that long-term contracts were needed for security of supply and that long-term import contracts have to be backed by similar downstream contracts. In addition gas companies rejected the multiple supplier model either because it does not recognise that it may be almost impossible to find new suppliers for part of the volumes, or because such a practice would lead to increasing prices. Finally, they argued that the suggestions of the Bundeskartellamt severely restrict freedom of contract. The only major gas company that wholeheartedly supported the Bundeskartellamt was Wingas. The criticism from most of the gas companies was backed by some of the local distribution companies. According to the Bundeskartellamt local distribution companies argued in two different ways: one group rejected the proposals and wanted to keep the current long-term contracts; the other confirmed the expected consequences of the breaking up of long-term contracts and reported positive experiences with extended contractual freedom.

At the beginning of April 2005, the Competition Authority issued a six page summary of the main responses and some

arguments countering the fundamental criticisms of part of the gas industry. The Bundeskartellamt gave the impression, that the arguments of the gas industry, and in particular its association BGW, were not coherent: 'it must be said that the gas industry tries, with its unproved hints of an alleged danger to the security of supply, to counter the market opening prescribed by the Bundeskartellamt. But the loudest voices do not always express the best arguments'.[16] With these words the authority introduced a summary of five arguments demonstrating that security of supply was not endangered:

1. The authority is not challenging long-term import contracts. But the same kind of long-term contract does not necessarily have to be applied to downstream contracts as 'sources from importing gas companies' claim.
2. Competition increases security of supply because it enables new suppliers to enter the market.
3. If the argument of Ruhrgas about a future supply gap is valid, the importing gas companies will have a range of possibilities for the sale of their gas.
4. Future market opening has no negative impact on willingness to invest. This is demonstrated by the willingness of E.ON, Wintershall and RWE to invest in Russia.
5. Investment in power plants and gas production is not affected because in these cases long-term supply contracts are still possible.

In addition, the Bundeskartellamt emphasised the support of its position from the EU Commission. Not only DG COMP but also the commissioner in charge of DG TREN, Andris Piebalgs, has supported the authority's position.

New market participants demanded additional actions as a prerequisite for effective competition for the supply to Stadtwerke. Among these actions were an improvement of third party access to networks, a gas release programme at the border points to create sufficient liquidity and a restriction on the duration of contracts with a share of up to 50 percent of the demand of local distribution companies.

According to statements by new market participants, if the Bundeskartellamt is successful, Stadtwerke can procure at least ten Bcm/year from new sources. These volumes are currently

not available at the trading hubs. Nor is the necessary transportation capacity available. But, according to juridical arguments in statements sent to the Bundeskartellamt, both European and German competition law allows it to force the release of gas at the border points by the importing German gas companies.[17]

In June 2005, the Bundeskartellamt started a final round of negotiations on these proposals. In a letter dated 24 June, the authority told the sixteen companies involved that it was aiming for a quick resolution. The target was to achieve a result early enough to have an impact in the following gas year. The companies should sign a unilateral undertaking to adopt the contractual proposals of the Bundeskartellamt. The companies would commit themselves to adopt the principles of the Bundeskartellamt in their sales contracts with distribution companies without admitting any previous fault. Based on the industry consultation process, the Competition Authority's proposals made two concessions:

- A 'de minimis rule' was introduced. Distribution companies with an annual demand of less than 200–250 GWh can still buy their whole demand from one supplier under a long-term contract.
- For contracts signed before 1998 there will be a short transition period, but the duration of this period was not specified.

The Bundeskartellamt target, to achieve a voluntary agreement by mid-August 2005, was missed. The Bundeskartellamt negotiations concentrated on E.ON Ruhrgas as the most important player. During August and September a real bargaining process began, accompanied by public pressure and ultimata from Ruhrgas and the Bundeskartellamt. The Bundeskartellamt offered a final compromise: for the first year of the arrangement (2006) 35 percent of the portfolio of a gas company could be exempted from the new rules for long-term contracts, but this share should be lowered to 9 percent for the three following years. This would have lead to a partial postponement of the opening of the contracts. But E.ON Ruhrgas insisted on its right to decide unilaterally (without the agreement of the customer) what type of contract should be assigned to this 'traditional long-term part' of the portfolio. This was not acceptable to the antitrust authority

and a sticking point was reached. Ulf Böge, the president of the Bundeskartellamt, announced at a September 2005 press conference the final breakdown of the negotiations.[18] E.ON Ruhrgas rebutted Böge's conclusions, emphasising its intention to compromise but underlining again that from its perspective the whole process was an unjustified restriction of the contractual freedom of the gas companies. The multiple supplier model was rejected again with Burckhard Bergmann, the CEO of E.ON Ruhrgas, cited in the press release as saying 'we will continue to offer short-term volumes to stimulate competition as a supplement to volumes under long-term contract'. The company offered to make contracts to distribution companies more flexible in future. In addition, E.ON Ruhrgas argued, since by 2008/9 contracts for 40 percent of the volumes with distribution companies will end anyway, this will give enough opportunities to new entrants.[19] The E.ON Ruhrgas press release demonstrated again that the crucial conflict was that about the multiple supplier model. During the negotiations, the Ruhrgas management always indicated that it would not accept this model, because it would endanger a significant part of the company's sales.

As a result of the breakdown of the negotiations with Ruhrgas, no final settlement was achieved with any of the parties, although some of them formally agreed to the terms of the Bundeskartellamt.[20] But all these agreements were conditional on the assent of all the other companies involved.

6.5 Further Procedures

On 13 January 2006 the Bundeskartellamt formally issued a ban on the traditional long-term sales contracts of E.ON Ruhrgas. The authority obliged E.ON Ruhrgas to change all existing 51 contracts with distribution companies from 1 October 2006 and not to conclude any new contracts not in line with the guidelines of the authority. That is to say, in addition to restrictions on duration of contracts – more than 80 percent of the total volume of the customer for 2 years, and more than 50 percent for four years – the Bundeskartellamt will enforce the multiple supplier model. The formal document gives some additional insights about the reasoning of the Bundeskartellamt in particular in the case of E.ON Ruhrgas:[21]

- Around 70 percent of the contracts of E.ON Ruhrgas cover the total demand of the customer; 6 percent cover more than 80 percent of the demand.
- In 2005, E.ON Ruhrgas offered special cancellation rights to all customers supplied jointly with RWE (including, for example, RheinEnergie and Stadtwerke Düsseldorf), but it is not known whether the customers used these rights. The competition authorities criticised the conditions governing the use of these rights (such as a worsening of the conditions for the supply of gas to power plants and short-notice cancellation).
- All customers of E.ON Ruhrgas whose contracts expired in 2005 or 2006 extended at least a part of their contracts until 2011.

At the beginning of 2006 Stadtwerke Neuss, a customer of Ruhrgas, applied to be added to the BKA process as a concerned party. In addition fourteen of fifty-one customers of E.ON Ruhrgas submitted written comments. Around half of them in principal welcomed the initiative of the Bundeskartellamt. But all of them raised concerns about the multiple supplier model, that is to say prohibiting one supplier from offering different contracts with different durations (known as 'stapling' contracts).

The Bundeskartellamt justified its argument that the voluntary commitment of E.ON Ruhrgas to change contract structures was not sufficient. The company has too much freedom to control the release of volumes and allocate risks to its remaining contracts. The document reports one case where E.ON Ruhrgas demanded that the reduction of volumes under an existing contract should be allocated equally between each customer group (industrial customers, residential customers, power plants, distribution companies). In addition rebates to customers were reduced. It proposed that the ban should come into force immediately and remain in force until the gas year 2009/10.

But E.ON Ruhrgas started court actions against the ban and against its immediate implementation separately. A higher court in Düsseldorf, in charge of all competition procedures, had first to decide about immediate enforcement. Competition law allows this decision to be fast-tracked to the German High Court. It is expected that there will be a definitive final decision as to whether

E.ON Ruhrgas has to accept the contractual ban immediately as early as August 2006, although the final decision in this case may take time. The decision of the court on immediate enforcement will provide a clear pointer to the final decision.

There is broad consensus that the old contracts are not in line with European and German competition law, but there are doubts about whether the Bundeskartellamt's proposals on the new contract structure will be enforceable. These doubts arise because:

- It is questionable whether regional demarcation is justified. The Bundeskartellamt argues, that, due to a lack of workable third party access, the market is restricted to the network area of each supplier. But, if Germany is seen as a single market, the only company which might have more than a 30 percent share of the wholesale market is Ruhrgas. According to European law, for a company with market share of less than 30 percent, a five year contract for 100 percent of the volume is permissible.[22]
- The length of the transition periods granted for old contracts and which contracts should be considered 'old', that is, entered into prior to the formal liberalisation of the market, are disputed questions. Most lawyers argue that contracts that were signed prior to April 1998, when the first amendment of the energy law came into force, are old contracts. But there are other opinions that the liberalisation of the gas market started later, specifically not before the first EU directive requiring gas market opening in August 2000.
- There are those who believe that the Bundeskartellamt principles cannot be derived from competition law and that other contract principles that are in line with the law might be possible.

E.ON Ruhrgas has concentrated on challenging the multiple supplier model that would partly exclude the company from this market. Many lawyers think this is the weakest part of the Bundeskartellamt argument.[23]

But the competition procedures have already had consequences for the contractual behaviour of the gas companies. E.ON Ruhrgas announced in October 2005 that it would voluntarily offer customers new contract structures from October 2006.[24]

From this date, in line with the general idea of the Bundeskartellamt principles, new contracts will have a maximum duration of two years, if they cover more than 80 percent of a customer's demand; for a demand of 50 to 80 percent the maximum duration will be four years. For existing contracts E.ON Ruhrgas will offer a special cancellation right enabling customers to reduce their offtake to 50 percent of total demand. On 1 October 2008 all existing contracts will terminate.

Also, at the beginning of October 2005, Bayerngas announced that from the beginning of the current gas year, the old long-term contracts with E.ON Ruhrgas and Wingas would substituted by 'modern' contracts, in line with Bundeskartellamt principles. The additional contractual freedom was used by Bayerngas to buy volumes directly from trading locations or from producers; this has expanded the company's suppliers to nine. The company has not provided details of its new procurement portfolio or of its new contracts with E.ON Ruhrgas and Wingas.

From October 2005 around 70 distribution companies that are customers of RWE Westfalen Weser Ems obtained new supply contracts. From spring 2005, the group negotiated with RWE with the aim of adapting contracts to the changes caused by liberalisation. These negotiations were overshadowed by the Bundeskartellamt negotiations. In most cases RWE agreed with the distribution companies to leave the existing long-term contracts untouched for two years until there is a court decision in the E.ON Ruhrgas case.[25] By these means, legal claims are not abandoned but deferred, pending a final legal/regulatory decision on long-term contracts. In principle, under a new framework contract, customers will be allowed to choose which products they want to buy from RWE; they are no longer obliged to buy from RWE. The agreed product menu will be developed further allowing distribution companies to develop a flexible procurement strategy. A two-year transition contract was agreed, under which the companies will buy their total demand from RWE under special conditions.[26]

VNG Verbundnetz Gas offered distribution companies new contracts, from October 2006. The company announced this step in November 2005, as a result of the competition proceedings against long-term contracts. It is a completely new kind of contract with the following elements:

- A portfolio of different contracts with a duration of between two and ten years, which can be combined or stapled. This means that VNG is offering a model which is not in line with Bundeskartellamt principles. The company told its customers, that it does not expect the competition authority to be able to impose a legal ban on stapling contracts. If that expectation proves to be false, VNG will modify the contracts it is offering.
- A new commodity price. The price will still be linked to heating oil but the adaptation factor will be lowered and as a result the impact of an increase of oil prices on the gas price will be slightly reduced; and the overall price will be reduced because some rebates will be included directly in the price.
- A capacity element in the price that can be related either to maximum daily or maximum hourly capacity, amended in such a way that the customer has to pay the maximum booked capacity and not the maximum actual offtake. This capacity factor will vary according to region and load factor.
- In the different contracts, penalties for exceeding volume and capacity will be treated differently. VNG will ensure that flexibility risk is shared between the supplier and the customer.

N-Ergie Nurnberg, a regional supplier in North Bavaria announced in late 2005 that it will release 50 percent of the volumes under long-term contracts with local distribution companies. N-Ergie customers can source these volumes from new suppliers starting in October 2006. The company supplies 7.6 TWh to this customer group. N-Ergie itself is supplied by E.ON Ruhrgas and will start to build up a supply portfolio from the next gas year.[27]

This shows that the erosion of traditional contractual structures already started independently of the outcome of legal proceedings,. But the final outcome of the legal process will determinate how far-reaching and rapid this process will be.

Notes

1 The German Bundeskartellamt evaluated 750 contracts between gas suppliers and local distribution companies. 75% of these contacts covered between 80 and 100% of the annual demand of the customer and had a duration of more than four years. The longest contracts had a duration

to 2017 and in a few cases even beyond (see Bundeskartellamt, 'Kartellrechtliche Beurteilungsgrundsätze zu langfristigen Gasverträgen', Bonn, 25 January 2005 and the presentation of Carsten Becker, head of the energy department (8. Beschlussabteilung) of the Bundeskartellamt, at a workshop of the Institut für Energie- und Wettbewerbsrecht in der Kommunalen Wirtschaft an der Humboldt-Universität zu Berlin (EWeRK)).

2 During the last years most of the importing gas companies offered their customers a shortening of the time-lag to one month. This was partly accepted by the customers. E.ON Ruhrgas has come to an agreement with its customers to shorten the time-lag to one month from October 2006. The main reason is that historically prices in import contracts are adjusted more quickly to changed heating oil prices than prices in the sales contracts of the importing gas companies.

3 In 1999 Wingas finished the WEDAL pipeline that connects the German–Belgian border point Eynatten with the MIDAL system of Wingas. The WEDAL crosses the traditional network area of Thyssengas and Wingas aggressively sold gas along that pipeline with some successes. The distribution companies that switched part of their volume to Wingas were Monheim, Düren, EWV Stolberg, Gasversorgung Rhein-Erft, Stadtwerke Aachen (STAWAG), Wuppertal, Bocholt, Rhede and Viersen.

4 See the press release of DG COMP, 17 December 2002 (IP/02/1905). For a description of the merger see section 7.3.

5 I describe this merger in greater detail in section 7.1.

6 The Bundeskartellamt investigated this rebate system in 2003, because these kinds of rebate are not in line with competition law if a market dominating supplier uses them to tie customers. The competition authority ended the investigation after Ruhrgas promised to abandon the rebate system (press release of the Bundeskartellamt, 21 May 2003). In fact Ruhrgas changed it by using a pricing system with a similar effect (see section 7.1.6.2).

7 Starting in 2000, after the first Verbändevereinbarung was in place, distribution companies made offers to buy gas based on prices from the trading locations mentioned (see Chapter 8). Usually the prices at these locations were below the procurement price of the long-term contract, excluding transportation. This was the main motivation for the rebates of the incumbents.

8 The most important importing gas company, Ruhrgas, however, never agreed to release any volumes under long-term contract until it was forced to by the Ministry of Economics (see section 7.1.3).

9 The original contract, signed in 1984 with a duration of 19 years, contained the provision that STAWAG was obliged to buy all of its demand from Thyssengas. This was later changed to a concrete volume in accordance with the total demand of STAWAG.

10 The conflict between Schwäbisch Hall and GVS and the judgements of the two lower courts are, from the legal perspective, much more complicated than the STAWAG–Thyssengas case. But finally the conflict was about the same topic, whether long-term contracts will be retained in the changed environment.

11 Bundeskartellamt press release, 7 November 2003.
12 Under competition law, the definition of the 'relevant market' for judging the degree of competition is an essential starting point (see presentation of Carsten Becker at the EweRK workshop, 30 September 2005). For a more detailed elaboration see the decision of the Bundeskartellamt to ban the takeover of the Gelsenberg share in Ruhrgas from BP by E.ON (Bundeskartellamt B 8–40000–U–109/01, 17 January 2002, pp. 19–20).
13 For details of how Ruhrgas offered the release of volumes, see section 7.1.
14 Bundeskartellamt, 8. Beschlussabteilung B 8–113/03, 'Kartellrechtliche Beurteilungsgrundsätze zu langfristigen Gasverträgen', Bonn, 25 January 2005.
15 Indeed none of the Ruhrgas customers switched 20 percent of their volumes to a new supplier. I describe in the next chapter how Ruhrgas structured the contracts in a way that the managing director in charge of sales at Wingas, Gerhard König, labelled 'the most intelligent customer care program in the German gas market'.
16 Bundeskartellamt, 'Langfristige Gasverträge', 6 April 2005, p. 2.
17 The statements were not published officially. But some of them are available informally.
18 Bundeskartellamt press release, 27 September 2005.
19 E.ON Ruhrgas press release, 27 September 2005.
20 The fifteen companies involved were E.ON Ruhrgas, RWE Energy, VNG Verbundnetz Gas, Wingas, Gasversorgung Süddeutschland, Erdgas Münster, Bayerngas, Gas Union, Saar Ferngas, EWE, Avacon, Ferngas Nordbayern, Erdgasversorgungsgesellschaft Thüringen Sachsen, ExxonMobil, Shell. Seven of these (the identities not revealed) signed an agreement.
21 Bundeskartellamt, 8. Beschlussabteilung B 8–113/03, '1. Beschluss in dem Verwaltungsverfahren E.ON Ruhrgas', 18 January 2006.
22 See the presententation of Peter Salje at a workshop of Institut für Energie- und Wettbewerbsrecht in der Kommunalen Wirtschaft e.V an der Humboldt Universität zu Berlin (EweRK) on long-term gas contracts, 30 September 2005. Salje referred to the group exemption regulation of the European antitrust law. This allows for a maximum of five years exemption from § 81 EG if a supplier has a market share of less than 30%.
23 On 26 April 2006 a court hearing took place at the higher court in Düsseldorf. To the surprise of participants the judge made clear that the court would accept all the arguments of the Bundeskartellamt, including the multiple supplier model and regional market segmentation, and would decide against E.ON Ruhrgas. The decision is scheduled for the 6 June (after this study went to print). Although it will be a decision not on the the main case but 'only' on the question whether E.ON Ruhrgas has to implement the instructions of the Bundeskartellamt pending a final decision, the reasoning of the court makes a total victory of the Bundeskartellamt seem highly probable.
24 E.ON Ruhrgas press release, 7 October 2005. This announcement followed the release on 27 September and specified the new contractual formats in more detail, although important details were still missing.

