

European Academies



**Proceedings of a workshop on the EU gas
markets held at the European Parliament on 10
October 2006**

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Workshop summary

On 10 October 2006, the European Parliament Committee on Industry, Research, and Energy hosted a workshop entitled "The European Gas Markets—Price-setting, structures, and future prospects." The aim of the workshop was to provide background information on EU gas markets and to give advice on important current issues facing them. Eight speakers, with diverse backgrounds ranging from academia to business, spoke on these topics. MEP Lena Ek chaired the workshop.

The speakers of the workshop spoke on three themes: the structure of European gas markets; gas pricing and related issues; and the appropriate regulatory role for national and European governments. Some of the main issues raised were:

- European gas markets are going through a time of unprecedented change. While demand for gas continues to expand, EU supplies are dwindling, resulting in an ever-increasing need for imports: by 2020 it is estimated that there will be a 150 to 230 billion cubic meter supply gap. New investments in the infrastructure needed to bring gas to Europe are urgent.
- At the same time, the future direction of the EU gas market is unclear, making gas companies hesitant to undertake the very investments that Europe requires. Long-term contracts have provided the basis for most of Europe's imports up until now, but whether policy makers continue to approve of their use remains an open question. Moreover, the regulatory environment for promoting competition is not yet in place. Establishing the framework for enforcing existing Gas Directives and promoting the efficient transportation of gas across Europe is a pressing need.
- Competition itself might stifle large investment projects if different market players cannot sufficiently co-ordinate their activities. On the other hand, if competition is not properly managed, an unregulated market might produce a few dominant companies, also stifling investment. Evidence of this possibility comes from the UK.
- At the same time, market developments offer exciting possibilities for the future. As Europe continues developing its gas exchanges, prices may fall substantially in line with production costs. Liquefied natural gas, while currently a small part of the European gas market, promises to increase in importance and could possibly aid the creation of a European, or even global, gas market.
- Europe will certainly not have an integrated and competitive gas market by 1 July 2007, as the EU Gas Directives mandate. Intelligently examining how to change the status quo is crucial, since the liberalisation project offers too many potential benefits to consumers to give up.

1 Introduction

The ITRE Committee wished to continue its considerations in the energy field by debating the parallel issues of price-setting in the gas markets within the EU single market and hence on 10 October 2006, hosted a workshop entitled “The European Gas Markets—Price-setting, structures, and future prospects.”

These proceedings are the summary of the points made by the speakers at that workshop. The briefing papers prepared by the speakers are attached in the annex and copies of the slides used during their presentations may be found on the European Parliament intranet.

The speakers were players in the gas markets, from industry and consultants to consumers and regulators. The views presented at the workshop and in this proceedings report are the views of the individual speakers. EASAC was contracted to organise the workshop.

The speakers were:

<i>Aad Correljé</i>	Delft University of Technology, Professor at Faculty of Technology, Policy and Management
<i>Ralf Dickel</i>	Energy Charter Secretariat, Director for Transit, Trade and Relations with Non-signatories
<i>Bob Handley</i>	Gas Strategies, Senior Associate
<i>Alexandre Clauwaert</i>	Suez, Vice-president, corporate strategy & development
<i>Michael Gillis</i>	Eurogas, Head of Internal Affairs Taskforce
<i>Thomas Briggs</i>	BP, Regulatory Affairs Advisor, Gas, Power & Renewables
<i>Nina Grall</i>	The European Regulators Group for Electricity and Gas (ERGEG), Gas Department
<i>Allan Asher</i>	CEO Energy Watch (UK energy consumer council)

2 Structure of the EU gas markets

Aad Correljé gave an introduction to gas market structure, and several other speakers also gave useful background information. Key points included:

- Europe is in a transition period between state-owned gas monopolies and a fully integrated, competitive gas market.
- The gap between Europe’s demand for gas and domestic production is currently large, and will continue to grow.
- New investments are vital for maintaining security of gas supply.
- Co-ordination is important in achieving necessary investment levels.

