West European Gas Supply/Demand Balance

*By Morten Frisch**

When addressing convergence issues related to natural gas in Eastern Europe it is necessary to set the scene by presenting the West European gas supply/demand environment. There are two reasons for this. First, the West European gas market with its strong currencies is currently the driving force for all European gas markets. Second, large quantities of natural gas transit Eastern Europe on its way to final markets in the west.

Gas Demands in Continental Western Europe

Consumption in continental Western Europe increased by some 6 percent in 1995 to reach approximately 300 BCM. this demand growth represented a combination of underlying growth and weather related demand increases. Continental West European consumption is expected to reach some 400 BCM by 2005 and a consensus view of the industry is that demand will continue to grow to about 620 BCM by 2015 including the United Kingdom and Ireland which are likely to have become consumers of Russian gas, either directly or indirectly at this point in time. All the above demand numbers are presented in Russian gas units of gross calorific value 11 kWh per normal cubic meter.

Gas Supply and Demand Balancing

Comparing continental West European gas demand with potential indigenous production and contracted imports, the need for additional gas supplies into this geographic area can be seen. However, the countries in this market area, with the exception of Denmark, are likely to have balance between gas supply and demand until the year 2005 and significant requirements for new gas supplies will only appear after this year. The possibility to penetrate this market area with new supplies in the near term does, however, exist. Large industrial consumers and local distribution companies will be keen to buy gas directly from import sources provided the price is right and transportation from the point of import to the plant or city gate can be arranged. Additionally countries like Italy, France, Spain and in the future, Portugal, are likely to contract for new supplies from nontraditional supply sources in order to achieve a better supply diversification. It is also likely that some of the traditional gas producers/importers in continental Western Europe will buy additional volumes of gas in order to include such volumes in sales to Eastern European gas utilities.

Continental West European Pricing

Only limited requirements for gas supplies exist in continental Western Europe prior to the year 2005. Ample gas supplies are available from numerous sources. Russia is very active in the market place trying to place large new volumes. Norway would like to bring an additional 20 BCM/Y to the market soon after the year 2000. Algeria will be in a position to increase gas exports mainly to Mediterranean markets by more than 25 BCM/Y from the year 2000. Algeria will be in a position to increase gas exports mainly to Mediterranean markets by more than 25 BCM/Y from the year 2000. UK producers and gas distribution companies are likely to have signed gas export contracts with continental European buyers totaling some 15 BCM/Y by early 1997. Libya would like to build a pipeline to Italy and initially sell some 10 BCM/Y. In addition to the above traditional European gas suppliers, a number of LNG producers are showing an increasing interest in the European gas market. Nigeria LNG now has some 4 BCM/Y of LNG available for early delivery since ENEL of Italy has broken its long term gas supply agreement with this supplier. Other potential distant LNG supply sources for the European market are Egypt, Oman, Abu Dhabi, Qatar and Trinidad and Tobago. Strong competition for a share of the continental West European Gas market between the above mentioned pipeline and LNG suppliers is already evident.

Current import pricing in the reference German market for 90 percent Take or Pay and 110 percent DCQ swing contracts ("90/110 contracts") is in the range 1.4 to 1.5 Pf/kWh. Norwegian and Russian import prices at delivery points on the German coast or the border with the Czech Republic fall into this price category. However, these price levels are now being eroded by import deals made between UK producers and German and Dutch gas transmission and distribution companies. To date only Conoco and British Gas have executed gas supply agreements for the export of a total of 3 BCM/Y from the UK through the Interconnector. Both companies have signed contracts with WINGAS of Germany. Based on reports in the UK gas industry, these contracts would have a value of some 1.3 Pf/kWh in 4th quarter 1996 at Aachen on the Belgian/German border. It is understood that some 6 to 8 BCM/Y of UK gas is in the final stages of negotiations for delivery exit Zeebrugge in Belgium, mainly to Dutch buyers. Prices being discussed for these contracts are reportedly even keener than those which WINGAS has achieved.

Gasunie of Holland is currently conducting price review negotiations with its export customers. All prices for Norwegian gas deliveries to traditional German gas import companies will be subject to a price review effective from 1 April 1998. Based on the UK Interconnector deals mentioned above and also strong Russian pressure to increase gas sales to the German market, it is expected that Dutch and Norwegian prices will be adjusted downwards in relation to competing fuels after 1 April 1998, if not earlier. The prices in Russian contracts with German importers are also likely to be adjusted down in relation to competing fuels after 1998, if not before. The value of gas imported by WINGAS from the UK suppliers at Aachen is, therefore, more representative, on a real basis, of the future continental West European price level, than the prices paid by this market for current deliveries from Norway, Holland and Russia.

