

Horses for Courses?
Cross-Country Comparison of European Gas Market Liberalisation

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1. Executive Summary

The European Community was established with a broad objective of establishing a common internal market for goods and services, people and other factors of production. For the gas sector, liberalisation commenced in the early 1990's, with formal directives being issued in 1998 and 2003. These directives aim at ensuring non-discriminatory Third Party Access (TPA) to key gas infrastructure, ensuring customers have choice in supplier, preventing discriminatory dealings through vertical unbundling and ensuring basic standards of service for all customers. The latest Directive was to be implemented in member states from July 2004. Subsequent regulations have been issued in order to further harmonise TPA requirements and provide for more fluid gas trading arrangements.

Germany and Italy are two of the largest consuming gas markets in the European Union. Germany plays an important role in the European gas sector due to its links between the major suppliers from the east and consumers in the west. Its market contains many operators who have managed a form of "self-regulation", and the reflecting this, Germany's adoption of the EU reforms has been incomplete, with some outstanding issues relating to unbundling and in establishing and defining the roles of its national regulatory body.

Italy is characterised by a highly concentrated market structure and has implemented reforms in its gas sector much faster and to a further extent than other European member states. While it has taken considerable steps in the areas of unbundling and the establishment of a Virtual Trading Point, significant barriers to competition remain in the form of the dominance by a small number of firms in the upstream part of its supply chain.

While it may be too early to see the full impact of reforms due to the ongoing presence of long term supply contracts and the market structures they support, it seems likely that further government intervention is required to push national gas sectors into further stages of development, in order to achieve the goal of a fluid and competitive European gas market.

2. Introduction

In June 1998 the 15 members of the European Union (EU) agreed to Directive 98/30/EC (henceforth referred to as the First Gas Directive), which provided a basis for members to implement common rules for the supply, storage, transmission and distribution of natural gas. The reforms embodied in this directive, the revised Directive 03/55/EC (the Second Gas Directive) and in corresponding directives for the electricity sector, aim at promoting competition and security in supply, hence increasing welfare through competition-driven efficiency gains, increased consumer choice, lower final product prices and improved industrial competitiveness.

Overall, progress in implementing the initial directives has been somewhat slow over the last seven years, with noted problems in the adoption of various requirements into national legislation and also with the effectiveness of the reforms themselves in terms of delivering competition.¹ Differing market structures, timing priorities, revisions to directives and non-economic objectives have hindered the development of a uniform energy market.

This paper examines the development of the EU approach to gas market liberalisation, culminating in the Second Gas Directive and Regulation 11652/04. With its own policy settings and institutions now well in place, the Commission has turned its focus onto ensuring their corresponding implementation in member states and monitoring the response of the private sector in terms of delivering lower prices and better quality of supply. After examining the EU approach, we discuss how such policy has been implemented in the national gas markets of Italy and Germany. These two countries are characterised by significantly different market structures and reforms, and hence allow the identification of the issues faced in achieving the broader objectives of the EU. Such issues provide a context for examining the next steps that are currently being contemplated by the EU, Italy and Germany.

¹ Commission of the European Union (2005) p3.

3. The EU Approach

3.1. Background

The European Community was established with a broad objective of establishing a common internal market for goods and services, people and other factors of production. As its main administrative body, the European Commission (EC) necessarily defines its powers around those of the governments of member states, with directives from the Commission therefore limited by the concept of subsidiarity. The ability of member governments to act in a flexible manner while still adhering to the principles contained in various directives of the European Parliament allows for recognition of the diverse needs of each country, including the desires of their citizens and other interest groups which reflect the requirements of each individual markets.

The first directives relating to the liberalisation of the EU gas market were signed in the early 1990's in relation to the transport of gas between national networks, and the setting of transparent prices to industrial consumers. At this time, the liberalisation of gas (as well as electricity) became a key economic policy goal in most industrialised countries, due to its importance for industrial production, necessity for private consumption and particular characteristics in supply (ie natural monopoly in transport networks). For precisely these reasons government organisations were heavily involved in the gas supply chain, although the changing intellectual climate regarded this as inefficient and pushed for reviews of regulatory measures. While such a process has been dubbed "liberalisation", the actual outcomes have been to simply pursue efficiency and transparency, through both private and public service provision. The market models applied today still contain numerous and important avenues through which governments and regulatory bodies intervene for reasons such as investment adequacy, security of supply and in the setting of prices.

3.2. The first gas Directive

With these ideas in mind, the EU issued its First Gas Directive in June 1998, which was the first to set out a framework of common regulations for the European gas market. The

Directive was addressed to the general organisation and functioning of the entire sector, with reference to transmission, distribution, storage and supply of gas, including liquefied natural gas (LNG). The Directive was also relevant for members of the European Economic Area (eg Norway) who have dealings directly with the EU gas market as well as those countries involved in negotiations to enter the union itself.

Previous and heavy government involvement and vertical integration of essential infrastructure facilities were key barriers to having an efficient and competitive gas sector. In this environment prices were set in EU member states in ways that were largely disjointed and lacking in transparency. The First Gas Directive therefore contained four main pillars of reform:

1. ensuring TPA to transmission and distribution networks, as well as other monopoly facilities such as storage;
2. separation or unbundling of vertically-integrated suppliers;
3. carefully defining cases that would be exempt from the new reforms; and
4. setting the institutional framework.

Each are discussed here as they provide the core elements of the reforms still being implemented in member states today. More recent EU policy developments, particularly the revised Second Gas Directive, are discussed in later sections with respect to these four main elements.

3.2.1. Third Party Access

Networks such as those used in gas transport are classic examples of natural monopoly. In the absence of any requirements to do otherwise, the monopoly provider is free to discriminate in offering to supply of capacity in order to extract extra profits, hence hindering competition both upstream and downstream from the network. The First Gas Directive required that network, storage and LNG operators must offer services in a non-discriminatory manner, particularly with respect to their related business lines. Providing third parties (such as gas suppliers and retailers) the right to access transport and storage systems firstly requires the creation of legal obligations for gas undertakings to consider each request to use their

infrastructure in good faith, or, more specifically, to the extent such requests could be met in a technical/physical and commercially viable manner.