Correljé outlined how natural gas production requires three main stages.

- First, producers extract gas from the ground.
- Second, gas travels through pipelines to the vicinity of consumers.
- Finally, retailers take gas from pipelines and sell it to end-users.

Traditionally, state-owned monopolies were the only gas companies in the EU. These companies controlled all aspects of the supply chain within their borders. The EU Gas Directives of 1998 and 2003 seek to create a Europe-wide gas market in which consumers can choose among competing suppliers and different companies produce, transport, and sell gas.

Gas produced in the EU is in steady decline, while demand for gas will continue to increase for the foreseeable future due to its relative cheapness and environmental friendliness. According to Bob Handley, however, demand growth will be uneven. In most markets where gas is sold to end users, the markets for residential, chemical feedstock, commercial and industrial uses are growing at less than the rate of GDP. The electricity generation market is the only gas consumer with the potential for significant growth.

Michael Gillis explained that this combination of factors means that Europe now depends heavily on foreign producers for its gas supplies, notably Norway, Russia, and Algeria. The EU already imports more gas in absolute terms than any other major world region. Moreover, import growth in the EU will exceed that of all regions except China and India in the next fifteen years. In the year 2020, it is currently estimated that there will be a 150 to 230 billion cubic meter supply gap (the difference between demand and currently contracted or prospectively contracted supply). To put this figure in context, large new pipeline projects can move 30 billion cubic meters of gas per year. According to Gillis the problem is not available supply - global gas reserves are easily large enough to meet global demand - but lack of transport capacity.

Correljé believes that one of the biggest challenges facing the European gas market is to undertake the investment needed to maintain and build infrastructure that will deliver gas from producers to consumers. Providing the market structure conducive to these investments is a challenge. Gas producers and transporters face inherent uncertainty from the consumer market about demand and price. Furthermore, gas investments are specific to a geographical location and to a particular purpose. They also require large up-front costs, and take a long time to complete. This, combined with supply chain risks, makes co-ordinating the market as a whole important. Without proper co-ordination, investment will not reach necessary levels.

Two primary means exist to achieve co-ordination: either the market provides sufficient information, liquidity and flexibility to reduce these investment risks; or alternative means of co-ordination are required, like vertical integration (meaning that one company controls production, transit, and consumer sales) and long-term contracts in which companies secure guaranteed prices and quantities for their products over many years.

In short, Correljé's point was that striking a balance between competition and co-ordination is important, and that Europe would benefit from a more sophisticated regulatory approach that recognizes companies' need for some market power when undertaking large investments under uncertainty.

Finally, liquefied natural gas (LNG) provides an alternative to standard gas, and is forecast to make up an increasing share of total gas supplies in Europe. The LNG supply chain starts with gas extraction, and continues with liquefaction, shipping, and re-gasification. LNG offers more

flexibility than traditional natural gas because it does not rely on pipelines for transportation. It therefore allows for a more diverse range of suppliers. As of now, however, LNG remains a small part of the overall gas market.

3 Pricing

Ralf Dickel, Bob Handley, and Alexandre Clauwaert discussed the pricing of gas. Key points included:

- In the past, long-term contracts priced most gas. They continue to be the dominant means of pricing imported gas.
- Long-term contracts are a potentially important instrument for maintaining a stable gas supply during the current period of uncertainty.
- As gas markets become more competitive, trading should determine gas prices.
- After liberalisation finishes, the price of gas has the potential to be substantially lower than it is today.

3.1 The structure of long-term contracts

Even though the EU is currently importing increasing amounts of gas from outside its borders, most EU countries have a long history of importing gas from other European countries. Only a few countries (for example, the UK) ever had significant amounts of domestic production.