25 These contracts are now known as 'Sleeping Beauty' contracts.
26 The basic structure of these new contracts was explained to me by the managing director of Stadtwerke Detmold, Detlef Masny, the spokesman of a working group of these companies. In November 2005, the CEO of RWE Westfalen Weser Ems, Knut Zschiedrich, said in an interview with Reuters that 52 of the 70 Statdwerke that are supplied by RWE Westfalen Weser Ems accepted these new contracts.
27 As a first step N-Ergie signed a procurement contract with Wingas for part of its needed volume. It is a fairly remarkable step for a regional and local supplier, which was 100% supplied by E.ON Ruhrgas and of which E.ON Ruhrgas indirectly owns an almost 40% share (via its holding company Thuga AG), to loosen its ties to E.ON Ruhrgas. It demonstrates the effect of the Bundeskartellamt's procedure on the customers' overall assessment of contractual relations.

7 CHANGES IN MARKET STRUCTURE

Even before the formal liberalisation of the gas market in 2000, changes took place in the market structure as a result of the mergers and acquisitions mentioned in Chapter 2. But the main changes of ownership structure which had an impact on the German gas market took place after the start of the liberalisation process. There were five particularly important developments:

1. The takeover of Ruhrgas by E.ON was obviously the most important change of the market structure; in addition to the takeover itself there were changes in ownership structure as a result of disinvestment by E.ON and Ruhrgas and of market behaviour resulting from the takeover.
2. The second German major, RWE, was more occupied with international mergers, in particular with the Czech company Transgas, and internal restructuring. In Germany the company acquired Thyssengas.
3. The Italian company ENI took over Gasversorgung Süddeutschland (GVS), the major regional German gas company, in a joint venture with EnBW one of the German majors in the power market.[1]
4. The acquisition of stakes in regional gas companies and local distribution companies by international market players such as ENI, the Danish company DONG or the Dutch company Essent.
5. The de-merger of the joint sales activities of ExxonMobil and Shell in BEB.

These developments are described in this chapter. The emphasis will be on the takeover of Ruhrgas by E.ON, perhaps one of the most interesting episodes of German industrial history. But the focus is not so much on the deals themselves, but on the resulting changes in the dynamics of the gas market. To anticipate the result: although these mergers and de-mergers may lay the path for additional future competition, the impact in terms of changes of market shares and market behaviour has so far been limited.

7.1 E.ON Ruhrgas

7.1.1 The Takeover Process

'E.ON in the Fast Lane' was the title of the press release on 16 July 2001 when E.ON announced the acquisition of a 51 percent share in Gelsenberg AG from BP with the option to acquire the remaining 49 percent. This was the first step in E.ON's unbundling of the complicated ownership structure of Ruhrgas with a view to obtaining control over the company.[2] Gelsenberg had a 25.5 percent stake in Ruhrgas but voting rights were delegated to Bergemann GmbH, a pool of twelve owners of Ruhrgas mainly from the coal and steel industry in North Rhine-Westphalia. But it was not only the ownership structure which proved to be complicated, but also the process of obtaining the necessary formal approval of the German competition authority or alternatively the German Minister of Economics. After one and half a years of intensive work came the announcement on 30 January 2003, 'E.ON to take control of Ruhrgas'. Box 4 shows the milestones of the whole complicated procedure.

The timetable of the whole process reveals a complex story with four salient strands:

1. The strategic ability of E.ON to dissolve the complex ownership structure and gain total control of the company after the first domino (Gelsenberg/BP) fell. Many sources from within the gas industry believe that this was only possible because at that time Klaus Liesen was head of the supervisory board of both E.ON and Ruhrgas. Liesen had been chairman of the executive board of Ruhrgas until 1996 and was one of the architects of the pre-merger shareholder structure.
2. The strong resistance to the merger from the competition authority, the monopoly commission and many market players, due to fear of increasing the already dominant market position of Ruhrgas.
3. The willingness of the government to support the arguments of E.ON Ruhrgas, although sources say that even within the Ministry of Economics there had been considerable opposition to the merger.
4. Either a complete underestimation by E.ON of the potential formal and legal problems of the process or, from the

Box 4: Timetable of the Takeover of Ruhrgas by E.ON

16 July 2001: E.ON announces the takeover of 51 percent of Gelsenberg AG with an option to acquire the remaining 49 percent by the beginning of 2002. In return E.ON sells its affiliate Veba Oel to BP. The core asset of Veba was the petrol station chain Aral.

15 August 2001: E.ON applies for a formal approval by the German anti-trust authority of the takeover of Gelsenberg AG.

29 October 2001: E.ON announces the acquisition of a 23.6 percent stake held by Vodafone AG (former Mannesmann) in Bergemann GmbH. Bergemann has a 34.76 percent stake in Ruhrgas.

8 November 2001: E.ON applies for formal approval by the German anti-trust authority to hold a majority stake in Ruhrgas. In addition to the deal with Vodafone, it agreed with ThyssenKrupp and RWE to acquire their shares in Bergemann and started talks with the biggest Bergemann shareholder, RAG (52.5 percent).

17 January 2002: The Bundeskartellamt bans the takeover of Gelsenberg by E.ON.

19 February 2002: E.ON applies for clearance for the Ruhrgas acquisition from the Minister of Economics, allowed under German competition law to overrule the decision of the competition authority on the grounds of general common interest.

25 February 2002: The Minister of Economics, Werner Müller, who worked for E.ON before he assumed this position, delegates the decision about the E.ON Ruhrgas merger to the secretary of state, Alfred Tacke.

26 February 2002: The Bundeskartellamt bans the intended takeover of the shares of all shareholders in Bergemann GmbH.

6 March 2002: E.ON extended the application for ministerial approval to the takeover of Bergemann.

20 May 2002: E.ON announces the acquisition of the RAG share in Bergemann. In return E.ON sells its share in the chemical company Degussa to RAG.

21 May 2002: The German monopoly commission votes against the takeover.[3]

29 May 2002: Hearing of the Ministry of Economics on the case. Many participants raise concerns and demand the imposition of rigorous obligations to compensate for the negative effect on competition.

3 July 2002: E.ON acquires the outstanding 40 percent stake in Ruhrgas from ExxonMobil, Shell and Preussag.

5 July 2002: The secretary of state approves the takeover but imposes a number of obligations on E.ON and Ruhrgas.

5 July 2002: Ampere AG, Berlin and Trianel European Trading lodge a legal complaint with OLG Düsseldorf, the court in charge of anti-trust cases, to prevent the takeover and challenge the ministerial approval on the grounds that procedural mistakes have been made.

11 July 2002: OLG Düsseldorf makes an initial ruling that the merger should be delayed until the court has made a final ruling. The court raises many concerns about the correctness of the formal procedure of ministerial approval.

2 August 2002: After a two day hearing the OLG confirms its concern and the delay of the merger until the final decision of the court. The number of complainants increases to four.

12 August 2002: The number of complainants joining the legal proceedings increased to eight.

5 September 2002: The Ministry of Economics organises a new hearing to deal with the OLG Düsseldorf's concerns about the procedure.

5 September 2002: The monopoly commission releases a second negative assessment of the merger.

18 September 2002: The secretary of state announces an 'amended' ministerial approval with more rigorous obligations for E.ON and Ruhrgas.

16 December 2002: OLG Düsseldorf confirms the delay of the amended ministerial approval until the final decision of the court. After the second approval the number of complainants increases to eleven.

31 January 2003: E.ON reaches an out-of-court settlement with all remaining nine complainants.[4] One hour before the ruling of the court was scheduled to be announced, the last complainant withdrew.

beginning, the clear intention to resolve these problems with the requisite amount of money. The whole procedure was characterised by a number of formal mistakes mainly by the German Ministry of Economics that were used as arguments in the court action.

The shortcomings of the formal procedure and legal arguments of the court will not be covered here although this is an interesting topic in itself.[5] I now pay more detailed attention to the main arguments in favour of and against the merger and to the impact of the merger on market structure, in particular the impact of the obligations imposed by the Minister of Economics on E.ON and Ruhrgas.

7.1.2 Pros and Cons of the Takeover of Ruhrgas by E.ON

A number of studies were made for different stakeholders in the process either supporting or opposing the takeover. Around 30 German and international companies presented arguments in the debate.[6] The main arguments against the merger can be found in the papers of the Bundeskartellamt, and the study by the Monopoly Commission.[7] The arguments in favour of the takeover are expressed in the ministerial approval, the justification of the lawyers of E.ON in applying for ministerial approval, and a study made by the head of the Energiewirtschaftliches Institut der Universität Köln (EWI), Carl Christian v. Weizsäcker.[8]

7.1.2.1 Arguments Against the Takeover

The Bundeskartellamt rejection of the takeover was mainly based on three arguments:

1. The takeover would strengthen the already dominant market position concerning supplies to gas companies. The details of this argument were:
   - Ruhrgas already had a dominant market position in the markets of regional gas companies, and regional and local distribution companies.
   - This is particularly because of a lack of adequate third party access and because there is no national German market but regional markets restricted to the network areas of the different market players.

- In the regional market covered by the Ruhrgas network the company's market share was almost 100 percent.[9] But for the German gas market the authority estimated the market share of Ruhrgas at 58 percent, a dominant position.
- The takeover of Ruhrgas by E.ON would strengthen this position because it would secure Ruhrgas sales to companies in the E.ON group and to companies where E.ON is a shareholder.[10] The authority estimated that around 33 percent of the sales of Ruhrgas could be secured in that way.
- The takeover would give Ruhrgas new opportunities to sell gas to companies where E.ON has a stake that were in the past not supplied by Ruhrgas. The authority estimated the potential that could be easily assessed from Ruhrgas pipelines at around 110 GWh, or 14 percent of the relevant market.
- The authority estimated that around 47 percent of the relevant market of supplies to gas companies was affected by the takeover.

2. The takeover would diminish potential competition between regional gas companies and Ruhrgas in supply to industrial customers.

   The Bundeskartellamt argued that the local and regional gas companies already had a dominant position in their local markets. Therefore all potential competition has to be protected. The authority pointed to cases where Ruhrgas had already started to directly supply industrial customers in the network area of E.ON affiliates. It argued that such a trend could be expected to continue. But the takeover of Ruhrgas by E.ON would prevent more competition in the industrial sector.
3. The takeover would strengthen the dominant position of E.ON in the power market.

   The authority argued that the power market was already dominated by a duopoly of E.ON and RWE. The only hope for new competition would be independent power producers that are able to sell power based on new CCGT plants. The takeover would hinder this development. Ruhrgas would not be willing to supply independent power producers with gas as

a fuel because this would be against the interests of E.ON. In addition, operators of CCGTs could face additional problems with transportation because of the dominant position of Ruhrgas in the pipeline sector.

7.1.2.2 Arguments in Favour of the Takeover

E.ON argued that the reasoning of the Bundeskartellamt concerning spatial demarcation and the increase of market power was not valid. But because the company applied for ministerial permission and did not challenge the reasoning of the competition authority by court action it was more important to demonstrate that the overall economic advantages of the takeover would outweigh the potential negative consequences for market structure and competition.[11] The company used the following three main arguments:

1. The existing shareholder structure prevented the company from pursuing an expansion strategy in the developing European market. This was because:
   - Some of the shareholders, such as RAG, Vodafone and ThyssenKrupp, saw the stake only as a financial investment and were not willing to spend money; therefore Ruhrgas lacked the capital for expansion.
   - Some shareholders, such as BP, ExxonMobil and Shell, had their own interests in the European gas market and these would be in conflict with an expansion strategy on the part of Ruhrgas.
2. The takeover of Ruhrgas by E.ON would give Ruhrgas access to capital for acquisitions in European gas markets and improve its relations with customers in the home market due to the vertical integration. This would allow Ruhrgas to compete on equal terms with other European gas majors that have the same business model. This is necessary to preserve Ruhrgas as a German company that can act internationally or, to put it differently, to create a 'national champion'.
3. Due to Western Europe's increasing import dependency in gas supply it was important that a German major should be able to get access to gas resources. Only the takeover will enable Ruhrgas to follow that strategy. The main focus was on gas from Russia, which will become the most important

> source of gas for Germany. But to stabilise and increase gas production from Russia and transportation to Germany, big investment would be needed, and this would not be possible with the pre-merger shareholder structure, but could be financed by E.ON after the takeover. Therefore the merger would increase security of supply.

Some additional arguments concerning the positive effect on employment and support for German energy policy were presented by E.ON to prove that the overall economic effects would be positive.

7.1.3 Decision of the Ministry of Economics – Obligations

Although many parties involved in the proceedings,[12] along with the German monopoly commission, rejected E.ON's arguments that overall economic interest outweighed the negative effects on competition, in both his decisions the secretary of state approved the takeover of Ruhrgas by E.ON.

The ministry accepted the reasoning about the consequences on competition as its words in the second decision make clear: 'the quantitative and qualitative negative consequences for competition in the supply of distribution companies are, even after a second evaluation, of significant importance'.

But the ministry expected additional stimulation of competition from other sources – for instance, the incorporation of the first EU directive on the opening of the gas market into national law, the market entry of BP after selling its stake in Ruhrgas (BP signed its first contracts with end customers in Germany in 2002) and, in addition, the expected market entry of EnBW and ENI after the two companies took over the majority in Gasversorgung Süddeutschland (GVS) (see Section 6.3).

The ministry accepted the arguments of E.ON about overall economic interest and approved the takeover based on these arguments. But in order to limit the negative consequences on competition the ministry imposed a number of obligations on E.ON and Ruhrgas:[13]

- Safeguards had to be given about a possible future change of control. E.ON will be obliged to sell the stake in Ruhrgas to

a third party if E.ON is itself the object of a takeover which, in the view of the government, threatens the energy interests of the country. E.ON on the other hand will not be allowed to sell the stake in Ruhrgas to a third party without prior approval of the Ministry of Economics. E.ON has to keep Ruhrgas largely as a separate entity. This change of control clause is valid for ten years.

- E.ON and Ruhrgas had to sell their stakes in other companies. E.ON was obliged to sell its 5.26 percent stake in VNG Verbundnetz Gas to an investor chosen by the company. Ruhrgas had to sell its 36.84 percent stake in VNG. 10 percent had to be offered primarily to East German municipalities or Verbundnetz Gas Verwaltungs- und Beteiligungs GmbH[14]. 26.84 percent had to be offered to a strategic investor, independent of E.ON and Ruhrgas. The ministry had to approve the acquisition. And E.ON and Ruhrgas had to sell the following stakes in German energy companies: EWE Oldenburg (27.4 percent, E.ON), Gelsenwasser AG (80.5 percent, E.ON), Swb AG Bremen (24.1 percent voting rights E.ON, 11.3 percent Ruhrgas), Bayerngas (22 percent, E.ON, 22 percent Ruhrgas).
- As in the case of VNG, the stakes had to be sold to strategic investors with the approval of the Ministry of Economics.
- Ruhrgas had to grant the above-mentioned companies special cancellation rights for their gas supply contracts. In three yearly tranches the companies had the right to cancel the contracts starting 1 July 2004.
- Ruhrgas had to legally separate transportation and sales by 1 January 2004.
- Ruhrgas had to introduce a gas release programme for a total of 200 billion kWh over six years. Starting 1 October 2003, base load volumes with a 80 percent take-or-pay obligation must be offered at Emden–Bunde and Waidhaus. The minimum price is 95 percent of the average German border price published by the Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA). After the first auction the Ministry of Economics and E.ON Ruhrgas have to discuss potential amendments to the process.
- Ruhrgas has to offer all gas companies which it supplies with more than 50 percent of their annual demand the option to

reduce purchases to 80 percent of their contracted volumes for the remaining duration of the contract.

As with every aspect of the procedure, the obligations were controversial and gave rise to heated debate. In particular, most of the participants in the process demanded that the Ministry of Economics require E.ON to disinvest its holding in Thüga.[15] Through Thüga, E.ON has stakes in 120 German distribution companies. Although in most cases the majority of the shares in these companies were owned by the municipalities, it was argued that through these minority stakes E.ON, the sole shareholder with market competence, could significantly influence the companies' business strategy. Therefore a disinvestment in Thüga would reduce market dominance. The ministry explicitly argued against a disinvestment in Thüga, because the access of Ruhrgas to the companies of the Thüga group is necessary to secure sales of Ruhrgas and thus strengthen the supply position of the company, thereby enabling E.ON Ruhrgas to invest in upstream projects.

7.1.4 Additional Restrictions on E.ON as a Result of the Out-of-court Settlement

The ministerial approval, including the obligations, came into force at the end of January 2003 after E.ON agreed a last minute out-of-court settlement with the companies that initiated legal action. As part of this settlement E.ON listed the following agreements:[16]

- Asset swaps were agreed with EnBW and Fortum.
- E.ON agreed to participate with the independent power producer Concord Power in the development of a 1,200 MW CCGT at Lubmin on the Baltic coast.
- Agreements about power and gas supply, asset sales and payments were made with Ampere AG, ares Energie, Gruppen Gas und Elektrizitätswerk Bergstraße (GGEW), Stadtwerke Aachen (STAWAG), Stadtwerke Rosenheim and Trianel. According to E.ON the overall cost of these agreements was around 90 million Euros. Part of these agreements became known later but together they had no significant effect on the market.[17]

7.1.5 The Impact of the Merger on Concentration in the Gas Market

The consequences for the German gas market must be evaluated on two different levels: the consequences of the merger for market concentration (discussed in this section) and the consequences of the obligations (discussed in section 7.1.6).

E.ON and E.ON Ruhrgas, as the company was re-named in July 2004, are still operating as two independent companies in the German market. Within the E.ON group Ruhrgas forms the business unit 'Pan European Gas' which is mainly responsible for the upstream and midstream gas business. The downstream gas business is controlled by E.ON Energie. The group made changes in the control of some affiliates after the takeover, of which the most important are that Thüga is now controlled by Ruhrgas and the Dutch trading company D-Gas, founded by E.ON with other partners. is also controlled by Ruhrgas.

In early 2006, the impact of the merger on the market was difficult to evaluate. E.ON Ruhrgas had not obviously increased gas supplies to companies of the E.ON group. In particular there had been no significant increases in supplies to E.ON Hanse (around 46 TWh gas sales) and Avacon (around 40 TWh gas sales), the two major regional gas companies in Northern Germany that are controlled by E.ON, where Ruhrgas either has no shares, or only minor shares, in supply.[18]

The impact of the takeover of Ruhrgas by E.ON is visible to a limited extent in the trading activities of the group. D-Gas started to offer gas in Germany in 2001. Some distribution companies in Northern Germany bought base load volumes from D-Gas at gas markets conditions. After Ruhrgas took over control of D-Gas the company ceased activities in Germany and is now concentrating exclusively on the Dutch market. In addition, Syneco, the trading arm of Thüga, tried to establish some gas trading activities to support distribution companies in their procurement activities. These activities have not developed, and this might be a consequence of the control of Thüga by Ruhrgas.[19]

Neither the activities of D-Gas nor those of Syneco had a real impact on the German market before the takeover. But it seems to be fair to say that potential activities of the more market-oriented players within the E.ON group, such as the first

attempts of Syneco to develop more market-oriented procurement, were not advanced by the takeover.

