Energy challenges for Europe to 2010, the views of gas infrastructure operators

Geert Joosten
President of GIE[72], Brussels, Belgium

1. Introduction to GIE

GIE (Gas Infrastructure Europe) is the association of gas infrastructure operators in Europe. GIE currently has 46 members in 26 European countries. GIE is an overarching organization, which consists of 3 columns, one for Transmission (GTE), one for Liquefied Natural Gas (GLE) and one for Storage (GSE).

The main objectives of GIE[73] are:

- Promoting a safe and reliable European natural gas transmission, storage and LNG system suitable for meeting present and future needs;
- Promoting the development of a fully operational European internal gas market for transmission, storage and LNG;
- Promoting interoperability of the European systems to enhance cross-border gas exchanges;
- Contributing to the Security of Supply in Europe;
- Promoting market solutions;
- Contributing to the setting of a stable public policy framework;
- Voicing the opinion of the gas infrastructure operators in Europe with respect to the previous points.

[72] GIE- Gas Infrastructure Europe
Avenue des Arts 19
B - 1210 Brussels
www.gie.eu.com
gie@gie.eu.com
[73] The membership and the organizational chart of GIE figures at the end of this artice



GIE delivers these objectives through working groups and study groups within each of the columns. The working and study groups provide forums where all column members can exchange views and reach a consensus position on specific topics, for example security of supply and the recently agreed Guidelines for Good Practice for Storage System Operators. The developed positions are then utilised in discussions with external stakeholders to articulate the views of the gas infrastructure operators.

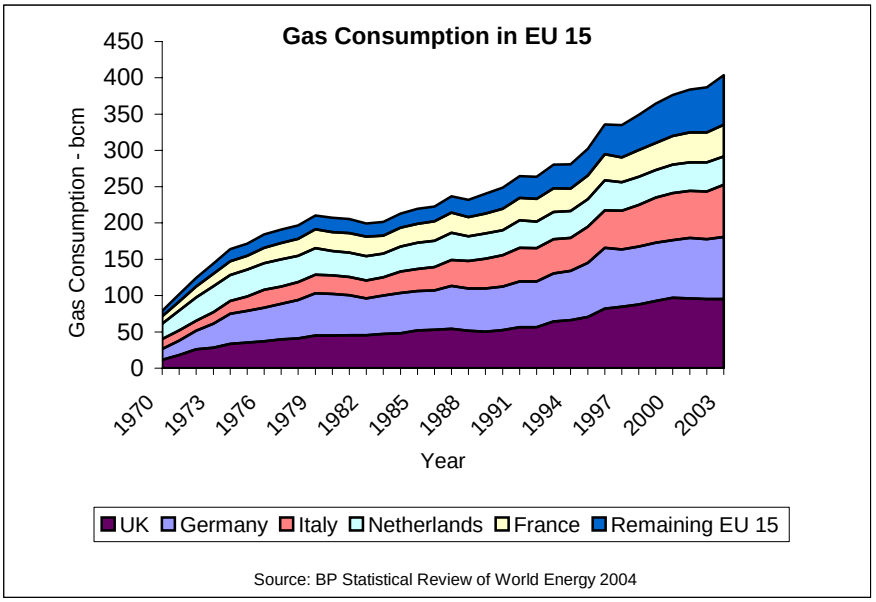


2. The Growth of the gas market

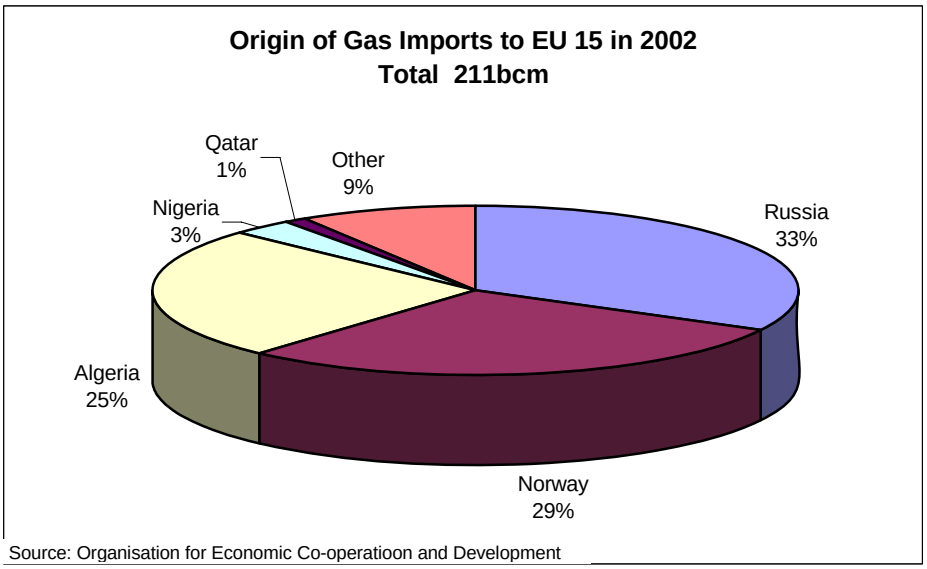
The European gas market has experienced significant growth from the early 1970s. Demand has increased from 79 BCM in 1970 to 404 BCM in 2003, within the former EU 15. At the end of year 2004 more than 95 million customers were connected to the European natural gas grid (EU 25 + Switzerland + Turkey) which represents more than 240 million people using natural gas.

