Gas Transmission Europe

GTE Capacity and Congestion Report **20 June 2001**

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Executive Summary

Introduction:

GTE has been invited by the 3rd meeting of the European Regulatory Forum for gas to identify on a monthly basis the physical design capacities as well as the actually available transmission capacities at all major entry and exit points of the networks.

On the basis of information provided by its members the GTE Standing Committee "Capacity and Congestion Management" has prepared this report which deals with capacity issues from an overall viewpoint as well as with the different capacity models applied in the EU Member States.

This report deals solely with transmission system operators and their tasks but not with distribution systems.

The report describes how capacity issues are dealt with within Member States and analyses the different approaches. It explains the different systems for the calculation, allocation and publication of capacity. The attached map of the European gas grid identifies technical capacities at cross border nodal points. Finally this report gives recommendations how in practice possible problems arising out of the allocation of capacity to shippers and the publication of capacities can be solved with a view to guaranteeing transparency and non-discrimination vis-à-vis shippers. The report also shows that situations where capacity is being withheld in favour of an incumbent are unlikely to occur. Markets are supervised by the national competent authorities having confidential access to all information required to check complaints of refusals of access.

Fundamental principles

Starting point of the analysis is the fact that the European gas grid has not been centrally planned but was build up in order to match supply and demand. The development of the European gas grid from the Seventies up to today presents an impressive proof of the ability of the European TSO's to build, operate and extend the European grid with the consumer as the focal point.

From the point of view of the European TSO's the primary goal of their business is to serve the needs of its customers. Consequently the TSO's see it as their primary objective to

guarantee the construction, operation and extension of a safe, reliable and efficient grid and the associated infrastructure. This objective can only be fulfilled in an investment friendly climate, which has to be protected by the respective legal framework and adequate political decisions. With a view to security of supply the TSO's undertake to provide the infrastructure necessary to bring gas from the sources to the consumers. It is therefore the task of the TSO's to make the transmission capacity available which is needed by shippers and suppliers in order to fulfil their contractual supply obligations vis-à-vis their customers.

These are the fundamental principles which have to be borne in mind when assessing capacity issues and evaluating recommendations to enhance the services provided to shippers.

Definition of capacity

There is no uniform definition of capacity which could unilaterally be applied. The evaluation what capacity actually means can generally only be made on a case by case basis. This is due to the fact that, on the one hand, there are technical/physical characteristics of pipeline capacity which can be described in the abstract, but, on the other hand, the capacity in a specific grid depends on a set of complex parameters resulting in the first place from the actual flow pattern in the grid. While capacity in a single pipeline from point A to point B could be stationary determined, the respective determination in a pipeline grid is by far more complex and has to be based on a number of assumptions.

From a technical perspective the capacity of a pipeline is determined by a number of design parameters as well as the underlying flow scenario. Based on this parameters and assumptions the capacity is mainly a function of delivery and redelivery pressures. Consequently the determining parameters are not only pressure, temperature etc. but also deliveries into and redeliveries from the system and gas quality to meet safety specifications at the end consumer level, i.e. it is not only the technical design of the system but also shippers' use of the system that determines the capacity.

Capacity models in Member States

Based on the conclusion that capacity is determined by a complex set of parameters which have to be evaluated on a case by case basis, the analysis of capacity issues in the European gas grid must as its starting point consider the different commercial capacity models applied in the Member States. The understanding of the different national approaches is crucial in order to develop recommendations to overcome obstacles with respect to non-discriminatory and transparent capacity procedures.

Capacity models applied in the Member States represent a range of different approaches between the two extremes of an entry/exit model as applied e.g. in the UK and a notional path model as applied e.g. in Austria and Germany.

- In a notional path model capacity is made available to an individual shipper irrespective of the actual flow decisions of other shippers. The capacity of the system is determined in complex simulations with a set of assumptions like the lowest temperature over the year, the availability of gas at certain entry points, off-takes within the system and transit quantities which enter the system at specific delivery points and are off-taken from the system at specific redelivery points. Capacity is made available on the notional path (transmission from point A to point B), irrespective of the behaviour of other shippers. The capacity can be offered as multi-annual, annual, monthly and even shorter period firm capacity as well as on an interruptible basis.
  Notional path models are applied particularly in systems which are characterised not only by flows of gas into the system but also by flows through the system, i.e. transits. In these systems the determination of capacity on the contractual path is used to enable transmission within the system and transits through the system.

- In an entry/exit model capacity is not determined on a notional path from point A to point B but at specific entry points into and exit points from the systems. Entry and exit capacity can be determined on the basis of peak available capacity, floor available capacity or on the seasonal profile of supplies, i.e. complex seasonal estimations of supplies in each month and the likely pattern of demand in the market in the respective month. The resulting capacities at the entry points can be offered as annual, monthly or daily firm capacity and monthly and daily interruptible capacity. Deviations of actual from expected flows have to be managed by the TSO, e.g. by reducing the amount of daily capacity sold, by scaling back interruptible allocations or, as a last resort, by buying back capacity from those shippers who are willing to sell it in order to make it available to other participants in the market. In this way, firm capacity can be guaranteed to the shipper.

  Currently, the entry/exit model is applied in markets, which have limited transits although the model could be made compatible with transit provided that the necessary operational design parameters were available and were put in place The model is particularly applied in systems which have a significant number of end users as it simplifies the administration required as the number of shippers' transactions increases.

Calculation of capacities

The description of the two basic capacity models above already indicates the different approaches how capacities are calculated in those models.

- In the notional path model which is in principle applied in most continental Member States capacities are calculated on the basis of complex simulations which take into account the highest capacity demand scenario for security of supply reasons. The capacities are calculated for each part of the grid so that capacities can be determined for transportation from each point in the system to another point in the system. This means that capacities in principle are not determined at specific points but as capacities between different points of the systems on a notional path. Their availability for the shipper is guaranteed.

- In entry/exit models capacities are calculated for specific entry/exit points. Notional path considerations may play a role in the process of determining the entry/exit capacities. Once those are calculated, the notional path is irrelevant and will not be considered anymore. The way capacities are calculated may differ with respect to the specific entry/exit model applied. In the UK entry capacity is calculated based on seasonal assumptions of supplies and demand in the market. This provides an accurate modelling of the capacities available month-by-month so that the monthly firm capacity sold can be guaranteed. according to the process described above. In Italy, capacities at entry and exit points are calculated on the basis of the capacity demand scenario under summer conditions, i.e. the availability of capacity for the shipper is guaranteed and due to the calculation of capacity no further measures are necessary.

Allocation of Capacity

The principles according to which capacity is allocated to shippers depend on the capacity model applied.

- Member States in Continental Europe, most of which apply notional path models are far from self-sufficient in supply. The markets rely on a small number of producers. Sources are remote, imports partly from outside of the EU. Long distance transmission has to be secured to bring gas to the customers. As a function of the notional path model applied capacity made available to shippers is not a standardised

product but is made available tailor-made. Given these characteristics of the Continental gas markets and the overall importance of security of supply, continental systems generally apply first come – first served-models which differ with respect to specific circumstances in the markets and different political conceptions e.g. as to the priority of public service.

- In an entry/exit model as applied in the UK or in Italy entry/exit capacity can be allocated on a first-come first serves basis or by auction, and it can be allocated on long-term or short-term contracts or even daily, and can be firm or interruptible This gives shippers considerable flexibility in booking capacity.

Publication of capacities

Finally, the capacity model applied is also decisive for the question whether available capacities are published by the TSO's. Generally it has to be stated that the publication of available capacities is only a timeshot which gives an indication on the availability at the time the available capacity is determined. Due to changing systems use of the shippers and changing flows in the grid this information is not reliable and can therefore not constitute a binding offer of the TSO to the shippers. Consequently no legally binding capacity indication can be provided. With respect to the capacity model applied, further considerations have to be taken into account.

