

## EUROPEAN GAS: LIBERALISATION, COMPETITION AND SECURITY OF SUPPLY

Professor Jonathan Stern  
Director of Gas Research  
Oxford Institute for Energy Studies

### INTRODUCTION

This presentation is about European gas liberalization, competition, and security of supply. These are complicated subject for several reasons; the principal reason is that events are moving very quickly with new documents and new development happening every day in and around Europe.

Under the heading of liberalisation and competition this presentation covers:

- the EU gas directives
- competition rules: joint sale and purchase arrangements and destination clauses
- legal unbundling
- mergers on market concentration

Under the heading of security of supply, the following issues are discussed:

- reserves
- the supply/demand balance and the relationship between gas and power
- long-term contracts
- financing multi-billion dollar infrastructure
- import dependence
- producer/consumer dialogue
- the EU draft security directive on gas.

The main question that I want to raise about the agendas:

- the agenda of liberalization of competition, which has been around in Brussels now for nearly 20 years and
- the security of supply agenda, which has, as far as gas is concerned, only really resurfaced in the last three or four years. Although of course, the security of supply has always been an energy issue, but this particular focus on gas is really only three or four years old.

is whether these agendas are compatible, and particularly what kind of market conditions are going to make it possible to satisfy both liberalization and competition and security. And maybe it won't

surprise you to know that my conclusion is that in fact these agendas are not compatible and it's going to be very difficult to bring together the requirements of liberalization and the requirements of security.

## COMPETITION AND LIBERALISATION

### *The EU Gas Directives*

First I want to remind you of the EU legislative process: in other words, the documents which have been passed into law through the European Union in support of liberalization and competition. The first "Common Rules" (liberalization) Directive passed in July 1998 and markets began to open in August 2000. In July 2003 the second (so-called "acceleration") Directive was passed and further market opening will begin in July 2004.

The problem that the EU faced in terms of implementing the first directive was that it was a relatively weak piece of legislation. There were fears that it would not have a very big impact those fears proved to be absolutely correct. But at the time, and I myself was involved in this process in Brussels for two years, at the time it was impossible to persuade the member states to pass a tougher directive. So, the 1998 directive was a relatively weak compromise between what the Commission wanted and what the member states were prepared to accept.

The problems which have arisen since August 2000 were therefore relatively predictable:

- market opening has been slow and uneven across the member states
- tariff structures have not encouraged access to networks and again have been uneven across the member states
- lack of transparency in access availability, and balancing regimes involving overly high costs
- gas production and imports have remained highly concentrated among a few companies

Compared with the progress in electricity, progress in gas has been very slow. It's not too much of an exaggeration to say that by 2003, gas market liberalization and competition had barely started in the majority of European countries. This is important because a large number of Japanese observers assume that because the Directive was passed a long time ago Europe is very much advanced in this respect. However, looking at market opening it is clear that in the majority of countries there had been little progress in late 2002 (the date of the most recent EU statistics on market opening). For example, in France only 20-30% of the 20% who are eligible to switch had actually switched. In other words, about 4% or 5% of the total market. In Germany, Austria, Denmark and Sweden the figures are similar – less than 5% of the total market had switched supplier. In Ireland, Netherlands,

Spain and Italy the figures are in the range of 10-30%. Small users were mostly not eligible to switch. Only in the UK are the figures much larger (more than 50%) because markets, including small users, have been open for many years. So, the experience in the UK is not typical of the rest of the EU. Just to compare the Japanese gas liberalization experience in comparison to the EU; if it had been an EU country, Japan would have been about average for legal eligibility, maybe a bit slower than some, faster than others. So Japanese gas market liberalization in 2002, was very much the same as most of the Continental EU countries.

Another point I want to stress is that many Japanese people want some kind of generalization about what is happening in “Europe”. I want you to understand that there is no generalization about what is happening in “Europe”. EU member states are moving at very different speeds and for the Commission that is a big problem. When the 10 new EU member states join the EU in June 2004, most will have made much less progress than the existing members. Some will need a “derogation” from the Directive, or in other words, more time to complete their liberalization. So, the picture in Europe is one of huge diversity.

A few words about the second directive which is an attempts to put right the problems of the first directive:

- acceleration of market opening: All nonresidential customers will be able to choose their own supplier by July 2004, and all customers three years later.
- Fixed or approved tariffs must be set by a competent and independent regulatory authority.
- transmission and distribution networks must be legally unbundled with transmission system operators (TSOs) and distribution system operators (DSOs), independent from the integrated gas business. The separation of transmission networks from supply has got to be achieved by July 2004, and the separation of distribution networks by 2007.
- regulated access to storage is allowed for but not mandatory; negotiated access to storage is still allowed (and that is a weakness of the directive).

But I want to go back to this legal unbundling. Legal unbundling means that the transmission business must be placed in a separate subsidiary company to the supply business. And there are complicated rules about how that business can relate to the supply business. One example: if you have a position at the transmission business, and you decide you want to leave, you cannot immediately go and work in a supply business because you might carry confidential information about that business into the supply business. In fact, it might be that you will never be allowed to work in the supply business; or vice versa if you work in supply but you want to move to

transmission. So, unbundling means separation--separation of different functions. And the rules on separation vary from country to country and need to be harmonized.