Dickel and Clauwaert explained that, historically, long-term contracts (LTCs) dominated the pricing of gas imports. Today, LTCs price 90% of EU gas imports. LTCs first arose over forty years ago as a means of pricing gas produced at the super-giant Groningen field in the Netherlands. LTCs work well for both sides. They allow exporting countries to maximise their income from selling a finite resource and to finance the necessary production and transportation infrastructure. For importers, LTCs ensure secure supplies and the marketability of gas.

According to Dickel and Clauwaert, LTCs have the following features:

- The export price at the border of the exporting country is based on the maximum price that gas consumers are willing to pay taking into account the price and quality of alternative energy sources (replacement value principle).
- The price actually charged at the border of the exporting country is the maximum price that gas consumers are willing to pay reduced by the costs of bringing the gas from the export point to the customers in the importing country (net back principle).
- The pricing provisions can be adjusted by the parties at regular intervals to follow market developments.
- LTCs obligate gas buyers to purchase a minimum volume of gas and gas suppliers to provide reliable quantities.

In practice, most LTCs explicitly link the price of gas to the price of oil, its primary substitute.

3.2 Long-term contracts and competition

Dickel emphasized that LTCs are not in themselves incompatible with competition. For example, recent LTCs to the UK from Norway and from the Netherlands use UK spot market gas prices instead of alternative fuels in the price formula. Nevertheless, the impact of liberalisation on LTCs is unclear. Existing contracts will certainly remain in place and be observed; however, the attitude of the EU to future long-term import contracts may cause concerns for gas exporting countries.

Dickel argued that a clear commitment by the EU to the continued use of LTCs for the import of gas would signal to countries like Russia that gas market liberalisation will not increase their risk of committing gas to the EU market and will give them the necessary security to make the infrastructure investments needed to meet anticipated demand growth.

3.3 Competition and pricing

In contrast to the other speakers, Handley focussed on how competition would change the determinants of gas prices. He explained that in competitive gas markets, trading determines the price of gas (as opposed to formulas in LTCs). The UK has already reached this stage, with gas prices determined on the National Balancing Point, a gas exchange. Gas supply costs, demand for gas, and the balance between supply and demand drive prices on gas exchanges.

Currently, most EU countries are at an intermediate stage in which some limited price competition arises from small suppliers slightly undercutting dominant incumbents in local markets. The speed at which these countries move to a system of hub pricing will depend on the pace of liberalisation. Handley's firm Gas Strategies predicts that hub pricing could dominate in around 5 years given a continued impetus towards market liberalisation.

Future gas supply costs have the potential to be quite low. Gas Strategies estimates that the long-term marginal cost of gas supply (LTMCS) for the quantities required by the EU are around \$2.50-3.00 per million BTU, substantially lower than the current price of gas. If prices are set by gas on gas competition on exchanges, then the price of gas could be expected to fall towards the LTMCS. The completion of several pipeline projects into the EU in the next five years as well as development of liquid natural gas (LNG) re-gasification terminals will pressure prices towards the LTMCS. However LNG also opens the opportunity for gas prices in America to influence gas prices in Europe through arbitrage tending to increase prices somewhat.

3.4 Other pricing issues

Handley pointed to a few other notable features of the gas pricing system. End-user gas prices show more variability across the EU than do wholesale gas prices. For one, taxation differs markedly across different countries, meaning tax harmonisation has a long way to go. Also, smaller users impose higher transportation costs on suppliers, so they get charged more.

Gas sold to the electricity generation market competes with coal, the primary alternate fuel. All other things being equal, the volume of gas burnt for power generation would depend mainly on the price of gas coal and CO₂. Gas has an advantage over coal as it emits less CO₂ per unit of electricity generated; however, future movements in these prices are difficult to predict.

4 Regulatory issues in the EU gas market

Michael Gillis, Tom Briggs, Nina Grall and Allan Asher spoke on regulating the EU gas market.