- In a notional path system the publication of available capacity at a certain point in the grid is incomplete and redundant information because – apart from the fact that it is a snapshot which is correct only at the time of its determination – it does not say anything about the availability of capacity in the grid between a specific delivery and a specific redelivery point. This information, which cannot be represented by a single figure on a map requires a specific request.

- Apart from the above considerations, most GTE members are not prepared to publish available capacities at major entry and exit points of their networks due to commercial and contractual considerations. In continental Europe in most cases the number of shippers at these points are limited and the size of individual shippers is considerable. In this constellation reliable information related to the capacity contracted by an individual shipper and to the factual use of such capacity by that shipper may be derived from such publication. Moreover, there is a risk that shippers might potentially abuse the information of available capacity particularly in circumstances where capacity is limited. Information on available capacities might in these cases present an incentive to shippers to reserve capacity in advance and thus increasing or even

creating artificial capacity shortages. The information on available capacities would therefore create the additional requirement to supervise shippers in order to avoid an abuse of capacity bookings and distortion of competition. The use it or loose it principle which is advocated by some proponents of a publication requirement is not admissible in the majority of Member States due to the fundamental principle of sanctity of contracts (capacity is made available unconditionally).

Apart from these commercial and competition related considerations furthermore contractual obligations of TSO's present an argument against the publication of available capacities. The vast majority of transportation agreements contain confidentiality undertakings, restricting the disclosure of information e.g. to legal actions or the agreement of the other party.

- In systems with a large number of shippers without a dominating shipper like in the UK information on available capacities may not be commercially sensitive since conclusions from that information cannot be drawn with regard to the individual shipper. Moreover information on available capacities may be helpful in an entry/exit model as short term capacity congestions may occur in this system with the result that the transporter has to take capacity management actions.

  The publication of available capacities at system entry points by Gasunie is also not commercially sensitive since the Netherlands are a net exporter of gas and thus no conclusion can be drawn from the disclosure of that information on the portfolio of Gasunie.

Recommendations

GTE proposes different actions which might be taken in order to improve the capacity procedures:

- Improve transparency in general by publication of maps which might also contain non-binding capacity information.

- Enhance the transparency of the capacity allocation procedures by detailed publication of procedural rules and documentation.

- Implement legal/regulatory procedures to control and challenge the capacity allocation decisions.

- Remove impediments for secondary markets.

- Offer of interruptible services in case firm capacity is not available.

- Liaison/consultation between TSO's and shippers on generic capacity issues .

Section 1: Introduction

The Natural Gas Directive not only aims for creating a single European market for natural gas but also for opening the markets in Member States sufficiently and to a comparable extent. Accordingly Member States may choose either or both procedures referred to in Article 15 (Negotiated TPA) and in Article 16 (Regulated TPA). Both procedures shall operate in accordance with objective, transparent and non-discriminatory criteria. Thus Negotiated or Regulated Third Party Access basically constitute the same right of access to capacity.

Against this background the 3rd meeting of the European Gas Regulatory Forum in Madrid invited the Gas Transmission group Europe (GTE) on the basis of contributions by its members and in liaison with the Commission and relevant market players to develop a sufficiently detailed map of the European gas network identifying for each month until April 2002 the physical design capacities as well as the actually available transmission capacities (expressed in appropriate standardised units) at all major entry and exit points of the networks including LNG and storage facilities. This overview shall describe in sufficient details the assumptions used including which capacity has been reserved and on which contractual basis.

For reasons of efficiency GTE has set up different Standing Committees to work on the issues raised by the 3 rd meeting of the European Regulatory Forum in Madrid. The work programme that had been prepared by the Standing Committee on capacity (Appendix 1) was presented to the Working Group of the Madrid Forum on 21. December 2000. It was generally acknowledged that there is no European legal basis regarding the obligation to publish available capacities, that the factual situation is different from Member State to Member State and that the Standing Committee should initially restrict itself to capacities at cross border points.

The intention of this report is to produce an overview of how capacity issues are dealt with in different Member States, to analyse different approaches for capacity issues and to give recommendations how capacity issues can be dealt with in a single European market.

In order to provide a clearer picture about the respective legal and factual situation in member states as well as to improve the clarity in definitions and the transparency with

regard to available capacities the Standing Committee issued a questionnaire in early January 2001. This questionnaire refered to the institutional framework, aspects of capacity definition, the publication of information on capacities, procedures for capacity allocation and other relevant issues.

The report has been prepared on the basis of the information provided through that questionnaire and clarifications and discussions in the Standing Committee.

Section 2: Framework

The overall EU energy market is characterised by a primary energy consumption of approx. 1.5 billion toe in 2000. Natural gas holds a 23 % share in EU energy supplies although the share in the energy supplies of individual countries varies from 2 % in Sweden to 47 % in the Netherlands.

The development of gas consumption has been very different in the various market sectors as has been the development of competition. The importance of gas in the individual market sectors depends not only on availability and price policy but also on population density, mobilisation of reserves, industrial structures and the energy policy of the country in question. In the residential and commercial sector, gas consumption has steadily increased. Gas currently holds a market share of approx. 35 % and is thus the market leader in this sector, even outstripping oil products. In the industrial sector, the upward trend of the 1970s was interrupted by the second oil crisis. Economic cycles and energy-saving measures led to falling consumption during the early 1980s. However, economic recovery in the second half of the 1980s meant a renewed rise in industrial gas demand. In the power generation sector, consumption began to decline after 1975 due to energy policy and price developments. However, since the early 1990s, sales in this sector have picked up again, partly as a result of specific energy policy and environmental factors as well as technical reasons (CHP and Combined Cycles).

In 2000, approx. 80 million customers in Europe were supplied with gas (1970: 39 million). Today, approx. 50 % of the population uses gas for heating and/or cooking/hot water production.

A precondition for this development was the expansion of the transmission systems and thus the availability of capacity in line with demand growth in the market.

The situation in selected countries is summarised in Appendix 2.

On the supply side one of the energy policy objectives of Europe is to diversify sources of supply to the region, which depends on imports. Gas makes an important contribution to meeting this objective. According to a communication issued by the European Commission in November 1995, gas industry in Western Europe has so far made an exemplary contribution to supply security. Some 65 % of natural gas consumed in the European Union come from

western European indigenous production and imports from Russia (19 %), Algeria (14 %) and other sources (2 %).In 2010 the imports will have substantially grown.

As regards the structure of gas supplies, the situation in Europe is however far from being uniform. In the Netherlands, United Kingdom, Ireland, Denmark and Sweden gas comes exclusively from indigenous or west European sources. More than 50 % of gas comes gas mainly from west European sources in Germany, Belgium, Luxembourg. In Italy, France, Spain, Austria, Finland, Portugal and Greece a significant share of gas supplies comes from outside Western Europe.

A common feature of all west European importing countries is their dependence on a few large producers, some of which are heavily state-controlled.

A country by country analysis of the supply / demand structures can also be taken from Appendix 2. Again this development was accompanied by significant expansion of transmission capacities based on contracts to meet the ever-growing demand in the market and on commercial grounds. The impact on the transmission capacities will be explained in more detail in Section 4.

Section 3: Gas Industry Structures and Regulatory Framework

A main feature of the European gas industry is its heterogeneity with regard to its organisational structures, market penetration and dependence on imports.

The organisational structures of the west European gas industries are marked by wide differences resulting from the different starting conditions which the various national gas industries were faced with. In some countries, there is a high degree of vertical integration where certain companies have a dominant position and the state has in some cases great influence. In other countries, the gas industries have a pluralistic structure, in which the individual companies operate according to private enterprise criteria.