The other aspect of this which is important is that at the distribution level things become very complicated because in Europe, as indeed in Japan, we have a lot of very tiny distribution companies which only distribute gas to a few thousand customers. And the rules here are that if you have a distribution network which serves less than 100,000 customers you don't have to separate because, in fact, your business is too small. So you can see that the detail is very complicated and I just want to make you aware that what I'm giving you here should be considered "headlines".

*Competition Rules: joint sale and purchase and destination clauses*

I have met many Japanese utility people who are very confused about the competition rules issues and somehow believe that this is to do with liberalization and the directive. Some of you may know that in the last two or three years we have had a number of issues between the EU and the gas industry about traditional long-term take-or-pay contracts, about joint sale or purchasing arrangements, about what the EU calls territorial sales restrictions and the gas business calls destination clauses, and about what the EU calls "profit-splitting" (but the rest of us call profit-sharing) mechanisms. Now, many people don't realize these issues did not arise because of the directive. They arose because with the wave of between utility mergers around Europe, when the competition authorities began to examine the contractual structure of the gas industry for almost the first time.

For those of you who are not so familiar with the EU competition legislation, it may seem a little bit strange. Broadly speaking for those of us who are not lawyers it appears that breaking the law is permitted until somebody objects. When somebody objects and the competition authorities examine your contracts they have the right to say that the contracts don't conform with competition policy and must be changed. Many of us who are involved with the gas industry take the view that if the contracts were not legal, then the authorities should have discovered a long time ago. But the competition authorities take the view, "it is up to companies to make sure that contracts conform with the law. And if you don't do that you are at fault."

The reason all these issues became big problems was that the competition authorities suddenly said: long-term contracts may have an anticompetitive effect because they allow one company to dominate a large share of a given market. And they create barriers to entry to smaller or other

companies because one company has got such a big share of the market. And so they lessen the likelihood of gas-to-gas competition. Of course the industry said long-term contracts were essential and that it would be impossible to obtain financing without long-term contracts. Eventually the Commission agreed that long-term contracts could be declared compatible and essential as long as they did have anti-competitive effects.

The so-called anti-competitive effect is important because what the competition authorities are saying is, "If we, the competition authorities, think that if some gas company is signing a long-term contract in order to take a big share of the market for a long time, then we might declare that contract anticompetitive. We might stop you signing it." That's a kind of a warning which we never had before in Europe.

But also important to say is because of legal unbundling, where gas supply is in one subsidiary and transportation is another subsidiary, there are now two types of long-term contract: gas supply contract and a transportation contract. Of course this was always the case but we never knew about it because when the company was bundled there was not transparency. So, we are now looking more closely at these two types of contract. And long-term transportation contracts are not so controversial. What is still controversial is long-term supply contracts.

Another important issue was joint sale and purchase arrangements. That is where a group of companies appoints one company to negotiate sales or purchases on their behalf. And the Commission's competition authorities were very clear about this: these arrangements were anticompetitive and had to be abolished. There was a big, big fight, particularly with Norwegians. The Norwegians argued that they were not full members of the EU and this was their sovereign right to organize their resources in any way they wanted to. But they lost the argument and the GFU, which was their joint gas sales organization, was broken up. The smaller Danish underground consortium, which was the Danish producer consortium, was also broken up. So the issue of joint sale and purchase agreements has been resolved.

Perhaps the biggest competition rules problem was, and still to some extent is, about destination clauses. In most European gas contracts, and I think quite a lot of Japanese gas contracts as well, there's a clause which says, "We are selling, or you are buying, this gas, and you will only use this gas in your country." And some of the clauses go further to say, "And you will only sell it to your customer base and if you want to sell this gas somewhere else, either you can't, or you must share the profits that you make by reselling this gas with us using profit-sharing mechanisms." And the

clause says exactly how the profits will be shared. The EU Competition authorities said that such clauses were a restriction of competition and trade within the EU and must be struck out of the contract .

All member states have to conform with EU law, and although they can argue with the Commission for a long time about the correct interpretation of this law, in the end they will probably lose the argument. But of course, in regard to gas contracts we're not just dealing with EU member states and companies, we're dealing with Gazprom in Russia, Sonatrach in Algeria, and a range of non-EU suppliers of LNG. At the outset, the competition authorities were told that they had no jurisdiction over non-EU gas. But they took the view that because it was being sold in the EU, they did have jurisdiction. Their attitude was that if non-EU companies wanted to sell their gas in the EU, they had to conform to EU market rules.

In early 2004, there are two suppliers which had not completely resolved this problem: Gazprom has found a solution to the problem in its Italian contracts, which should be satisfactory for all the other contracts. But it has not yet completed changing the destination clauses in all of its contracts,. Sonatrach has said that it has agreed with the Commission to get rid of those contracts in the pipeline contracts that it has through the Transmed and also through the GME line to Spain. But it is refusing to take the destination clauses out of the LNG contracts. As far as Sonatrach is concerned, in the pipeline contracts, if the gas is rerouted to some other country they will have a small loss. The gas might go to Spain, or France, or it might go to Italy or Slovenia, it's not a big problem. Sonatrach's position on LNG is different because Algerian LNG could be taken by a European buyer and then sent to the United States, where it can, at some times of the year, receive a much higher price and that price benefit will not be shared with the producer. So, this is a problem, and it this not yet resolved.