An important issue with respect to TPA in the First Gas Directive was that it provided freedom to implement access regimes on a regulated or negotiated basis. This flexibility reflected the diverse balance of costs and benefits of each regime, for example, regulated access provides certainty but less commercial sensitivity. Of particular relevance here is the determination of access prices and tariff structures, which generally favour the network provider under negotiated access (since it has “natural” market power) while favouring customers under regulated access. The size and configuration of individual markets also impact on the choice of regime, with regulated access involving a proportionally higher administrative burden when there are a larger number of network providers. Of course, member states would also be free to implement a combination of the two approaches, for example, by allowing negotiations between parties but regulating the basic standards of service or prices required by each negotiated contract.

The nature of the reforms applied to the sector required the provision of mirroring contractual rights to potential users, known as “eligible” customers. The definition of eligibility was contained in the First Gas Directive based on a customer’s size in terms of annual gas consumption/ purchases as well as the degree of market opening implied by such size definition. Specifically, customers consuming more than 25 million cubic metres (mcm) per annum of gas as well as gas-fired power stations were automatically defined as eligible with the implementation of the Directive. After 5 years of implementation, this threshold would reduce to 15 mcm per annum, and again to 5 mcm after another 5 years. These thresholds were tied to minimum proportions of market opening (ie proportion of gas consumed by eligible customers) of 30%, 38% and 43% respectively at the time of adoption, after 5 years and after 10 years. In other words, member states were required to match the minimum of either the size thresholds or percent of market opening. Averaged out across the EU, the requirements corresponded to 34%, 36% and then 42% of total gas consumption being

eligible.² The phasing in of lower thresholds recognised the time required for the market to develop and with it more potential suppliers which are necessary for eligibility to have any relevance in terms of customer choice.

The First Directive was silent on whether it was preferred to have undertakings owned and controlled by the member states or by private companies. Since member states could opt for negotiated access regimes, the Directive was also silent on preferred methods of setting tariffs for access services.

3.2.2. Unbundling

An important reform related to TPA is the need to separate those parts of the supply chain characterised by natural monopoly. Unbundling is specifically aimed at vertically-integrated companies who have the incentive to offer contracts from their non-competitive arm (eg networks and storage) that provide an unfair advantage to their competitive arm (eg in the form of lower prices). The fundamental idea is ensuring that all transactions between monopoly businesses are transparent, thus discouraging anti-competitive behaviour and creating a “level playing field”. There are four main forms of unbundling:

1. Accounting. This is the weakest form and involves the preparation of separate accounts for the different arms of the vertically-integrated business, which may be then audited and scrutinised by public officials.
2. Functional (or “ring-fencing”). Involves the creation of separate accounts and also requires that commercially sensitive information that is transferred across business arms, but is not available to the market, is not used by the integrated business to gain competitive advantage. In practice this requires the definition of employee roles and the creation of codes of conduct.
3. Legal. Requires that individual management and decision-making structures exist for each arm of the business. Broad financial decisions, such as budget allocations, can still be made by a single organ in the business.
4. Ownership. Complete legal and operational separation with no common ownership.

² IEA (2000) p107

The First Gas Directive required the implementation of accounts unbundling for transmission, distribution and storage activities within vertically-integrated companies. This weaker form of unbundling was justified on the basis of concerns over the relative immaturity and rapid development of the European gas market, which would have required a certain degree of coordination in supply contracting and investment decisions between integrated business arms.

3.2.3. Derogations and exceptions

The Directive provided several cases in which derogations from the above regulations could be granted. Member states may act in such ways as to contravene the application of the reforms by applying public service obligations that relate to security, regularity, quality and price of supply and environmental protection. Derogations from the major provisions in the Directive were provided for “emerging markets”, including those not directly connected to an interconnected system, and those having only one main external gas supplier. Businesses may refuse to provide access to their transport and storage facilities where capacity is constrained or where the granting of access would hinder the carrying out of any public service obligations imposed by member states. Access may also be refused where it would create financial difficulties due to the existence of take-or-pay contracts.

Member states could also apply to the Commission where application of the Directive would cause difficulties in a certain geographical area, with specific reference to new investments in transmission infrastructure. Such derogations would last no more than 10 years from the date of supply from the infrastructure, and would only apply to greenfields investments or those that are less than 10 years old.

3.2.4. Institutional framework and administration

The importance of gas to the economy warrants close monitoring of market players for reasons of financial and technical reliability. As such, the Directive sets out procedures for the granting of authorisations for the construction and operation of gas facilities, including appeals processes for where such authorisations are refused. Member states were also required to designate an independent body to hear disputes over access negotiation and assist

in their resolution. A requirement existed for legislation and other relevant legal instruments (eg access codes) be implemented by member states to ensure that TPA is provided. The Directive did not, however, require the establishment of an independent regulatory authority to implement and manage the reforms since negotiated TPA was possible.

Arguably the discretions left to member states in the First Directive with respect to these various legislative elements would have left ample space for the development of significantly diverse regulatory structures that would possibly have been inconsistently applied over time and be subjected to political pressures.

The First Gas Directive came into force in August 1998 and as such was required to be adopted into national legislatures by August 2000. Timetables relating to the full opening of markets to competition (ie full eligibility) were not defined.

3.3. The second gas Directive

Several years of negotiations on EU energy policy followed the application of the First Gas Directive, with an agreement reached on the two new gas and electricity directives in Barcelona in 2002. Negotiations surrounded the transformation of the previous directives into stringent rules for market regulation and the establishment of timetables for full market opening. Concerns had arisen regarding the need to ensure harmony in regulation across member states and the need to address issues of security of supply and market structures (ie the dominance by one or few suppliers). The Second Gas Directive (03/55/EC) came into force along with its counterpart for the electricity sector in early August 2003, and was to be implemented in member states no later than 1 July 2004. The critical differences between the first and second gas directives are summarised in Table 1 below.