The essential characteristics of the different organisational levels up to now can be summarised as follows:

- Mainly international oil companies are active at the production level.

- There is a wide range of different organisational structures from one company being responsible for imports and for all the transmission operation in a Member State to fully free imports and competition in trading as well as in transmission as e.g. in Germany.

- Local and/or regional companies are active at the distribution level (mainly municipal utilities or semi-public companies) in most of the countries except for the UK. In the United Kingdom and France e.g., distribution and transmission are integrated, elsewhere transmission and distribution is separate.

The heterogeneity of the organisational structures has made a decisive contribution to the positive development which the west European gas industry has enjoyed since the mid-1960s.

Organisational Structure of Selected West European Gas Industries			
	Germany	United Kingdom	France
Gas supply structures in 2000	indigenous production: 19 % imports: 81 %	Indigenous production: 98 % Imports: 2 %	Indigenous production: 1 % Imports: 99 %
Production	11 private-sector companies (BEB, Mobil, Preussag, Wintershall, etc.) Three companies responsible for about 85 % of production.	Approx. 60 private companies (international gas and oil companies, incl. British Gas, Centrica). But: dominance of a small number of large companies.	Almost entire production by TotalFina Elf (privatised in 1994/1996: government has 0.75 % golden share).
Import/ merchant functions	Importers (Ruhrgas, Thyssengas, BEB, VNG, WINGAS, etc.) make independent decisions on import volumes, sources and prices. 19 companies operate at the merchant level.	Transport services almost exclusively by Transco. A shipper's licence is needed in order to sign transportation contracts with Transco. Transportation heavily regulated (Network Code).	Imports solely by Gaz de France (GdF has statutory monopoly). At merchant level two other regional companies (GSO, CFM) operate alongside GdF; GdF and ELF both have interests in these companies.
Distribution	Approx. 700 LDCs operate at the distribution level. Public and semi-public companies dominate. Mainly diversified enterprises.	A supplier's licence is needed in order to supply end users (industrial, residential and commercial sectors). The competitors of Centrica are gas subsidiaries of major oil and electricity companies (BP Gas, Kinetica, etc.).	Local distribution almost exclusively by GdF through E.G.S. (EdF-GdF-Services). Apart from GdF, 17 other distribution companies (Gaz de Bordeaux, Gaz de Strasbourg and Gaz et Electricité de Grenoble etc.)
Market opening/ Gas Directive	100 % market opening. Transposition of EU Gas Directive into German law achieved to a very large degree by the new Energy Act and the 6th revision of the Act Against Restraints of Competition. Negotiated third-party access. Associations agreement for gas sector has been agreed and will be amended according to liberalisation requirements.	Gas market has been fully liberalised since May 1998. Gas transportation is strictly separated from gas trading (the holder of a transportation licence may not at the same time acquire a supplier's/ shipper's licence). Regulated third-party access. Establishment of spot trading in 1993 and futures trading in 1997 for gas.	High degree of vertical integration from import to distribution. Dominant company is GdF with public service obligations. Implementation of Gas Directive geared towards minimum EU standards. Third-party access model: Likely regulated TPA with independent regulator.

Organisational Structure of Selected West European Gas Industries (February 2000)(continued)			
	Italy	Netherlands	Belgium
Gas supply structures in 1998	indigenous production: 22 % imports: 77 %	Indigenous production: 68 % Imports: 32 %	Indigenous production: 0 % Imports: 100 %
Production	Major role (90 % of national production) of ENI/AGIP (30 % state-owned), Other producers: Edison-Gas (8%) and others. Domestic production is mainly bought up by SNAM (100 % subsidiary of ENI).	13 companies involved. NAM (Esso, Shell) dominates production. Almost all production destined to meet domestic demand goes to Gasunie (Dutch state share 50 %, Esso/Shell 25 % each).	None
Import/ merchant functions	Importers: SNAM (90%) Enel (9 %) and Edison Gas (1 %). Power generation , major industrial users and distribution companies supplied by SNAM (90%), Enel (7 %) and Edison Gas (3 %). Transmission Grid operated by SNAM, Edison Group and TMPC. .	Gasunie is engaged in import/export, transportation, Sales in the Netherlands to power stations, major industrial customers, local distribution companies. From 1-1-2002 the transportation activities will be separated from Gasunie and structured into a separate company. Imports from Norway and the UK via the Interconnector by new actors.	Distrigas (completely privatised, Tractabel 42 %, state holds a "golden" share) has an exclusive licence for the transportation and storage of gas. This exclusivity will be removed once the Gas Act 1999 will have entered into force.
Distribution	Distribution by approx. 700 companies with various legal structures (private, semi-public, public), Main players in distribution: Italgas Group (ENI controls through SNAM 41 % of shares), Camuzzi Group and AEM Milano	Distribution by approx. 30 semi-public regional distribution companies; with increasing trend towards horizontal integration. The 3 largest companies serve approx. 80% of the relevant market. LDCs mostly diversified enterprises.	Distribution to residential and commercial users by 23 local distribution companies. They are mainly semi-public (municipalities, Electrabel). Mostly diversified enterprises.
Market opening/ Gas Directive	Up to now main role of ENI as integrated company with presence in import, production, transmission and distribution. Since 1991, negotiated third-party access for gas produced in Italy (especially for power generation). Decree of June 2000: reorganisation of gas sector implementing EU Directive. Contains rules for development of competition such as limitation of market shares mandatory corporate separation of integrated	Private oil companies predominate at production level. Gasunie dominant in transportation/merchant business with approx. 80 % market share. Implementation of Gas Directive: complete market opening for all customers by 2003/04 in three steps (at present approx. 45 %); negotiated third-party access, unbundling of accounts; parliamentary implementation by August 2000.	Distrigas is by far the most important company. Gradual opening for major customers until 2010 (initially 47 %). Until now no market opening for residential/ commercial customers. Negotiated third-party access, unbundling of accounts, regulatory authority and licensing system for pipeline construction (end of de facto monopoly of Distrigaz), network operation and gas

	companies, RTPA.	deliveries.

Organisational Structure of Selected West European Gas Industries (February 2000) (continued)

	Denmark	Spain	Austria
Gas supply structures in 1998	indigenous production: 100 % imports: 0 %	Indigenous production: 3 % Imports: 97 %	Indigenous production: 17 % Imports: 83 %
Production	Originally DUC (joint venture of A.P. Moller, Shell and Texaco) was the sole producer; now there are other companies. Dong buys all indigenous production.	Majority of production through Repsol (partially privatised oil company).	Main producer (approx. 60 %) is OMV (state's share 35 %); rest of production via RAG (Rohöl-Aufschliessungsgesell-schaft).
Import/ merchant functions	Imports solely under licence. Dong supplies regional LDCs, the municipal utilities of Copenhagen and Frederiksberg, major industrial consumers and power stations and concludes export contracts (inter alia with BEB and Ruhrgas).	In 1994, take-over of state-owned Enagas by Gas Natural (shareholders: Repsol 45 %, Caixa 25.5 %). Responsible for: import and transportation. Deliveries to major industrial Customers by Gas Natural's own trading company. In addition, 7 gas dealers.	Imports must be sanctioned by the government. OMV plays a key part in: - import (alongside AFG) - transportation - delivery to distribution companies acting at federal state level
Distribution	Distribution by regional LDCs, municipal utilities of Copenhagen and Frederiksberg.	Distribution dominated by Gas Natural which delivers to local/regional distribution companies (partly owned by Gas Natural or public-owned). Market share of Gas Natural group exceeds 90 % in the distribution sector.	Distribution by 9 regional distributors acting at federal state level. Delivery to end consumers in some towns by municipal distribution companies
Market opening/ Gas Directive	Dong has considerable influence. However, since the abolition of the exclusive import rights of DONG (1994), Denmark is de facto prepared for third-party access. Transposition of Gas Directive into national law by August 2000 at the latest; negotiated third-party access for transmission, regulated third-party access for distribution.	Gas Natural dominates the Spanish gas market at the import, transportation and distribution levels. Approx. 67 % of Spanish gas market has already been opened up. Implementation of Gas Directive: Hydrocarbons Act (9 Oct. 1998), regulated third-party access and unbundling of accounts, and partly organisational unbundling.	OMV dominates imports, transportation and deliveries to regional distributors acting at federal state level. Market opening envisaged by law from August 2000: consumers of more than 25 mio m^3 per year; by 1 October 2002: 100 %. Negotiated TPA till 1 October 2002, afterwards regulated TPA

The differences in the structure of the gas industry in Member States are also mirrored in the provisions that apply for gas transmission. They constitute not only alternative models for the gas industry but reflect also different national strategies in energy policy.