The demand for gas is expected to continue to grow over the coming years. The IEA expects the demand to be nearly 800 BCM by 2030.

The supply pattern in Europe has also evolved over the last few decades, in 1970 the EU15 countries produced 100% of the amount of gas the countries



consumed. Today this figure is only 50%, with gas being imported from many countries, but most notably Russia, Norway and Algeria.



To facilitate this dramatic growth and changing supply pattern, the European infrastructure companies have expanded their networks and built new facilities, such as storages and LNG terminals and will have to continue to do so in future. However it should also be recognised that gas, as with all fuels has its own particular characteristics, which present the industry with some unique challenges and opportunities.

3. Characteristics of Gas

Gas is found in certain geological formations and therefore gas fields are not evenly distributed over Europe. Hence, when exploration is successful and gas is struck, it very often has to be transported to the market over long distances. The composition of the gas flowing from the well is determined by nature. Different gas fields usually have gas of widely varying composition, leading to different burning characteristics. The gas is treated near the well to bring the composition (the gas quality) to a certain specification.

The West European market for natural gas historically developed on the basis of the Groningen field. This field happens to produce gas containing a considerable percentage of nitrogen. It is called L-gas (Low-calorific gas). Later on gas from other sources including Norway, Algeria and Russia entered the European market, all containing far less nitrogen. They were collectively called H-gases (High-calorific gases), although between them they show substantial differences in composition.

The appliances of end consumer have historically been tailored to the specification of the typical supply source and the gas supplied to these appliances has been maintained within this range to ensure safe and efficient operation of the appliances. This approach enables the maximisation of the natural gas resources, but creates challenges for the interoperability of networks and potential obstacles to the achievement of a single European market, an issue that is currently being addressed by the gas industry.

As a result of the variety of supply sources and their proximity to the demand centres, a significant volume of gas is transported over very long distances, either by pipeline or to a lesser extent by LNG ship. At present more than 60 percent of the gas used crosses at least one EU border, much more than electricity for example, and this percentage is likely to grow over the coming years. As there is the potential for a country or a location to be supplied from a variety of supply sources and via different supply routes, international competition in both supply and infrastructure has been a feature of the gas

industry for many years.

A challenge faced by the gas industry, is the fact that gas demand is predominantly temperature dependent, so varies strongly over the seasons. However as natural gas can be stored in a variety of ways, it is ideally suited to manage the fluctuation in demand throughout the year. As mentioned, gas usually has to be transported over long distances from well to market. Storage makes it possible to efficiently use the capital-intensive pipelines. In principal a continuous maximal flow is possible through the pipeline throughout the year, the gas being stored near the market during summer and produced from storage during winter.

As described above the characteristics of gas make it a unique fuel, and this needs to be borne in mind when developing market models and regulatory regimes. It is not possible to take a market model for one energy form, for example electricity, and directly apply it to another such as gas as the differences between the energy forms are too fundamental.

4. Towards a competitive single European gas market

Following nearly a decade of consultation and negotiation, the first liberalisation Directive of the gas market was introduced in 1998. The Directive (98/30/EC) was introduced to contribute to the achievement of the three main EU energy policy objectives: increased competition through better services for energy consumers, security of supply and protection of the environment. The basic objective of the Directive was to create a competitive and vibrant, single European gas market.

The implementation of the high level principles of the Gas Directive by Member States and individual companies could have led to the development of a series of national or regional markets instead of a real single European market. To avoid this the European Commission took the initiative to set up the European Gas Regulatory Forum of Madrid in 1999.

The 'Madrid Forum' provides a platform to discuss the further detailing of the Directive and issues relating to the creation of a true internal gas market which were not addressed in the Directive. All stakeholders are involved in the biannual discussions including: the Commission, the Regulators, the Member States, the customers of the infrastructure operators, consumer organizations and the operators of the infrastructure (GIE with GTE, GLE and GSE). Its aims include the harmonization of existing rules and the

identification of complementary measures to avoid separate markets.