Problems relating to destination clauses have required detailed negotiations between the producer government and the Commission. Producer governments were concerned that this was a way in which consumers could take extra revenue using legal argument as a justification. Competition authorities were concerned that the gas business could continue anticompetitive practices pretending that this was somehow necessary because of contractual sanctity.

### *Legal Unbundling*

The impact of legal unbundling on the European gas business has been profound. With the possible

exception of Gaz de France, the companies that created the European gas business over the last 40 years no longer exist as we used to know them. All are now divided into network subsidiaries and supply companies. In Italy, SNAM which used to be the merchant transmission company, no longer exists. The network company, is SNAM Rete Gas and Eni Gas and Power is the supply company. In 2003, Ruhrgas became part of the huge multi-energy company E.ON, and has a separate transport company. The Dutch company Gasunie, which is half-owned by Shell and Exxon, half-owned by the Dutch state, has divided itself into Gas Transport Services subsidiary and a Trade and Supply company. The Dutch government wanted to further divide the company and end up with a transportation company which was state-owned and two supply companies one owned by Shell one by Exxon. So far it has failed to reach agreement with those companies, which gives you some idea of how difficult this process is in terms of corporate restructuring.

Distrigas of Belgium is now just the supply company with the network company Fluxys; Gas Natural is the supply company, the network company in Spain is Enagas. Gas de France is talking about partial privatization but has to separate its network into a subsidiary company (GdF Transport).

Just one more point about legal unbundling agreed in the Directive. During the negotiations, countries such as the UK pressed very strongly for *ownership* unbundling. That is that the network company should be completely separate from (not a subsidiary of) the supply company but they failed to get that into the Directive. In Italy, Eni Gas and Power owns about 40% of network company Rete Gas, but the regulator is talking about forcing them to reduce that stake. The regulator in Spain has said that it will require Gas Natural to reduce its ownership in network company Enagas to less than 5%, which would be complete ownership unbundling. And of course in the UK ownership unbundling happened quite a long time ago. So, ownership unbundling is still on the agenda, although it's not legally required.

### *Mergers and Market Concentration*

The response to liberalization has been a wave of mergers right across the EU. It has happened in virtually every country with the exception of France. And the result, at least in my view, has been to create a small number of multi-energy (and in some cases multi-utility) pan-European so-called "national champions", companies that represent their company right across Europe and in some other parts of the world. Today the big players E.ON/Ruhrgas and RWE in Germany; EDF and GdF in France; Eni Gas and Power in Italy, Gas Natural and the big electricity companies in Spain. And

the problem for liberalization and competition is that this national champion model promotes market concentration and protects these companies from competition. But it is supported by many, if not most, continental European governments. This is a big obstacle to competition because it would mean that European gas and electricity markets in countries would be controlled by not more than 10 companies. This creates the possibility of, if not cartelization, then informal arrangements between companies which prevent the possibility of real competition. And that is what many people feel that we are facing in many European countries. And if that's the case, it will have bad repercussions for the kind of competitive and liberalized market that the Commission intended.

## SECURITY OF SUPPLY

The second part of the presentation deals with security issues. And the main problem about gas security issues is that this involves a large number of different issues. I'm going to go through a number of different but inter-related issues: resource adequacy, a possible supply/demand "gap", long term contracts, financing multi-billion dollar investments, import and transit dependence, the producer/consumer dialogue, and the Directive on gas security. But the main point I wish to make is that each of these issues have their own specific arguments. And it's not useful to confuse those arguments because in relation to some subjects, for example, transit dependence and resource adequacy the issues are entirely different.

### *Reserves*

A very few words about reserves because for me reserves are really not a very interesting subject. Comparing gas reserves in 1981 and 2001, you will discover that most European countries and suppliers to Europe, had about the same, or in some cases more reserves in 2001 than they had in 1981. And the interesting thing about that finding is that if you go back and read the 1981 literature, most of the conventional wisdom was that by 2000, gas reserves will have "run out".

The fact that we have the same or more gas reserves in and around Europe today as we had 20 years ago, doesn't mean that reserves are not a problem or that we wouldn't like to find more gas. Particularly in the U.K., we would like to find more gas. And although the UK about the same amount of reserves as 20 years ago, the reserves-to-production ratio is very much smaller than it was in 1981. And this means that the UK will shortly become a major importer of gas. And I'll return to that below. But the main conclusion is that reserves have not developed as was projected 20 years ago and are not a major problem.

*Supply/demand balance and the relationship between gas and power*

If you go to any European gas conference you will see a chart on supply and demand which shows that five years' time, there will be a deficit of supply. The deficit grows progressively larger to the point where in 20 years' time it will be very big indeed. This is what I call the "conventional wisdom" chart. And if you had gone to a gas conference in the last 20 years in Europe you'd have seen the same chart: different date - same picture.

So Europe will need to import more gas. Now, I don't want to talk too much about the numbers but I do want to draw your attention to an important point about European gas demand. If you look at the major publicly available projections of European gas demand from the IEA, EIA and gas companies -- irrespective of the actual numbers they all have one thing in common: 70% of the increase in gas demand between now and whatever date you look at in future is in power generation. So that means that the future of gas demand in Europe is very much dependent on *how much* power generation is going to be built and *when* it is going to be built.