A general observation is that no single “optimal” institutional framework is applicable all over Europe. Different historical developments as well as different political influences have produced a variety of structural differences which can not be clustered as superior or inferior but have to be seen as the solutions that fit best in the individual circumstances of the respective Member States. These structural differences have to be taken into account also with respect to capacity issues. The subsidiarity provisions in the Gas Directive have to be seen against this background.

At least theoretically the different industry models can be ranked on a scale where public monopolies with no competition at all are at one end and a fully competitive structure with unrestricted pipeline to pipeline competition at the other end. In reality one organisational set for the gas industry can be described by having the transporter appointed by law or exclusive concessions, no freedom to build pipelines at all and thus no pipeline competition. Alternatively the operation of a transmission pipeline may be subject to a licensing system. Licenses can grant a monopoly in a licensed region and may be subject to further conditions as e.g. minimum state participation. A third set may restrict the freedom to build pipelines to the situation when adverse effects on other pipeline operator’s potential to fulfil its public service obligations can be excluded or no spare capacity in the existing system being available any more. At the other end is a framework where the operation of a transmission system is neither subject to an appointment by law, to concessions or to licences nor is the freedom to build pipelines restricted in any way.

In the European Union examples for almost every set of provisions governing gas transmission regimes can be found:

In Austria OMV is appointed by law as gas transmission company. Theoretically other companies had to be named in a governmental bill and up to now no other company has been named. The freedom to build pipelines is restricted in that sense that no other

transporter is prevented from fulfilling its public service obligations. Competing pipelines are existing.

In Belgium Distrigas has been granted an exclusive concession for the transportation of natural gas. In some very specific cases Distrigas waived its rights under this exclusive concession. With the implementation of the new gas law a licensing system will be introduced. The freedom to build pipelines will then not be restricted any more. The details of the licensing procedure are however still pending.

In Denmark DONG is sole transmission company. Basically the freedom to build pipelines is restricted to a situation when the required capacity cannot be obtained in the existing system. Competing pipelines however do not exist.

Finland applies a licensing system for the operation of the gas transmission system and Gasum O.Y. is the sole operator. Pipeline competition does not exist.

France applies a concession system. Currently GdF, SEAR and GSO are granted such concessions. The freedom to get a concession is subject to a state participation of 30 % at the minimum. GdF is the main gas transmission and distribution company. Another company, CFM, has specific rights on some parts of the French network.

Germany has some 700 companies that own and operate transmission and distribution networks. The freedom to build pipelines is unrestricted and there is widespread pipeline to pipeline competition not only for supraregional transmission but also between supraregional and regional transmission.

In Ireland Bord Gais is the only gas transmission company. From a technical perspective it is possible to build competing pipelines. In practice however BGE is the sole transmission company in Ireland and thus has a de facto, not a statutory monopoly.

In Italy the list of high pressure transmission grid operators includes SNAM, Edison Group and Tmpc with SNAM's network representing 97 % of the National Pipelines Network. The laying of pipelines is not subject to a monopoly. If new pipelines can get the status of public interest special easier terms for the construction apply. If spare capacity is available in the existing system it will still be possible to build a new pipeline; this pipeline however will not get the status of public interest. The existing grids are complementary to each other due to their geographical location with the effect of pipeline competition being de facto restricted.

Soteg is the sole transmission company in Luxembourg. The freedom to build pipelines is unrestricted in the case that the existing capacity is not sufficient to transport the required volumes of gas. Pipeline competition does not exist.

Except ZEBRA, Gasunie is the sole gas transmission system operator in the Netherlands. The freedom to build pipelines is unrestricted and so is the potential for pipeline to pipeline competition.

In Spain Gas Natural is not the only transmission system operator, the freedom to build pipelines is unrestricted and pipeline competition is existing.

In Sweden Vattenfall Naturgas and Sydgas operate high pressure systems for gas transmission. The rules for permission to build and operate pipelines are stated in Swedish law (Naturgaslagen). The construction of transmission pipelines requires a concession which in practice will not be obtained if it is not justified by public interest. As a consequence the system provides for freedom to build pipelines, practically no permission will be obtained as long as spare capacity in the existing grid is available.

Finally TransCo / Lattice Group is the principal gas transmission and gas distribution company in the UK. The freedom to build pipelines is subject to a licensing system that grants an exclusive position in a certain geographical area. There is one competing transmission pipeline.

Section 4: Capacity and Interconnections

As already explained above the development of the gas industry in Europe was not a self-starter. It was rather the result of great efforts, the ability of national gas industries to respond flexibly to changing conditions as well as great investments.

In the last three decades the geography of the west European gas industry has changed considerably. Whilst eight countries were without gas supplies in 1970, today there are practically no gaps on the west European gas supply map. The natural gas age has now dawned in Greece and Portugal, too (1997). Thanks to this dynamic development, the gas industry has become a significant and reliable cornerstone of west European energy supplies .Based on the ever growing demand in the market new import projects from diversified sources new transportation capacity was necessary and thus over the last fourty years the companies have created an efficient transportation infrastructure that extends all over Europe. From modest beginnings in the early 1970s - at that time the only cross-border transport pipelines in existence ran from the Netherlands to neighbouring Belgium and Germany - a pipeline system has been developed which today has a total length of approx. 40,000 km . It extends from the North Sea to the Mediterranean and from the Atlantic Ocean to central Europe. With this efficient system western Europe is connected to the large gas deposits in Algeria, Norway and Russia. The development is illustrated in Appendix 4.

It is worth noting that this grid was not centrally planned but extended step by step as required to perform commercial projects. System capacity was added whenever a new supply project had to be integrated into the market due to the demand growth. The expansions of the systems were tailormade and the decisions to expand the systems were taken based on concluded contracts. Thus the supplier triggered the expansion of system capacity. No pipeline system was ever built for arbitrage reasons only.

It should also be borne in mind that the gas transmission system in Europe is structurally different from the infrastructure for electricity transmission. Unlike natural gas the locations for electricity generation can be optimised with respect to the economics of transmission. For gas the production locations cannot be optimised but are given by nature only. These facts have to be taken into account also concerning the request to publish data on available capacities at cross border nodal points - an aspect that is dealt with in more detail in section 7. Moreover national energy policies of Member States supported self-sufficiency in

electricity supply and thus implicitly limited the scope of cross border trade. Consequently only limited cross border capacity was needed for electricity transmission in the past. The situation for natural gas is completely different since the demand growths in the market could only be met with the expansion of capacities and cross border lines that now constitute a Pan- European grid.