7.1.6 The Impact of the Obligations

By means of imposing the obligations on E.ON and Ruhrgas the government was attempting to create additional competition in three different ways:

1. The sale of stakes in German companies. Particularly in the case of VNG, the aim of the Ministry of Economics was to find a strategic investor that would improve competition in Germany.
2. The release of volumes under long-term contract with Ruhrgas was designed to give new entrants additional opportunities to enter the market.
3. The gas release programme at the German border was aimed at increasing liquidity and allowing new entrants to have access to gas at the same price as Ruhrgas.

7.1.6.1 Disinvestments by E.ON and Ruhrgas

Table 13 shows the companies that acquired the shares which E.ON and Ruhrgas were required to sell.

The objective of the German Ministry of Economics was to create new competitors in the German gas market, either by enabling German companies to improve their position in the gas market or by allowing international gas companies to enter the market by acquiring assets. But several market participants commented that the outcome represented a 'resocialisation' of the German gas industry. And it is indeed amazing that E.ON managed to sell all of its assets to municipalities or municipally-owned companies.

Particularly in the cases of EWE and VNG there had been strong interest from international players that were seeking a foothold in the German gas market: the Norwegian company Statkraft and the Swedish company Vattenfall carefully evaluated the opportunity of take over the stake in EWE and obtain access to the German gas and power market; and, in addition to the mentioned companies, Gaz de France and Wingas (the Gazprom/Wintershall joint venture) was very keen to invest in VNG. But in the event E.ON managed to achieve solutions that

Table 13: Sales of Assets by E.ON and Ruhrgas after the Takeover

Sold assets	*Buyer*	*Comment*
Bayerngas (44%)	Stadtwerke Munich Stadtwerke Augsburg Stadt Landshut Stadtwerke Ingolstadt Stadtwerke Regensburg	The municipal shareholders that already had a 66% stake, increased their shares.
EWE (27.4%)	Energieverband Elbe Weser Beteiligungsholding Weser-Ems Energiebeteiligungen	These two buyers in which the stakes of municipal owners are pooled now increased their share to 100%.
Gelsenwasser	Stadtwerke Bochum Dortmunder Stadtwerke AG	New shareholders
swb AG Bremen (33,3%)	EWE	EWE later increased the share in swb to 49% by acquiring the stake of the city of Bremen. 51% is owned by the Dutch company Essent.
VNG	VNG Verbundnetz Gas Verwaltungs- und Beteiligungsgesellschaft (10%) EWE	EWE acquired later the stakes of Statoil (5.26%) and ExxonMobil and Shell (jointly 10.53%). EWE pooled voting rights with the municipal shareholders and is in fact the majority holder in VNG.

Sources: Company reports.

excluded both new and international players although, according to market sources, in the case of VNG, EWE did not make the highest bid.[20]

These changes of ownership have had almost no effect on the structure of the German gas market. VNG Verbundnetz Gas is still concentrating on its east German home market and, even with the joint supply and storage portfolio of VNG and EWE, is not visible as a nation-wide market player. The same is true for EWE, which concentrates on its role as one of the major regional suppliers in Germany. The Ministry of Economics was

particularly disappointed about swb. The company was not able to use the special cancellation right of its gas procurement contract to switch to new supplier. It negotiated a new five year contract with Ruhrgas.[21] Only Bayerngas undertook a careful reorganisation of its gas procurement to become a little more independent of Ruhrgas.

Bayerngas started to establish itself as a 'procurement organisation for municipally-owned local distribution companies'. Its managing director, Ulrich Mössner, announced in 2005 that the company wanted to reduce the long-term contracts mainly with Ruhrgas and (less importantly) with Wingas, to 50 to 60 percent of its procurement portfolio.[22] In 2004, Bayerngas took part in the Ruhrgas gas auction at Waidhaus (see below) and starting in October 2005 Bayerngas filled 10 to 15 percent of its gas demand from various gas trading companies on short-term markets.[23] This opened limited new opportunities to market entrants.

In general the disinvestment obligations of the Ministry of Economics did not lead to any increase in competition. So far, therefore, the scepticism of critics about these obligations has been more than justified.

7.1.6.2 Part-release of Customers under Long-term Contract

The obligation on Ruhrgas to allow all distribution companies it supplied with more than 50 percent of their annual volume under long-term contracts to release 20 percent of that volume, was a complete failure. In summer 2003, when customers learned about the conditions for the release of contracts they were upset.[24] Ruhrgas offered its customers two alternative models dividing supply into a standard long-term, and a short-term, contract:

- Model A: A new contract volume will be defined. This new contracted volume will be 80 percent of the gas supplied during the gas year 1995/96, a year with a very cold winter. The customer has to accept a 90 percent take or pay obligation on this volume. The contracted hourly capacity will be adapted accordingly with an 85 percent take or pay obligation. In addition Ruhrgas asked for minimum take during the summer months of 72 percent of the summer sales. The price for the base contract is the same as under the old contract. The customer is free to buy additional volumes on the market.

Ruhrgas offers the supply of these additional volumes under a framework agreement in which their price is fixed shortly before the start of the delivery.

- Model B: The contract structure remains as before. The delivered volumes will be split 80 percent and 20 percent. The 20 percent will be priced according to a new pricing system. Ruhrgas offers a mixed indexation to light heating oil and gas oil prices.

Figure 14 shows the price differential between the two prices.

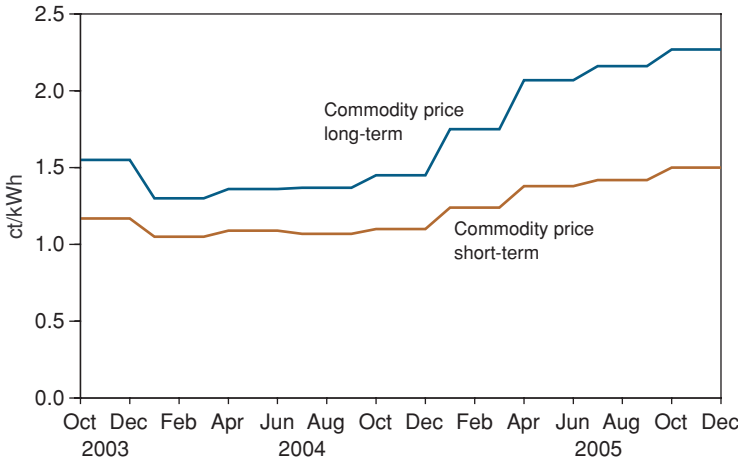

Figure 14: Price Differential for Long-term and Short-term Ruhrgas Contracts

Source: author's calculations.

Model A makes procurement of gas from an alternative supplier extremely difficult. The total volume and capacity risk rests on the residual volume and therefore it is almost impossible to calculate the demand, particularly taking into account the German system of network access. This risk is an extremely costly one because Ruhrgas penalises any overruns of contracted volumes or capacity, a problem familiar from German transportation contracts. For additional volumes the penalty is 2.7 times the average border price. The intention of Ruhrgas was to make market procurement difficult because, as Michael Pfingsten,

head of sales on the executive board of Ruhrgas, said at the customers meeting, 'it cannot be expected that we facilitate supply by third parties'.

As a result Ruhrgas lost no significant market as a result of the customer release programme. According to a statement of the company at an investor's presentation for the gas year 2003, the loss was 1.5 percent of the volumes released. Market sources estimate that for the gas year 2004 the loss of market was again insignificant.[25]

7.1.6.3 The Ruhrgas Gas Release Programme

The one ministerial obligation that at least stimulated annual discussions among the German and European trading companies was the gas release programme or, more precisely, the obligation on Ruhrgas to auction an annual volume of 33 TWh over a period of six years.

2005 saw the third gas auction and for the first time the total volume was sold and a report on the base price was achieved. There are no official reports on the successful bidders in all the auctions. Table 14 shows the results of the three auctions. It is based on the most accurate available information from various market sources.

The first auction was judged a failure since more than 50 percent of the volume remained unsold. As a result, for the next auction at Waidhaus, the conditions were amended. In addition to the base price, which was linked to the statistical average border price published by the Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA), a base price linked to Rotterdam traded gas oil and fuel oil products was introduced.[26] Bidders could choose between the two different base prices that, according to E.ON Ruhrgas, were highly correlated during the period 2001–5.[27] The minimum daily quantity was reduced from 60 to 50 percent of the average quantity and the auction guarantee was reduced to 0.5 million Euros for each lot.

Partly for these reasons, in particular the introduction of a different price formula, the second auction at Waidhaus was a success although the base price was not exceeded.[28] As well as the changed conditions, the fact that the auction took place at Waidhaus may have contributed to the success. But the potential advantage of Waidhaus was controversial with potential bidders:

Table 14: Result of the Three Ruhrgas Auctions

Successful bidder	*2003 Emden (number of lots)*	*2004 Waidhaus (number of lots)*	*2005 Emden (number of lots)*
Bayerngas	0	7–9	0
BP	11	3–5	0
Citiworks	0	2	0
DONG	0	0	4
EdF Trading	0	1	0
EGL	0	0	4
Electrabel	0	0	13
EnBW Trading	0	4	6
Energi E2	4	0	0
Gaz de France	0	3	0
Nuon	0	0	4
Sempra	0	0	5
Vitol	0	13	3
Total	15	35	39

Source: author's estimates.

Note: 0 indicates either that the company did not participate or that it was not successful.

on the one hand liquidity at a location where none existed was judged as a nice idea; on the other hand the lack of a market at Waidhaus left the bidders with the risk of stranded gas because E.ON Ruhrgas did not guarantee firm transportation further than Gernsheim on the MEGAL pipeline.[29] Finally the number of risk takers remained limited, but, due to the development of oil prices in 2004 and 2005, the gas later proved, if hedged, to be very cheap.

The result of the Emden auction in 2005 was a total surprise for many market players. The conditions remained unchanged from the previous year. It was expected that Ruhrgas would be able to sell the gas even with a small increase over the base price, in other words that demand would exceed supply at the base price. Given the prices at the nearest market place, the Dutch TTF, most players expected that the price would not be higher than 0.5 Euro/MWh. The fact that the ascending clock procedure[30] ended after the second round with a price of exactly 1.001 Euro/MWh shocked many market participants:

'the most expensive gas in the region' was one comment. But market players have different views and different ideas about how to use the gas. What partly supports the sceptical view is that volumes were still offered at Emden at 'attractive prices' months after the auction took place. This means that at least some of the bidders were not able to ship the gas profitably to other markets like Italy, Eynatten or the TTF.

The impact on the German gas market of the first three rounds of the gas release programme was limited. After the first auction the only major bidder (BP) sold most of the volume for the first year at the TTF. The second auction had some small effects in South Germany, particularly Bavaria and Baden-Württemberg, where Gaz de France and BP used the volumes to acquire industrial and distribution company customers. A small secondary market appeared in which the German wholesalers natGAS and EcoSwitch bought volumes that were used to supply mainly industrial customers. Bayerngas took the volumes into its own portfolio, mainly substituting this gas for other Ruhrgas volumes. EnBW, EdF and Vitol shipped the gas to Wallbach, Paso Gries and Zeebrugge for sale at those trading locations.

The third auction again had only very limited effects on the German market. Available information suggests that most of the gas was transferred to the TTF, Eynatten and Zeebrugge and even Wallbach. Only one of the bidders signalled that his priority was to sell the gas in Germany.

The auction in Waidhaus did demonstrate that it was possible to stimulate some competition in Germany by a gas release programme at a location with no trading liquidity. But the volumes were not large enough to have a significant lasting effect on competition and, as described, most of the volumes were bought by players for sale in more profitable markets outside Germany.[31]

At least some observers in Germany are more cynical about the effect of the gas release programme and argue that it has worked so far mainly in favour of E.ON Ruhrgas. The argument is that E.ON Ruhrgas has surplus gas under long-term contract and the gas release programme helped the company to dispose of some of this gas.

7.1.7 Did the Takeover Change the German Market?

It is not the task of the study to evaluate whether the ministerial approval was justified. Before the takeover, Ruhrgas was a unique institution in the European gas industry. It was not a state-owned (or partly state-owned) monopoly like the dominant companies in many of the other European countries. But Ruhrgas and its shareholders ExxonMobil and Shell controlled 90 percent of the whole German wholesale market and the interregional transportation systems.[32] Downstream, Ruhrgas was able to influence the market by direct and indirect contractual relations with most of the German gas companies. Ruhrgas was the head of the 'German gas family'. One of the results of the takeover by E.ON is that this family began to break up.[33]

Although the visible changes to the German market structure are very limited, the former shareholders have shown some first signs of a new strategy. For instance, ExxonMobil and Shell separated their sales activities from BEB, and BEB's behaviour as a pipeline and storage operator without directly linked trading interests diverged from the other parts of the family, as I showed in Chapter 4. Also, BP lobbied extensively for a market promoting system of network access and started a small sales business. But its lobbying activities were more significant than its sales activities.

The potential increase in downstream market power of the merged company should not be underestimated. Nonetheless, the takeover of Ruhrgas by E.ON changed the role of the company in the German market. It is no longer the keeper of the overall economic interests of the German gas industry but only an affiliate of a stock market listed company that has to make profit.[34]

Finally the takeover makes the German gas industry a little less different from those in other European countries.

7.2 RWE Thyssengas

Like E.ON before the takeover of Ruhrgas, RWE at the beginning of the liberalisation process was only a downstream player in the German gas market. The company consolidated its gas assets in a separate company RWE Gas AG. These assets were the result of the first wave of mergers at the beginning of the

liberalisation process and encompassed the regional gas companies Westfälische Ferngas AG and VEW. Besides RWE AG, municipal shareholders had a stake of 20.03 percent in RWE Gas. At the beginning of the liberalisation process RWE had a 50 percent stake in Thyssengas.

Thyssengas was the smallest of the interregional gas importing companies (see Chapter 2). Aside from RWE the shareholders were ExxonMobil and Shell each with 25 percent. In 2000 ExxonMobil sold its share to RWE, and agreement between Shell and RWE granted both companies equal shares in the management of Thyssengas. In 2003, RWE bought Shell's 25 percent share of Thyssengas.

During the summer of 2003, shortly after the takeover of the control of Thyssengas, RWE reorganised the whole gas business, dissolving RWE Gas and Thyssengas. The downstream business was integrated in regional gas and power sales companies and the procurement business was centralised in the newly formed RWE Energy. Up to 2006, as far as the gas business was concerned, the new RWE group was still more preoccupied with internal organisational questions than with adopting a clear market strategy.[35]

RWE group has a trading company, RWE Trading, which is active in gas trading (including in Germany), promoting the development of OTC trading within the BEB-system (see below). But sources close to the company say that RWE Trading was never allowed to use the former Thyssengas import contracts to optimise its portfolio and increase trading activities.

Therefore the only effect of the takeover of Thyssengas is that a niche player, which was rather proactive, vanished from the German market. At the end of the nineties Thyssengas had allowed the distribution companies it supplied to switch suppliers for part of their demand. And Thyssengas has been the only incumbent that announced openly that it supplied customers outside its network area by using third party access to pipelines. But it must be emphasised that these activities were limited[36] and, due to its small size, Thyssengas did not have an impact on overall market development.[37]

7.3 ENI/EnBW – Gasversorgung Süddeutschland (GVS)

Gasversorgung Süddeutschland (GVS) is the only German re-

gional gas company that was partly taken over by a foreign investor. The takeover took place in 2002. The annual sales of GVS are around 80 billion kWh. The overwhelming part of the volume is sold in Baden-Wurttemberg, mainly to distribution companies, and small volumes are exported to Switzerland and Lichtenstein. The main shareholders of GVS were Neckarwerke Stuttgart (EnBW) (33.4 percent), MVV Energie, Mannheim (26.25 percent) and the state of Baden Wurttemberg (25 percent). The remaining shares were held by seven local distribution companies in Baden-Wurttemberg. The state wanted to sell the shares and started a sales process in which a consortium of the Italian ENI and EnBW, Duke Energy and Wingas were among the final bidders. Eventually, a joint venture company founded by EnBW and ENI acquired the stakes of all shareholders except Stadtwerke Ulm/Neu-Ulm (2.19 percent).[38]

The takeover could have had competition-promoting effects on the German market. The former shareholders and customers of GVS could reorganise gas procurement and switch to new suppliers. This became possible because the EU Commission cleared the merger but with the obligation that GVS and EnBW offer special contract cancellation rights to all distribution companies supplied by them.[39] Moreover, ENI could use GVS as a base to start competition in Germany.

By 2006, none of these effects had had an impact on market development. Only two of the customers of GVS had used their cancellation rights to switch supplier. In 2004, Stadtwerke Bietigheim-Bissingen with an annual demand of 550 GWh had switched to BP, and, from October 2005, Stadtwerke Baden-Baden with a similar annual demand switched to Gaz de France Deutschland.

But ENI did not use GVS as a base to make any real inroads into the German market.[40] Even the supply of gas by ENI to GVS is limited, only around 0.7 Bcm being supplied since 2004. The impact of the merger on the German gas market so far has been negligible.

7.4 Takeovers of German Distribution Companies by International Players

At the beginning of the liberalisation of German energy markets

a number of municipalities sold part of their stakes in local distribution companies. International players were involved in almost all of these sales processes but often withdrew or were unsuccessful. One reason for this was that prices for local distribution companies were high and international players judged them to be above the market value of the equity. Another reason was that in most cases the municipalities tried to maintain significant controls over the activities of these companies, either through ownership of the remaining shares or by contractual provisions with the buyer. But in a few cases, international players acquired shares in local distribution companies as shown in Table 15.

These activities had no significant impact on the structure of the German gas market. Only DONG is trying to use the stake in EWL Lübeck to get access to the German market. Together with EWL it founded a joint sales company, E-Nord, that will sell gas and, as a supplement, power to customers mainly in Northern Germany. But it is much too early to know whether this will be successful and achieve a significant market share. E-Nord was founded at the beginning of 2005 and the managing director (a former managing director of BP Gas Germany) was appointed only in mid-2005. During 2005 the new company was occupied with internal organisational issues. It is debatable whether the acquisition of EWL was necessary for DONG to get access to the German market. In 2003 DONG founded a German affiliate, DONG Germany, and acquired its first customers (see section 8.5). Potential gas sales to EWL itself, currently supplied by ExxonMobil and Shell, were not sufficient to justify the takeover.