It is likely that nominal gas prices will increase in the German market. The reason for this is the weakening of the Deutsche Mark in relation to U.S. dollars and increases in crude oil values, both factors which will lead to higher gasoil and heavy fuel oil prices in the German market when expressed in the local currency. German natural gas import prices are traditionally tied to the inland value of gasoil and heavy fuel oil in that country. It is expected that the coupling between natural gas import prices and the price of these

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petroleum products will weaken in the German market and, therefore, in the whole of continental Europe as has already been observed in Great Britain. The result of this development is that an increased share of the economic rent generated from gas production will be collected by the gas consuming country. The visible effect of this will be a move towards cost plus pricing by gas producers, a development which will favor the economically more robust gas projects with low transmission costs to the markets. This development, therefore, also signals reduced transit fees and transmission tariffs for countries providing transit of gas to Western Europe.

Impact of the Yamal-Europe Pipeline Project

The Yamal pipeline project should be viewed in two separate phases: first, the construction of new gas pipeline infrastructure from West Siberia to European markets and, second, the development of the huge gas reserves on the Yamal Peninsula.

Based on the available data it is unlikely that Russia will need to start gas production from the Yamal Peninsula before the year 2010. This is based on Russian gas demand, which is unlikely to exceed 1990 levels before 2010, and the availability of untapped gas reserves in the Nadym-Pur-Taz region of Western Siberia, more commonly known as the Yamburg and Urengoy gas area. If this West Siberian gas area should prove inadequate for Russia's domestic and export gas requirements prior to 2010, the best alternative sources would be gas from Turkmenistan and Kazakstan. These gas producers are in a much better position to compete on price in European markets than gas from new billion dollar developments on the Yamal Peninsula. Gas from these two countries could be made available to European markets through existing pipeline systems which, admittedly, would need extensive refurbishment. Gas export solutions based on Turkmenistan and Kazakstan would also require some very delicate diplomacy.

The Yamal pipeline project as currently planned by GazProm will consist of three 56" pipelines running from Yamal to Torzhok, north of Moscow. Two 56" pipelines will run from Torzhok to the Polish German border at Frankfurt am Oder. In Germany there are two 48" pipelines planned, one of 700 km length to Aachen/Eynatten at the German/Belgian border (the WEDAL pipeline) and one of approximately 1000 km via Bavaria in the direction of Basel (the JAGAL pipeline). A total of 52 BCM/Y of gas will be available for sale at Frankfurt am Oder, while 14 BCM/Y is planned for consumption in Poland and 7 BCM/Y is planned to be delivered to Belarus. In addition to these sales volumes a total of some 10 BCM/Y will be consumed as compressor fuel along the Yamal pipeline system, making this ultimately a 83 BCM/Y gas export project.

The Yamal pipeline's crossing of the Oder River from Poland to Germany has been completed and construction is under way for sections of the JAGAL and WEDAL pipelines in Germany. The Polish section of the pipeline project will be owned by the Russian, Polish and German joint venture EuRoPol GAZ Company and operated by the Polish Oil and Gas Company. Construction of one of the two 665 kilometer pipelines needed for this section of the project has started. It has been reported in the press that EuRoPol GAZ Company has now secured financing for the total Polish investment. According to current plans the two Polish pipelines should be completed by year 2004 with full compression capacity added by 2010, at which time the pipeline system can receive in excess of 66 BCM/Y at the border between Poland and Belarus.

Sections of the German and Polish parts of the Yamal pipeline project are already in operation and small "Yamal" volumes of gas started flowing to gas consumers in Germany on 1 October 1996. The availability of new transportation capacity from Torzhok to the Polish border is however uncertain. Although an inauguration ceremony has been conducted for the Belarus section of the pipeline system, no financing is yet in place for this part of the project which has been delayed for at least one year.

Yamal Gas Volumes in the European Market

In 2010 when the Yamal project is due to be fully operational this project could supply 10 percent of West European projected gas demand. To date only two contracts for the purchase of Yamal gas have been entered into. WINGAS of Germany has bought 10 BCM/Y and 0.6 BCM/Y is planned to be delivered under this contract already in the 1996/97 contract year. Gasunie of Holland has bought a further 4 BCM/Y with deliveries starting in 2001.

When discussing the marketing of Yamal gas with Russian and German participants in the project it is stressed that a large part of the capacity in this new pipeline system will be used for gas sales contracts currently being supplied through the Ukraine, Czech and Slovak republics. This is explained on the basis that additional gas transportation capacity is needed in South Eastern Europe and that the northern route represented by the Yamal project will therefore free up capacity for gas markets in Eastern and Southern Europe.

Based on recent statements made by senior GazProm officials a question mark must be placed over this strategy. Until recently GazProm was planning an East European spur line from the Yamal pipeline project in a north to south direction. This pipeline called Volta was due to run from the Warsaw area of Poland through the Slovak Republic, Hungary, Slovenia to Italy where it would have a delivery capacity of up to 20 BCM/Y. This project would have been a joint venture between GazProm of Russia, Edison of Italy and East European interests. GazProm, together with its Italian handleshouse Promgas, has recently signed gas supply agreements with SNAM of Italy for 8 BCM/Y. Edison would have competed with SNAM for Italian market share. GazProm executives have been noticeably silent about the Volta project after the new SNAM deal was announced. It is now expected that GazProm will use the AGAL pipeline together with present and future pipeline connections between Germany and Italy to deliver additional supplies to the Italian market.