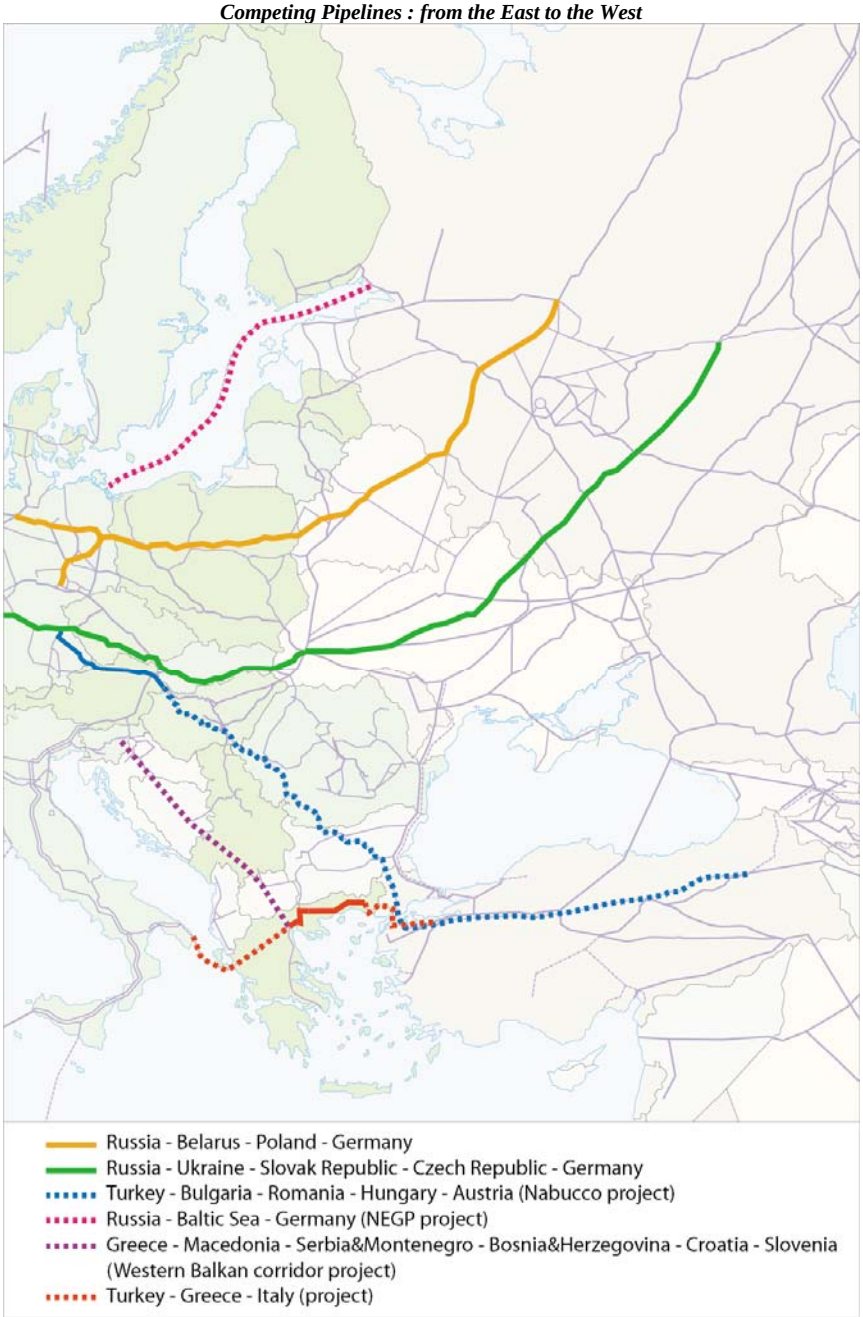
The Lisbon accord in 2001 set the objective of developing competitiveness in Europe in line with developments in the United States. It reinvigorated the need for effective Directives and provided impetus for the creation of the second internal market directive proposed in March 2001 and adopted in 2003.

The Second Gas Directive (2003/55/EC) sets out the main rules to create a competitive single European gas market. It deals with third party access, which has to be non-discriminatory and transparent. Access conditions to the networks have to be regulated, those to storage may be either regulated or negotiated. The model for the gas market behind the second Gas Directive is that the customers have the legal and real right to choose their supplier. Together with the freedom to import and transport gas this leads to gas-to-gas competition. The commodity gas is brought to the customers through an extensive infrastructure network. The Commission assumes that the infrastructure is a monopoly business and needs to be regulated to achieve non-discriminatory and transparent third party access and to prevent excessive pricing.

The Directive also deals with unbundling of integrated companies, requiring legal unbundling of transmission (by 2004) and of distribution companies (by 2007) from gas sales and/or upstream activities, creating legally separate transport system operators. Storage and LNG operations only need to unbundle the accounts, but can be maintained in the same legal entity together with gas sales and/or upstream business. The unbundling and the different rules for transmission, LNG and storage companies were the principal reasons to separate the "old" GTE and to form GIE with three independent columns for Transmission, LNG and Storage.

GIE supports the development of an operational and competitive single European gas market. GIE members are facilitating the development of gas to gas competition by setting proper access conditions to the infrastructure and offering a range of services to their customers. However, GIE would like it to be noted that infrastructure itself is not necessarily a monopoly activity, this has been recognised for storage facilities within the Directive, but is also true for a number of pipelines that compete with each other and LNG suppl routes.

Competing Pipelines : from the East to the West



Source : GIE

In order to achieve the aims of the Directive (2003/55/EC), the Madrid Forum participants at the request of the Commission have taken a pragmatic approach to policy development by stimulating the creation of voluntary implementation guidelines and business practices that go beyond, but ensure consistency with, the Directive.

GIE considers the Madrid Forum a very useful platform to discuss and reach agreements through consensus. GIE is devoting a large part of its energy to activities related to the Madrid Forum. The latest success in reaching a common position is on the minimum conditions for access to the gas transmission networks and to storage. These conditions have been laid down in so called Guidelines for Good Practice. The GGP for access to gas transmission networks ("GGP II") was adopted in September 2003, the one for access to storage in the meeting of the Joint Working Group of the Madrid Forum in March 2005 (Guidelines for Good Practice for Storage Service Operators – "GGPSSO"). Both sets of GGPs are voluntary agreements and are being implemented by our members at present.

GIE strongly believes in voluntary agreements rather than prescriptive rulemaking. We therefore were deeply disappointed when the Commission proposed a draft Regulation on Conditions for Access to Gas Transmission Networks ("Regulation on access conditions") in December 2003. The content of the Regulation will be directly applicable and enforceable under national law. GIE is disappointed with this outcome for two main reasons; the process that led to its creation and the process that now exists for its modification.