But an interesting feature of the European power sector is that much less gas-fired power generation has been built over the past few years, compared with what was expected in the late 1990s. So a demand for gas in the power sector is likely to be lower than expected, at least for the period up to 2010 (but possibly up to 2020) which still means a supply gap, but a smaller gap. But if you exclude the U.K. from the European total - because the U.K. is going to need quite a lot of imported gas relatively soon - what you discover is that Continental Europe has a gas surplus for several years ahead only going into deficit in 2012. And when I show this picture to people they ask, "Well, why are you saying this and everyone else is saying that there's going to be a big gap?" And I say, "Well, it's because I don't think that a lot of gas-fired power generation will be built in Europe very soon." And they say, "Well, how can you be sure that you're right?" And I say, "Well today we're in 2004, and in order to build a lot of new gas-fired power generation we need a lead time of around 4-5 years to order plant and build the generation capacity and get it up and running and 4-5 years takes us up to 2008-09. In 2004, I don't see much sign of companies moving to build substantial gas-fired power generation." So my feeling is that the surplus we have in Europe today is going to last quite a long time.

I want to leave you with the impression that as far as I'm concerned Europe is certainly not running out of gas. In fact, the supply-demand problem in Europe today is that we have a substantial surplus with high oil-linked prices. The current level of prices mean that gas-fired power generation isn't going to be built and consumers may switch to other fuels. And that for me is not a *security* problem

but if that means a switch to coal it might be a *carbon emissions* problem.

So the major question for gas and for security as we look forward is about the future of the power generation sector. If Europe is not going to build gas, what are we going to build? Are we going to build coal with all the problems of controls, maybe sequestration. Are large-scale renewables going to be competitive even with government subsidies? Can the problems surrounding nuclear power be resolved? And if we do build gas-fired generation, then will we compound the gas security problem on electricity supply? In other words, if we do build large gas-fired generation are we building up a situation where when we have a gas problem we'll also have an electricity problem?

#### *Long term contracts*

Let me go back to the question of long-term contracts. I have spent a long time convincing Japanese visitors that Europeans have not stopped signing long-term contracts, even in the U.K. With all of the fuss about long-term contracts in the EU there was a widespread feeling that somehow in Europe we were only going to sign spot contracts. In fact, long-term contracts are alive and well in Europe.

But traditional contracts -- very big volumes, very long term, very high take or pay, and 100% oil indexation with no possibility of change -- will not be signed. What is being signed is smaller volumes, shorter, but still long term -- eight to 15 years -- lower take or pay and prices which are indexed or which take into account the possibility of indexation to spot and futures prices when they start to become important. Now in the U.K. all gas is indexed to spot gas prices quoted on the International Petroleum Exchange. Continental contracts remain indexed to oil. But we are beginning to see oil indexation weakening and at least the contracts take into account the possibility of moving to a spot indicator when that arrives. Despite this, new long-term contracts are likely to be dominant in liberalized European markets for a long time.

#### *Financing multi-billion dollar investments*

Moving to the question of finance. The traditional argument is that you must have long-term contracts because if you don't have them you can't finance multi-billion dollar investments. My argument is that in fact up to \$2bn (but it is difficult to defend any specific figure) gas is not different to oil refineries or car plants. These industries also have to make multi-billion dollar investments without long-term take or pay contracts. But once we get to the really big projects \$5-20bn, I think there is a credible argument that gas is different.

Article 22 of the EU acceleration directive allows new pipeline and LNG projects to gain time-limited exemptions from access conditions as long as they meet certain criteria. The idea of this article is that if a project needs an exemption from access to obtain finance, it will receive it if it meets the criteria. The exemption will be time-limited. This is being tested out with new U.K. pipeline and LNG import projects, and most of the new U.K. projects have received provisional exemptions. The time period of their exemption looks like being 10 to 15 years; relatively long-term exemptions. And that is how some projects will manage to get off the ground. Whether a project as big as Shtokman Field and the North European Pipeline (NEP) will be able to benefit from this is uncertain. This project, which is the pipeline through the Baltic Sea, is about \$6-7 billion. The cost of the Shtokman field development in the Barents Sea plus the NEP depends on the capacity; but it's probably in the range \$12-20 billion. Whether with a project as big as this, exemption from access is enough to get it financed, is a difficult question.

### *Import Dependence*

All projections of EU supply and demand over the next several decades show that the EU is becoming more dependent on gas imported from outside the region. People from Japan say to me, "Well, of course, Europe is different. We in Japan, we are completely dependent on imported gas." But you should know that even in 2000, seven out of 15 EU Member States and 19 out of 33 European countries were more than 95% dependent on imported gas. So as far as gas is concerned import dependence is an established fact not something that's going to happen in 20 years' time. And my question to many people when they talk about imports and security is, "Why do you think that import dependence makes you less secure? In other words, what is it about importing gas (or any other fuel) which is necessarily less secure than producing it yourself?"

I have looked at gas security incidents around the world in the last 20 years. And interestingly, the most serious incident that I could find happened in Australia in 1998, where the state of Victoria lost gas for two weeks. This was due to an explosion at a gas processing plant, which involved domestic gas coming through domestic pipelines. In January 2004 another incident of a similar type happened in South Australia. In my view, it is not automatic that just because you import gas is less secure than domestic gas.