Table 1: Key differences between Directives 98/30 and 03/55.

<u>Element</u>	<u>Comment</u>
Public Service Obligations	Whereas the First Directive provided for possibility of PSOs, the Second Directive requires member states to ensure high levels of consumer protection, including safeguards to avoid disconnection and the ability to switch between suppliers. Measures must also be implemented to achieve objectives of environmental protection and security of supply (Art 3.3 and 3.4)
Eligibility	Rather than introduce partial market opening in three gradual stages according to customer size, the Second Directive states that non-residential users were required to become contestable from 1 July 2004, with all others from 1 July 2007. (Art 23)
Third Party Access	The Second Directive requires the implementation of regulated access to transmission and distribution networks and LNG facilities, on the basis of published tariffs. Application of regulated or negotiated TPA to storage facilities is at the discretion of member states. (Art 18 and 19). New requirement to ensure access to upstream pipeline networks (Art 20).
Unbundling	Must have legal, functional and accounting unbundling of transmission and distribution network operations, and separate accounting for eligible and non-eligible market segments. Operators with less than 100,000 customers are exempt. (Art 9 and 13).
Security of supply	Stricter system-balancing responsibilities for undertakings. (Art 8 and 12). New annual reporting requirements on general security of supply issues (Art 5).
Derogations for new investment	The First Directive allowed for exemptions of new or young infrastructure under general criteria for a maximum of 10 years. The Second Directive provides derogations for new investment as well as expansions to existing capacity for time periods to be specified regulatory authorities, subject to final approval by the Commission. (Art 22).
Institutional aspects	New requirement to establish an independent regulatory body. (Art 25).

The Second Gas Directive envisages a considerably faster and more complete liberalisation of the European gas sector, reflecting resolutions from the European Council of Ministers in March 2000 and from the Commission in July of the same year. Both bodies called for the progression of a complete internal market according to an explicit timetable. Events following the introduction of the First Directive (eg noted supply failures and geo-political issues) also highlighted the need for more stringent control and monitoring of supply security, which are reflected in the Second Directive. More emphasis has been placed on the role of system operators in terms of being responsible for the stability and balance of network services, as well as on monitoring and reporting by regulatory bodies. Member states must now ensure

stable supply to customers connected to the gas network through measures such as establishing suppliers of last resort and corresponding obligations or incentives to supply users in remote areas. The provisions for regulatory holidays outline a much more detailed process, which potentially allows many more derogations than the previous directive, highlighting the attention given to this instrument as a way to encourage investment in strategic infrastructure. The specific derogation criteria require that investments would:

- enhance competition and improve the security of supply;
- be characterised by a significant level of risk; and
- be owned by a person or legal entity that is separate from the manager of the system in which the infrastructure will be created.

Table 2 below summarises the unbundling requirements of the current Directive. The decision to not enforce complete ownership separation may reflect the experience in markets such as Belgium, Italy and the UK regarding the lower risk profiles and ease of capitalisation of companies who are still vertically-integrated.³ Effectively, gas transport, storage and LNG facilities represent significant proportions of a company's asset base, and under regimes of regulated prices and income such assets are viewed as stable investments. Ownership unbundling from these assets could therefore have destabilising effects in upstream and downstream markets, with unfavourable results on the total supply chain. This effect is also implicitly addressed in the Directive where it exempts smaller distributors (ie those who serve less than 100,000 customers) and in the extended deadline to apply legal unbundling to distributors in general (ie from 1 July 2007 rather than 1 July 2004).

Explicit requirements to establish an independent regulatory body to manage new market arrangements, as well as for regulated TPA, represent a step towards a more certain and harmonised (if not, intrusive) regulatory structure.

³ CERA (2003a) p2.

Table 2: Unbundling requirements of Directive 03/55/EC

	Accounting	Functional	Legal	Ownership
Distribution, less than 100,000 customers	Obligatory	Discretionary	Discretionary	No requirement
Distribution, more than 100,000 customers	Obligatory	Obligatory	Obligatory	No requirement
Transmission	Obligatory	Obligatory	Obligatory	No requirement
Storage	Obligatory	No requirement	No requirement	No requirement
LNG	Obligatory	No requirement	No requirement	No requirement

Like the First, the Second Gas Directive is also silent on any preference between public and private service providers, and also on methods to deal with other barriers to competition, such as market concentration, which is a particular problem in several European markets.

While governments and regulatory bodies have powers to examine and disapprove of increases in market concentration, they are relatively powerless to order break-ups of companies that are not directly controlled by the state.

3.4. Regulation 11652/04

Ongoing monitoring of reforms have identified a need to address specific barriers to the cross-border trade of gas, that most important being inconsistent standards of TPA. Regulation 11652/04 was passed in October 2004 in response to this need and as an outcome of the Madrid Forum. It sets somewhat more technical guidelines and principles for network access and access services, procedures to deal with network congestion, balancing rules and trading of capacity rights. The Regulation only applies to transmission networks.

The more important requirements contained in the Regulation include:

- the offering of harmonised contracts and the designing of network codes that facilitate secondary trading of service contracts on spot markets and in trading hubs;
- publishing of information on services offered by transmission operators, including:
 - description of each service and their charges, including under conditions of system imbalance;
 - standard conditions for each service;
 - rules regarding capacity allocation and trading on secondary markets in the context of control by the system operator; and
 - out-of-balance conditions.
- the establishment of information systems and supporting technologies to facilitate transactions and trades of transport service contracts.

Essentially, while the Directives define the objectives for the opening of gas markets in general, the Regulation defines the minimum requirements that must be present in each member state that would underpin TPA. As seen from above, the minimum requirements to be adopted in each member state account for the operation of liquid and competitive gas trading markets, including financial instruments and secondary trading.