Gillis and Grall suggested several ways of improving the current situation. These included:

- Not implementing further legislation until the current legislation is properly enforced through a coherent regulatory framework.
- Improving market integration through mandating co-operation across national transmission grids.
- Continue pursuing the unbundling of transmission grids from gas retailing.

Briggs focussed on how to regulate liquid natural gas facilities. He concluded that:

- Leaving European liquid natural gas facilities unregulated as in America was not necessarily appropriate given the lack of robust competition and well-developed cross-border transmission networks in Europe.
- Traditional regulatory solutions, while helpful in theory, might not have much effect in the liquid natural gas market.

Allan Asher pointed out several potential dangers with the current regulatory approach:

- Without strict merger regulations, competition might result in a few dominant companies controlling gas markets and undermining consumer welfare.
- Greater transparency and third party access to new investments are necessary to ensure market liberalisation works in consumers' interest.

4.1 Promoting competition and co-operation

Observers concur that most EU-15 countries will not have fully competitive gas markets by 1 July 2007, although EU legislation has set this date as the target for achieving liberalisation.

Gillis said that rather than come up with a new set of measures to correct problems, the European Parliament should seek fully to implement existing legislation, which is still highly ambitious. He maintained that the focus should be on achieving further European market integration, but that constructing an effective regulatory framework presents a challenge. From suppliers' and users' perspectives, rules that ensure non-discriminatory access based on appropriate tariff structures and capacity allocation and congestion management rules to optimize use of existing infrastructure are essential. System users must be able to move their gas through networks quickly and efficiently, on the basis of market signals.

Gillis also pointed out that while detailed technical discussions on topics such as quality and inter-operability take place away from the political limelight, they are nevertheless crucial for the development of a single EU gas market. Finally, a more coherent, pan-European approach to market regulation, as opposed to the current situation in which different countries have different regulations, would make the transition to a competitive single market smoother.

To hasten the realization of a competitive gas market, Grall recommended that policy makers fill regulatory gaps with respect to cross-border activities and enforce co-operation across national transmission grids. The current legislation does not empower national regulators to take steps to improve cross-border gas trading. In practice, when trade difficulties arise between two countries, neither of the respective national regulators can resolve the problem.

Unlike Gillis, Grall endorsed new legislation that would explicitly mandate the co-operation of European transmission grid operators to promote greater gas market integration within the EU. The current system of fragmented national operators cannot provide a truly European transmission network capable of supporting a competitive market.

Grall also suggested prioritising ownership unbundling of the transmission grid from the other components of the gas supply chain. In many situations, gas is available for trade at the border between two countries, but trade does not take place since national companies that control both transmission and end-user supply have little incentive to compete. Furthermore, in the UK, which has undergone ownership unbundling, the transmission service operator actively contributes to competition and efficient system use through, for example, buying back capacity.

4.2 Regulating LNG facilities

While most speakers dealt with issues relating to the gas market as a whole, Briggs addressed the more narrow—but important—issue of regulating liquid natural gas (LNG) re-gasification facilities. Although the regulations governing the traditional gas supply chain are relatively well defined in the European Gas Directives, those governing LNG facilities are not. Establishing a clear regulatory framework for LNG facilities is an important factor in stimulating investment.

One precedent for the regulation of LNG re-gasification facilities comes from America. There, the federal energy regulator explicitly exempts them from regulated third party access provisions. The rationale is that the US has an efficient grid of pipelines that allows gas to move anywhere in the country; supplier competition is robust; and attracting new gas imports is better served without regulations.

These arguments are less appropriate for the European context, in which significant obstacles exist for transporting gas and competition. If exemption from regulation is not justified, the issue becomes how to regulate LNG facilities. One option is to require LNG facilities to hold open capacity for new entrants (such as in Italy, where the required share is 20 per cent). However, the LNG spot market may lack sufficient robustness to utilize open capacity, making the regulation equivalent to a tax on LNG facilities and undermining investment incentives.