### *Transit*

Another issue is the dependence of Europe on gas transit. In particular, transit routes for Russian gas across the Ukraine and Belarus. If I had to point to the biggest security issue for Europe over

the last 10 years, it's the potential problem with the transit countries. It is not the Russians that have caused the problem. It is the countries through which Russian gas has been flowing to Europe. And since the breakup of the Soviet Union we have had a series of events which have not deprived Europe of Russian gas, but have raised issues and difficulties which are very hard to resolve on any long term basis.

#### *Producer-Consumer Dialogue*

What the EU has attempted to do is to start a producer-consumer dialogue between the EU and its suppliers. And this is a direct result of the 2001 Green Paper on Energy Policy. The clearest example of this is the EU-Russia Energy Partnership which started in 2001. There are also agreements with Algeria via the EU-Mediterranean Free Trade Agreement and there's another dialogue with the Caspian countries under way. These dialogues and partnerships are valuable because they bring together parties at a very high political level. And they force parties to talk about issues such as destination clauses where otherwise there would be no forum to meet at a government level. Whether they can really promote long-term security, is less certain.

#### *Draft Directive on Security*

In August 2002, the European Commission put forward a Draft Directive on security of gas supply. I am supportive of this Directive but I am nearly alone in Europe in that support. There has been a huge amount of opposition from member states and particularly from the gas industry. The Directive has been much watered-down and many provisions have been taken out. For example, the attempt to get agreement on storage obligations in terms of numbers of days. What remains is a duty to define the responsibilities of market players, which is a good idea, and procedures to safeguard household customers. And to establish EU coordination in the event of a major supply disruption. The directive is still under discussion but it should be passed this year.

#### CONCLUSIONS

The problem about the two agendas of liberalization and competition, and security is that, as I have pointed out to you, with the mergers and alliances and the determination of governments to create European-wide national champions we are looking at a relatively small number of multi-energy (or multi-utility) companies across Europe. The number will not be more than 10, which when you think of the size of European gas and electricity markets, is not many companies.

Liberalization should mean risk-taking and cost-cutting. But the strong emergence of a security agenda could involve more command and control and more costs. And the problem is that these

contradictory agendas - where it is uncertain whether there will be more competition or more market concentration - make for uncertainty. And the particular type of uncertainty that I'm concerned about is the market and price uncertainty that we see around investments and, in particular, the issues that I raised about gas-fired power generation. The multi-utilities want to build new gas-fired power generation. But they can only do that if they get lower gas prices.

To give you a concrete example, talking to a power generator last week, European gas prices are between \$3.50-\$4.00/mmbtu today. The power generator said to me, "At a gas price of \$2.00/mmbtu I would build new gas-fired generation. At a gas price of \$2.50/mmbtu, I would consider building new gas-fired power generation. At a gas price over \$3.00/mmbtu I can't afford to build gas-fired power generation." Now, the strange thing is that the reason we have such high prices in Europe is because we have high oil prices. But as I pointed out to you we have a big surplus of gas in Europe. So, the supply-demand price in Europe if we had gas-to-gas competition would be much lower than the oil-linked prices today.

But of course our suppliers, especially our non-European suppliers, are against gas-to-gas competition because they know that they would get lower prices than they have today through oil linkage. So, we're left in a paradoxical situation. If or, in my view, when we get liberalization and serious gas-on-gas competition, we'll get lower prices. At which point we'll get gas-fired power generation being built and a lot of the surplus that we currently see will be eliminated.

But if we have a serious security incident, and, the accident in the Algerian Skikda LNG terminal in December looked like it might be a serious security incident. In fact, it has not caused any major problems. But if we had a serious security incident that could undermine competition and liberalization. And in those circumstances, we could be looking at quite a different future in terms of European gas. Thank you very much.

## ■ QUESTION AND ANSWER SESSION

### **Attendee:**

Thank you for a very interesting presentation. And generally speaking in Japan the so-called supply security of gas is not mentioned...not so often...because gas is one of the most important alternative energy. So...And also as you know the Japan imports natural gas from eight countries...80% of natural gas is from Asian Pacific region. So gas supply security is not so important point. But I traveled in Europe and United States. Gas supply security is now a very

important topics for discussion and particularly gas supply, gas import dependency will be larger in the future in the United States and also so-called price volatility. In the United States, natural gas prices are going up very sharply recently. So, also of course the volatility of oil prices is very hot issues for discussion. But in the United States price volatility is a very serious problem. But I'd like to ask about the price volatility in Europe.

**Speaker:**

Thank you. Let me just take this point about price volatility first. What we see in the U.S. is similar to what we see in the U.K., which is that price volatility has increased enormously. And it is a reasonable proposition to say that that is because in liberalized markets when supply and demand come into balance you start to get huge volatility. But even if you look back at U.S. gas prices in the last decade, since deregulation in the 1980s, you see more volatility than in the pre-deregulation period. I think that is a problem and I don't think anybody knows what to do about it.

But I think that security in the United States is very different to the security issues in Europe. The U.S. has been in the uniquely fortunate position where it has produced all its own gas or imported from Canada, and it's been, except to a very tiny extent, hardly dependent on any gas from anywhere outside North America. And I still believe that even with the kind of LNG expansion that we're seeing proposed now, it would greatly surprise me if the U.S. was importing more than 20% of its gas from outside of North America in 20 years' time.