Regarding tariffs and pricing, the Regulation sets general guidelines (eg cost reflectivity, signals for investment etc) but does not stipulate a particular methodology. An entry-exit pricing system is considered the most efficient for several reasons. Firstly, such a system is more appropriate for networks that are relatively complex. Previously, tariffs were based on identification of flows between the point of emission onto and extraction from the network, between which the actual flows of gas were likely to be different from that stipulated in contracts. Secondly, an entry-exit system allows for a better internalisation of costs since these are directly linked to capacity and the volume of gas transported. Thirdly, facing progressive increases in the number of operators, the entry-exit system reflects the reality of differences between physical gas flows and commercial arrangements. Finally, such a pricing system is regarded as the best available for the evolution of spot markets which bring with

them increased liquidity, competition and instruments to reduce operational risk.⁴ Such a pricing method is similar to that used in the UK market and provides for much more flexible gas delivery by simply purchasing capacity at certain points rather than having to contract for entire physically linked tracks in the pipeline.

⁴ The entry-exit system was highlighted at the Madrid Forum as the model which would best ensure the creation of a gas market at the European level.

4. Implementation

4.1. Italy

The structure of Italian gas market has undergone considerable changes in recent years as a result of both EU Directives for Electricity and Gas and the privatisation of ENI and Enel, Italy's oil and gas giant and major electricity company respectively.

The Letta Decree (164/2000) was issued in 2000 to implement the first EU Gas Directive, followed by Deliberation (331/2001) in 2001 which established L'Autorità per l'Energia Elettrica ed il Gas (AEEG). From 1 January 2002, transport, distribution and dispatchment were subject to legal unbundling, while storage was subject to accounting and functional unbundling. Gas retailing may be exempted from unbundling requirements in cases of importing, exporting and wholesales.

A brief examination of the market structure will be useful to better understand the impact of the Gas Market Directive and related reforms, and therefore assist in the analysis of some important topics that can determine the success of such liberalisation.

4.1.1. Market Structure and Characteristics

The Italian gas market is of considerable size: in terms of consumption it is the third biggest market in Europe, consuming 72 billion cubic metres (bcm) in 2002, of which 23 bcm was for power generation. From 1996 to 2001, natural gas consumption grew at an average annual rate of 5.8%, driven primarily by power generation, and is expected to continue to grow during next few years. The Italian gas market has a large growth potential, even though penetration of the residential market is already high (almost 90% of the population has access to gas). Final use of natural gas is distributed relatively evenly between the service and household sector (representing 39% of total use), in power generation (31%) and in industry (30%). In 2000, domestic production reached 14.9 bcm, accounting for 21% of total gas supply. Italy is very dependent upon importation with domestic resources accounting for only 26%. The major supply sources are Algeria (44%), Russia (36%), Netherlands (13%), Nigeria

(5%) and Norway (2%). While import dependency has declined in recent years, it is estimated to grow in the future, from 78% in 2001 to 90% in 2010, making diversification a key issue in terms of security of supply. Libya (by pipeline) and Qatar⁵ (LNG) are expected to become major future suppliers. According to new regulation, natural gas import from non-European countries have to be authorised by the Italian Ministry of Productive Activities.

Gas infrastructure in Italy is well developed, with a transmission network of almost 31,500km and a distribution grid of 182,000km. Snam Rete Gas (SRG) transports gas under a regulated TPA through its high-pressure national network and a lower-pressure national network.⁶ Network access is provided through five-year contracts, but most gas is imported under twenty-year long-term contracts.

ENI, Enel and Edison are the principal Italian gas companies; however, new entrants are emerging. ENI dominates the market as the major gas producer and the principal gas importer, while Enel and Edison are also gas importers.

Before the Letta Decree the Italian transportation network was operated by few companies: Snam (who is 99% owned by ENI) controlled 96% of the network; Edison and its subsidiary, Società Gasdotti del Mezzogiorno (SGM), owned 4%, mostly in the area across Lazio and Abruzzo; and TMPC Ltd, who owns the gas pipeline connecting Algeria and southern Italy. Because of regulatory unbundling restrictions, both ENI and Edison were forced to establish new companies, respectively, SRG and Edison T&S, which owns transport infrastructure. ENI transferred all of its network assets and related dispatching to SRG, privatising 40% in November 2001 and 51% more recently. Due to legal unbundling ENI is required by the end July 2007 to diminish its holdings in SRG by 20%. SRG also owns and operates the only Italian LNG import terminal located at Panigaglia (La Spezia). The storage facilities, which were owned and operated by Agip, have been transferred to Stoccaggi Gas Italia (Stogit),

⁵ A 25-year contract has been signed up by Edison Gas to import 3.5Mt per annum of LNG from Qatar's Ras Laffan LNG company (Rasgas)

⁶ The network is connected to national fields, import lines and storage centres.

another ENI subsidiary, which is now legally unbundled from both transmission and supply. Stogit itself owns 98% of Italian gas storage.⁷

By the beginning of 2003, there were 24 shippers purchasing natural gas for final consumers (power plants and industry) and for local distributors. Shippers sell gas that ENI cannot sell because of market restrictions.

Gas distribution is very fragmented with 557 distribution companies (in 2004). These companies are managed by municipalities and represent the largest class of operators in the retail market, servicing almost one-third of final customers. Other companies such as ENI and Italgas service the remaining part of market (around 700 customers). A series of mergers and acquisitions has taken place since 1995 by the major energy companies resulting in increases in market concentration. In January 2005 ENI purchased Italgas while Enel purchased Camuzzi, Italy's second largest distributor. The market is expected to become more concentrated and hence improve purchasing power.⁸

Prior to the first Gas Directive, the Italian market was characterised by partially integrated businesses that undertook both distribution and sales (local utilities were almost 300, private companies 300, public enterprises 150).