Electrabel did not use the local distribution companies as a platform for entry to the German gas market. Sales activities are concentrated at Electrabel Deutschland Berlin from where it slowly started to try to get access to end customers. To a very limited extent Electrabel supplied gas to its distribution companies and these were its first experiences in the German gas market.

Essent learned that a stake in distribution companies may be of limited strategic value. The company never really gained control over swb. For some years Essent unsuccessfully tried to acquire additional distribution companies but ended this strategy early in 2005 to concentrate on direct access to German customers (see section 8.5).

Table 15: Stakes of International Players in German Distribution Companies

Buyer	*Company*	*Year*	*Gas and power sales*	*Share*	*Comment*
DONG	Energie und Wasser Lübeck (EWL)	2005	Gas: 3,200 GWh Power: 900 GWh	25.1%	DONG and EWL founded a joint sales company E-Nord to sell mainly gas but also power to distribution companies and big industrials.
Electrabel	Energieversorgung Gera	2001	Gas: 450 GWh Power: 220 GWh	49.9%	
Electrabel	Energie SaarLorLux, Saarbrücken (SLL)	2000	Gas: 1.500 GWh Power: 1.200 GWh	51%	The main business of SLL is gas, power and heat supply in Saarbrücken. Electrabel is trying to extend the business to neighbouring areas.
Essent	swb AG, Bremen	2000	Gas: 10,000 GWh Power: 4,500 GWh	51%	Indirectly Essent holds shares in Stadtwerke Bielefeld and Gütersloh, where swb has a stake.
TXU Europe	Stadtwerke Kiel	2002	Gas: 3,000 GWh Power: 1,200 GWh	51%	The stake of TXU was sold to MVV Energie, Mannheim, after TXU went bankrupt.
TXU	Braunschweiger Versorgungs AG	2000	Gas: 1,600 GWh Power: 1,800 GWh	74.9%	The stake of TXU was sold to Veolia Water after TXU went bankrupt.

Sources: Company information.

TXU left as its legacy one of the few gas trading teams at a German local distribution company. When it acquired the majority in Stadtwerke Kiel the company had great ambitions to develop gas trading activities using the salt cavern storage of Stadtwerke Kiel. This strategy never really took off because TXU disappeared from the market. But 24sieben, the trading arm of Stadtwerke Kiel, is one of the very few German distribution companies that used procurement possibilities at the Bunde flanges (interconnection points), and reorganised its gas procurement towards a more flexible portfolio with contracts of different duration and additional optimisation possibilities.

These few successful attempts of international players to acquire shares had no impact on overall German market structure. These examples demonstrate that acquisition of shares in local distribution companies was not a good launching platform for market entry.

7.5 ExxonMobil and Shell

Starting from 1 April 2004, ExxonMobil and Shell, the two shareholders in BEB, transferred the entire sales business of BEB to the two sales companies, ExxonMobil Gas Marketing GmbH and Shell Energy Deutschland GmbH. Every single sales contract with German gas majors, regional gas companies, local distribution companies and industrial companies was split equally between the new sales companies. The overall sales volume of BEB was around 180 billion kWh. This step was surprising because most market observers did not expect it before the two shareholders had solved the problems of reorganising the ownership structure in the Dutch company Gasunie. But in 2006, the Dutch situation was still only partly settled with the sale of the transportation arm Gastransport Services (GTS) to the Dutch state. It was much easier to arrange the separation of the German activities than the complex Dutch interests.

In Germany the result was a transportation and storage company (the 'new' BEB), which is the first transmission company with some degree of ownership unbundling. That had, as described in section 3.3.2, a significant effect on the discussion of network access in Germany and had an impact on market development. BEB is the one incumbent storage operator that

sold short-term storage capacity in significant quantities.[41] BEB also promoted the development of a virtual hub within the BEB network where first signs of OTC trading are visible (see section 8.7.3).

The demerging of sales and network activities had an impact that was significant compared to other developments on the German market, and could be used as an example to demonstrate what is possible.

Until the beginning of 2006 neither ExxonMobil nor Shell appeared to be trying to aggressively expand their business. The companies are silent about their activities and strategies. The main official target is to keep their established business relations intact. There is some very limited competition between the two majors among established customers. In a small number of cases, Shell or ExxonMobil has relinquished its share of a customer's supply to the other company.[42] Customers say that Shell is more interested in using traditional customer relations to expand its midstream and downstream business.[43] Market participants say that the company is willing to make offers to industrial customers all over Germany. Meanwhile ExxonMobil wants to change the traditional 'citygate contracts' with distribution companies to more market-oriented contracts where ExxonMobil will sell gas at trading locations. But this rethinking of strategies is at a preliminary stage and so far has had almost no visible impact on the market.[44]

From early 2006, however, market sources increasingly report that Shell is becoming visible as a market participant trying to expand its business. Shell started to make more frequent offers to industrial customers nation-wide and to circumvent traditional customers like E.ON Hanse or Avacon, offering gas directly to industrial customers and distribution companies.[45]

Notes

1 EnBW is partly owned by Eléctricité de France (EdF).

2 See Figure 4 in Chapter 2 where the pre-E.ON ownership structure of Ruhrgas is described.

3 The Monopoly Commission is an advisory board for competition issues. Its tasks are stipulated in German competition law. Prior to a ministerial approval of a merger the Commission has to deliver an analysis but the judgment of the Commission is not binding on the minister. The

Monopoly Commission has five members, usually a mixture of academics and company executives.

4 The two UK based companies TXU and Dynegy withdrew from the process because of bankruptcy proceedings.

5 To give just one example, the OLG Düsseldorf, based the first decision to delay the whole process on the fact that the Secretary of State, Alfred Tacke, did not attend the hearing at the ministry personally. This was judged to be one of the severe formal shortcomings.

6 Among the participants were not only the major German incumbents like RWE, EnBW and Wingas but also international gas traders like Centrica, TXU and Dynegy, as well as German local distribution companies and energy brokers.

7 Decisions of the Bundeskartellamt B8 –109/01 E.ON/Gelsenberg, 17 January 2002 and B8 149/01 E.ON Bergemann, 26 February 2002, both published by the Bundeskartellamt, Special study of the monopoly commission (Monopolkommission, 'Zusammenschlussvorhaben der E.ON AG mit der Gelsenberg AG und der E.ON AG mit der Bergemann GmbH', May 2002); also a supplementary special study of the monopoly commission, 'Zusammenschlussvorhaben der E.ON AG mit der Gelsenberg AG und der E.ON AG mit der Bergemann GmbH', 5 September 2002.

8 Additional studies were done on behalf of E.ON by various academics but the study by v. Weizsäcker contains the most important arguments.

9 The authority makes one caveat. The only relevant competitor is Wingas. But the Bundeskartellamt did not know the volume of Wingas sales in the Ruhrgas network area. Therefore it argued that, even if the total sales of Wingas were supplied to distribution companies in the Ruhrgas network, the Ruhrgas market share would be more than twice the threshold for a dominant position under the competition law.

10 According to the report of the authority E.ON has a share of at least 10% in around 190 companies that have a gas business.

11 According to German antitrust law this criterion must be met in order to obtain ministerial approval that overrules the judgment of the Bundeskartellamt, which relies solely on competition-related criteria.

12 Companies affected by the decision had the right to apply to take part in the formal hearings and provide written statements. More than twenty companies applied, among them German gas and power companies like EnBW and RWE, international companies that were looking for access to the German market like Centrica, Statkraft and Fortum and German local distribution companies. They partly presented their arguments orally in two hearings and partly provided longer studies, such as EnBW's, a more than 30-page analysis of the effects of the merger.

13 See Der Bundesminister für Wirtschaft und Technologie, Gesch.-Z.: I B 1 – 22 08 40/129: Verfügung in dem Verwaltungsverfahren E.ON AG, September 2002. Compared to the first allowance in July 2002 the obligations were tightened in the second allowance partly as a result of the arguments of interested parties.

14 Verbundnetz Gas Verwaltungs- und Beteiligungs GmbH is a holding company of eight East German distribution companies or cities. They

had a share of 15.79% in VNG.

15 One of the strongest advocates of disinvestment in Thüga was EnBW which argued, not without selfish interest, that only this step could lead to a true 'ventilation of the German gas market'.

16 See E.ON AG press release, 30 January 2003 ('E.ON can finalise takeover of Ruhrgas').

17 Trianel argued that it had forced Ruhrgas into greater transparency and greater flexibility in transport controls. But market participants judged these improvements as minor or in line which what Ruhrgas was already offering in the market.

18 In August 2004 E.ON stated that only 2% of Ruhrgas sales were going to the regional distribution companies of the group. E.ON sees additional potential so the sales of Ruhrgas to E.ON-controlled companies may increase if the whole traditional system of checks and balances of the German gas industry is eroded. The main increases in Ruhrgas' sales after the take over are international sales to Thüga Italy, Powergen in the UK and Sydkraft in Sweden. But some market observers in Germany say that, at least in some cases, pressure from E.ON Ruhrgas to buy volumes from the company and switch from previous suppliers became noticeable.

19 Managing directors of distribution companies frequently say that they face difficulties in changing their gas procurement strategies in relation to companies where Thüga has a stake. And Wingas repeatedly complained that it is almost impossible to convince any distribution company in which one of the German energy majors has a stake to switch suppliers.

20 Market sources said that Gaz de France wanted more than the 840 million Euro EWE paid for the stake in VNG. But according to Ministry of Economics sources EWE held out great promise for VNG as a new German national player and competitor in the gas market and that was why the ministry approved the sales to this regional player.

21 The negotiations between Ruhrgas and swb seemed to be typical of the way Ruhrgas tried to make it difficult to use the freedom granted by the ministry's obligations. Ruhrgas imposed so many restrictions on the reorganisation of the gas supply that swb complained to the Ministry of Economics. Some pressure from the ministry led to changed behaviour by Ruhrgas but the company finally managed to beat Wingas and Gaz de France, the remaining bidders for volumes from swb and offer the most favourable conditions.

22 In 2004 the company took 86% of its annual demand of around 60 TWh from Ruhrgas, 10% from Wingas and around 4% from the Austrian RAG. The story of supply from RAG is typical of the German gas industries. The customer and shareholder of Bayerngas, Stadtwerke Munich, started negotiations with RAG some years ago. To keep the traditional supply structure intact, and to satisfy Munich, Bayerngas formally purchased the RAG volumes at the German–Austrian border.

23 Since late 2005 Bayerngas had a portfolio of nine suppliers, among them trading companies, producers and the traditional suppliers E.ON Ruhrgas and Wingas.

24 This is true at least for customers that were willing to use that freedom.

25 As already described, this outcome was one of the major reasons why the German Bundeskartellamt insisted on a 'multiple supplier model' in acting against long-term contracts to enable market entry.

26 The formula, published in the information memorandum of Ruhrgas, is:

$P = P_0 + 0{,}0035 * (GO - GO_0) + 0.00175 * (FO - FO_0)$ ct/kWh,

where

$P_0 = 1{,}16204$ (95% of the border price from January 2003),

GO = Gas oil monthly average of the daily quotation in Platt's Oilgram Price Report for gas oil 0.2 PCT FOBBarge Rotterdam in US Dollars (The average of eight months is used with a time lag of one month. The adaptation is quarterly. It is converted to Euros.),

$GO_0 = 223.757$ Euro/t,

FO = Fuel Oil monthly average of the daily quotation in Platt's Oilgram Price Report for fuel oil 0.2 PCT FOBBarge Rotterdam in US Dollars (The average of four months is used without time lag. The adaptation is monthly. It is converted to Euros.) and

$FO_0 = 168.404$ Euro/t.

27 Argued in a presentation at the bidder's conference for the 2005 auction.

28 One of the main concerns of trading companies in relation to the base price was that it is not possible to hedge the BAFA price which is only a statistical artefact. The price formula with a link to Rotterdam oil products is easy to hedge.

29 Only in cases where a former customer of Ruhrgas substituted volumes bought from Ruhrgas with volumes from the release program was Ruhrgas willing to guarantee firm transportation capacity to the customer.

30 For each round E.ON gave a starting price and an end price for the auction component. Potential bidders could give the number of lots and a price within the price range. If the number of demanded lots was higher than the offered lot, the next round started with a new starting and end price. In the 2005 auction the starting price for the first round was 0 and the end price 1 Euro/MWh. At the end of the first round the demand was 53 lots. In the second round the starting price was 1 Euro/MWh and the end price 1.50 Euro/MWh, but all bidders stopped just above the starting price.

31 In individual cases German distribution companies lost significant volumes to new market entrants. One regional Bavarian gas company reported informally a loss of more than 10% of overall sales.

32 The only competitor since the beginning of the nineties was Wingas and at least many market observers had the impression at the beginning of this century that Wingas had at least partly allied itself with Ruhrgas.

33 German competition law does not allow enforcement of the de-merger of a company. Therefore the takeover of Ruhrgas by E.ON was an attempt to change the role of Ruhrgas in the German market. And none of the stakeholders involved in the process of ministerial approval pledged to

ban the merger. All pledged to support proper obligations to open the market. Obviously the companies always had their selfish motives. But the takeover and the obligations as part of the ministerial approval were clearly an opportunity to change the German market structure. And, although the obligations were not effective, the German market structure might be even more rigid if the takeover had not occurred.

34 This is perhaps the reason that in the end Ruhrgas was surprisingly unsuccessful in promoting its ideas for regulated third party access during the law-making process. It was no longer the sole authoritative voice of the German gas industry, but just part of a company that wanted to protect its profits. And some of the former shareholders, like BP, ExxonMobil or Shell, followed different interests even in the political process.

35 The complete story of the development and reorganisation of the RWE group is an interesting subject in itself but beyond the scope of this study. The dissolving of RWE Gas created a big conflict with the management and the municipal shareholders that was finally solved by paying a lot of money. And the question of whether the new structure will work is still a very controversial one within the company.

The RWE group has an interesting international business ranging from the Czech Transgas via stakes in three regional gas companies in the Netherlands and a sales business in the Netherlands to the UK based Innogy (internally called banana). But this international portfolio has so far had no impact on the German activities. In October 2005 RWE again reorganised its whole gas procurement organisation. All procurement relations with gas producers are now concentrated in Prague. The principal objective is to play a more visible role in international gas markets but this is currently no more than a vision for the future. It is much too early to give an assessment of any effect of the reorganisation on the German market position of RWE.

36 The number of players supplied outside the network area was exactly one.

37 Some partipants regretted this. Members of the Gasunie sales team described negotiations with Thyssengas as unusually 'lokker' (relaxed).

38 Ulm/Neu-Ulm finally sold the shares to ENI/EnBW at the end of 2004.

39 All distribution companies with a contract duration up to 2008 could cancel their contract for the first time in 2004. All customers with a contract duration up to 2015 could cancel the contract for the first time in 2005. See DG COMP press release, 17 December 2002 (IP/02/1905) and the text of the decision of the Commission (Case No. COMP/M.2822-ENBW/ENI/GVS).

40 Only a single case is known in which ENI sold gas directly to a German distribution company. In September 2005 it signed a five-year contract with EWV Stollberg, covering an annual volume of less than 100 GWh. Stollberg is located near the Dutch border directly on the TENP pipeline.

41 For the storage year 2005/06 BEB sold 150 mil. m^3 of working gas volume to three trading companies. For the storage year 2006/07 the number of

customers increased to around ten.

42 In most cases that became known ExxonMobil lost its share to Shell. There was only one case in 2004 where a customer (Stadtwerke Peine) switched totally from Shell to ExxonMobil. But in 2005 Peine switched back to Shell.

43 Up to the end of 2005 there is only limited evidence from market sources. Some cases are reported where Shell acquired new industrial customers and others where ExxonMobil even refused to supply traditional Stadtwerke customers further.

44 Gas sales of ExxonMobil declined significantly in 2004 from 16.9 to 16 Bcm. But this was the result of a decline of German production and of the traditional organisation of the sale of this production through Erdgas Münster and Ruhrgas. Shell does not publish any figures.

45 A Shell manager told a procurement manager of a company in one of these areas that Shell does not care any longer about old relations.

8 COMPETITION IN GERMANY

8.1 Introduction

External observers, judging from a macro perspective, tend to argue that there has been no significant progress towards competition in the German gas market since the beginning of the liberalisation process. Yet there have always been some attempts by newcomers to enter the market and, during recent years, all of the German gas majors have complained about fierce competition which has led not so much to customers switching as to price decreases. The following two graphs may underline the perspective of the incumbents. Figure 15 shows maximum and minimum prices for industrial customers in Germany with an annual demand of 50 to 250 million kWh per year.

The prices are derived from the data base (containing around 600 contracts) of the association of small and medium sized industrial customers (VEA). Care has to be taken in interpreting

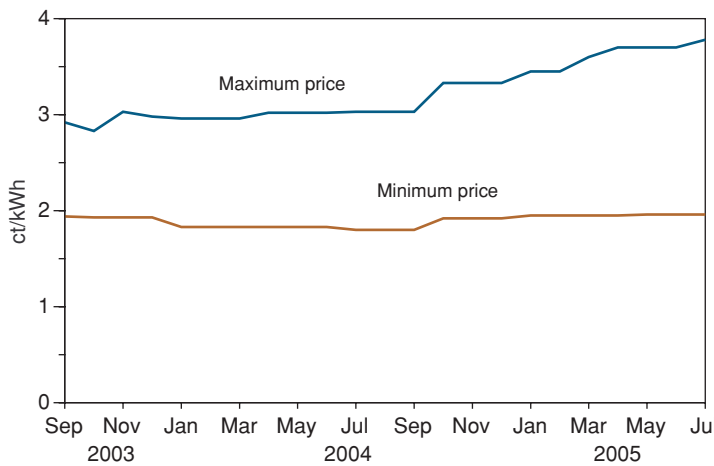

Figure 15: Maximum and Minimum Industrial Prices Including Gas Tax

Source: VEA data base.

the data. Due to differences in time lags in contracts with industrial customers and differences in adjustment periods, and due to the link to different oil price quotations (gas oil or fuel oil) and different load factors, the prices of the individual contracts can be compared only to a limited extent. But the significant price spread of usually more than one cent/kWh is not explainable by these different methods of pricing. And VEA itself confirms that the minimum prices are usually the result of competing offers by new market entrants that are either matched by the incumbent or lead to customer switches. These minimum prices are often annual fixed prices, not linked to oil products.