And if you think about most countries in the world, that still leaves the U.S. import dependence in a relatively comfortable position. The problem in North America is one of very high prices. But as I remind people in North America, they had 15 years of very low prices after deregulation. If you look at the 1984 to 1999 period, prices barely got above \$2/mmbtu in the U.S. And for a lot of that period they were more like \$1.50/mmbtu. Now, I think this reminds us of the fundamentals of our business, which is that this is a cyclical industry. I mean, we tend to forget this because it's so basic that the cycles can be long or they can be short but we are in a cyclical industry. And at the moment the U.S. is in the shortage cycle. And I think that shortage cycle could last for some time.

But the way that the U.S. is responding carries within it the answer, which is if they really decide to build 10 or 15 LNG terminals, which I find hard to believe, but if they do, that will bring in a tremendous amount of gas and will moderate the price. What it will not do is to moderate volatility. And of course volatility makes investments more complicated. So what's happened in the U.K. gas market is that everything is priced off the IPE on a daily basis and we have seen increasing

volatility.

Europe has still not moved away from traditional oil-linked prices with lags, which means that everything is smoothed out over a three-month period. Now the European situation is we have high import dependence. But that's not proved to be a big problem because we have diversity of sources and diversity of routes. The question for Europe is can we increase diversity as we increase import dependence? And will LNG perform that function?

Many people, including myself, believe that we are more likely to see concentration of import dependence from Russia, North Africa and Norway because diversity is going to cost a lot of money. If we're going to take gas from the Middle East and the Caspian, it's going to be expensive. And in a liberalized and competitive market you can't afford to bring in expensive gas because nobody will pay for it. So, that is a potential problem for Europe in terms of security. If we concentrate our source of supply and if we concentrate our supply routes and then we have a problem, then we might see a major security difficulty. I don't see it yet. And there is a lot of awareness of it. But just because you are aware of something doesn't necessarily mean you can stop it happening.

**Attendee:**

For example, imports from Algeria is not so...Algeria is politically unstable, some people say. How about the imports from Algeria?

**Speaker:**

Well, you know, the Algerians have had political problems over the past decade. But European gas importers had very little difficulty as a result of those problems. And even during what many people were describing as a civil war, the GME pipeline to Spain was built. So I wouldn't want to be complacent about Algeria, but so far we have not had a major problem. There is a potential for political instability. But I think that potential exists in a lot of places. Ten years ago, I was answering a lot of questions about the potential for political instability in Russia when the Soviet Union broke up. Really, given what a big political change we've had, it's remarkable how few problems we've had. So, we should not be complacent, but I don't see a great reason to be concerned or more concerned than we have been in the last 10 years.

**Attendee:**

In your view, how high does the gas price have to be and for how long before you see some reaction in the power industry where you see more building of, let's say, nuclear plants or coal plants or

wind turbines which would tend to moderate the demand?

**Speaker:**

That's absolutely the right question but I don't think there's a general answer to it. Let me just give you an answer on a couple of countries: in the U.K., there is no chance of building another nuclear plant. I don't want to say *ever*, but as far as I can project forward because of the way we have constructed our electricity arrangements. This is partly to do with lack of public acceptance. But that's not the main problem. The main problem is the way we have now structured our electricity industry it's simply commercially impossible for anybody to take the risk of building a nuclear plant. To build a coal-fired station you would need to build a new clean coal plant. You would need to factor in trading of carbon emissions in the price of electricity. And many people think that that will give gas somewhere between and 8% and a 20% price advantage, depending on exactly how the traded market evolves.

Renewables are massively favored and significantly subsidized and may be even more heavily subsidized in the future by government. It's not certain whether that is going to be sufficient to meet the demand that we see. So, in the U.K. I would say that if the gas price stays where it is today or goes any higher it could be sufficient to give coal a good chance. Renewables are going to happen...people are going to maximize the building of renewables anyway. Because renewables are going to be so heavily favored if not subsidized that someone is going to build whatever they possibly can. How that's going to work out is difficult to say.

Now if you look at Germany (the U.K. and Germany are the two biggest gas markets in Europe) the nuclear situation is not at all clear. The government, because of the Green Party, has a commitment to phase out nuclear power but nobody really knows what that means. What that certainly means is they can't build any new nuclear stations. Whether they will phase out nuclear is another matter. There's a very strong coal lobby and because of that the Germans could be among the pioneers of coal-fired plant with sequestration if it became remotely economic. They might even be prepared to subsidize such plant if it was burning German coal. They're very strong on renewables as well. Now, I personally think that you can think about the rest of Europe in a similar but not exact...there are places in Europe where I would say there are chances for new nuclear plants. Not many places, but there are places. If gas prices remain high and particular if gas is perceived as insecure that could give coal a real chance if CO<sub>2</sub>-free technologies are introduced at "reasonable prices".

But if large scale renewables work technically they will rampage through Europe. Everybody wants

renewables in Europe. No-one knows whether that means solar or wind or biomass or something else. But everybody wants renewables. And governments look like they will throw money at any renewable energies which will work technically and become commercially viable in the future.

**Attendee:**

Talking about this gas security, in the European market you have a very nice diversification at this moment and have a good amount of domestic production. But when we look at the future supply of natural gas, the domestic production will be going down and you may have to seek for the supply coming over long distance and the projects will become bigger and bigger and the investment amount will be bigger. And at this moment if the unbundling of the natural gas market makes the unit of the consumers in the European market smaller and smaller on the supplier side to design a huge natural gas supply projects, long-distance pipelines, LNG, they need a very reliable counterpart on the market side. How, for example, Russian Gazprom can find such a reliable counterpart either deregulation or the smaller sizes of consumers they can find only in the market?