Between 2000 and 2003 there was a series of mergers and acquisitions which benefited local distributors by reducing the number of retailers in the market. The drivers for this process were the cause of liberalisation itself, in particular the opening of markets and in the eventual desire to reinforce the power of supply contracts. This process of concentration in supply is to be criticised, primarily as it arose as an alternative to more favourable pursuits such as price competition. The processes of integration has been more intense in the northern regions, while the southern market is still characterised by businesses of small to medium size. Finally, the mergers and aggregations driven by the local utilities have largely resulted from the dominant

⁷ Edison T&S is also developing its storage facilities.

⁸ See for example the creation of Plurigas, Hera and Gas Plus.

operators seeking to secure primary products. Regardless, it appears desirable that the process of reform needs to continue in the phase of retail sales given the presence of large margins. Reorganisation of the sector should bring efficiency gains and benefits from possible economies of scale and scope.

4.1.2. Criteria for network access

Between 2000 and 2003, the number of operators with access to the Italian network progressively increased. Corresponding increments in capacity have not been managed well and hence have often led to problems of congestion, especially regarding the importation of gas, leading to the rationing of capacity at entry points on the Italian border. This has important consequences for Italy which, as mentioned above, is strongly dependent on importation, and also creates problems of information asymmetry in favour of ENI, since it is difficult to determine whether the effective amount of gas that is actually being imported coincides with the capacity available.

In defining the rules of access to the system, AEEG was required to resolve two opposing problems, namely the existence of take-or-pay contracts held by operators that request priority access for the longer-term, and the desirability of short-term contracts for new entrants. In response AEEG introduced two principles. The first relates to cases of congestion and states that the awarding of capacity at points of interconnection (ie between national networks) should favour of take-or-pay contracts agreed to before the First Gas Directive. The second principle introduced was that of “use it or lose it” where an undertaking makes available interruptible services for capacity not utilised, hence rendering capacity available for its optimal use, avoiding speculative ends and constituting an additional instrument for the management of capacity.

The possibility to exchange gas, on a monthly basis, already existed in the Italian market prior to the major reforms. The entry-exit tariff system, together with regulated access has, however, allowed the further development of the so-called “Virtual Trading Point” (VTP). At present, the VTP constitutes a daily exchange market with the aim of balancing. The nature of the VTP, through its inherent incentives to increase the number of transactions, has provided

for the definition of standardised contracts and hence market liquidity. The VTP is only the first in a series of steps to a regulated gas sector⁹ that will consent to the creation of a fluid gas market where exchange of the commodity is centralised. In this context, a competitive market would evolve (reflecting progress in demand and supply), resulting in scarcity-based pricing signals and therefore breaking the link between the price of gas and that of other combustibles that is somewhat artificially created at present through contractual structures.

The coordination of transactions would require above all an anonymous and transparent mechanism to substitute the system in place prior to liberalisation, that being the internal communications between business units of the vertically-integrated monopolist.

4.1.3. Access pricing

The Letta Decree was passed in anticipation of the Second EU Gas Directive and as such foresaw the introduction of regulated TPA to transport, storage, LNG re-gasification and distribution infrastructure. AEEG has the task under this regime to fix tariffs and determine the necessary criteria to guarantee access to networks in a non-discriminatory manner.

In sanctioning regulated TPA, the Letta Decree stipulates the pricing principles and defines tariff structures, distinguishing between the regional and national networks (that include the principle gas pipelines for importation, storage and inter-regional pipelines). The pricing system is similar to that applied in the UK market, that is, pricing differentials are applied according to the various points of entry and exit in the network. In particular, the tariff structure includes:

- entry and exit components;
- a component tied to the capacity at the point of delivery in the regional network;
- a commodity component, in relation to the volume of gas transported; and
- a fixed component for each point of delivery.

⁹ For example, those outlined in Deliberations 137/02 and 22/04 of the AEEG

4.1.4. Unbundling

Network access is crucial for developing a competitive market. The Second Gas Directive requires Member States to set legal and functional unbundling, of both transmission and distributor system operators, and the criteria on which to provide non-discriminatory access to the network.

Italy's reforms relating to unbundling went further than those stipulated in the Second Gas Directive by requiring separate legal status for all distributors and also gas retailers. There are no similar systematic or legislative requirements for functional unbundling. Unbundling requirements are summarised in Table 4 below.

Deliberation 311/01 of the AEEG, regarding accounting and administration unbundling for gas, provides considerable detail on accounting unbundling although is somewhat ambiguous for that functional, stating simply that management activities are to be separate, as per those found in different organisations.

Operators are also required to separate the accounts of eligible and non-eligible customers until full eligibility takes effect (scheduled for 1 July 2007).

Table 4: Unbundling requirements for Italian gas transporters

	Accounting	Functional	Legal	Ownership
Distribution, less than 100,000 customers	Obligatory	Partially regulated	Derogation until 1 st Jan 2003	Discretionary
Distribution, more than 100,000 customers	Obligatory	Partially regulated	Obligatory	Discretionary
Transmission	Obligatory	Partially regulated	Obligatory	Discretionary

4.1.5. Derogations for new investments

The expectation of the growth in the Italian gas market and the necessity to ensure adequacy of supply infrastructure resulted in corresponding needs to firstly establish a system of tariffs to encourage the efficient use of infrastructure, and secondly to provide sufficient incentives for investment by the incumbent and also by potential new entrants. The encouragement of new investments first and most importantly requires that regulatory settings are stable and transparent.

Italian regulations encourage of full use of capacity through periodic updating of pricing regulations (ie price caps) on the commodity component of regulated tariffs, which are calculated for 30% of the total revenue for transmission activities. The setting of tariffs in such a way, in addition to general efficiency gains, provides for a specific incentive to plan investments better and hence achieve a higher rate of capacity utilisation.

AEEG has established regulatory “holidays” from tariffs for periods of one year for new infrastructure and, through Deliberation n.137/02, priority of access and exemption from tariffs for operators that invest in new capacity up to a value of 80% of the investment. In this way, the AEEG has implemented some of the investment derogations anticipated in the second EU Gas Directive.