Figure 16 shows commodity prices in the wholesale market, that is, procurement prices for distribution companies.

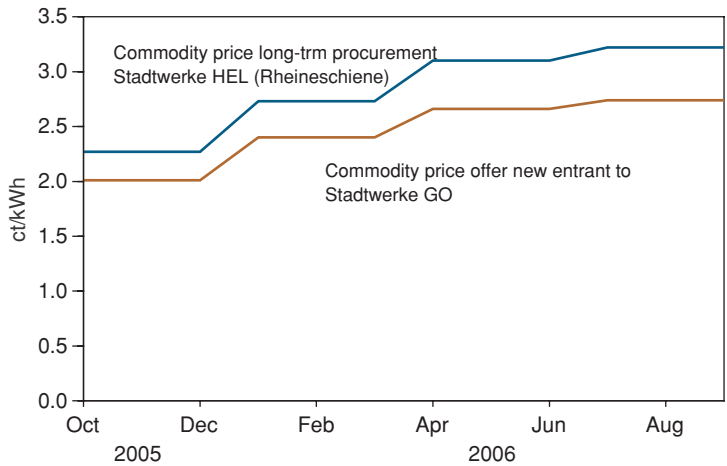

Figure 16: Commodity Prices: Traditional Contracts and New Entrants

Source: author's assessment, based on forward quotations of Deutsche Bank Commodities Trading Desk, London, from August 2005.

The long-term commodity price is a typical price offered by the gas majors where the price is linked to the gas oil price quotations of the federal statistical office for the three locations Düsseldorf, Frankfurt (Main), Mannheim/Ludwigshafen (Rheinschiene). The price is adapted at the beginning of each quarter to the average of the quotations over six months with a

time lag of three months.[1] One option for determining the price, offered especially by new entrants, is based on a link to gas oil quotations at Rotterdam. Figure 16 shows the option based on the forward prices for German Rheinschiene quotations on the one hand, and gas oil quotations on the other; the commodity price offered by a new entrant could be significantly lower.

This snapshot of the situation since August 2005 demonstrates only that there is evidence that, alongside the overall picture of a market unchallenged by competition, some grass roots movement can be found. What is characteristic of this market is that none of the market participants have claimed any success. Some of the players are extremely reluctant to say anything about their market penetration, even if they have some successes. Some give more details if approached directly. This chapter describes these developments in more detail, presenting the actors, their successes and the problems they face. Obviously a part of the lack of competition and liberalisation is related to the organisation of third party access. But, as mentioned earlier, at least some of the new entrants argue that access is not the main challenge on the German market.

In addition to the description of the attempts of new entrants to get access to the market, I will describe market liquidity in terms of OTC trading. Although no real liquid market for gas has so far developed in Germany, some OTC trading takes place and trading activities under the virtual hub of BEB might be the start of a more liquid market.

8.2 Competition Among Incumbents

In contrast to the situation in the power market, with the exception of the ongoing efforts of Wingas from the beginning of the liberalisation process, there has been hardly any competition between the incumbents.

Two main arguments for that behaviour are given: 'we learned from the power market' and 'we can't sell gas twice'. The experience from the power market was that fierce competition for industrial customers led to decreasing margins without any substantial changes of market shares. 'Selling gas twice' would occur if one of the bigger gas companies attempted to sell gas to end customers that were supplied by one of the customers of

these companies themselves. Due to the close interconnections of the German gas companies by sales relationships, this could in principle happen very often. This is why gas companies went out of their way to avoid these circumstances and Wingas, for example, was involved in only one case of an attempt to sell gas twice.[2] In very rare cases the incumbents would sell gas outside their network areas, but without any strategic plan to expand market areas. For instance, from October 2001 Thyssengas supplied an industrial customer in Munich; from October 2003 BEB supplied a handful of distribution companies in the Thyssengas area with flat volumes; and Ruhrgas supplied some industrial customers, such as the Hamburg based shipyard Blohm & Voss, outside its network area and, in one case, a distribution company with part of the overall demand of the customer.[3]

Even EnBW, number four in the German power sector but without a role in the gas market, failed to make any progress. The company developed a small gas trading business in 2000 and supplied two industrial customers in Bremen. After these first deals the company temporarily ceased supplying end customers in Germany.[4]

8.3 Wingas

Wingas plays a special role in the German market. The company was founded by an affiliate of the chemical major BASF at the beginning of the nineties, when Ruhrgas refused to supply gas to BASF for chemical processes at a price significantly below that charged in the heating sector. By the beginning of the liberalisation process Wingas, a joint venture between BASF with 65 percent and the Russian company Gazprom (35 percent), had achieved a market share in Germany of around 10 percent. In 2000 the company sold 113.3 TWh gas, including minor volumes for export.

From 2000 to 2004 the company increased sales by 67 percent to 189.3 TWh, significantly above the German market growth. But this impressive growth was derived mainly from new markets including spot markets outside Germany where Wingas took advantage of market liberalisation. Sales to export markets were 64.1 TWh in 2004. This reduces sales in Germany in 2004 to 125.2 TWh. Wingas did not publish export figures in 2000, but

it is assumed that they were less than 10 TWh. An increase from roughly 100 TWh to 125 TWh shows that Wingas continued to increase market share in Germany, but that its primary source of growth was new markets. But also a part of the growth came from older contracts although these volumes have now reached a plateau.

Short-term growth potential in Germany is limited. Wintershall Erdgas Handelshaus (WIEH), another Gazprom–Wintershall joint venture, supplies the East German gas major VNG Verbundnetz Gas. Therefore Wingas is not offering gas in East Germany.[5] Wingas is supplying most of the German regional gas suppliers with 10 to 15 percent of their annual volumes. In these cases Wingas is not in a position 'to sell the gas twice'.

In 2000 Wingas started a campaign to acquire distribution companies as customers in South-West Germany, the network area of Gasversorgung Süddeutschland (GVS), although Wingas supplies GVS with around 15 percent of its annual demand. In return GVS started to reduce its purchases from Wingas As a result, Wingas ceased its activities in the GVS area and in most cases withdrew from attempts to acquire customers in areas where it supplies the regional gas supplier.[6]

During the past few years Wingas has concentrated, with limited success, on acquiring distribution company customers in the few remaining network areas where it does not supply the regional gas company. Usually it establishes itself as a second supplier, that is, it supplies only part of the demand of the customer. Even for Wingas it is difficult to convince distribution companies to switch suppliers.[7] The company mainly blames two factors for its limited success. The first is the ownership structure of the distribution companies. Wingas says it is almost impossible to acquire as a customer a distribution company with one of the German gas companies as a shareholder. The second is the structure of long-term contracts which makes it difficult to switch even formally agreed volume releases from long-term contracts to a new supplier.

Wingas was more successful in supplying new power plants in Germany: it is the supplier of two of the three new CCGT projects that signed a gas procurement contract in 2004 and 2005;[8] it also supplies BASF's new CHP plant at Ludwigshafen; and it is supplying gas to two new turbines to boost the capac-

ity of a coal fired power plant of RWE in Weisweiler (North Rhine-Westphalia).

The business model of Wingas is still mainly based on supplying customers along its own pipelines, although the company used the possibilities of third party access in Germany.[9] Although the investment conditions for infrastructure investment under the new energy law have not yet been decided, it still intends to expand its network in Germany. It has started to increase STEGAL capacity by 50 percent from Olbernhau at the Czech–German border to Reckrod, where STEGAL interconnects with the MIDAL system of Wingas, mainly to transit Russian gas. It also intends to increase WEDAL capacity from Eynatten to the MIDAL system to meet additional demand. And it plans a pipeline connection jointly with Ruhrgas to connect Burghausen at the German–Austrian border to Lampertheim (MEGAL system) partly for the transit of Russian gas but also as part of a potentially new market strategy in South Germany.[10] This project is backed by the development of a huge new storage project at Haidach in Austria where Wingas, jointly with the Austrian RAG and Gazprom, is converting a depleted gas field into a storage site with a working gas volume of 2.1 Bcm/y.

The formal liberalisation of the German gas market and the possibility of third party access did not significantly change the role of Wingas in the German market. It is currently concentrating more on its role as Gazprom's partner in Western European markets.[11] The intended increase in Gazprom's share in Wingas shares to 50 percent minus one may reinforce this role.[12]

8.4 New Entrants to the German Gas Market – the First Movers

8.4.1 Trianel

At the beginning of the liberalisation process a company called Trianel European Energy Trading GmbH made pioneering moves. Trianel was founded as a joint venture of a number of municipally-owned German and Dutch distribution companies for power trading and procurement. In 2005 around 20 German

and three Dutch distribution companies or co-operating groups of distribution companies were shareholders in Trianel. At the beginning of 2000, the management decided to extend the business from power trading to gas trading and gas procurement activities. In April it bought five months flat volume at Eynatten and sold it to Stadtwerke Aachen (STAWAG), at that time Trianel's biggest shareholder. This very early decision of STAWAG to buy up to one third of its annual demand of around 3 TWh on spot markets, using Trianel as a trading company, helped Trianel to get started. Since 2000, the company has supplied a number of German distribution companies with flat volumes. In 2000, the company managed the first full service supply by a new market entrant to a distribution company.[13] But the gas business never exceeded an annual volume of around 2 TWh.

In order to expand its business the company took further steps. In 2002, it started to supply industrial customers assisted by the sales company Enetko, which is part of the Trianel group.[14] In the following year it started to offer portfolio management services to distribution companies helping them to optimise gas procurement. In 2004 Trianel, together with some of its shareholders and other local distribution companies, started an 800 MW CCGT at the location Hamm-Uentrop (North Rhine-Westphalia) and organised gas procurement for the project.[15] And in the spring of 2005, with a group of its shareholders, it initiated an investment project in storage.

Portfolio management is not yet a big business and Trianel currently has active service contracts for managing the portfolios of three distribution companies. While a final decision is pending on the storage project started in 2005, all this demonstrates that the company is still convinced that the gas market will offer new opportunities in future.

8.4.2 Enron and Other Americans

The other first movers in the German gas market were mainly American companies that expanded their UK-based gas activities to Germany. Enron Deutschland started a gas trading and sales business in 2000; in the same year TXU tried to enter the gas market from its German operation TXU Europe Energy Trading

and Aquila founded a German affiliate Aquila Deutschland GmbH; a 'late mover' among these American companies was Duke Energy, which established a sales and trading team in Stuttgart in late 2001.

Enron was the most active and successful of these first movers. From October 2000 the company supplied a small number of distribution companies with part of their demand mainly in the GVS network area. The annual volume to start with was roughly 1 TWh. In 2001, the company acquired both distribution companies and industrial customers.

Enron not only offered gas to customers but promoted price transparency and trading by organising OTC trading at Lampertheim, where the Ruhrgas and Wingas systems are interconnected with the regional transmission systems of GVS and Saar-Ferngas. Enron published quotes for Lampertheim and tried to act as a market maker. This gave Enron customers, at least, nice opportunities to optimise their procurement by trading around their Enron volumes at Lampertheim. To back trading at Lampertheim Enron booked transportation capacity from Eynatten mainly on the TENP system towards Lampertheim. But Lampertheim trading existed only with the support of Enron. When the German activities were closed after Enron's infamous bankruptcy and gas ceased flowing to customers on 30 November 2001, OTC trading at Lampertheim immediately collapsed and never recovered. But Lampertheim did not completely disappear as a trading and exchange location. Sporadic activity was reported between 2001 and 2003. In 2004, and more intensively in 2005, some parties started trading at Lampertheim again but without any fanfare (see section 8.7.1).[16]

TXU and Aquila were much less successful and, except in very rare cases, never managed to get access to customers in Germany. Duke followed a different business model and concentrated on acquiring industrial customers. Its small but experienced sales team managed in 2002 to sign contracts with around 10 customers and an annual volume of around 800 GWh. But Duke left the market only a few days before the delivery of its gas was due to start in October 2002.[17]

The Americans (excluding Sempra – see below) left the gas market in 2002 at the latest and their participation appears to have been only a passing episode.

8.4.3 NatGAS

The final company of the first mover group was natGAS. Founded in 2000, the company is based on a totally different business model. The main shareholders are the two German oil trading companies Marquard & Bahls and Select Energy (both from Hamburg) and the heating oil sales company Friedrich Scharr (Stuttgart); in addition a number of heating oil sales companies hold small shares in the company. The main idea is to offer companies that sell heating oil a second fuel that may compensate for losses in the heating oil market. Therefore the target customers are small and medium-sized industrial companies with an annual volume of between 5 and 50 GWh. The shareholders act as sales agents for natGAS. The first customer was supplied from April 2001. After some difficulties in establishing the business, and some management problems, natGAS now has a very good reputation in its core market segment. It is able to supply customers with a minimum load factor of 2,500 h/a. The business is expanding steadily. In the year 2004, it supplied around 1.5 TWh to around 38 industrial customers and in 2005, it supplied 60 small industrial customers in Germany with annual sales of 2 TWh. Customers are spread all over Germany. NatGAS has no big trading operations and usually buys volumes more or less back to back under flexible contracts at different border points. To manage the load factoring it normally uses not storage but flexible supply contracts, in addition to individually agreed balancing services with different transmission operators along the transportation chain. The core business is supplemented by bigger deals with wholesale companies, mainly in Italy, based on the TENP capacity leased by natGAS.[18] The overall annual sales volume was around 3.2 TWh in 2004 and 3.8 TWh in 2005.

8.4.4 First Movers: Americans Leave – Germans Stay

The American companies did not leave the German market because of lack of success, but because of other business developments in the United States and the UK. The German companies did not stay because of their overwhelming success, but because of their accumulated experience and the hope that the situation might improve and that they might be able to exploit a first mover

advantage in future. The crucial problem in that first phase was access to the networks. The organisation of transportation was a nightmare. To give some examples:

- The German pipeline system lacked all transparency but the transmission operators demanded concrete entry and exit points to start negotiations about contracts. Shippers developed detective skills.[19]
- German transmission operators used any argument, however minor, to complicate negotiations on pipeline access.
- Agreements between the network operators at interconnection points did not exist.
- Contracts of different operators did not fit together.
- Balancing rules were applied differently.

At that time the organisation of international energy traders, EFET, founded a German task force, led by the general manager of Aquila Deutschland, Jörg Spicker, to improve the situation and influence the process of shaping the rules for third party access.

I mentioned earlier that new entrants learned to negotiate with the incumbents and improved their individual position regarding third party access. In addition, although the model of access did not change, transparency increased and the rules of the game became clearer.[20] Therefore the departure of a significant number of the first movers did not lead to a complete breakdown of attempts to enter the German market, but to a second phase in which new companies with new business models entered the market. This phase started in 2002.

8.5 New Entrants to the German Market – the Second Phase

The new entrants of the second phase were either European midstream and downstream companies or, in some cases, producers. Most of these companies entered the market in 2002 or 2003. Usually they operated from within Germany where they founded companies under German law, all operating with a staff of between one and ten. They have slowly developed their business over the last two or three years and none of them seem to have the ambition to take a large share of the German market.

Table 16 shows these newcomers, including an assessment of the annual volume sold for the gas year 2005/06, and a short description of their customers.

Table 16: New Market Entrants in Germany

Company	*Sales 2005/06*	*Customers*
Gaz de France Deutschland	8.8 TWh	Distribution companies (full service contracts and flat volumes Industrial customers > 100 TWh
BP Gas	2–3 TWh	Distribution companies (full service contracts) Industrial customers > 100 TWh
DONG	2–3 TWh	Distribution companies (structured volumes) Industrial customers > 100 TWh
Electrabel	1 TWh	Distribution companies (flat volumes) Industrial customers
Nuon	0.8–1 TWh	Distribution companies Industrial customers
Sempra Energy	0.8–1 TWh	Industrial customers
Essent	n.a.	Distribution companies
EconGas	n.a.	Industrial customers
Distrigas	0 TWh	Distrigas approaches German customers (distribution companies, large industrial customers) with a small team with German market knowledge, but in 2005/06 without success.

Source: Company information; author's assessment.

I estimate that the total market share of the new entrants (including natGAS and Trianel) is only around 2–3 percent of the total German gas market. But over the years most of the new entrants increased their customer numbers and gained a reputation as reliable potential new suppliers:

- Gaz de France is judged to be the most aggressive new player. The company relies on a diversified portfolio and is able to source gas at different German entry points including Oberkappel and Waidhaus. Many market observers think that Gaz de France is willing to offer gas below market prices and subsidises the acquisition of market share. Sources from GdF rebut this, saying that gas prices are part of a portfolio which includes different oil-based contracts.
- BP is concentrating on certain regions and managed to supply a number of distribution companies with full service contracts. The company is making attractive offers at least partly based on volumes it bought in the Ruhrgas auctions at Waidhaus in 2004 and Emden in 2003.[21]
- DONG is concentrating on the northern part of Germany bringing in equity gas from Denmark. It is an advantage for the company that it has transportation rights in Germany on the DEUDAN system from Ellund (Danish border) to Quarnstedt. DONG is the first supplier of the German importers under long-term contracts (E.ON Ruhrgas and ExxonMobil/Shell) to decide to supplement this business by direct sales, or, in the words of the gas industry, 'to sell gas twice'. Its main incentive is loss of market share in Denmark.[22]
- Sempra, the last American company, appeared in the market for industrial customers at the beginning of 2005. The company hired the former sales team of Duke Energy, perhaps the best in Germany.[23] In addition the company has contacted distribution companies, but so far without success.
- Nuon only plays a niche role because the Dutch parent company has no ambitious targets for the German market. But market observers say that the German sales team (actually a one man show) is making very interesting offers.
- At the beginning of 2004, the Dutch company Essent announced its entry to the German gas market, concentrating on distribution companies. In 2004 the company took a majority stake in Kom-Strom a trading company that was founded by local distribution companies. Essent sees the shareholders and customers of Kom-Strom as a base from which to develop the business, although success has so far been limited.[24] Essent is one of the companies that started to develop OTC trading within the BEB network system (see below).

- Austria's EconGas[25] has been active in Germany since 2003. In 2005, a German sales company was founded and started operations in 2006. The Austrians say nothing about their business and refuse to release any figures. Market observers report that from 2005 EconGas became more aggressive and successful. The company concentrates on South Germany and aims to supply large industrial customers and distribution companies. It has customers mainly in Bavaria.

The other players mentioned in the table play a less visible role and are still defining their strategy.