**Speaker:**

Let me just say that although I think I agree with you that European production will fall, that's what everybody said 20 years ago and it didn't happen. I think it is likely to happen in the next 20 years but we were all sure in 1980 that European production would fall, and it didn't.

I think that the problem you suggest is not so difficult. And the reason it isn't is because of these mega multi-utilities that I pointed to. It is these companies that are going to become the big counterparts for Gazprom and the other countries. But what is different about these mega multi-utilities is their involvement in electricity, which we've just been talking about in the last few minutes.

These mega conglomerates such as E.ON, now incorporating Ruhrgas, are different from the old buyers because in their heads because they're buying gas largely for electricity. And I think that's the difference. The suppliers are coming and saying, "Look, we've got to spend multi billions of dollars developing new fields a long, long way away in deep water." And the buyers are saying, "But if I'm going to buy that gas from you, I've got to sell it in power stations, or at least two-thirds of it in power stations. So, if I don't think I can do that because it looks like it's going to be too expensive, I'm not going to buy it from you." They are not saying: "Sorry, I don't have the financial credibility needed to get financing." They're saying: "I know what I'm going to do with this gas - I'm going to put it in power stations. And I know what the price has got to be and what the

indexation has got to be and neither of those relate to oil. And that is what you, the seller, have got to get used to if you want to sell me more gas.”

So for me that’s the big problem at the moment. We don’t see a lot of little buyers who can’t support contracts. With the industry changing and old companies not disappearing but merging or having to think differently commercially, the business cannot continue quite in the same way that it did before. And we don’t yet, I think, have the commercial basis that we need for the future.

**Attendee:**

If you disconnected the linkage to oil price, anyway something is missing. But say, talking about the futures, the future prices are usually very much violent in our experience rather than giving moderate and reliable forecasts for the future. That is our headache I think. And if the market cannot give very reliable signals for the future market or future pricing that cannot give a signal to supplier to go for supply projects for the future. And I don’t have any ideas but if you have any suggestions how the mechanism would work.

**Speaker:**

I have a suggestion, but only a suggestion. In a sense we’re lucky around Europe because we’re not wondering where the gas is going to come from. We know the gas has been discovered. The question of future volatility of prices is interesting for electricity. I was talking to a power generator in the U.K. who buys gas for gas-fired power generation. His view is, “Volatility is not a problem. I understand volatility. I deal with it every day. Prices go up and down every half-hour. I have guys whose job it is to hedge our portfolio. They buy. They sell. We understand that.”

“No, the problem is when somebody wants to sell me gas with an index with a different volatility to my volatility, If I’m buying gas on an oil index or some other index which is behaving in one way, and selling electricity on an index which is behaving very differently, I can’t bring those together. That’s why I’m saying to people if you want to sell me gas you have to index to electricity, or to gas that I can sell independently if my power plants don’t like the price. Then even if prices are volatile I can manage the risks. But if you want me to buy on the volatility of a different product that has nothing to do with my market, I can’t manage those risks.” My suggestion is that if we’re going to get a lot of new gas and gas-fired power generation we’re going to have to bring the gas and electricity price indexes closer together.

**Attendee:**

Thank you Jonathan for your very nice presentation. I was very much impressed by you. And I have a question about gas supply issues. You explained that resource constraint is not the problem and maybe that import dependence it may not be relevant. So, in your view what can be the most serious or real security challenge for European gas market? You talked about explosion or accident in Skikda, Algeria, and if such kind of accidental nature of problem is a security challenge I think of course it can be a short-term impact. So in that sense I think some buffer mechanism like stock storage can be a solution to face with such kind of security challenge. But I also remember our discussion last time that there are some kind of technical problem for infrastructure of pipeline in Europe. So if that's the case the response measure can be different. So I'd like to hear your views on the security challenge for Europe.

**Speaker:**

Ken my view is that the most important potential security problem for Europe is a technical failure or an accident at one of the critical points. And there are about five critical points. One is the Siberian corridor, where you have 18 pipelines coming out of Siberia. Another is the Ukraine corridor, where a number of pipelines come together to serve Europe. In the south there is the Trans-Mediterranean pipeline and the GME from Algeria. In Norway, there is the Draupner platform through which much of the supplies to the Continent pass. In the U.K. the St. Fergus and Bacton terminal bring in about 60% of the U.K.'s supplies.

The shock of an accident would have a profound impact on politicians. Almost more profound than the actual shortage of supply would be. And it would be profound in terms of the confidence politicians would have in the industry. And that's why I think that these security incidents, although they may not actually give rise to people becoming cold in their houses, need to be studied very carefully. Particularly in my own country, where we have very little storage of gas because traditionally we haven't needed it. And today, as opposed to 20 years ago, the UK has 40% of our energy balance dependent on gas. So if we have a security incident, even if nobody really goes short of gas, it would have a very, very profound political impact. And that I think is as important as the physical lack of gas.

I find it quite difficult to imagine an event which would deprive Europe of a lot of gas for a long period of time. But I don't think that's necessary to really create damage for the industry.