New players will enter in the course of market opening. An open question is whether these new entrants will also bring new supplies to the market. In any case the flow pattern might change and thus the likelihood for changes in the availability of capacity may increase even without any additional demand in the market. In accordance with specific contractual and legal duties either gas suppliers or shippers are contractually liable towards final customers. The supplier should be able to contract sufficient guaranteed pipeline capacity for sufficiently long periods to deliver the gas for the whole duration of supply contracts. The transmission company's responsibility (except for cases of force majeure) is to guarantee that such capacity is available for existing and new contracts. Any commercial model for capacity should therefore be analysed against it's potential impact on the shipper's ability to deliver, the need and the possibilities to overcome short-term congestions and the overall economic costs associated with the respective models. The responsibility for non-delivery clearly is with the shipper, the transmission company cannot take over any responsibility for non-delivery. The conclusion is that any commercial capacity model must not interfere with contracted firm capacity rights or – if interference cannot be excluded with the commercial model applied - appropriate mechanisms for congestion management have to be implemented.

Section 5: Definition of Capacity

There is no legal definition of capacity. The capacity of a pipeline or a transmission system however can be analysed from a technical and from a commercial perspective.

a) Technical Perspective

From a technical perspective the capacity of a pipeline is determined by a complex set of different technical design parameters as well as the underlying flow scenario. Once these parameters are fixed the capacity is mainly a function of delivery and redelivery pressures.

On the other hand the technically available transmission capacity between different nodes does not only depend on the specific design parameters and the pressure differentials but also on the assumptions about off-takes and assumptions about certain scenarios for deliveries into the system. Off-takes from the system are mainly determined by temperature, whereas deliveries into the system are the result of commercial decisions of the shippers and thus depend on contractual provisions in general as well as on price differentials between different delivery sources and on supply security considerations.

Consequently the determination of capacity is subject to a complex set of individual input data and can only be determined on a case by case basis. It is against this background that capacities are determined by technical standards applicable to the transporter rather than regulation or law.

b) Commercial Perspective

Whereas no differences exist in the fundamental physics there are different approaches with respect to the commercial perspective. Below is a description of the basic characteristics of the models applied in Europe as well as an analysis of the factors that are decisive for the application of one model or the other. Here, the general conclusion again is that neither model is superior nor inferior in principle. The models chosen by the respective system operators however have to be considered as the solution that fit best to the individual circumstances of infrastructure and customer needs as far as demand and supply patterns and especially security of supply are concerned. The models applied can be characterised as

notional path models at one end of the scale and entry-/exit models with pool characteristics at the other end of the scale.

Security of supply has been a cornerstone of the gas market in Europe in the past. In order to improve security of supply and thus to avoid interruptions of supply to the market huge investments have been made and supplies have been diversified by sources. As the market ultimately would respond to supply problems and thus the customer basis would be eroded shippers require that technical security of supply availability of capacity is guaranteed by any means. This basic need of shippers is the same in every country. The service that is necessary to produce technical security of supply may however differ from country to country and depend on infrastructural issues as well as the overall supply situation of the country.

Notional Path Models

Notional Path models are applied by most companies in Continental Europe. Due to the high degree of import dependence from distant sources gas is mainly supplied as flat gas to continental European markets. Imports often enter the transmission systems as baseload gas. Flexibility may be imported but is often produced inside the importing countries. Consequently transmission systems generally provide only little capacity for the transport of flexibility and are based on hourly flowrates or daily flowrates with hourly restrictions. Due to baseload transportation the linepack is mainly needed as flowmargin and allows only for a very restricted flexibility that can be provided from the system. Transmission capacity is determined according to the general technical rules and is made available on the contractual path through the entire term of the agreement. In order to minimise the risk of supply interruptions and thus a significant negative impact on the marketing mix shippers have not only diversified their supply portfolio but have been prepared to take measures to guarantee that the gas can be delivered to the customer in any circumstances. Security of supply has to be managed by shippers in their own responsibility. Thus, the service that is required under this scenario is safe and reliable transportation. As a consequence the transporter has to provide capacity unconditionally. This can be achieved with a transaction based capacity model. Once capacity is determined there is no further correlation between the availability of capacity and the actual distribution and level of supplies and demands on the overall pipeline network and thus no differences in the availability of capacity due to deviations of actual from predicted flows in the system are likely to occur. Consequently capacity has to be made

available unconditionally on the contractual path. This concept is also considered as a prerequisite for firm and secure transit of natural gas.

Gas transmission contracts and capacity planning are in general transaction based. The model reflects the physical reality of gas transmission where gas is physically transported from production areas to consumption areas. Even if under specific operating conditions gas from Northern Europe to Southern Europe does not need to be physically transported the physical capacity corresponding to the contractual flow has to be fully available in any circumstances in order to ensure the reliability of such supply. In a transaction based capacity model capacity is made available unconditionally and especially irrespective of the commercial decisions of other shippers. This can be illustrated e.g. with the flows to Southern Europe. Incidentally it is unrealistic to contend that gas from different sources is being swapped. The same perspective is taken for Interstate Pipeline Transmission in the USA where similar conditions as in Continental Europe prevail. This aspect is essential for reasons of security of supply and for diversification against the background of the supply structure given in Continental Europe.

Entry-/Exit Models

A model that may be ranked between the notional path model and a poolbased entry-/exit-model is the model applied in Italy.

The situation of the Italian market is similar to that of other continental countries, with respect to the need of shippers to have a guaranteed availability of capacity over any particular period of time. Commercial models for capacity, that require congestion management activities under normal conditions, are not suitable for the Italian market, because generally shippers don't have the possibility to switch to alternative supplies in case of capacity reduction from an entry point.

Nevertheless there are some considerations about network configuration and prevailing physical and commercial flow patterns:

- there is a very limited amount of gas transit through the country;
- the prevailing physical flows are from the border to the centre of the system;
- there are shippers who book capacity at an entry point and supply customers located near another entry point.

These factors make it impractical to use a pathed capacity model in the Italian system.

The system adopted for the majority of national transmission network is an Entry-Exit with booking of capacity at Entry and Exit. In order to ensure capacity availability over the whole year the capacities at Entry points have been calculated through hydraulic simulation in the most severe predictable conditions over the year. The capacity that is made available to the market is based on summer conditions with minimum market consumption along the lines. Hence, a high degree of security of capacity is ensured.

Entry-/Exit-Models with pool characteristics

In the UK another commercial perspective has been taken. Basically most of the annual seasonal flexibility that is needed by the market is provided with flexible supply contracts. Since this flexibility enters the NTS and is not produced inside the country a higher capacity is necessary from entry points compared to a system where gas is made available with baseload supply contracts and flexibility is produced inside the country, and fed into the system at different locations. No major transit with the unpredictable consequence that it takes away the capacity necessary to supply the UK itself is passing through the system and the flow patterns are mainly directed from the beach to the centre of the system. Due to the self-sufficiency of supplies and due to the national energy policy security of supply has been guaranteed by nature as well as by political influence and thus has public good characteristics.