Hungary was also due to receive large volumes of gas through the Volta pipeline. This country has recently signed a contract for the supply of 225 BCM of gas with the Hungarian GazProm handleshouse Panrusgas for delivery thorough the HAG pipeline from Austria. Deliveries under this contract which runs until 2015 can total 12.5 BCM/Y, and all signs are that the HAG pipeline route can replace Volta as a gas supply pipeline for the Hungarian market.

Mediterranean gas markets are growing fast due to a

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combination of general economic growth, rapidly expanding tourism and the introduction of central heating and air conditioning. As a result, the Balkans together with the Asian part of Turkey represent a valuable market for Russian gas. GazProm has concluded a number of new gas supply agreements with this market area which could purchase some 60 BCM/Y by 2010. This market area could be supplied through the Ukraine, Rumania and Bulgaria. However, some of these countries are demanding transit tariffs at such a high level that GazProm is now considering the construction of a new pipeline across the Black Sea from Tuapse, 100 km east of Krasnodar in southern Russia to Ordu on the Black Sea coast of Turkey. The capacity of such a pipeline, which would cross water depths of up to 2100 meters, is understood to be 16 BCM/Y initially. Such a pipeline solution could potentially free up some capacity in existing pipelines for markets in the Balkans.

Gas Supply Diversification in Central/Eastern Europe

Basic Approach to Diversification

It is understandable that a country would like to diversify its gas import sources in order to improve its gas supply security. In Eastern Europe it is likely to prove difficult to obtain a physical flow of gas from a source other than Russia due to the very substantial flow of Russian gas in an east to west direction across most of these countries. Frequently the best way to achieve gas supply diversification will be a supply deal involving a west European purchaser of Russian gas. During normal operating conditions the East European country will receive Russian gas supplies directly by using Russian gas purchased by its western supply partner. During periods of severe gas supply disruptions, if they should take place, gas will physically flow from the west into the country. Such a scheme should be supported by local gas storage projects to the extent such projects are technically and economically feasible.

When looking at gas supply diversification in East Europe the big question is how much should a country be willing to pay for the additional security which new gas supply sources would represent. As a rule of thumb, it cannot be recommended that a country pay more than a 25 percent premium on the cost of its current gas supply unless such new gas supply is earmarked for applications which are critical to the economy of the country.

The Czech Experience

The East European country which appears most advanced in its overall gas diversification program is the Czech Republic. TRANSGAS, the Czech gas import and transmission company, has been engaged in gas supply negotiations for a total of 3 BCM/Y with western suppliers over the last 18 months. From negotiating exclusively with Norway's gas marketing board (GFU), the company is now reportedly in negotiations with GazProm's cooperation partners Winteshall of Germany and Gasunie of Holland in addition to BEB, Mobil Europe Gas, British Gas and other British producers. TRANSGAS had agreed and initialed a gas supply agreement with GFU for delivery of gas on the German North Sea coast. The latest industry information indicates that GFU now has offered a gas supply on the Czech/German border at a price which is competitive with Russian supplies.

The Czech cabinet has made a decision in principal that a second route for Russian gas would on its own be unacceptable as a measure of improved gas supply security. It is now likely that TRANSGAS will split the 3 BCM/Y between two suppliers, at least one of which will be based on a true western gas supply. TRANSGAS is also in the process of increasing available gas storage.

Other East European countries should take careful note of the Czech experience. If a gas diversification program should be implemented, then there is now a four to six year window for a strong buyer's market. No time should be lost in using this market situation to ones advantage.

Gas Privatization and Selection of Strategic Investors

Most East European countries have announced plans for the privatization of their gas industries. However, with the exception of Hungary and some of the Baltic states these plans are not very far advanced.

When privatizing the gas industry a country will have two objectives. First, to introduce strategic investor partners which can provide know-how and the necessary expertise to modernize and increase the efficiency of the gas industry. Second, to provide much needed hard currency to the treasury. With the exception of Great Britain and parts of Germany, European gas utilities operate as monopolies in protected areas. Such monopolistic companies are likely to lack to necessary know-how and expertise needed to operate in a true competitive environment. As a general rule, United States and Canadian companies would today be the best source of such experience. However, since U.S. and Canadian companies operate in a true competitive environment themselves, they are unlikely to be in a position to pay the kind of prices accepted by European utilities for ownership shares in Hungarian gas distribution companies. Treasuries and privatization agencies in East European countries are faced with a dilemma, whether to maximize hard currency receipts in the short term or to position the gas industry so that the country will be served by a truly efficient gas industry in the future. Hopefully, some form of compromise between these two positions can be found which will be of overall maximum benefit to the country concerned.

Indian Energy Situation *(continued from page 8)*

issue is to use existing capacity, turn it around, modernize and revamp.

We should not put all our eggs in the basket of only new capacity. Revamping efforts are able to give short-term results, at lower cost and financing is easier. We must have a revamping plan and cut procedures to approve revamping exercises.

Conclusion

What I have covered are just some basic issues regarding energy policy. I may have missed a part or two; however, I do hope that very soon we can call a halt to having only *Conferences on Energy*, again and again, and get the government to act on these issues - for a change!