There are some similarities between the business models of the new entrants. They source gas at the European trading hubs or flanges such as TTF and Eynatten (Zeebrugge), or take gas from their own long-term portfolio. This is supplemented by volumes bought directly or indirectly at the Ruhrgas auctions at Waidhaus and Emden (2005). OTC trading at German locations is used to a limited extent to source gas and for balancing. To offer the necessary load factors the companies mainly use balancing and extended balancing services offered by the German transmission companies, or in some cases even by local distribution companies.[26] Storage in Germany is used only by individual players (see Chapter 5). Flexible supply contracts or the flexibility in the conditions of the Ruhrgas gas auction, play a bigger role as sources of flexibility. The new market entrants offer fixed prices based on TTF prices but are also willing to offer oil-linked contracts, the link being either to German inland gas oil and fuel oil quotations or to Rotterdam products.

Although the new entrants are slowly gaining ground in the German gas market, they still face difficult obstacles to market entry. The following section analyses these difficulties.

8.6 Obstacles to Market Entry

New entrants mention the following obstacles to getting access to the German gas market: problems with network access, special rebates offered by the incumbents to counter offers from new entrants, retaliation strategies by incumbents, customers' reluctance to switch suppliers, lack of firm pipeline capacity

and, finally, lack of a liquid market for gas. This section looks at each of these in turn.

8.6.1 Problems with Network Access

One of the main tasks of this study has been to describe and analyse the difficulties of developing a system of network access in Germany. The discussion about the general system of access is still not finalised. But as noted above, new entrants have become familiar with the existing system and are able to manage it. But, besides this familiarity and the ability to organise transportation, there are numerous detailed operational problems that endanger the profitability of every single deal. These include metering problems and the necessity to install metering devices at excessive cost, lack of transparent procedures for metering, high penalties for exceeding balancing tolerances, unclear application of balancing rules, difficult and complex operational procedures at the interconnection points of pipeline systems, and non-harmonised nomination procedures.

Some new players are very reluctant to make offers in certain network areas, because they feel that the network operators are extremely inflexible in negotiating operational agreements to facilitate network access. This is clearly the legacy of negotiated network access, under which there was a lack of standardised, transparent and non-discriminatory rules and mechanisms to improve these rules. The new system of regulated third party access should improve that situation.

8.6.2 Special Rebates of the Incumbents

This is one of the most vexing issues for new entrants causing widespread resentment over the past few years. All of them report numerous cases where the traditional supplier counters offers with special rebates or out-of-pocket payments. This behaviour is often replicated throughout the supply chain. That means that finally the importing gas company is paying the rebate. In a number of cases new entrants threatened to start formal competition proceedings against this pricing behaviour, because they believed that this kind of pricing is anti-competitive and that the incumbents were selling gas below their purchase cost.[27] But

no formal procedures have been entered into and the incumbents obviously refute the allegations.

8.6.3 Retaliation Strategies of Incumbents

If a distribution company switches supplier there is potential for retaliation. The previous supplier or a supplier further up the delivery chain, may approach industrial customers of that distribution company directly and make offers to persuade them to switch suppliers. Market participants accuse Ruhrgas in particular of such behaviour, arguing specifically that Ruhrgas used its affiliate ruhrgas direkt for such a strategy. On this subject, Michael Pfingsten, head of sales on the executive board of Ruhrgas, said at a meeting with customers in Salzburg in June 2003 'it must be clear, that a supplier that lost volumes from distribution companies to a third party, might substitute this loss by making direct offers to industrial customers. The supplier has to fulfil take or pay obligations towards producers'.[28]

The most prominent case in Germany is Aachen, where ruhrgas direkt acquired almost the complete industrial customer base of the local distribution company STAWAG in 2001 and 2002.[29] STAWAG was never supplied by Ruhrgas, but the company, and particular its CEO, Dieter Attig, was one of the main driving forces in Germany towards an opening of the gas market.[30] Attig alleged in public in 2002 that Ruhrgas had acquired industrial customers by offering prices below purchase cost.[31] He said that ruhrgas direkt offered contracts that that were directly copied from the STAWAG contracts and contained the statement that 'we offer a price 10–15 percent below the final offer of STAWAG'. For example in mid-2001, Ruhrgas offered fixed prices of around 11.50 Euro/MWh for 18 month contracts. These prices were below the market prices at the trading hubs, below the average long-term purchase prices of the importing gas companies and significantly below the end customer prices at that time.[32] Officially Ruhrgas said it was a normal market entry strategy and ruhrgas direkt sources claimed that it was possible to earn money from this strategy. But informally even senior managers from Ruhrgas conceded that it was indeed a retaliation strategy,[33] which is also the perception of the whole industry.

Market sources reported in 2002 and 2003 that ruhrgas direkt made similar offers to industrial customers of distribution companies that switched suppliers.[34]

The latest example of such a strategy was in Baden-Baden. The local distribution company switched to Gaz de France as a supplier in October 2005. As a result the previous suppliers Gasversorgung Süddeutschland (GVS) and ruhrgas direkt offered gas to industrial customers at remarkably low prices. In May 2005 GVS agreed with a hospital in Baden-Baden, with an annual volume of 7 GWh and a load factor of 3.200 h/a, on a total fixed price of 2.20 ct/kWh (without gas tax) for the coming gas year. At that time the average price for small industrial customers in South Germany was around 3.00 ct/kWh and prices were on an upward trend.

The avoidance of retaliation measures is one reason why neither suppliers nor distribution companies like to talk about switching suppliers. Another counter-strategy is to agree with industrial customers on new contracts or pricing structures.

8.6.4 A Lack of Propensity to Switch Suppliers

Among distribution companies there seems to be a widespread preference for the traditional supply chain. An insider said that 'Stadtwerke are often not very willing to be proactive in changing their behaviour'. This view is widely shared in the industry. General managers of distribution companies often argue that only long-term procurement contracts secure the necessary volumes in particular at a time when they expect a shortage of gas as a result of increasing worldwide demand.[35] But an additional reason might be that the relations between the distribution companies and their suppliers are very strong. Local distribution companies are supported in every aspect of the gas business financially and technically. Joint visits to Norwegian offshore platforms and other places help to strengthen those relationships. As already mentioned in Chapter 2 these visitis came under legal fire in early 2006. Not only the management but in many cases the supervisory board is risk-averse. It is not an easy task for general managers to explain to a mayor – often the head of the supervisory board of a municipally-owned distribution company – the advantages and risks of market-oriented gas procurement.

On the other hand, a number of distribution companies started some years ago to look for new opportunities. These are often rather small companies led by a managing director convinced that only a proactive use of new market opportunities will guarantee the survival of their companies as independent entities. The majority of these distribution companies that switched supplier are not bigger than 500 GWh of annual demand and are led by general managers that can be characterised as somewhat stubborn.

But the same behaviour can be observed with industrial customers. New market entrants complain that in most cases when they make an offer the customer is only interested in using that offer to negotiate with its current supplier, but is not really willing to switch. But this behaviour is changing because the steep price increases since October 2004 are making customers more price-sensitive.[36]

8.6.5 Lack of Pipeline Capacity

Almost all new entrants complain that it is more and more difficult to obtain firm capacity in the transmission system. Most of the operators indicate available capacity one year in advance and have installed traffic light systems to show bottlenecks at the main border points. Table 17 shows the situation from September 2005 to August 2006.

Table 17 and Figure 17 (a map of the main entry points) show that, except at Eynatten, capacity is a problem at all border points. But new entrants complain about capacity constraints not only at border points but also on pipeline sectors within Germany. In particular E.ON Ruhrgas Transport, which in reality still had a point-to-point transportation system until February 2006, hardly sold any firm capacity in 2005. The transmission system operators confirmed these capacity problems and gave two reasons. Firstly, they explain that the German pipeline system was built to cater for the development of gas demand. Therefore it is not surprising that – with rare exceptions such as the NETRA system – it is fully utilised on a commercial basis. And, secondly, due to increasing demand for transportation contracts, particularly longer-term contracts, the remaining available capacity was largely sold.

Table 17: Available Capacity at the Entry Points

Border point	*Transmission system operator*	*Available firm capacity in 1000 m³/h with dates*	*Colour of the traffic light*
Ellund	BEB	0	Red
	E.ON Ruhrgas Transport	0	Red
Emden NPT	BEB	0	Red
	E.ON Ruhrgas Transport	0	Red
	RWE Transportnetz Gas**		Red
Emden EPT	BEB	0	Red
	E.ON Ruhrgas Transport	0	Red
	RWE Transportnetz Gas		Red
Oude Statenzijl H-gas	BEB	0	Red
Oude Statenzijl L-gas	BEB	12.500 (9/05) 0 (10/05–8/06)	Red
Bunder Tief*	BEB	0	Red
	E.ON Ruhrgas Transport	208 (9/05) 232 (10/05–4/06) 0 (05/06–08/06)	Green Green Red
	Wingas	101	Green
	RWE Transportnetz Gas		Red
Vreden	E.ON Ruhrgas Transport	95 (09/05–03/06) 96 (4/06–8/06)	Amber Amber
Elten	E.ON Ruhrgas Transport	0	Red
	RWE Transportnetz Gas**		Red
Tegelen	E.ON Ruhrgas Transport	6	Green
Haanrade	RWE Transportnetz Gas**		Red
Bocholtz	E.ON Ruhrgas Transport	0	Red
Eynaten	E.ON Ruhrgas Transport	309 (9/05) 254 (10/05) 264 (11/05–8/06)	Green Green Green

Table 17: *continued*

Border point	*Transmission system operator*	*Available firm capacity in 1000 m³/h with dates*	*Colour of the traffic light*
	Wingas	350 10/05 341 (11/05–9/06)	Green Green
	RWE Transportnetz Gas**		Red
Oberkappel	E.ON Ruhrgas Transport	0	Red
Waidhaus	E.ON Ruhrgas Transport	250 (9/05) 241 (10/05) 341 (11/05–3/06) 241 (4/06–8/06)	Amber Amber Amber Amber
Olbernhau	Wingas	0	Red
Mallnow	Wingas	0	Red

Sources: Company websites.

Note: Red <5%, Amber 5–20%, Green >20%.

* Capacity only indicated until 12/05; ** RWE does not publish the available capacity in exact figures.[37]

German transmission system operators have not auctioned short-term available capacity. Only ENI, that has half of the capacity rights in the TENP system (Bocholtz–Wallbach), has periodically auctioned capacity. In the summer of 2005, Gaz de France Transport Deutschland (GdF-Transport) auctioned MEGAL capacity (Waidhaus–Medelsheim) for the first time. None of the companies reveal the clearing price of the auctions. The results of the ENI auctions depend on the price differential between TTF prices and Italian prices. New shippers mainly use the pipeline to transit gas to Italy. In the summer of 2005 GdF-Transport auctioned 109,000 m3/h for a minimum of one year. Market participants estimate that the clearing price was significantly above the base price.[38] As a result, players that wanted to use that capacity to supply the German market were not successful, because their price limit was below the clearing price.

Figure 17: Main Entry Points to the German Network System

Sources: Company websites.

Whether the lack of available capacity is a barrier to entry caused by monopolistic behaviour, which may infringe European competition law, is one of the issues of the sector inquiry started by DG COMP in 2005. Preliminary results of the inquiry show significant concerns on this issue.[39]

8.6.6 Lack of a Liquid Market for Gas

International companies that are active in the German gas market can only provide limited volumes of short-term gas. At

the Eastern border points the main source is the Ruhrgas auctions at Waidhaus. Through these, limited additional volumes are available to some players. On the Western border points volumes come mainly from the Dutch TTF or the Zeebrugge Hub. To a limited extent volumes are purchased at the flanges at Emden and Bunde.

Due to the above-mentioned capacity constraints, and the limitation of liquidity, this not only places constraints on the availability of gas for new entrants but also limits the flexibility of these players. Short-term optimisation and balancing of portfolios within Germany is extremely difficult because such markets hardly exist. The next section analyses some early developments that may lead to changes in this situation.

8.7 OTC Trading in Germany

8.7.1 An Overview

No real liquid market for gas based on OTC trading has developed, although since 2000 there have been some attempts to exchange gas bilaterally in a transparent way. As a result of the point-to-point transportation system in place at that time, no virtual trading point could emerge and activities were concentrated at the intersection of main pipeline systems, or the border points of the German system. Enron's effort to develop hub trading at Lampertheim was mentioned above (Section 8.4.2). Although visible trading at Lampertheim broke down after Enron left the market, the location is still used by market players in Germany for minor trading activity. But these activities have a very low profile and are not transparent although in 2005 a number of parties signalled increasing interest in Lampertheim again.[40]

Two border points in the western and southern part of Germany where deals occur are Eynatten and Wallbach. Since 2000, limited volumes of gas have been traded at Eynatten (German–Belgian border) which is directly linked with the Zeebrugge Hub, via the Fluxys network. Wallbach (German–Swiss border) is mainly used as an intermediate point of trading towards Italy. Because not all players in that business have access to the TENP system and the Transitgas system that connects the Belgian and Dutch border via Switzerland with the Italian border point Paso

Gries, some gas is exchanged at Wallbach. But the focus is not Germany but Italy, although in individual cases gas is sold to German counterparts.

In the eastern part of Germany a small secondary market developed after the Ruhrgas auction at Waidhaus and in individual cases gas is exchanged at the border points at Burghausen and Oberkappel. But this is driven by one-off opportunities rather than by regular trading.

The most important area for the trading of gas is the Emden–Bunde area, where the pipelines from Norway and the Netherlands interconnect with the German downstream pipeline systems of E.ON Ruhrgas Transport, BEB, RWE, Wingas and EWE. Figure 18 shows the complex pipeline situation in that area.

Trading at the flanges at Emden and Bunde started to develop in the early phase of European market liberalisation and price reporting services, such as the Heren Report, Platts, and Argus, started to publish Bunde and Emden price quotations. Traders increasingly demanded the development of a hub in that area and finally in 2002 the two competing hub concepts of EuroHub B.V and North West European Hub Service Company (HubCo) were established.[41] Neither of the two hubs ever had any significant impact on gas trading in Germany. Both flange trading and the activities under the two hub regimes almost disappeared after the Dutch transmission operator Gastransport Services introduced the Title Transfer Facility (TTF) as a device to transfer gas within the Dutch transmission system. The healthy development of TTF trading shows that most of the activities in the Emden–Bunde region were driven by demand from the Dutch market. As soon as this market established the proper framework for trading within the Netherlands, OTC trading concentrated on this market. A very limited number of the more proactive German market participants used the TTF for procurement and trading activities. Among them are Stadtwerke Hannover (enercity)[42] and Energiehandelsgesellschaft West (ehw) a joint venture of some local distribution companies in Westphalia and Trianel.

There is still limited flange trading, particularly at Emden, and German companies participate as counterparts. But this does not really create liquidity and price transparency for the German market. Increased OTC trading may come from two

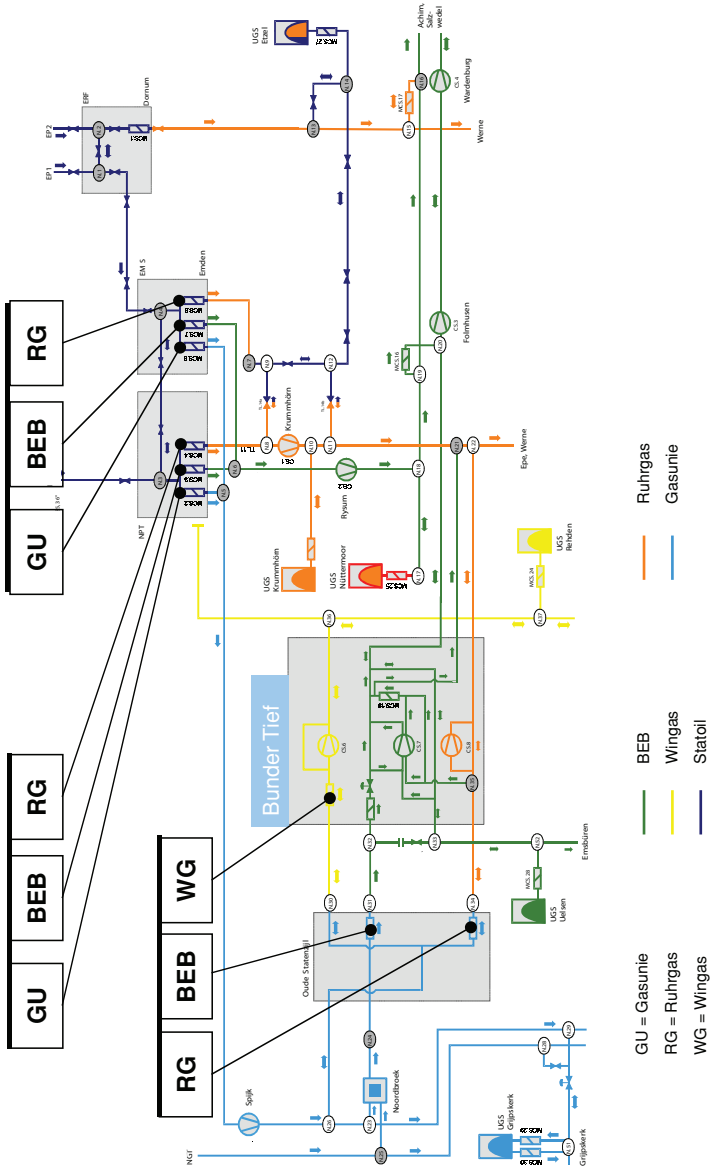

Figure18: Network System in the Emden–Bunde area

Source: Presentation of HubCo at an industry meeting, 16 September 2002.

developments – a new attempt of the hub-operator EuroHub to establish itself as an intermediate hub between the German and the Dutch system; and the development of virtual hubs in Germany based on entry–exit systems.

8.7.2 The Prospects for EuroHub

In 2003 the two hub operators finally merged to form EuroHub GmbH. The new company has the major advantage that it can include all flanges in the Emden–Bunde area. In December 2004 the managing director of EuroHub, Andreas Jordan, announced a new service concept that was scheduled to be introduced in April 2005. EuroHub started discussions with a reference group formed by the gas trading companies. The new concept includes the following major elements:

- EuroHub decreased the basic hub fee significantly from 4,000 Euro/month to 2,000 Euro/month. The trading fee increased from 0.0018 Euro/MWh to 0.008 Euro/MWh for the first 4 milllion kWh, and 0.002 Euro/MWh for bigger volumes. But there was a fee holiday until December 2005 to promote trading activities (unsuccessfully). In addition injection and withdrawal fees for transportation have to be paid.
- EuroHub will offer capacity for the different hub-points. The available monthly capacity will be published as a capacity release matrix.
- EuroHub will allow hub customers to use their own pipeline capacity to bring gas into the hub.
- EuroHub will organise back up services independent of the balancing services of the network operators.