GTE had voluntarily agreed on the GGP in September 2003. Nevertheless, in December 2003 the draft Regulation was announced, before any time was allowed to assess its impact upon the market. From GIE's perspective this does not adhere to the principles of clear and transparent policy setting. We need to establish if issues can be / are being effectively dealt with under voluntary policies or if Directives or Regulations are really required. Monitoring of the implementation (even of voluntary guidelines) at appropriate intervals is essential, however the implementation timetable and the date at which the legislation was adopted need to be considered. If monitoring reports indicate areas of non-compliance, these areas should be investigated, as it may be the case that the needs of the market have changed and therefore adjustments to the policies are required. Adjustments are much easier to realise through voluntary practices, rather than binding regulations, and therefore voluntary practices are more suitable for responding to the needs

of a dynamic market.

With regard to modifications of the Regulation, these will be implemented by the comitology procedure. After extensive lobbying by GIE and others for more industry influence in the process, a discussion in the Madrid Forum was introduced in the modification procedure for the Regulation Guidelines. However as GIE and the participants of the Madrid Forum successfully developed the Guidelines, this reduced role for the Forum is disappointing. In order for the Guidelines to develop in a manner that will benefit the creation of a single European gas market, the voices of the Madrid Forum participants need to be heard and listened to. In view of the vital role of the Operators in making the Guidelines work in practice, GIE suggests that the modification procedure also should contain the advice of a formal independent advisory body formed by a European Group of TSOs to assist the Commission and the Regulators in all future modifications in the Regulation. This would be the TSO equivalent of ERGEG, the European Regulators Group for Electricity and Gas, which was established by the Commission in its decision 2003/796/EC as an official advisory body of regulators.

With regard to the recent development of the GGP on storage, in practice the Commission left the discussions to ERGEG. However the initial process employed was not effective, as it did not provide sufficient opportunity for genuine discussion on a topic which is very technical. This led to the failure to reach an agreement at Madrid Forum IX. After subsequent detailed discussions and with all parties seeking to reach an optimal solution, agreement was reached days before the start of the 2005 Storage Year. GIE hopes that the lessons learnt through this experience will be implemented in future consultations.

5. Assessment of the present situation

Since the introduction of the first Gas Directive in 1998, infrastructure operators have made significant progress towards a single European market. In almost all European Union countries, the transmission system operator is a legally unbundled entity; this is a key step in ensuring non-discriminatory and transparent access to the transmission system.

The rules for access to the system are continually evolving to better meet the needs of Users. This is probably best seen through the voluntary agreement and implementation of the GGP II and the GGPSSO. Many of our members are already offering the services contained within these Guidelines, for

example an entry-exit tariff and capacity system. With regard to the capacity booking, this process is being made easier and quicker. In addition a wider range of services is being offered for example short term and interruptible capacity.

However, to offer these services it is necessary to invest in new (mainly IT) systems, so it is important to ensure that our Users need the services and the information we provide. Otherwise we will introduce costs into the industry, which add no value. Therefore we are monitoring the take-up of the services. So far Users have responded well to the new offerings, with only a few products showing little interest for example daily capacity on the Continent.

In addition to the services being offered by infrastructure operators, the level of transparency and information within the marketplace is growing, with many of our members publishing capacity information on-line. Again an economic balance needs to be struck, between what information is "nice to have" and what information is actually required.

In the field of interoperability a number of key developments have taken place. Interoperability discussions are led by the European Association for Streamlining Energy Exchange – Gas (EASEE-Gas), a very productive and useful organization in which all segments of the gas chain are represented. GIE is giving EASEE-Gas its full support and is providing substantial input via its GTE Interoperability Working Group. The following voluntary Common Business Practice (CBPs) have been developed and adopted by EASEE-gas:

- CBP on Harmonization of Units setting the same units for pressure, energy, volume and calorific value along the gas chain
- CBP on Harmonization of the Nomination and Matching Process describing the core communication processes in cross border transportation of natural gas.

Furthermore EASEE-gas is heavily involved in the work of Edig@s which provides a protocol for the exchange of structured business information.

Currently EASEE-gas is working on the following CBPs:

- CBP on Harmonization of Natural Gas Quality recommending gas specifications in order to streamline cross border trade
- CBP on Interconnection Agreement defining the minimum structure of an Interconnection Agreement
- CBP on Constraints describing the operational procedures in case of

constraints in the transmission system

With respect to the CBP on Harmonization of Natural Gas Quality major progress has been made. Ranges for various parameter values have been defined. It is intended that if the gas composition is within these ranges it would be able to move freely and be used safely across all the H-gas networks in Europe. The implementation of the agreement is planned to occur in two phases, with the harmonization of non-combustion parameters in October 2006 and combustion parameters in 2010. This should allow time for all industry participants and Member States to make the necessary changes, which in some countries may require legislative changes. This is an excellent example of the whole gas industry working together on a voluntary basis to deliver a tangible output, which will make a real difference to the achievement of a single European gas market.

From the initiatives and progress described above, it can be seen that infrastructure operators are making great strides to facilitate gas to gas competition in Europe. However infrastructure operators cannot deliver gas to gas competition, this is the role of the commodity side of the business. From our viewpoint, the degree of competition will strongly depend upon the number of suppliers a customer can choose from and equally the number of available supply sources. Due to the fundamentals of natural gas, as mentioned above, this is relatively limited. Potentially this is an area for consideration by Member States and the Commission, as it may be possible to incentivise the development of other supply sources, for example LNG imports, which would further stimulate competition.