Briggs pointed out that another possibility is to hold open capacity in LNG facilities, as well as transport facilities, for independent local distribution companies. This kind of regulation would enhance competition by creating a rival firm to the incumbent. New LNG suppliers would in turn have the choice to sell among alternative buyers, leading to a more vigorous and diverse LNG marketplace.

4.3 Caveats about the regulation of competition

The first three speakers on regulation looked at ways in which policy-makers can bring about competition. By contrast, Asher used his presentation to undermine the idea that achieving full market opening would inevitably benefit European consumers. He used the UK, the country that has come closest to meeting the conditions of the Gas Directives, as an example of how competition can actually undermine rather than promote consumer welfare.

By 2002, the fact that North Sea production was in precipitous decline was well known, and yet the regulatory action and price signals necessary to address the situation did not come until 2005, three years too late. Ten thousand jobs have been lost as a result of this failure, gas prices have increased by 80 per cent and electricity prices by 50 per cent. One to three million households live in fuel poverty (defined as homes that spend over 10 per cent of income on fuel), a figure that will raise to 4 million by 2010 if current circumstances prevail.

Asher argued that, although deregulated, the UK does not have a truly competitive energy market. Over half the gas produced in the UK comes from a small number of vertically integrated firms. Upstream production is dominated by a small number of multinational oil companies. Just 6 companies control 99.99 per cent of the retail market, compared to 22 prior to deregulation in 1999. The present situation has come about through lax merger regulations. In the UK and other parts of the EU, governments have consistently overruled regulators in approving mergers.

According to Asher, two major regulatory policies could alleviate the problem. First, strict imposition of third party access for new investments would promote competition without threatening the amount of projects undertaken. Second, the lack of transparency in gas markets is the problem that is easiest to fix and the most urgent. Requiring firms to divulge how much they produce as well as their storage capacity would greatly aid new entrants.

5 Discussion

In the discussion following the presentations, a number of questions were posed and the speakers were asked to give some brief and frank pieces of key policy advice that the European Parliament may consider in its future work:

1. Who pays for excess supply on new pipelines?

- Investors pay for excess capacity in new projects, but they pass the cost onto their shippers who pass the cost onto consumers. (Mr. Gillis)
- Long-term contracts pay for excess capacity in new infrastructure. Another possibility is to cover for it in the regulated asset base. (Ms. Grall)

2. Is liquefied natural gas committed to certain uses or free to move to the market with the highest price?

- Most liquefied natural gas is committed to wholesale markets, which then goes to the highest priced retail market. (Mr. Handley)

3. *What is the role of the TSOs versus the role of the regulator in addressing transmission grid issues?*

- TSO decisions are driven by external conditions, which are part of the regulatory environment. (Professor Correljé)
- Maintaining third party access to networks is the responsibility of regulators, not TSOs. (Ms. Grall)
- All actors should work together to co-ordinate supply and demand plans. (Mr. Clauwaert)

4. *What can the Parliament do to improve the functioning of the market?*

- Network capacity is important in promoting competition. Parliament should direct its focus to this issue. (Professor Correljé)
- Long-term contracts are proven instruments for attracting non-EU suppliers and investment. Parliament should endorse their use. (Mr. Dickel)
- Laws that force major purchasers of gas (for example, cities) to tender multiple bids for gas contracts and choose the one with the lowest price would help. (Mr. Handley)
- Creating market conditions where there is an ample supply of both commodity and capacity creates the best conditions for competition. (Mr. Gillis)
- The EU needs to improve the interoperability of its transmission systems, and new legislation can achieve this goal. (Mr. Briggs)
- Forcing national regulators and TSO operators to co-operate through new legislation will improve competition. (Ms. Grall)
- Parliament should implement the recommendations of the Kroes competition review. The quickest way to reform the gas market is to make companies provide information on flow rates, reserves, and access arrangements. (Mr. Asher)