In principle, this new concept was welcomed by traders as a step in the right direction. Members of the reference group and the hub management emphasised that discussions are progressing and are very constructive. But the implementation of the new service concept was delayed and from July 2005 a so-called interim service has been available.

EuroHub has to buy all services and pipeline capacity from the transmission operators or gas sales companies in the region. The key problem was whether EuroHub can offer services that are judged as really firm by market participants.[43] In particular

wheeling between the Emden flanges on a genuinely firm basis was a critical issue. In late 2005 EuroHub released the first version of a final service agreement, which responded to the concerns of the reference group. The design of the service was accepted by the reference group in February 2006. At the time of writing, it is not possible to judge whether this really does mean that discussions about the service concept are finished.

Throughout the whole process of the development of HubCo and later EuroHub as a hub-operator many market participants raised concerns that, due to their own interests in that region, the shareholders of EuroHub, who are the main stakeholders in the region, would never allow EuroHub to become a working hub with significant liquidity. On the other hand traders concede that the management of EuroHub is moving forward. But it is extremely difficult to assess the potential prospects of an 'intermediate hub' or super hub between the German and the Dutch market, and in future the UK market, linked by the BBL pipeline between the Netherlands and the UK. Market participants mention the following crucial issues:

- As long as no trading activity appears in Germany, there is no need for an intermediate hub.
- If trading and an OTC market develops, it is questioned whether an additional trading point is needed between different virtual trading points.
- EuroHub must be able to offer significant capacity or induce market players to tie in capacity to enable the development of liquidity. Currently the capacity released at different entry and offtake points is very small. And as long as EuroHub cannot release capacity on a long-term basis, the trading possibilities are limited.
- EuroHub capacity fees are judged to be an impediment to trading.

8.7.3 Virtual Trading Points in Germany – the BEB Model

The introduction of entry–exit systems in Germany is in principle creating a framework for the evolution of virtual trading locations. In July 2004, after BEB introduced its system including a title transfer facility called virtual portfolio (VP), it

took three months before the first OTC deal was announced. Essent and RWE Trading exchanged a winter 04 (November 04–March 05) volume.[44] In parallel the London-based broker ICAP started to offer BEB VP on its screens.[45] After BEB introduced some improvements of the system in January 2005, trading activities slowly but steadily evolved until August 2005 and slowed down again afterwards before recovering during the winter of 2006. Figure 19 shows the monthly volumes up to February 2006.

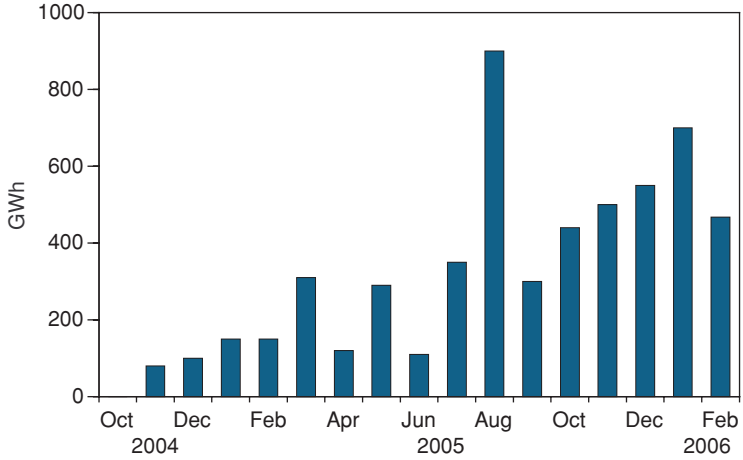

Figure 19: Volumes Traded within the BEB System

Source: BEB.

Between October 2004 and August 2005 sixty-five deals took place over the screens and perhaps the same number of deals was arranged bilaterally. Eleven companies openly revealed their interest in participating in trading at a bulletin board on the web site of BEB. These companies are RWE Trading, Essent Energy Trading, EnBW Trading, natGAS, DONG, 24sieben (Stadtwerke Kiel), Gaselys, Stadtwerke Hannover, Electrabel, BP Gas Marketing and Vattenfall Trading Services. Another twelve signed the virtual portfolio agreement, the formal prerequisite to taking part in the trading. At the beginning of 2006, trading

was concentrated on six of the registered parties.[46] At the start, trading concentrated on high cal gas, but in August 2005 the first quotations for low cal gas appeared and the first trades took place. At least since the beginning of 2006, prompt trading is rather frequent with deals reported every day. The volumes traded were still very limited until mid-2006, concentrating on the forward months. But quotations became more frequent during 2006.

Most of this still small group of German gas traders think that the emergence of OTC trading on the BEB system creates for the first time an opportunity for a liquid market to develop in Germany. The numbers in the figure above support the proposition that trading is slowly expanding. The reasons for slow development are related to a number of systemic problems:

- The market lacks a sponsor or market maker. No market participant has the assets and the incentive to promote the BEB VP trading by making reliable bids and offers.
- There is still a lack of German counterparts. Stadtwerke Kiel and Stadtwerke Hannover are using BEB VP for portfolio optimisation. Both have been active on the gas markets for years but so far no other company joined this small club. Most of the German incumbents are still tied to long-term contracts. And the German majors have obvious incentives not to support any OTC trading in Germany.
- Trading is limited to North Germany. Although E.ON Ruhrgas, RWE and Wingas have implemented entry–exit systems, none of these transmission operators have so far supported OTC trading in the way BEB did and does. E.ON Ruhrgas refused to implement any kind of title transfer facility; the fragmented RWE system makes it difficult to create any liquidity, and Wingas did not introduce an entry–exit system until mid-2005.

8.7.4 Summary

There have been attempts to establish OTC trading in Germany since 2000. But as a result of the traditional market structure and customer relations – which are still relatively intact – this trading never had any significance. The emerging trading within the BEB system is changing this situation. BEB is the first transmission

system operator that is interested in supporting the development of trading and is trying to develop its services according to the needs of the trading community. Therefore, just as the BEB system became the role model for network access, so it may also provide the services necessary for trading.

It is too early to judge whether EuroHub can play a complementary role for the German market as a physical and virtual hub between the national markets. The management seems to be willing to work hard to make this possible but the situation and the different interests in the Emden–Bunde area are complex.

Aside from all the operational difficulties, problems with the different ownership structures in the pipelines, different balancing services and the mixed incentives and entrenched interests of the shareholders in EuroHub, it is still an unanswered question whether an intermediate hub is necessary to link the two virtual hubs, TTF and perhaps in future Germany VP.[47]

The picture may change in future. The introduction of a new system of network access in February 2006 should facilitate the development of virtual hubs, which will create new potential for OTC trading.

8.8 New Gas-fired Power Plants as a Potential Driver of Market Development

Chapter 2 showed that gas for power production only played a minor role in the gas sales portfolio at the beginning of the liberalisation of the gas and power market. In 2000, capacity was 22,400 MW, around 17 percent of generating capacity. Production was 49.2 TWh, less than 10 percent of the total with a load factor 2,196 h/y (around 25 percent).[48] The plants were either operated by the German power market majors E.ON, RWE, EnBW or, like CHP plants, by local distribution companies. From the beginning of the formal liberalisation of the gas and power markets, there was a debate about the possibility of operating independent merchant plants fuelled by gas. During the late nineties VASA Energy[49] started the planning procedure for a 1,200 MW CCGT at Lubmin (Baltic Coast, Mecklenburg Vorpommern), Fortum for an 800 MW plant at the same site and Powergen for an 800 MW CCGT at Hürth (near Cologne). With power prices depressed until 2003 and the impossibility of

finding an attractive gas supplier, none of the projects proceeded during this phase of the liberalisation process.

In 2004 the discussion about gas fired power plants started again from a different perspective. Power prices started to increase and local distribution companies started to think about power plant projects as part of the supply portfolio to enable them to become more independent of the two major incumbents RWE and E.ON. Already in 2002, the government and the power producers had negotiated an agreement about the ending of power production from nuclear power plants. Most of this phasing out of nuclear power should take place before 2020. As a result of this phasing out, and the necessity of replacing old coal fired power plant, it became clear that by 2020 around 40,000 MW of new production capacity would be needed.

Following the Kyoto protocol and the EU ETS Directive, in 2004 Germany implemented an emission trading scheme that in principle should favour production technologies producing lower carbon emission, in other words favouring gas over coal. In 2002 a law was introduced that promoted power production from CHP plants and facilitated the conversion of old coal fired plants to modernised gas fired plants. This, however, only lasted until the end of 2005.[50] But, following an EU directive, taxation of gas for power production is to be abolished.[51]

Therefore it is generally expected that power production from gas fired plants will increase over the coming decade. But there is a consensus that there will be no 'dash for gas' and for several reasons it is expected that future investments will involve a portfolio of different fuels.[52]

The power plant projects that have been carried out during the past few years, or are planned, support this expectation. Table 18 contains the projects that had been announced up to the end of 2005.

Table 18 shows that currently only four CCGT projects are beyond the planning phase – Concord Power,[53] Mark-E[54]/ Statkraft, Statkraft (Hürth)[55] and Trianel. Three of them have already concluded a gas procurement contract – Mark-E/Statkraft and Statkraft (Hürth) with Wingas and Trianel with E.ON Ruhrgas.

Although pricing details have not been made public the terms are very likely to contain the following features:

Table 18: Power Plant Projects in Germany

Project	*Capacity*	*Fuel*	*Start of operation*	*status*
Concord Power (Lubmin)	1,200 MW	Gas	2008	Approvals in place
Stadtwerke Duisburg	240 MW	Gas (CHP)	2004	Finished
Electrabel	700 MW	Coal	n.a.	Project
	400 MW	Gas	n.a.	Project
EnBW	800 MW	Gas	n.a.	Project
	750 MW	Coal	n.a.	Project
E.ON	750 MW	Coal	2010	Project
	530 MW	Gas	2009	Planning started
GEW RheinEnergie Cologne	400 MW	Gas (CHP)	2005	Finished
Stadtwerke Hannover	600 MW	Coal	n.a.	Project
Mark-E/Statkraft	400 MW	Gas	2007	Approvals in place
Kraftwerke Mainz-Wiesbaden	400 MW gas or 750 MW coal	Gas or coal	n.a.	Project
Stadtwerke Munich	450 MW	Gas (CHP)	2004	Finished
N-Ergie/Mainova/E.ON	800 MW	Gas	2008	Project
RWE	2,000 MW	Lignite		Planning started
	750 MW	Gas		Project
	380 MW	Gas	2006	Under construction, boosting of existing coal fired plant by gas turbines
	1,500	Coal	2011	Planning started
Statkraft (Hürth)	800 MW	Gas	2007	Under construction
STEAG	750 MW	Coal	2010	Project
Trianel	800 MW	Gas	2007	Under construction
Südweststrom	400 – 800 MW	Coal	n.a.	Project
Vattenfall	750 MW	Coal	2010/11	Planning started
	660 MW	Lignite	2010/11	Planning started
Stadtwerke Bocum and others	1,500 MW	Coal	2011	Project
Swb, Bremen	800 MW	Coal	2011	Project

Sources: Company releases.

- All contracts are long-term (around 15 years).[56]
- All contracts cover the total gas demand of the plant based on a load factor of around 6,000 h/y.
- The prices in the contracts are linked to German fuel oil prices, in some cases with a price cap linked to German coal import prices.
- This pricing mechanism leads to prices significantly below other German gas prices and below European market prices in 2005.[57]
- The customer can realise this favourable price by taking the gas at the plant gate. Pricing and contractual arrangements make it less attractive to sell the gas to non-power markets.

Wingas and E.ON Ruhrgas can offer this kind of contract by assigning prices in the import contracts that are linked to fuel oil with a coal cap, or directly to coal. Therefore while the available volumes based on this kind of contract are limited, customers are able to obtain a gas purchase contract that allows the plant to operate profitably, which would not be possible based on 2005 spot and forward prices.

The very limited number of new projects under development and the contract terms described above, demonstrate that, at least in the short-term, new operators of gas fired power plants are not in a position, and have no incentive, to accelerate the development of spot markets in Germany.

Notes

1 Although, during recent years, most of the German gas majors started to offer different time-lags and the former Thyssengas contracts had traditionally a time lag of only one month, most market observers think that the so called '6/3/3' rule of adaptation still dominates the gas procurement contracts of German distribution companies. That will change after October 2006 when E.ON Ruhrgas will introduce a one month time lag.

2 See section 8.3.

3 But Stadtwerke Soest was a special gas because it was a Wingas customer.

4 EnBW restarted its gas trading business two years later and has become one of the most active German gas trading companies though still without supplying end customers (see below).

5 That was different at the beginning of the nineties, when Wingas and WIEH acquired the first distribution companies as customers in East

Germany. But after some legal battles with VNG these companies ceased to compete.

6 This was one of the rare cases where the conflict among gas companies became public. At the last annual press conference of GVS the managing director at that time, Jürgen Leßner, (shortly to retire) told the attending journalists that GVS stopped taking gas supplies from Wingas as a consequence of Wingas sales efforts in the network area of the company.

7 At a government hearing in December 2004 the spokesman of the executive board of Wingas, Rainer Seele, complained that sixty offers to distribution companies in the network area of Ferngas Nordbayern (Northern Bavaria) resulted in only one contract.

8 One is a 400 MW plant of the regional power supplier Mark-E, the second an 800 MW plant of Statkraft. Ruhrgas is supplying the third project, an 800 MW plant of Trianel (see section 8.8).

9 Wingas supplies between 30 and 50 customers in Germany by means of third party access.

10 It is currently not clear whether or when this project, called Süddeutsche-Erdgas-Leitung (SEL), will be realised but in 2005 Wingas and E.ON Ruhrgas were working on the necessary formal approvals.

11 In November 2005 the managing director of Wingas, Rainer Seele, announced that, in addition to the Belgian and the UK market, Wingas would enter the Dutch market and would intensify efforts to enter the Austrian market.

12 Representatives of Wingas and Wintershall seem to emphasise more and more the role of Wingas as the only true partner of Gazprom in Europe. At the last annual press conference of Wintershall, Rainier Zwitserloot, the CEO, said that 'Gazprom has customers like Gaz de France, shareholders like E.ON Ruhrgas, but only one true partner, Wintershall/Wingas'.

13 Stadtwerke Viernheim with an annual demand of 300 GWh, near Mannheim.

14 After some first successes this business was more or less given up in 2004 due to lack of success.

15 For a more detailed description of gas-fired power plant projects see section 8.8.

16 In December 2001 Heren Energy started a daily German language publication called 'Erdgashandel'. Besides the price quotations from Heren's European Spot Gas Market there was a column for Lampertheim prices. It was never filled with quotes and remained as a tombstone for Lampertheim.

17 All of the customers found a new supplier at short notice, in almost all cases the traditional one. Duke paid the customers the price differential between the price under its contract and the price the customers had to pay under the new contract.

18 natGAS does not publish any figures or reports about the business. Information was collected either directly from the management of the company or from market sources.

19 A former Enron transportation manager said with some regret that his knowledge was devalued once all the transmission operators published

pipeline maps. The internet domain *www.gasnetzkarte.de* still shows a map that was published by BGW in 2000. It is almost impossible to obtain any information from this map.

20 For example all the German major transmission operators started to publish maps about their network systems on web pages that included the names of stations and additional information.

21 In mid-2005 BP started to lose all the German staff which had developed the business after 2003. The last experienced sales manager left the company in mid-2006. It seems that BP has abandoned the market for end customers (including distribution companies) at that time and will concentrate on more trading oriented business (origination).

22 In 2005 DONG reorganised the sales activities and concentrated them in the new joint sales company with Energie und Wasser Lübeck, E-Nord (see section 7.4).

23 The history of this small sales team is a microcosm of the short history of the liberalised German gas market. It started with EnBW at a time when that company had ambitions to develop its business by organic growth. For Duke Energy (see above) it acquired a couple of industrial customers but the company later left the market. As a team it switched to EcoSwitch, a joint venture of Atel and Stadtwerke Crailsheim. This joint venture had a short appearance on the gas market but the shareholders underestimated the risks of the business.

24 The success was so limited that in March 2006 Essent announced the start of a new alliance to push the gas business. This joint venture with Bayerngas, called Novogate, will start operation on 1 June 2006 and offer gas procurement and services to distribution companies.

25 EconGas is a joint venture of the Austrian gas company OMV and a number of Austrian regional suppliers. The companies merged their sales business with industrial companies in that joint venture.

26 New entrants report very different behaviour by local distribution companies. In some cases they are willing to co-operate and see something to be gained from greater flexibility but the majority are still doing everything to make life difficult.

27 In 2003 natGAS, for example, complained that Badenova, a regional supplier in South West Germany, offered gas, according to natGAS calculations, at 0.2–0.3 ct/kWh below procurement cost based on market prices.

28 Unpublished transcript of the speech, 13 June 2003.

29 Around 1 TWh, roughly one third of the annual sales of STAWAG.

30 STAWAG was the company that legally challenged the long-term procurement contract with Thyssengas and was the main force behind the foundation and development of the trading company Trianel.

31 Attig made this accusation several times. For example at a parliamentary meeting of the Green Party on the 7 June 2002. The general topic at this event was the takeover of Ruhrgas by E.ON.

32 Average border price from July 2001 to December 2002 was 12.05 Euro/MWh according to a publication of Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA). The standard price for small industrial customers of

STAWAG at that time was 2.65 Euro/MWh (without gas tax) according to a publication of Bundesverband der Energieabnehmer (VEA).

33 The smallest customer at Aachen is a tanning salon with an annual volume of 0.3 GWh, an example quoted with some amusement to demonstrate how seriously Ruhrgas took the job at Aachen.

34 Heidelberg, Viernheim and GGEW Bergstraße were mentioned.

35 The gas industry association BGW supports this general view that the future will be characterised by a shortage of gas due to increasing demand from China and India and other developing countries and decreasing production in Germany.

36 The sales manager of a new entrant estimates that around 8,000 companies in Germany use gas and are potential customers. Half of them are in principle willing to switch suppliers and 1,000 to 2,000 are committed to optimise gas procurement cost by all means including switching their supplier.

37 The only major entry point to the German system that is missing is Sayda (or Deutschneudorf), the main entry point of the VNG system from the East. Although VNG improved the transparency of the system after February 2006 for this entry point no forecast of available capacity is given. It is only showing the colour 'amber' for an undefined time.