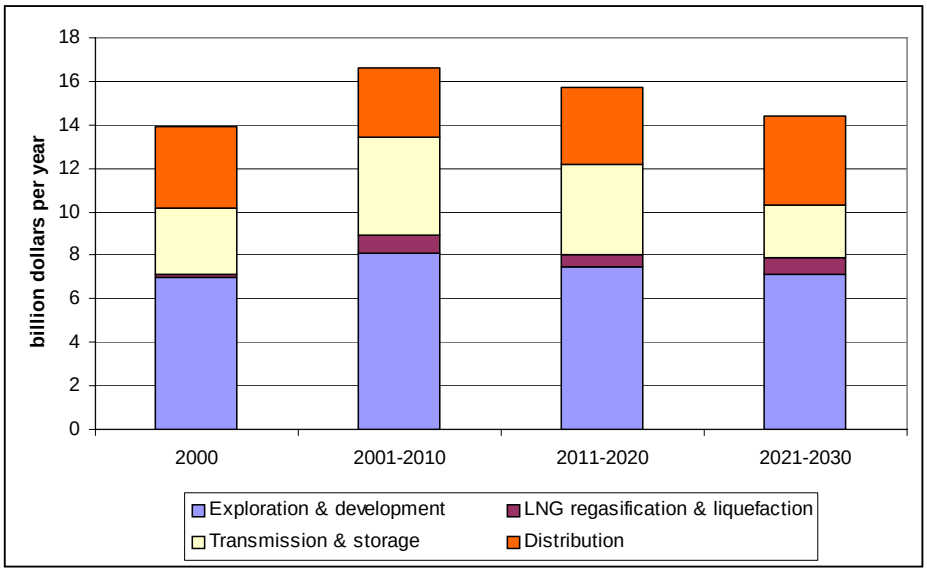
6. Outlook

GIE believes that the key pieces of legislation are in place to deliver a single European gas market and welcomes the sentiments of the new Energy Commissioner, Andris Piebalgs, to do less, better and implement what is there. The industry has gone through an enormous change and we believe it is time to focus on the pragmatic implementation of the existing policy measures and allow them time to work.

We also need to realise, as discussed earlier, the supply pattern in Europe is changing and gas demand in Europe is anticipated to continue growing, this will require significant investment in new infrastructure to deliver this gas and maintain the levels of security of supply that we are accustomed to. A recent study by IEA indicated that approximately $400bn in new infrastructure would

be required to 2030 in OECD Europe. However this will only occur if the climate for investment is conducive. The final part of this paper will look at this issue in depth.