4.1.6. Institutional aspects

Article 25 of the Second Gas Directive states that “Member States shall designate one or more competent bodies with the function of regulatory authorities. These authorities shall be wholly independent of the interests of the gas industry.”

In Italy’s case, the AEEG was legally established by law in November 1995 and began operations in 1997. According to this law, the AEEG has the objective to “garantire la promozione della concorrenza e dell’efficienza nel settore dei servizi di pubblica utilità,... adeguati livelli di qualità nei servizi, in condizioni di economicità e redditività,...definendo un sistema tariffario certo, trasparente per la tutela e gli interessi degli utenti e dei consumatori”.

The capacities of the AEEG are varied and include the setting of tariffs under a price cap regime, definition of quality standards and their oversight, issuing of directives for accounts unbundling and in administration of diverse services, and intervention for the promotion of competition. The obligations of the AEEG were enhanced following the Letta Decree, with those more important including tariff setting and access regulation. The approach adopted by the AEEG is based on the definition of access priority, on tariffs and on setting minimum standards of access, on the gradual implementation of regulations with respect to a scenario of continuous evolution, and on codes of conduct for operators in regulated sectors.

4.2. Germany

4.2.1. Current Market Characteristics

Germany is the largest gas market in continental Europe, consuming 87 bcm in 2003, 78% of which was imported.¹⁰ It also holds great geo-strategic importance for the wider gas network, shipping large flows from Russia and the Netherlands to France and Italy, and potentially between the large UK market in the future. In 2003 Germany imported 40% of its total gas supply from Russia, with this figure set to remain constant for several years due to long-term contracts. Imports from Norway and the Netherlands accounted for respectively 29% and 24% in 2003.¹¹ The potential for competition in the German market is considerable, with 12 separate companies holding more than 5% of the total gas supply. The largest operator, Ruhrgas, controls around 60% of Germany's natural gas imports and owns about 37% of the gas transmission network and 25% of total storage capacity.

The actual ownership structures of the German gas sector are quite complex and worth a brief examination, with some of these undergoing interesting changes in anticipation and in response to new market regulations. In controversial fashion, E.On became the sole owner of Ruhrgas in 2003 after first being refused by both the Cartel Authority and Monopoly Commission on grounds of consumer protection. Ministerial authorisation was finally provided although under several conditions including that E.On sell its holdings in the

¹⁰ CERA (2004) p 1

¹¹ CERA (2004) p 3

regional transmission companies EWE (in the north-west), VNG (eastern Germany) and Bayerngas (Bavaria), as well as undertake a six-year gas release program of 18bcm at Germany's major trading hubs (ie Emden-Bunde and Waidaus). At present E.On and RWE (one of Germany's largest electricity suppliers) own substantial holdings in regional and municipal gas companies. Ruhrgas also has minority interests in 8 regional and 15 local distribution companies. E.On's retail gas subsidiaries Thuega and Heingas both have interests in over 120 German municipal utilities and local gas companies. RWE through its gas subsidiary Thyssengas has a network of regional and local distribution companies. VNG also has integrated downstream interests. The entry of Wingas in the early 1990s was the primary counter-consolidation event amongst this activity as it involved the construction of its own transmission pipelines in parallel to those of Ruhrgas. Interestingly, however, Ruhrgas has upstream interests in Russia's Gazprom, which is a parent company of Wingas.

Throughout the various subsidiaries and cross holdings that exist, 15 national and 20 regional companies provide gas transmission in Germany, whilst around 730 distribution companies operate at the municipal level.¹² Gas companies operating in Germany far outnumber those of any other European country, the nearest for transmission being Spain with nine, and Italy for distribution with around 550. Germany also has 760 licensed gas retailers, the largest three holding a mere 10% of the end-use market. Such a disaggregated market structure has historically required a particular approach to liberalisation.

4.2.2. Third Party Access: From negotiation to regulation

The German gas sector has historically not been subject to heavy government regulation. Supply arrangements at the municipal levels for gas and other essential services were out of jurisdiction for federal regulatory powers, and were exempted from anti-competitive legislation. For example, legal but anti-competitive agreements existed to demarcate specific geographical areas per supplier, for re-sale pricing and for the granting of exclusive rights for construction, operation and access rights to key infrastructure. While such agreements were

¹² Commission of the European Union (2005) p 28.

subjected to supervision by the Cartel Authority, cases in which its powers were used to modify or cancel agreements appear to be rare.¹³

German energy legislation was amended in 1998 to account for the EC 1996 Electricity Directive and also in anticipation of the First Gas Directive, which was yet to be adopted at the time. Regarding the gas sector, the amendments removed the exemption from competition law for anti-competitive agreements such as those providing for exclusive territorial supply rights, and removed legal supply monopolies. While the amendments introduced a requirement for electricity network providers to grant TPA as civil contracts, no corresponding TPA obligation was imposed on gas undertakings. Effectively the gas sector was governed by anti-trust legislation and “Associations’ Agreements”.

The so-called Associations’ Agreements (*Verbändevereinbarung* or VV) are negotiation frameworks developed by German industry and consumer associations that effectively recognize the need to pursue political objectives but seek to do so without potentially intrusive government intervention. Frequently quoted examples of such VV are those for coal and lignite procurement (for the purposes of industry assistance), greenhouse gas reductions and the phasing out of nuclear power generators. That for gas (VVG) was signed in July 2000 between associations of gas suppliers, electricity suppliers, and business users with government encouragement, and provided a framework for negotiating legally binding TPA agreements (including tariffs) between individual suppliers and users. The VVG used a method of “index points” for particular parts in the system such as compressors and storage facilities, which were then weighted by the required capacity. Such tariffs were applied only to customers of more than 20GWh per year (about 1.8 mcm), below which a postage-stamp rate applied.