**Attendee:**

One is a question and one is I need a suggestion. With regard to the gas market in the U.S., recently I heard that GE of the U.S. has 100 uncommitted, oversupplied gas turbines. So my guess is gas prices in the U.S. they increase so high, therefore many U.S. power company canceled gas-fired or they switched coal-fired. That is correct or not? That is my first question.

**Speaker:**

My understanding is that with a price in the U.S. of more than \$4.50/mmbtu, nobody can build new gas-fired power generation. And they are running coal plants harder, even some old oil plants are running, and it has really undermined the future for gas-fired power generation in the U.S. But same as for Europe the question remains: so what new power stations are going to be built? Now, in the U.S. there is the suggestion, particularly if President Bush wins the election, that they will simply relax their environmental standards to allow old or new coal plants to run, which would be a type of solution. But still I don't think anyone in the OECD has resolved this problem. We all know what we don't want. But none of us know what we do want and what can be built at acceptable cost. If the renewable people are right and most of the energy establishment is wrong -- which is that renewables will be competitive and will be installed in gigawatts, not tens of megawatts, then we have a solution to the problem that we face. Otherwise, we just have a continuing series of questions.

**Attendee:**

Another one is that you mentioned about the destination clauses in Europe. It seemed to me that European utility companies are very successful to change the destination clauses. So that is due to the function of EU is very usefully worked. Because each customer have no bargaining power with gas sellers. So, from that viewpoint many Japanese utilities also want to remove or change or make more flexible for destination clause. So if you have any idea or suggestion what kind of measures are very useful to change the mind of gas exporters? Do you have any comment on that?

**Speaker:**

I think destination clauses are not so important for sellers as they were in the old days. And I've discussed this with a number of sellers. The original idea was that the seller wanted to be sure that the buyer could not make more profit than was reasonable in terms of the price that they agreed. Now everyone knows, especially with LNG, that the market is becoming increasingly flexible, I think it's easier to have that discussion between buyers and sellers along the following lines. "You sell me LNG and I'm not going to tell you where I'm going to use it. You, the seller, have got a volume commitment from me with take or pay and that's your benefit. Where I sell that LNG is

none of your business. If you, the seller, want to sell that LNG and take the volume risk, go ahead. What I'm giving you as a buyer is a volume commitment."

And so I think that's the new deal. There are sellers whose attitude is, "No, I'll take the volume risk and I'll look at the market opportunities, take the risks and take all the profit." But some take the view, "We are vulnerable in the sense that people are concerned about stability of our country. What we need is a volume commitment. We're prepared to trade away possible price upside for volume commitment."

Other sellers might take a different view for example, "No, we are familiar with this business. We have a reputation in this business. We will take price upside. We don't need the volume commitment." So, I think in a sense this is a more transparent arrangements between buyers and sellers. They both recognize what the risks are. They both recognize what the potential rewards are. They have to ask themselves what is more valuable: A volume commitment or potential price upside?

**Attendee:**

Talking about the volume commitments you have to confidence in your counterparts. The volume commitment...I was asked by Enron, "Just give a volume." My counterpart showed me I can sign on a blank check. But this should not be proper market practice. So in success of European buyers relaxing destination clause...there should be more reasonable justifications to persuade the sellers.

**Speaker:**

I think everything depends on what the seller wants. For a first time seller with a greenfield LNG project and no experience in the LNG business. What you want is a volume commitment. You have a greenfield plant, a huge investment and nobody knows who you are in the market. So you want a traditional volume commitment with a major international player. If, on the other hand, you have been in the business for many years and are very confident that you know the business. You may not need to sell the LNG to a major international company and see them onsell it into the U.S. for a big profit, which you do not benefit from. Your view may be, "No, if necessary, we will sell these cargoes into the U.S. if the U.S. is the most profitable market." This may not be possible for new greenfield projects with huge investments to pay off. But more for expansion projects, relatively low cost, relatively low risk. But I think it's possible for buyers and sellers in a negotiation to decide. "Look, what I'm offering is a volume commitment. If that's not what you need then you're free to sell your own gas somewhere else." And in some ways I think it's a much more satisfactory

IEEJ: March 2004

situation than existed in the old days when everything was very rigid and had to be rigid because nobody really understood how the business would move forward.

**Attendee:**

OK, I have a question about the new infrastructure issues. You have shown us the example of the time-limited exemptions for the access by the third party. I think the...I assume the exemption avoided disincentive to promote the new infrastructure. It does not promote incentive to build a new infrastructure. Do you feel that this measure is successful to promote the new infrastructure field within each member state?

**Speaker:**

I think it's too early to say. The experience we have in the U.K., where we have three LNG projects and one pipeline project which have received so-called provisional exemptions suggests that it is not a disincentive. It may not be an incentive. But it's not a disincentive. The point I was trying to make is that for those projects which are, in my view "small" projects - \$2 billion or less - the exemption will probably help significantly. But when you get to Shtokman and North European pipeline - \$5-20 bn - I don't think the exemption helps you very much. It doesn't solve the problem which is that it's not just the access that is your risk, the sheer volume of investment is your risk. And that is an issue for which I don't see a solution. So, for small projects I think the exemption will probably work. For big projects probably not. /END

Contact: [ieej-info@tky.ieej.or.jp](mailto:ieej-info@tky.ieej.or.jp)