Investment

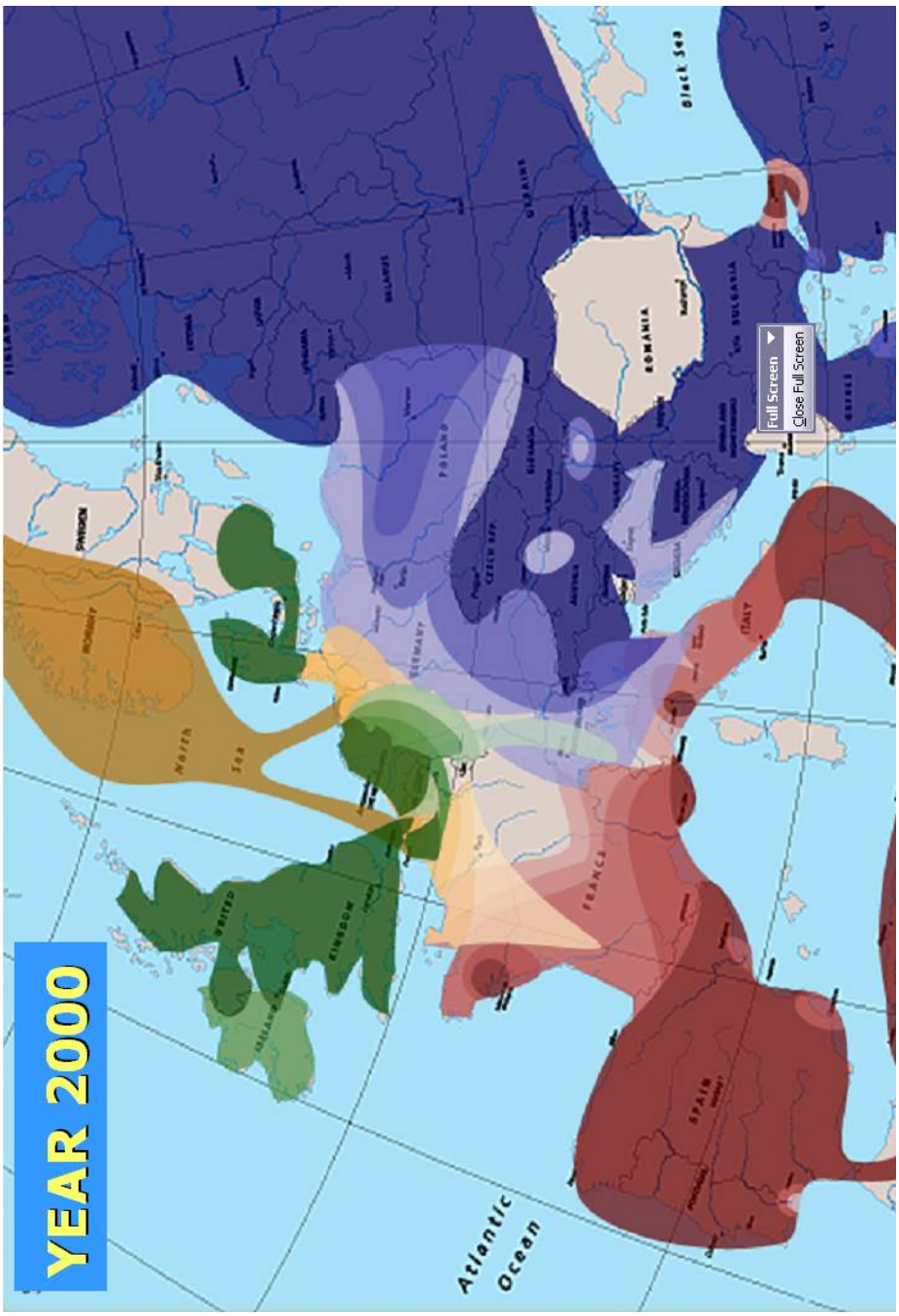


Source: World energy investment outlook 2003

However, turning our attention towards 2010, what can we expect from a European supply and infrastructure perspective? The number of major producers delivering gas to the European market by pipeline is relatively small. LNG imports may add more distant producers to the market, but their relative contribution is likely to remain limited in the short to medium term. One possible scenario of the future market structure would see Europe divided into roughly three spheres of influence. Each sphere would be predominantly supplied by one producing region i.e. North Western Europe (Norway, Denmark, UK and The Netherlands), North Africa and Russia / Eurasia.

In this scenario, the gas is likely to be delivered predominantly under long term arrangements. However, to manage local oversupply and shortages major hubs are likely to exist, at least one in each of the three areas. This should lead to local price formation. At locations other than the hub, the price would be derived from the hub price plus the transportation costs. In Europe an area would also potentially exist where the three spheres overlap. In these areas the gases from the various sources would be in competition,

leading to price formation based on supply and demand. This is likely to set a reference price for the other hubs.



In each of the three areas a patchwork of entry-exit zones for transmission could develop. The boundaries between the entry-exit zones would be determined either by internal congestion in the network of transmission companies covering large geographical areas, or by the boundaries between neighboring network operators. When economical, the transmission companies would invest in expansions to relieve the points of congestion. This would lead to larger entry-exit zones, limited to the point where one of the major shortcomings of the entry-exit model, the cross-subsidization between short and long distance transport, becomes excessive.

The supply of gas to each of the three spheres of influence could be vulnerable, as it could be heavily dependent on one supplier, leading to Security of Supply concerns. Some countries, to overcome this foreseen problem, already require dominant suppliers to contract gas from various sources. The supplier then usually also contracts the transportation capacity on the route from the producer. Member States that do not have such a requirement could consider promoting the extension of the network to create the possibility to import gas from one of the other or both of the other spheres of influence, as a back up if the primary supply fails. However, booking of the capacity in these pipelines by suppliers would be uncertain. The lines may therefore not be attractive for a transmission company to invest in.

Each country would need to determine the level of security of supply that is suitable for its territory. If interconnection to the other sphere(s) of influence would be considered important, the Regulator in that country would need to incentivise the transmission company to build, operate and maintain such pipelines. These pipelines would have the additional advantage of enabling price arbitrage between the spheres. As gas transportation is a regulated activity in Europe, an important task of the relevant national authorities would be to weigh the advantages of Security of Supply and increased gas to gas competition against the increased cost of transportation due to the investments in the connecting lines.

The scenario described above again highlights the need for significant investment in new infrastructure a topic discussed below, but it also illustrates that in a number of areas there will be competition between infrastructure providers to bring gas to market. This already occurs for a number of pipelines, most notably transit pipelines, and is an area that needs careful thought from a regulatory perspective.

Transit of natural gas is a fundamental aspect of the European gas market, which is required to underpin Security of Supply and to create a competitive European gas market. In many cases transit of natural gas is a competitive activity, competing with alternative pipeline routes and LNG supply sources in other countries. In addition, the characteristics of transit vary from country to country. There may be significant differences between transit and national transportation in some countries, for example in the application of Public Service Obligations and balancing rules, whereas in others this is not the case. In GIE's view it is not possible to have a "one size fits all approach". The specifics of each transit should be recognised and an appropriate regime applied to ensure that existing investments are protected and new investments are stimulated. Due to the size of the investments involved the use of long term contracts to secure the investments will also remain an essential element of existing and future pipeline projects.

7. Fostering Investment

The demand for gas in Europe continues to grow and the supply sources are becoming farther away. To ensure that this gas is brought to market and that Security of Supply (SOS) both in the long and short term is maintained, infrastructure operators need an appropriate regulatory environment. Below is GIE's perspective on security supply and the requirements for fostering investment in a liberalising European market.
Security of supply touches on three key aspects:

- **Gas availability**: The availability of adequate and diverse gas supplies (including from storage) to meet firm demand for gas under both average and extreme weather conditions;
- **Adequacy of the gas network infrastructure**: The availability of adequate transportation capacity, storage and LNG send-out capacity to transport gas from entry points to demand locations under both average and extreme weather conditions;
- **System integrity**: i.e. safeguarding the operational integrity of the system, covering residual balancing over operational timescales and cases of system failure.

All of the three above factors, gas availability, adequacy of the infrastructure and system integrity, have to be ensured for security of supply to be maintained both in the long and short term. The degree to which they influence the short- and long-term security of supplies varies from Member State to Member State, depending on specific national circumstances.