Under the German *Act against Restraints of Competition*, for any such framework or agreement to be in the interests of competition (and hence legal) it must not set prices. It has become clear through the application of the VVG, however, that it indeed had a large potential to influence negotiated prices. In particular, the annexes to the agreement framework

¹³ OECD (2004) p 10

specify rates of return on assets and provide explicit examples on the calculation of distribution tariffs. References to national benchmarks and fees applied in cases subject to pipeline-to-pipeline competition (of which there exists one instance on the entire market) provided the incentive to influence the benchmark itself and hence distort otherwise competitive, negotiated outcomes. The contracts arrived at through the VVG as a general rule had terms of one year or multiples of one year, hindering the development of gas trading hubs which require contracts of much shorter duration, for example 24 hours. The VV did not, in general, provide for enforcement for non-compliance, although contracts reached under their frameworks were enforceable with the aid of the cartel authorities and/or civil courts.

The setting of prices with respect to costs or such benchmarks were major issues leading to the difficulties in negotiations on the VVG in April 2002. These difficulties sparked an announcement by the Minister of Economics and Technology that an energy market regulator would be soon established. Under such pressure, a revised agreement (VVG2) was reached in May 2002 bringing with it a simplified distance-based tariff structure and postage stamp rates for local distribution. However, subsequent periodic negotiations on the VVG2 (and VVG3) broke down, in the most recent instance regarding disagreement on distance related tariffs. Outside of this process, BEB introduced Germany's first system of entry and exit tariffs in July 2004, soon followed by that of Ruhrgas in November. It would appear likely that the entry-exit method of pricing will soon be adopted into the latest amendments planned for the *Energy Industry Act*, expected to take effect in mid-2005.

As required by earlier amendments to the *Energy Industry Act*, the German Ministry of Economics and Labour reported in August 2003 to parliament regarding experience with the negotiated TPA regime. Under pressure from the recent EU Directive, it announced the introduction of a new regulatory framework and the proposed nomination of RegTP (already responsible for telecommunications and postal services) as Germany's energy regulator, to have taken effect by July 2004.

4.2.3. Other specific legislative developments

Amendments to the *Energy Industry Act* in 1998 removed legal monopolies in gas supply for all customers, regardless of size. The Act was further amended in May 2003 to include standard TPA rights for transport and storage, although did not include a specific requirement to public access prices. Unbundling requirements were introduced for accounts only (ie not for management, legal identity or ownership).

The 2003 amendments provided for “juridification” of the VVG, meaning that if a particular contract under scrutiny was found to actually be in compliance with the VVG, then the contract was held to be in good market practice. In other words, the VVG was legally established as the access regime. As noted above, the VVG contained several elements which may have been inconsistent with efficient market outcomes and hence “juridification” itself was possibly anti-competitive. Inconsistencies and uncertainties existed between the application of this amendment and of actual competition laws.

Further amendments to German energy law are expected in 2005 to implement other elements required by the Second Gas Directive and Regulation, most notably more strict forms of unbundling and basic standards for pricing and contracting. The controversies involved in the VVG frameworks and even their abandonment by two network providers are likely to see their provisions superseded by legislative provisions. The actual powers and responsibilities of RegTP are also expected to be set in the updated legislation.

German legislation has also been changed to implement contract requirements for trading, namely down to a minimum of one day ahead capacity purchases/ booking. Although long-term contracts still play a significant role in the supply chain, two trading hubs exist (ie Emden-Bunde and Waidhaus) which are likely to be developed into much broader and liquid spot markets. The E.On/ Ruhrgas gas release program (discussed above as part of E.On’s takeover bid) is also expected to assist such market developments.

4.3. Overall comparison

The implementation of reforms in Germany and Italy reflect diverse rates of progress. In the case of Italy, reforms implemented with the Letta Decree in 2000 established rights of TPA in

Italy under a regulated regime long before it was required by the Second Gas Directive. While the German Energy Industry Act was amended in 2003 to establish standard TPA rights, these have been exercised under the traditional negotiated regime, reflecting the preference of industry and consumer representatives to arrive at compromises between them. Under pressure from the EU, Germany has now established an independent national energy regulator, although its effectiveness in replacing the negotiated regime is yet to be seen.

Both Italy and Germany have taken considerable steps towards complying with pricing regulations and the guidelines agreed to at the Madrid Forum. Italy has progressed somewhat further, however, with market wide implementation of entry and exit pricing and the establishment of a Virtual Trading Point. Lags associated with negotiated pricing regimes have caused some delays in Germany, although two transmission providers have now adopted the entry-exit regime and others are expected to follow.

Reflecting the high degree of concentration in its market, the Italian Government has forced ENI, which has heavy upstream interests, to sell off its controlling share in SRG which controls transmission pipelines, and Stogit, which owns virtually all of Italy's storage capacity. While full separation is yet to occur, the nature of ENI's business structure has necessitated progressive legal unbundling in this case. The German gas sector is somewhat more fragmented, although was able to successfully resist the unbundling requirements envisaged in the first EU Gas Directive, leading to the much weaker form of accounting unbundling. Since functional unbundling was to be implemented in member states from July 2004, Germany is now breaching one of the key pillars of reform.

5. Outcomes and future developments

While the reforms outlined in the Gas Directives have largely been implemented, there have been no visible results in terms of lower prices and increase in choice of supplier. This relates primarily to the fact that other barriers to competition exist, namely particular market structures that are outside the control of reforms, and also the fact that some aspects of the market require more time to develop.

A major impediment to competition in many European countries is the significant degree of market concentration in upstream markets. Effectively, the potential for price competition is reduced when gas supplies enter the national market from the same major wholesaler. Such impediments are set in place with long-term take-or-pay contracts which, to some extent, have been awarded priority of access over more liberal, competitive contracts. Theory would suggest that such contracts effectively represent a fixed cost and hence encourage market segmentation and the extraction of monopoly profits and hence does not occur since price competition would not permit full cost recovery.¹⁴ More importantly, take-or-pay contracts are typically coupled with more basic upstream production arrangements, and as such provide a particular supplier with large amounts of gas from a logistically superior (and hence, inherently cheaper) location.