Originally the capacities in the UK however were also allocated with a point to point charging system. With an evolving transmission market and especially taking into account the wholly integrated structure of the UK gas transmission system which also includes regional transportation and distribution with more than 20 million offtake points the approach however proved to be impractical. The alternative chosen to overcome these practical problems was an entry/exit system. Originally entry capacity was “commercially” unlimited which could lead to substantial concerns if capacity sold was to be used by the shipper and could not be made available due to constraints in the downstream system. In a second phase entry capacity was limited based on seasonal estimations of supplies in each month at each entry point, taking into account the likely pattern of demand in the market in the respective month. The quantities of entry capacity that can be offered for sale are now determined by the quantities of gas that can be transported away from an entry point under a given set of conditions. Key to this assessment is both the distribution and level of supplies and demands on the pipeline network. The gas transporter must take into account short-term availability of machinery and the prevailing configuration of the network. The uncertainties of plant availability, supply and demand distribution prevent the identification of a precise level of capacity availability that is

based on predictions of average demand and typical distribution conditions. That quantity is offered as monthly firm capacity. A refined view of capacity availability can be gained closer to the gas flow day and a further release of daily capacity may be triggered if the transporter is able to deliver larger quantities of firm capacity. Similarly the transporter may need to buy-back capacity in conditions where capacity deliverability is not as large as originally sold. In an Entry / Exit model with a nationwide hub – the National Balancing Point – capacity can only be made available subject to shippers taking commercial decisions as expected. Thus formally spoken, the capacity that can be made available to an individual shipper is a function of the commercial behaviour of all other shippers. Deviations of actual from expected flows cause short-term shortages of capacity that have to be managed so that security of supply is not affected. The TSO e.g. may reduce the amount of daily capacity sold, may scale back interruptible allocations or as a last resort may buy back capacity in order to make it available to other participants in the market. Equally if more capacity can be made available than expected this can be sold short term as daily firm or daily interruptible capacity. The problems caused by a deviation of actual from predicted physical flows however need a very careful and accurate contract definition.

Nevertheless the UK-type Entry / Exit runs consistent under the specific conditions of the UK market with producers basically supplying that market only. This regime is still evolving and intends to provide for non-discriminatory allocation of capacity between shippers. Monthly firm capacity is allocated by pay-as-bid auction and Transco can also sell additional firm capacity on a daily basis, again using pay-as-bid auctions, in order to fine-tune the availability to shippers in the light of latest information on the conditions of the network.

The general conclusion from the analysis above is that the commercial perspectives taken can each be considered as the solution that fits best to provide secure and reliable transportation services as required by shippers. The process however and the necessary input to produce that service can be different depending on the specific circumstances in each country. In a transaction based model no shortage of committed capacity is likely to occur. Depending on the calculation of capacity in an entry-/exit-model capacity shortages can occur due to the fact that actual flows deviate from expected flows. In that situation capacity management has to be applied which is influenced by the interaction with shippers' ability to switch to alternative supplies to be fed into the system at the time when a shortage of capacity occurs.

The argument could be made that a key characteristic for an entry-/exit model was the existence of short term trading. It is indeed true that short term trading cannot be considered as a consequence of self-sufficiency of markets in supply-demand terms; short term trading is also developing on the Continent although there is a high degree of import dependence. Hence, the existence of short term trading is not a justification for an alternative capacity regime. What is also true however is that depending on the calculation of capacity in an entry-/ecit model short term trading is a prerequisite for an entry-/exit model whereas in a notional path model it is possible but does not constitute an essential element of the system. In a poolbased entry-/exit model with capacity calculation based on seasonal demand and supply pattern congestion management relies on the fact that shippers can reallocate their supply portfolio at short notice. Thus in an entry-/exit-model short term trading is not only a trading form but also a necessary input for the provision of safe and reliable transportation.

Another argument that could be made is that reserving capacity along a contractual path may seem as an inefficient way of ensuring reliability of supply. As a matter of fact reserving capacity along a deemed contractual way is a decision that shippers have to take and not transporters. The general trade-off for shippers is one between the cost of capacity reservations and the cost of ensuring a level of supply security and thus a quality pattern of their product that is accepted by the market. If shippers can achieve the same level of security of supply without transporting at all they will not reserve any capacity and thus avoid the respective costs. It is clear from the above that this is not an inefficiency of a notional path model. On the contrary: The market sets the quality standards of the product in terms of security of supply and thus determines the costs shippers have to take to ensure the respective quality of the product. Shippers can however in practice reduce these costs by the provision of interruptible transportation.

GTE would be happy to discuss other solutions that can guarantee the same level of technical security of supply. It is however inappropriate to consider the reliability of supply to the customer predominantly as a balancing issue. Balancing indeed is a tool only for securing very short term supply and is possible only under the precondition that the quantities are basically available to the market. This may be true in some cases, especially in self-sufficient markets, for the majority of markets in Europe however security of supply is a question of having available the necessary quantities for the respective market in the short and in the long run.

Section 6: Calculation and Allocation of Capacities

The different capacity models applied due to the reasons set out above also vary with respect to the methods used in order to calculate capacities and the instruments applied to allocate capacity.

Calculation of Capacity

In the notional path models as mainly applied in Continental Europe the availability of the reserved capacity for the shippers is one of the primary goals in order to protect security of supply. Moreover these systems have in most cases to deal with significant amounts of gas passing the systems by way of transit. Against this background capacities are calculated on the basis of complex network demand and supply simulations. These take into account primarily the most severe scenario over the years for which transportation is required as determined by the respective network operator taking into account the characteristics of the market and the network. In general capacities are calculated for each part of the network. As a result capacities can be determined for transportation from each point int the system to another point, i.e. for notional paths and not as capacities at specific points of the network. This way of calculation ensures that capacity can be made available unconditionally to shippers.

In an Entry-/Exit-model capacities are calculated in general for specific entry and exit points of the network. Although notional path considerations may have a role in the process of capacity determination they are no longer relevant for the availability of capacity and its allocation to shippers at these points. The mere existence of an Entry-/Exit-model does not determine the way capacities are calculated. In the poolbased UK-model where shippers have the chance to switch to alternative supplies capacities are calculated on the basis of average assumptions regarding supplies to and demands in the market. Short-term congestions may thus occur that require some action on the part of the TSO as well as on the shippers side. In Italy on the other hand the availability of capacity is seen as a primary goal of the network operators. Therefore capacities at entry points are calculated through hydraulic simulation under the most severe predictable conditions of the year (usually summer conditions). A high degree of security of capacity is ensured under both Entry/Exit systems although the instruments used are different.

Allocation of Capacity

In general the principles of capacity reservation are influenced by the commercial model applied.

The standard term of a transportation agreement in general is one year. Longer terms however are on offer as well as short-term capacity. Normally long-term agreements constitute the basis for investment decisions. In case of a contractual path model capacity is reserved on the notional path and will be made available unconditionally and without further capacity management activities of the transporter. Due to system configurations the capacity is reserved either on the basis of a maximum flow rate per hour or per day. If capacity is expressed in a daily dimension it is usually linked to a within-day flow restriction. In case of an entry exit model as e.g. in the UK there is no explicit link to a contractual path and the reservation of entry and exit capacities is disconnected and governed by different commercial regimes. The system configuration allows for a capacity reservation based on a daily flowrate which is however at least formally subject to an hourly flow rate requirement as well.

Countries that apply a contractual path model with hourly maximum flowrates are e.g. Austria, Belgium, Germany and Luxembourg. Other countries as e.g. France, Italy and the Netherlands apply an Entry /Exit approach including more or less implicitly a contractual path. The duration of a transportation agreement varies from one month to several years. France applies a system with reservations based on a daily flowrate including a within day flowrestriction. The standard duration is also one year. Spain applies a standard duration of two years. In the UK entry and exit capacity refers to the daily flowrate although subject to a uniform hourly flowrate. Different commercial regimes for entry and exit are applicable. Whereas exit capacity is sold on an annual basis entry capacity is subject to an auctioning process with different tranches having a different term. The longest term for entry capacity in any case is six month.

In theory the allocation of capacity rights can be subject to very different mechanisms such as "beauty contests", "first come-first served", "auctions" or even "lotteries".

In practice however mainly two different sets of commercial arrangements have developed which have to be analysed against the background of specific institutional frameworks of the respective gas industries.