The Directive 2004/67/EC ("SOS Directive") adopted on the 26th of April 2004, requires that Member States shall ensure that supplies for household customers inside their territory are protected to an appropriate extent at least in the event of:

(a) A partial disruption of national gas supplies during a period to be determined by Member States taking into account national circumstances;
(b) Extremely cold temperatures during a nationally determined peak period;
(c) Periods of exceptionally high gas demand during the coldest weather periods statistically every 20 years

These standards are minimum requirements and Member States can choose to put in place more stringent requirements, when the Directive is transposed into national legislation.

The above provides a good framework of output-based standards, which all market players can plan for and comply with. From GIE's point of view it is especially important that the standards detailed within the SOS Directive are output-based, leaving scope for the market to innovate.

The European gas industry has maintained an excellent track record in ensuring the security of gas supplies. As the European Commission itself recognised in developing the Directive concerning measures to safeguard security of natural gas supply, "*the European gas industry has managed security of supply in a steadily growing European gas market over the last four decades very successfully.*"

In the coming year's substantial investment in infrastructure and other assets will be required to maintain the SOS in the growing gas market.

GIE believes that there are a number of key principles that should be properly reflected within any regulatory regime in order to foster the necessary investment climate.

These are as follows:

Key Principle 1 - Clarity on roles & responsibilities

In a liberalized market the responsibility for maintaining supply security cannot lie with one single market player. Moving forward, the respective

roles and responsibilities of different market players need to be clearly defined and allocated, as required under the SOS Directive. In addition the definition of security of supply standards has to be agreed at the Member State level consistent with the framework set out in the SOS Directive. In GIE's view, the roles and responsibilities should be as follows:

- To ensure there is sufficient gas (both in terms of capacity and volume). This responsibility lies with suppliers and producers and in some cases it is a legal obligation on the Transmission System Operator (TSO). This includes the responsibility for ensuring sufficient supplies during extreme low probability events (which may be related to severe weather or supply disruption);
- To ensure there is sufficient transportation capacity. This responsibility lies with the TSOs and shippers. Each TSO has to provide transportation capacity to meet his contractual obligations and, where applicable, nationally agreed standards. To enable TSOs to do this, suppliers have a prime responsibility in signaling their future capacity requirements by revealing their real demand for capacity to meet their customers' needs under both average conditions and in the case of low probability events. This ensures that transmission networks are developed consistent with the needs of those sourcing gas supplies;
- To ensure system integrity. This responsibility clearly lies with the TSO. The TSO will need to undertake network operation and maintenance to ensure the integrity of the system is not compromised.

Key Principle 2 - Investment Signals / Plans

Ideally the need for investment in new gas infrastructure should be determined through market signals. Shippers and where appropriate producers and distributors should be required to inform the relevant TSOs of their capacity requirements in a timely manner. To underpin this requirement a framework should be implemented that incentivises shippers, or where applicable other market players, to make financially binding signals for their future capacity needs under both average and extreme conditions. Financially binding signals typically involve shippers contracting for long term capacity rights. However, in the majority of countries the previously described "ideal" is not sufficient due to:

- Relationships between shippers and end-users becoming shorter, with contracts typically ranging from 30 days to one year. This to a certain extent leads to a larger proportion of short-term transportation contracts and uncertainty with regard to future capacity bookings. This makes the planning of long-term investment more difficult, especially

given the significant amount of time required for the development of new infrastructure.

- In a market with a multitude of competing suppliers, some shippers or suppliers may not be sufficiently incentivised to make adequate 'insurance' provision for low probability events and may therefore underestimate capacity needs for new infrastructure. Consequently, transmission companies may not receive the signals for making the necessary investments to cope with extreme conditions

It can be seen that although market signals should be the cornerstone of investment planning, they are unlikely to be sufficient to provide the required level of supply security. The approach to deal with this perceived shortfall will differ depending upon the market structure.

In countries where TSOs do not compete with each other, it is necessary for one party to take responsibility for data aggregation. The party selected, which in many cases will be the TSO, needs to be able to compile a full long term supply and demand picture. To achieve this, the party will have to be provided with information on the supply situation at entry points, including storage facilities, and the demand situation at exit points. To ensure that the information is provided and is of an appropriate quality there may need to be information obligations placed on the relevant market players, for example producers, storage operators and distribution network operators.

Based on this aggregated information, the TSO should assess and publish whether in the short and long term the market signals and the resulting investment plan will deliver a transmission network adequate to meet the specified level of security of supply. A strategic investment plan should be subsequently developed to make up any foreseen shortfall. The strategic plan should not only consider network adequacy, but also resilience. Such an approach enables "bottlenecks" to be eased and identifies the infrastructure required to maintain operating pressures at the extremities of the system. Depending upon the regulatory regime, it may be appropriate for these strategic investment plans to be approved by the regulatory authority. This process leads to a robust investment plan that is based on market signals whilst ensuring completeness.

In countries where multiple TSOs compete, market forces and company strategy should determine the investment by each TSO. Assuming a properly functioning transportation market and an appropriate investment climate, the market will deliver an efficient solution for the development of the network.