38 The base or reserve price was 58.92 Euro/m3/h/y (around 0.62 Euro/MWh for full use over 8,760 h/y).

39 See the preliminary report of DG COMP published in February 2006. It cannot be ruled out that DG COMP will enforce capacity auctions at the border points.

40 It is not completely correct to limit the activity to Lampertheim. Close to Lampertheim on the MEGAL System are the two interconnection points Gernsheim and Rimpar. At both points the two zones of the Ruhrgas entry–exit system, middle and south, interconnect. Although the Ruhrgas entry–exit system did not allow the development of a virtual hub, trading at these interconnection points makes sense. Players that are mentioned by market participants as either active or interested include BP, Essent, Electrabel, Sempra and Gaz de France.

41 Although the development of the two hub concepts is in itself an interesting story, it is beyond the scope of this study. EuroHub B.V, a Gasunie subsidiary started operations in February 2002. HubCo, a joint venture of E.ON Ruhrgas, Statoil, BEB and (later) Wingas, each owning 25%, started operations in October 2002.

42 Hannover is even part of the Endex panel on TTF price assessments formed in the spring of 2005.

43 The other two important issues raised by the reference group are guarantees and the allocation mechanism.

44 It was the first and presumably the last deal that was announced by a press release of the two parties after some internal discussion about whether to go public with the deal.

45 At the beginning this was restricted to high cal gas. In the summer of 2005 low cal gas was added.

46 Market players name DONG, EnBW Trading, Essent, Gaselys, RWE

Trading and Vitol as active parties.

47 After this study was finished it became known that the new EuroHub service concept was finally not supported by the reference group of traders. Therefore in mid-2006 the future of EuroHub was highly uncertain.

48 All figures are from Energiewirtschaftliches Institut an der Universität Köln (EWI), Prognos, *Enerigereport IV. Die Entwicklung der Energiemärkte bis zum Jahr 2030*, Munich 2005.

49 VASA Energy was a joint venture of the Swedish company Vattenfall and the German investor Michael Saalfeld.

50 After the general election of 2005 the Social Democratic Party (SPD) and the Christian Democratic Party (CDU) agreed to form a Grand Coalition. The coaltion treaty contains a further promotion of power production from decentralised CHP plants. Threfore it is expected that a new initiative to support this kind of plant will be launched.

51 The government already abolished taxation for certain plants in 2004. CCGTs with levels of efficiency higher than 57.5% were exempted if they start operation before 10 September 2007.

52 EWI and Prognos forecast in 'Energiereport IV' that installed capacity will increase in the period up to 2020 from 22,400 to 38,500 MW and production of power will almost triple during the same time, from 49.2 TWh to 145.2 TWh. The two institutes forecast that gas will be used mainly in the middle load area and will substitute coal-fired power plants. These forecasts are on the upper side of expectations. German energy policy favours coal-fired power plants and does not really support gas-fired power plants. For example, the government made sure in the first National Allocation Plan (NAP) for emission rights that existing and new coal fired power plants are sufficiently endowed with rights to operate economically. The same holds true for the draft of the NAP II, which was released in April 2006.

53 This is the former VASA project. After Vattenfall acquired the power companies Bewag, HEW and VEAG it lost interest in the project. Michael Saalfeld took the Vattenfall share and formed Concord Power as the new company to develop the project.

54 Mark-E is a regional energy company.

55 This is the project started by PowerGen. In 2000 InterGen took over the project and in 2004 it was sold to Statkraft.

56 This was released by the contract partners in each case.

57 For 2005 the price of this kind of contract is most probably below the average German border price based on the statistical BAFA price of around 16 Euro/MWh.

9 SUMMARY AND OUTLOOK

Is German gas liberalisation a special case in Europe? This paper has outlined the important features of German gas development since 2000. The industry consists of a large number of companies with diverse ownership structures. Most of the companies are interlinked either by ownership or contractual relations. This has had the following consequences:

- The government has been very reluctant to regulate the industry.
- The industry has always had a significant knowledge advantage over the government which had to rely on the expertise of the industry.
- The business model of the gas companies is an integrated model. Therefore the transportation and sales businesses are regarded as two sides of the same coin. This created a strong disincentive to the incumbents' providing network access for third parties.
- The importing companies rely on long-term purchase contracts with producers that contain take or pay obligations. They have strong incentives to defend every kilowatt hour they sell.
- Due to the strong relationships among the gas companies, including the main producers, the incentives for competition and a change in the rules of the game were rather weak. This observation also applies to Wingas, the only true new entrant in the 1990s, which reached a partial accommodation with its competitors.

These conditions led to a gas market development significantly different to that of other European countries:

- Germany was the only country that opted for negotiated third party access.
- Germany was the last European country to create an independent energy regulatory authority and, even then, only after this was required by the second EU directive.

- Network access was based on a point-to-point model, while other European countries increasingly switched to an entry–exit system.
- Network access was always based on separate access to the individual networks of different operators. These operators worked with different gas qualities, different procedural rules, different attitudes to the management of networks and to third party access.
- Often network operators not only optimised their own network business but also took account of the interests of their trading departments.
- Hardly any OTC trading developed in Germany, while in the neighbouring Netherlands the TTF became an increasingly liquid hub.

Network Access

The whole discussion on network access in Germany was driven by two main elements, the introduction of which were resisted by most of the major private transmission companies. The first was a flexible entry–exit system that would facilitate network access and help to create a more liquid market, and the second was a comprehensive system of network access for that would go beyond the property boundaries of each network operator. But the government was never committed to the separation of network activities from trading activities in order to create a level playing field for wholesalers and traders.

Privately-owned companies should not be blamed for protecting their business interests. It is entirely understandable that they would resist a reorganisation of network access which would make their business both more complicated and perhaps less profitable to operate, and – which is probably the most important issue – which would endanger the business model of the trading subsidiaries of integrated companies.

Negotiated third party access was definitely the wrong way to achieve an innovative model. Many studies have concluded that only a flexible entry–exit system can deliver a competitive market and that only a competitive market can lead to substantial efficiency and welfare gains. It should therefore be the task of government to ensure the creation of such a system.[1] Because

such a system was not in the interests of the incumbents, resistance was unavoidable and some of the technical arguments were not easy to challenge.

The ministry never organised a transparent open discussion on what should be the correct model of network access. Therefore it was never really possible to decide which of the arguments of the gas companies were just invented to defend their dominant market positions and which were genuinely addressing technical problems. BEB showed that innovative solutions were possible once its transportation business was no longer considered from the perspective of gas sales interests. After the unbundling of shareholder assets, BEB became proactive following a mixture of outside pressure and changed incentives.

The 'half hearted' model of regulated network access which developed after 2003 resulted from the combination of a government without a clear target and strategy, and privately-owned companies with clear strategies but diverging interests.

The 'final showdown' over the energy law demonstrated that the whole discussion was driven more by lobbying from different interest groups than by rational discussion. A lobbyist justified this process by arguing that it was impossible, during the whole law-making process, to get fair and equal access to the Ministry of Economics. Therefore the only real chance of moving towards a more competitive model of network access was to influence the political process. The dynamics of the political process were underestimated by the gas industry.

The debate which followed the introduction of the Bundesnetzagentur (energy regulatory authority) demonstrated the strength of feeling in the gas industry and BNetzA's reluctance to enforce any solution explicitly against the interests of the industry. The fear that technical arguments, although never independently evaluated, may be valid and the security of supply would become endangered was an important factor behind this reluctance.

Access to Storage

Although, from the perspective of new entrants, access to storage was far from being perfect, the market did offer some opportunities:

- There are many different storage operators and, based on the German energy law and the Guidelines of Good Practice, storage access will become more transparent.
- Since 2001, as a result of the association agreement, the access conditions of the major storage operators have been made public.
- Transmission companies offer an extended balancing service that is based on storage with flexible supply contracts, thus making it possible to supply industrial customers with a load factor of 2,500 h/y.
- New storage facilities can be developed in Germany within a relatively short time. The projects of Essent, Nuon and Trianel have shown that this is an option even for new market players with comparatively low volumes.

It has to be emphasised, however, that most storage capacity is operated by incumbents and this gives a competitive advantage to these integrated companies.

The issue of access to storage has never aroused the same intense controversy as that of network access. Using a combination of flexible supply contracts and the balancing services of the network operators, new players were able to manage the necessary load factoring and flexibility for full service contracts up to a load factor of 2,500 h/y without relying on physical access to storage. Under the regime of network access, in which transportation tariffs were distance-related, there was no real value in using storage because these tariffs distorted its commercial viability.

Long-term Contracts

It is extremely unsatisfactory that, after six years, the question of whether long-term contracts conform to European and German competition law has still not finally been resolved. But perhaps this long-lasting conflict only shows the difficulty of bringing competition to the gas sector. If, as in the German power market in the late nineties, new suppliers had been offering significant price reductions without additional risks, long-term contracts would have been swept away simply by market forces. But in the gas market the advantages of switching suppliers are neither

large nor easy to assess. Therefore the risk arising from breaking contracts is greater. Ruhrgas in particular very strictly maintained the concept of a 'sales partnership' under which it is the sole supplier of its customers, never offering voluntary release of volumes under long-term contracts.

The 2005 Bundeskartellamt proposals are far-reaching and very restrictive. But they are a reaction to the behaviour of (at least some of) the incumbents which are themselves (at least partly) responsible for this reaction. It is possibly the only way to reduce market power, particularly that of the major incumbents.

Market Structure

Although there have been some changes in market structure, the established ties and interconnections of the German gas industry have been strong enough to prevent any significant change in the traditional business model. Even the takeover of Ruhrgas by E.ON had no real impact. The only exception was the changed role of BEB after ExxonMobil and Shell reorganised their sales activities. But the new developments within the BEB system only have a limited impact because, even in northern Germany, most of the players are still embedded in traditional business relationships.

The full impact of the E.ON Ruhrgas story may only be revealed in the long-term. Although the may strengthen Ruhrgas downstream, the position of the company may weaken because main stakeholders in the German gas market are no longer interconnected by ownership. And E.ON, with stakes in companies in many member states of the EU, cannot expect to be able to expand in other European markets while protecting its share of the German market.

The Prospects for Change

Between 2000 and 2005 significant changes did take place in the German market:

- Although network access remained far from optimal, new shippers learned to use the system and are increasingly able to manage transportation.

- The July 2005 energy law will have an impact on network access. The law and the ordinance provisions were not set up very coherently, but they do give the new Bundesnetzagentur a starting point from which to improve network access.
- In contrast to the Ministry of Economics, the Bundesnetzagentur has clear targets and therefore seems to be more committed to significant change.
- The example of BEB demonstrates that the interests of the incumbents are diverging, leading to changes in market behaviour and new models.
- For the first time in Germany some OTC trading has developed within the BEB system, supported by more than one company.
- The Bundeskartellamt is committed to breaking up long-term contracts. This may have a significant impact on the market structure although it still may take until mid-2006 at the earliest for a preliminary settlement to be reached. The hearing of the Düsseldorf higher court in charge of the legal procedure is likely to result in the end in a total victory for the Bundeskartellamt. Long-term contracts, which cover most of a customer's demand and block new entry to the market will soon most probably belong to the past.
- Even the takeover of Ruhrgas by E.ON may have a positive effect despite the increased market concentration. Driven by the expectation of the capital markets for high returns, Ruhrgas may have less money to spend on defending the current market structure.

The EU has also been an agent of change in the same direction. The attempts by the EU Commission to increased market opening should not be forgotten, and is illustrated by the obligations imposed by DG COMP, resulting from the Marathon cases, which were one of the main drivers in improving network access in Germany. There are additional topics on the EU agenda:

- DG COMP's energy sector inquiry may lead to improved access to capacity at border points.[2]
- The European group of Energy Regulators (ERGEG) is currently working on a harmonisation of balancing rules in Europe and a road map for a single competitive gas market.[3]

The latter topic mainly involves investigating the roles of hubs and trading between hubs.

- The Guidelines of Good Practice for Storage System Operators (GGPSSO) may be transposed into a European regulation over the coming years.[4]
- Other issues such as methods for the calculation of capacities are also on the European regulatory agenda.
- Last but not least, it cannot be ruled out that the Commission will try to enforce ownership unbundling as part of a third liberalisation directive for EU energy markets.

It may be too optimistic to assume that conditions over the coming years will change in favour of new market entrants. One of the major remaining impediments might be available entry capacity to the German market. Recent developments, and the first visible conflicts between the new Bundesnetzagentur and gas industry incumbents, demonstrate that the changes will not be very fast. 'Deny, delay, degrade', is the way the president of the Bundesnetzagentur, Matthias Kurth, likes to describe the behaviour of the incumbents towards regulation.

Even if it is correct to assume that, due to German and European regulatory efforts, German gas liberalisation will converge with the rest of Europe and that, although the incumbents can delay this process, they cannot stop it, this will not automatically lead to a changed market structure.

One of the main characteristics of the German gas market (and from my perspective one way in which Germany is genuinely a special case) is the strong ties between the different companies, and the reluctance of almost all players to change their traditional business models. If most of the players continue to believe that they cannot benefit by breaking up these business models, no major changes will occur. This study has shown that the most important players have tried their utmost to make it very unattractive to abandon these ties. But as a result of changing legal and regulatory conditions this could now begin to change.

This diagnosis generates two possible scenarios:

Scenario 1: ('a new German gas world'):
A liquid wholesale market develops at a single national balancing point (NBP). Local distribution companies or alliances of

distribution companies use this market for procurement, or base their own long-term procurement contracts with producers on prices at this hub. Ruhrgas loses its dominant position in the wholesale market. Competition in the market for industrial users is intense, based on non-discriminatory access to the networks and storage. German majors such as E.ON Ruhrgas or VNG play an active role in this market. Distribution companies are able to keep their position in the residential market and a significant share in industrial markets.

Scenario 2: ('business as usual'):
Although the prerequisites for a German NBP are in place, no liquid OTC trading develops because there is no support from key players. The wholesale market remains dominated by long-term oil-indexed contracts between the German gas majors and the dominant producers Gazprom, Statoil and Gasunie. The German gas delivery chain remains more or less intact but some of the regional gas companies, in which E.ON Ruhrgas has a share, are converted to transportation companies. Distribution companies continue to rely to the maximum possible extent on long-term contracts. There is some competition and trading in Germany but no impact on the overall market.

This means that two groups of market players may drive future development – distribution companies, which change their purchasing strategies, and suppliers, which either enter the market or change their current strategy.

One of the results of my analysis of the German market is that currently no player or group of players can be seen that is willing or able to sponsor OTC trading so that a liquid market develops and creates changes in business strategies. It is hard to see how this will change in future. There is the possibility that, due to the change in long-term contracts, distribution companies, or groups of distribution companies, will play a more active role. But it is hard to imagine that these players will support OTC trading sufficiently to promote a liquid hub. As described, there is currently no sign that power producers will play a more active role in promoting a gas market. The four dominant power producers E.ON, RWE, Vattenfall and EnBW will rely on gas fired power plants only to a limited extent. There are currently

only four new projects for CCGT plants with a capacity between 400 and 1,200 MW. As far as is known, gas for these projects was bought under long-term contracts linked to oil, or in some way to coal. Most observers do not expect a dash for gas in power production or the growth of incentives for power producers to sponsor liquid gas and power markets.

Therefore, I conclude that the promotion of a liquid German gas market must come from the supply side. If producers that currently have only a small position in traditional long-term contracts like BP, ENI, Total or DONG see a possibility of selling new volumes in Germany at attractive prices they might be willing to sponsor the development of a liquid market.

For these reasons, this study concludes with five main messages:

1. **Forces resistant to change remain strong in Germany.** Due to the number of players that have close ties with one another, long-term contractual relations along the whole delivery chain and the integration of transportation and sales, no incumbent market players have had any incentive to challenge the existing market structure. And German politics has not acted as a countervailing power.
2. **Changes are not impossible but are blocked by a lack of incentives**. The example of BEB in the network sector demonstrates that changes can occur in Germany, as in every other European market, if business models change (in the case of BEB as a result of a change in ownership structure).
3. **Changes have taken place, but slowly.** The first five years of market liberalisation produced a complicated picture of ongoing, but marginal, changes in legal and regulatory conditions and market behaviour.
4. **Germany is converging with general EU practice**. Within five years the legal and regulatory conditions in Germany will converge to general European practice, driven by a combination of new German regulatory (network access) and competition (long-term contracts) measures, and by initiatives at the European level.
5. **Market changes are not certain.** There is an argument that, due to a lack of players with an incentive to change their

market behaviour, even under changed legal and regulatory conditions, the effects may be small if the current long-term import relationships continue.

Notes

1 It is not the task of this study to discuss whether an entry–exit system is the only appropriate system to support a liquid and competitive market. But the conclusions of the different meetings of the Madrid Forum (in particular those of the 6th and 7th Forum) show that there is a widespread consensus around such a view.

2 In November 2005 DG COMP published an issues paper containing the first results of the Energy Sector Inquiry started in June 2005. The paper identifies lack of available access to import pipelines as one of the potential barriers to market entry. Although DG COMP so far did not release any policy conclusions, attempts to improve access to main import points may follow. The preliminary report published in February 2006 emphasised this issue. The European Commissioner of Competition, Neelie Kroes, said in her speech, when introducing the preliminary report on 16 February 2006: 'we will tackle areas where we suspect violations of the competition rules, where action can have concrete and immediate effects, and where we can set valuable precedents. By way of example, these cases could cover vertical foreclosure caused by long-term downstream contracts, and the hoarding of capacity on pipelines, gas storage and interconnectors'.

3 See ERGEG, 'Gas Balancing: An ERGEG Discussion Paper for Public Consultation', 18 July 2005. The paper was discussed at the 10th Madrid Forum at the beginning of December 2005. Most participants of the Forum advocated harmonisation on daily balancing (Conclusions of the 10th Madrid Forum). In 2006 ERGEG wants to develop more detailed guidelines for good practice in gas balancing (p.5). Also see ERGEG, 'Roadmap for a competitive single gas market in Europe. An ERGEG Discussion Paper for Public Consultation', 21 November 2005. The functioning and shortcomings of the regional European trading points will be analysed by regional working groups in 2006. Conclusions on further steps will be released in 2007.

4 ERGEG (in its 'Final report on Monitoring the Implementation of the Guidelines for Good TPA practice for Storage System Operators (GGPSSO)' (Ref: E05-STO-06-03, 7 December 2005)) was cautious about policy considerations. But it is not satisfied with compliance with the GGPSSO, in particular in the areas of transparency and the possibility of secondary trading of storage capacity. The monitoring process will continue and ERGEG will decide, based on the results of this additional monitoring, whether it will advise the European Commission to consider further legislation (p. 6).