Taking into account the special situation in the UK with a unified transmission and distribution system, the different structure of the market with regard to short term commitments on the supply side, and the poolbased approach with regard to capacity auctions can be considered as an appropriate mechanism for the allocation of capacity. In an environment where shippers have the option to change their supply source at rather short notice, e.g. on a monthly or six-month basis, and transporters have a need to fine-tune capacities made available to the market auctions are feasible. From an economic perspective they can be considered as non-discriminatory and efficient.

The overall situation in Continental Europe is however different. Continental Europe is far from self-sufficient in supplies. There are only very few suppliers for Continental European markets and there is competition of different national markets to attract supplies necessary to cover demand. There is long distance transportation with heavy investments. And also on the supplier's side there is normally huge up-front investment.

This different setting has resulted in different contractual arrangements in Continental European markets with long term commitments generally implying take or pay provisions. The overall aim of these contractual arrangements is to ensure security of supply as well as a fair sharing of risks between producer and buyer. Given that background of market fundamentals shippers commit to long term capacity arrangements as well to make sure that they can fulfil their obligations under the supply contracts. This basic aim is also reflected in the commercial model with respect to capacity which is made available unconditionally on the contractual path.

The design of pipelines normally may also take into account a certain degree of market growth and thus congestion is less probable. The reservation of transmission capacity is one of the basic principles of gas transportation. Shippers are given the right to use this capacity flexibly in order to cope with their individual demand pattern. The capacity reserved on the basis of firm commitments of shippers is not available for congestion management. The same applies with regard to capacity that has to be reserved to fulfil public service obligations.

Irrespective of the existing differences between countries the common understanding is that available capacity means the maximum physical operating capacity less the physical operating capacity

- necessary for the fulfilment of commitments under any valid and legally binding agreements and including the capacity necessary for non-discriminatory transportation of natural gas owned by the owner and/or operator of the system
- necessary to fulfil any domestic laws and regulations relating to security of supply (PSO), and
- necessary for the efficient operation of the transportation facilities including any operating margin necessary to ensure the security and reliability of the system.

GTE reiterates that with respect to comments made by CEER it is self-understanding that any capacity allocation is performed on a non-discriminatory basis.

Apart from the basic models for capacity allocation a different attitude with regard to priorities can be noted. In Austria the allocation of capacity has to follow the priorities set by the national gas law. Existing contracts and their prolongation prevail new contracts as public service obligations do. Long-term transportation agreements prevail short-term transportation agreements. In Belgium, France, Italy and Luxembourg public service obligations prevail. In Spain the supply to residential customers prevails the supply to commercial customers. In Ireland the supply to domestic customers prevails in case of an emergency. Further priorities concern security of supply in Denmark and Luxembourg, conditions to be defined in the concessions in France, capacity needed for the transport of domestic production in Italy and priority to the national gas market in case of an emergency in the UK. No priorities are defined in Finland and in Germany where the provisions of general law apply.

In order to improve the transparency of the capacity allocation process European gas transmission operators already have set up or are in the process of setting up elements of self-regulation with respect to the treatment of capacity requests. German operators have agreed procedural steps in the framework of the Verbändevereinbarung. Companies have published in their Main Commercial Conditions what information they need regarding transportation requests and how they proceed. After checking availability of capacity, gas compatibility and other technical aspects the transmission system operators inform the shipper within a very limited number of working days after receipt of the request whether transportation can be performed and under what specific conditions. In Luxembourg SOTEG has a self-commitment to answer to a request of transportation within ten working days. Gasunie has a transport protocol on the internet showing all steps that a request for TPA will follow. The initial request for capacity is non-binding for the transmission company. Within a

few days with a maximum of two weeks a request for a point to point transport is dealt with. The booking (relevant is the timing for the first come first served allocation) capacity will normally be confirmed within a few days. In France a specific department of GdF is in charge of receiving and treating capacity requests with the principles that everyone shall be treated in the same way and that the confidentiality especially vis a vis the trading division of GdF shall be guaranteed. Capacity requests can be made either through GdF's website or by writing to this department. In the Netherlands a shipper is first in line when he makes a formal request.

Section 7: Publication of information on capacities

It has been pointed out above that the capacity of a transmission system is not static and that it's dynamics depend on a complex set of input data even when the design parameters are already fixed. As a consequence any information on capacities can by its very nature only be a timeshot. Moreover the information does not constitute a technical basis for the availability of transmission capacity and thus a reference for a right to access. In other words, even if the information on capacities was available there would still be a need to have a capacity check based on the individual data of the transportation request at that time and the then prevailing technical and contractual conditions.
It has also been made clear above that the value of information on available capacities is basically depending on the commercial capacity model applied. Whereas the information is redundant in a transaction based model with capacity being made available unconditionally by the transporter the provision of information on available capacities may be helpful in an Entry / Exit model where short term capacity congestions are likely with the result that the transporter has to take actions with respect to capacity management and – if not successful – shippers have to change their decisions about deliveries into the system in order to fulfil their supply contracts with customers.

Since CEER has indicated non-acceptance of the fact that the provision of data on available capacities can result in the release of commercially sensitive information GTE has elaborated on the issue with due respect of the respective comments by CEER and has come to the conclusion that the arguments are not flawed.

From an economic perspective it is essential for the provision of a really competitive environment that all economic agents take their individual commercial decision independently from the decisions of other agents. If from the information provided conclusions with respect to the commercial position of competitors can be drawn competition will be distorted.

The gas supply situation in Europe can be characterised by an oligopoly with a limited number of players. Moreover the supply situation in Europe is based on long-term contracts with volume commitments, take or pay obligations and provisions that allow for the adjustment of gas prices to reflect changing conditions in the competitive energy market. Due to the import dependence of most countries from few sources outside the EU the

publication of data on available and actually available capacity would disclose commercially sensitive information on the structure of the shippers's contract portfolio. The following conclusions could be drawn:

Committed capacities at entry points disclose the volumes agreed in the supply contracts for that entry point. The total of committed capacities at all entry points of a system gives an indication of the overall contracted volumes. From the analysis of actually available capacities which is then the net of committed capacity and volumes actually taken conclusions can be drawn not only on the flexibility provisions in the supply contracts but also on the pricing structure under the respective contracts. Moreover information can be derived concerning injection into storage etc. Thus, with an in-depth analysis of committed capacity at entry points and volumes actually taken reliable information about details of the gas portfolio of a shipper can be derived. This is especially true as long as the number of shipper is rather small and/or the effect of different contracts at one entry point is statistically not significant due to differences in the size of the contracts, i.e. there is one large shipper, which both is the situation in Continental Europe today.

Although differences in the concrete constellation may exist the publication of the requested information thus leads to the structural problem known as „moral hazard" or – in terms of transaction theory - as „opportunistic behaviour" which can be illustrated e.g. with the UK-Continent Interconnector:

The technical design allows for a forward flow capacity of 20 bcm/a whereas the reverse flow is restricted to 8.5 bcm/a. Moreover the flow reversal causes shippers to adjust volumes in order to cope with the new flow situation. If the flow reversal is from forward to reverse shippers have to sell volumes, if it is from reverse to forward shippers have to buy. If the information about the flow reversal could be derived from publicly available data just before the flow reversal occurred parties at either end of the pipeline would not be prepared to buy or sell gas at the then prevailing market price but would like to take advantage of the fact that shippers have to buy or sell at any price. As a consequence the publication of the requested information would clearly affect the functioning of the market mechanism for the commodity.

It is for these reasons that transportation agreements contain confidentiality undertakings and that a disclosure of the information is either subject to legal requirements, restricted to legal actions or subject to an agreement with the shipper concerned. It is also for these reasons that transporters by publishing the requested information affect the overall efficiency of the market mechanism for the commodity.