Key Principle 3 - Investment Funding

A further element in ensuring the necessary investment climate is in place is providing appropriate investment funding arrangements. As the investments to be made are long term assets, typically with asset lives in excess of 40 years, this factor must be recognized within regulatory frameworks. Based on these requirements, the key principles in relation to investment funding are:

- *Predictable*
  To avoid undue risk, TSOs and other investors must be assured of the principles behind regulatory treatment for the economic life of the asset. Based on these principles the investment partners can assess the risk profile of the project and determine its viability. If at a future date these principles are changed, there should be a clear process to evaluate the change, which considers the impact upon the affected parties. The process should also include an appeals mechanism for affected parties who believe their interests have not been appropriately addressed.

- *Stable*
  To provide scope for TSOs and other investors to innovate and plan effectively, regulatory regimes should not constantly change and where possible this principle should be recognized explicitly through fixed periods of stability. Regulatory cycles of five or more years enable TSOs to actively manage the investment process and deliver efficiency improvements, for example through optimization of procurement and the construction supply chain.

- *Commensurate & Complete*
  In establishing the regulatory framework it is essential to ensure that it is complete and reflects the risks to which investing companies are exposed. It must take account of policy, legislation and fiscal regimes at national and European levels. It should also recognize the interaction of European markets, including the integrated nature of the transportation system, and the competition for capital within these markets. In particular where shippers have different options to transport gas across countries the return on investment of one TSO will be highly dependent upon the tariffs set by other TSOs.

  Where a regulatory authority is responsible for determining economic criteria (for example rate of return, operating cost allowances,

depreciation and asset life assumptions), which influence the overall viability of new infrastructure investment, these criteria must provide sufficient incentive in relation to the risk for the investing company to make the investment. The criteria included also have to be complete or else they will not fully reflect the risks to which the investing company is exposed. For TSOs, in particular, regulatory authorities should have a clear duty to ensure TSO functions are appropriately financed.

Key Principle 4 - Pan-European Investment

The Decision 2004/67/EC in its preamble, paragraph (9), acknowledges that "*In order to meet growing demand for gas and diversify gas supplies as a condition for a competitive internal gas market, the Community will need to mobilise significant additional volumes of gas over the coming decades*". In paragraph (10) strong interest in "*ensuring continued investments in gas supply infrastructure*" is expressed.

To ensure sufficient transport capacity is available, new pipeline projects connecting Europe to new natural gas sources are needed. The TEN program, which focuses on so called priority axes is an important initiative for developing new infrastructure in order to create and facilitate the smooth operation of the trans-European transport networks. For TEN projects (and other related projects) to be successful, a stable and healthy investment climate is needed, which can provide a long term and secure income stream.

In GIE's view, the granting of exemption from the TPA provisions of the IGM Directive (under Art. 22 IGM) is an important element for the feasibility of many projects. The granted exemptions provide for the preservation of long term contracts, which underpin the significant investments required for pan European projects. It should also be recognized that the majority of these projects will not be limited to one Member State and will require a coordinated approach from TSOs and other gas industry players. However for this to be realized Member States need to act consistently and adhere to the principles detailed within this paper.

8. Concluding Remarks

To conclude, European gas infrastructure operators are actively facilitating the development of a single European gas market. The key elements of this are:

- Sales of primary capacity
- Setting non-discriminatory and transparent access conditions
- Facilitating secondary markets
- Application of "Use-It-Or-Lose-It" principles

All of these areas are detailed within the Guidelines for Good Practice for Access to transmission networks and are being implemented by GIE members.

With regard to any future legislation or policies, GIE would like to point out the following:

a) Gas, as with all energy forms, has its own characteristics, which need to be borne in mind when establishing regulatory / market frameworks. Copying and pasting of other regimes is not in the best interests of the European energy market.

b) GIE believes that the key pieces of legislation are already in place to deliver a single European gas market and welcomes the sentiments of the new Energy Commissioner, Andris Piebalgs, to do less, better and implement what is there. The industry has gone through an enormous change and we believe it is time to focus on the pragmatic implementation of the existing policy measures and allow them time to work.

c) When, nevertheless, modifications to the Regulation Guidelines are made in future the modification procedure should contain the advice of a formal independent advisory body formed from European TSOs.

d) In a number of areas there is competition between infrastructure providers to bring gas to market, most notably with transit pipelines. This is an area that needs careful thought from a regulatory perspective. GIE's view is that due to the high degree of variation between Member States, "a one size fits all approach" does not appear to be viable.

e) The demand for gas in Europe continues to grow and the supply sources are becoming farther away. To ensure that this gas is brought to market and that Security of Supply (SOS) both in the long and short term is maintained, infrastructure operators need an appropriate regulatory environment. Key principles to be incorporated into any regulatory framework in order to facilitate investment in new gas infrastructure are:
   - The respective roles and responsibilities of different market players should be clearly and appropriately defined and allocated,

consistent with the SOS Directive, and security standards should be output-based;

- Where possible the need for new infrastructure should be determined through market signals, underpinned by binding financial commitments. Recognising that this is not possible in all cases, a complementary data aggregation process will often be appropriate through which the relevant TSO may capture information from all relevant market players and thereby establish a robust and complete investment plan.
- Appropriate funding arrangements should be in place to underpin TSOs' investments. These arrangements should ensure that the investment environment is:
    i) predictable;
    ii) stable;
    iii) commensurate and complete

  Such arrangements should allow infrastructure operators to innovate and plan effectively, to attract the capital required and to deliver efficiency improvements over time.
- The significance of pan-European investments should be recognised, with the granting of exemptions from the TPA provisions of the IGM Directive an important element in the feasibility of many projects.