As a consequence information on capacities is also not released except for the Netherlands where Gasunie voluntarily publishes on the internet available capacities at system entry points that are updated each month for the following months. The Netherlands however is a net exporter of gas and thus no conclusions can be drawn on Gasunies portfolio from the disclosure of that information. Another exemption is the UK where TransCo/Lattice publish entry capacities however for different reasons as has been discussed above.

The argument could be made that information on available capacities is provided by electricity grid operators. The situation in electricity however is different due to the differences in the economic value chain. The locations for electricity production can be chosen more or less flexibly as a result of an overall system optimisation, electricity production is basically within the system. In that situation no conclusions on the portfolio of individual players can be drawn from the disclosure of data concerning committed capacities and volumes actually transmitted at cross-border nodal points.

From a legal perspective the obligation to provide the respective information is neither enforced in the Gas Directive nor in the respective national regulatory frameworks. On the contrary: At least in one country (Belgium) the gas law provides for special confidentiality. There is however a draft law that provides for transparency of historical data in Ireland. TransCo / Lattice Group have to produce a 10 years statement according to the licence conditions. The information contained in this statement however serves mainly for system planning and thus is not consistent with the information requested. A similar procedure is going to be implemented in Italy where a ten year forecast of committed and available capacities at cross border connection points is requested. The perspective taken here however is not one of an individual shipper but one of overall system planning.

The point had been made by CEER that the publication of capacity information is critical for the transparency as well as for the effective operation of a competitive market. GTE would against the background of the discussion above be interested to understand in more detail why CEER think it is necessary to have more information although this information is by far and large redundant.

Another argument that could be made in favour of publication of available capacities is that there could be a kind of first mover advantage for integrated incumbents. However, regarding the transfer of commercially sensitive information of other shippers in those companies the sample clearly shows that companies have already implemented effective Chinese walls. Management unbundling and internal guidelines prohibit that commercially sensitive

information of other shippers is made available to the trading arm of the company.

To sum up, the companies have already provided information on technically available capacities at cross border nodal points to the third Madrid Forum and are prepared to give an update to the forthcoming Regulatory Forum. As the information given in October the figures are expressed as maximum hourly flowrates.

A matrix as well as a grid map including the capacities at the relevant cross border nodal points taking into account the commercial and contractual sensitivity of a publication of data on available capacities and indicating the **availability of capacity** is already available at the GTE website (***www.gte.be***). Against the background described above a qualitative approach has been chosen to give indications on the availability of capacity by using a traffic light system. A green light indicates that no problems are expected at all. A yellow light means that there is free available capacity at the respective point but problems could arise depending on the individual case. A red light indicates that capacity may be scarce and can only be made available to a very minor extent. It is helpful to new entrants in considering how to source supply to eligible customers without affecting the rights and the commercial sphere of existing shippers.

Even if a red light is indicating a temporary bottleneck in transmission capacity at that cross border nodal point capacity can in most cases be made available on an interruptible basis. In that case however the details of the transmission request are all the more decisive and thus no general indication can be given. Moreover, as long as the economic signals for removing structural bottlenecks are sufficiently clear as regards the demand of additional capacity and the investment climate is supportive especially with respect to the tariff environment transmission system operators will be prepared take appropriate measures to expand the systems as they already did in the past. As far as system planning is concerned planning autonomy of system operators is clearly superior compared to a system where system expansions are subject to a central planning approach and approval by a regulatory authority since reaction time to changing operating conditions can be minimised.

Section 8: Conclusions and Recommendations

1. Markets are opening up and system access is increasingly provided and market is developing practicable rules and solutions. Thus markets are moving towards a single European gas market. Due to different developments of the individual markets, the infrastructures, the organisation of the gas industries in terms of vertical and horizontal integration and different developments in the supply structures as well as due to a different degree of political influence no uniform institutional framework for gas transportation however is applicable in Europe.

2. The existing infrastructure and thus the existing capacity reflects the development of the market in Europe. Based on more or less tailormade expansions capacity was build in order to match the expected demand of customers with already identified supplies. Future investment decisions by the TSO might be influenced by the commercial model applied. The TSO derives its capacity requirement from market information. Congestion management models applied by a TSO resulting in a curtailment of the shipper's capacity rights can in general only be regarded as a lack of commercial incentives for investment. Most of the time a curtailment of capacity due to congestion management will also lead to a curtailment of gas supplies. Limiting existing capacity rights by applying congestion management models may thus hamper gas market growth.

3. Capacity can be defined on a pure technical basis but the relevance for a shippers request can only be determined on a case by case basis. A contract path model is the best approximation of the physical reality of gas transportation. A lake concept may be appropriate for isolated markets and under very specific circumstances only. It is not compatible with significant amounts of gas in long distance transportation and transit. The existing transmission system in Continental Europe however has a high degree of integration and thus sudden flow changes are likely to occur aggravated by the increasing number of commercial deals. Thus the starting point on the Continent is completely different.

4. Due to the prevailing conditions in Continental Europe the allocation of capacity is subject to the principle of first come-first served. Auctioning procedures seem to be more appropriate only in substantially self sufficient isolated markets with sufficient capacity and can be managed with a pooltype Entry-/ Exit model.

5. Available capacity can be defined as the maximum physical operating capacity less the capacity

   - necessary for the fulfilment of commitments under any valid and legally binding agreements and including the capacity necessary for non-discriminatory transportation of natural gas owned by the owner and/or operator of the system
   - necessary to fulfil any domestic laws and regulations relating to security of supply (PSO), and
   - necessary for the efficient operation of the transportation facilities including any operating margin necessary to ensure the security and reliability of the system.

6. In case of a congestion a first come first served approach is also appropriate and transparent procedures are already implemented or in preparation for capacity requests.

7. The publication of information on available capacities is neither enforced in the Gas Directive nor in the respective national regulatory frameworks. The value of the respective information however differs quite significantly with the commercial capacity model applied. Whereas the availability of capacity in a “gas lake“ scenario is depending on the quality of the ex ante flow expectations and is probably subject to successful capacity and congestion management it is not subject to any further conditions in a contractual path model. Hence, in an entry-/exit-scenario the respective information may be useful for shippers to control gas flows. In a contractual path model, however, the publication of available capacities at specific points in the system does not provide information on the availability of capacity on the contractual path from point A to point B.

8. The publication of available capacities at entry or exit points is commercially and contractually sensitive in case only a limited number of shippers or one dominating shipper exist. Here the publication could provide reliable information with respect to the portfolio of shippers and their supply pattern vis-à-vis their customers. Moreover capacity information might serve as an incentive for shippers to create artificial capacity shortages.

Recommendations

1. TSO's may improve transparency for shippers by publishing on their homepage maps of their network identifying the major entry and exit points.

   To simplify transportation request some TSO's consider to implement tools in their internet publications which enable shippers with a concrete transportation request to receive preliminary information on transportation capacity relevant for his request.

   TSO's may formalise request procedures and further improve transparency by explicitly describing the procedures on their homepage and by setting general deadlines e.g. for answering requests.

2. To support the capacity allocation process, the following steps may be taken:

   - Improvement of the transparency of allocation procedures by setting of general rules.

   - Documentation of allocation process.

   - Managerial unbundling of transportation business in integrated undertakings in order to ensure non-discrimination.

   - Certification of capacity allocation procedures.

3. With respect to congestion management the following steps might be taken:

   - Improve transparency of allocation procedure by publishing of congestion management rules.

   - Implementation of control mechanisms and legal/regulatory procedures to challenge capacity decisions in specific cases.

   - Removal of barriers and impediments for secondary markets.

   - In case firm capacity is not available TSO's to offer capacity on interruptible basis.

4. Liaison and consultation between TSO's and shippers on generic issues to further improve the capacity procedures.