The Italian experience with upstream competition has been somewhat controversial, with ENI as the major importer found to be in breach of anti-competitive legislation through an arrangement that would have seen it supplying gas to its downstream competitors. Problems arose through requirements to reduce the amount of gas ENI imported through a gas release arrangement (ie from 70% of supply in 2002 to 60% by 2010), although rather than do so through competitive means such as auctioning, ENI was provided the option to do so using bi-lateral long term contracts. Such commodity supply contracts were provided in conjunction with reservations of pipeline capacity, hence excluding the possibility that new entrants could use such capacity and compete in downstream markets.

¹⁴ Cavaliere (2003) p 24

Evidence suggests that barriers to competition in the German market have included the existence of long term contracts, complexities in gaining access and high access charges. The latter are directly related to the reliance on negotiated TPA and the absence of an industry regulator. This is reflected in the relatively low number of access contracts with only 170 gas supply contracts existing in Germany as at November 2002.¹⁵ High access prices appear to be the result of distortions allowed through the tariff-related provisions of the VVG, but also because of the significant proportion of government taxes recovered from gas sales.

Due to contractual and upstream market characteristics the effects of liberalisation on final gas prices may be difficult to determine at this point in time. Average German retail gas prices (for both industry and domestic customers) are generally regarded as high by OECD standards and rose substantially during the years of liberalisation due to increases in world gas prices. Italian gas tariffs have been approved or, in the case of distribution, set by the AEEG since 2001. As per Germany, gas tariffs applying to non-eligible customers in Italy increased considerably between 2000 and 2001, due to an 89% increase in the average commodity (ie raw input) charge.¹⁶ Prices for eligible customers are not published. Like Germany, Italian gas prices are among the highest in Europe. Figure 1 below shows a comparison of network tariffs for large customers across selected EU countries.

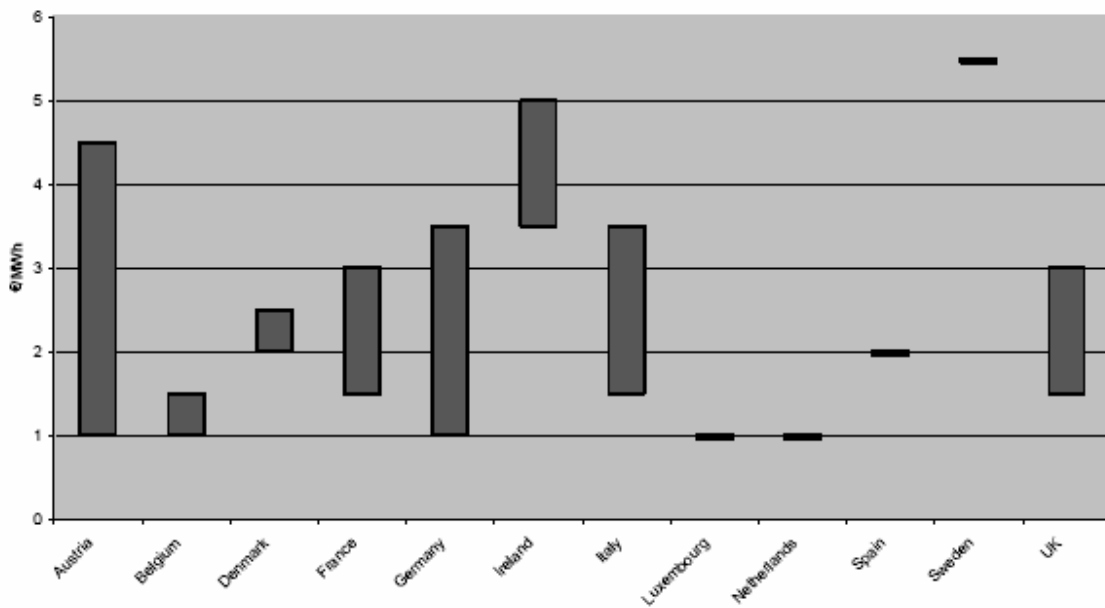
Activity in the retail gas sectors appears to be considerably diverse between Italy and Germany, with less than 2% of German customers switching supplier since the implementation of reforms, compared to 35% of Italian customers¹⁷. The low figure for Germany, however, may reflect the fact that choice in supplier already existed and masks the renegotiating of existing contracts.

¹⁵ OECD (2004) p 59

¹⁶ IEA (2003) p 109

¹⁷ Commission of the European Union (2005) p 6 (supporting annexes)

Figure 1: Gas Network Tariffs for Large Users (minima and maxima)



Source: OECD (2004) p43. "Large user"- annual consumption of 25mcm with daily peak of 0.1mcm.

Regarding outstanding reform commitments, the major development expected in the near future is the definition of the roles and responsibilities of the nominated German regulator. It would seem natural for RegTP to assume the functions previously provided under the VVG framework, although it may be the case that self-regulation is still favoured in conjunction with case-related supervision by the cartel authorities and TPA agreements enforced by civil courts. Under such a regime the regulator would take merely an advisory role with ex-post regulatory powers. A less intrusive regime would be consistent with the highly fragmented structure of the German gas sector and its specific requirement for less demanding and more customised regulations.

Further technical and regulatory guidelines for short-term contracts are expected to be developed in both Italy and Germany as their trading hubs mature.

6. Conclusions

The reforms implemented in the European gas sector have been based on several basic principles, namely

- the unbundling of competitive activities from monopolistic ones;
- ensuring TPA to essential network and storage facilities;
- the establishment of a regulated access regime overseen by an independent market regulator; and more recently
- the harmonization of pricing and contract standards for the further integration of national markets.

While the majority of these reforms are now implemented, others have encountered delays due to the specific nature of national gas markets and the discretions exercised by national governments. The dominance of a smaller number of operators in the Italian market resulted in much faster and wider reforms being adopted, while the size and complexity of the German market justified a slower and less intrusive approach to reform. At this point in time, the particular characteristics of each national market serve to hinder or delay the potential benefits of reforms in terms of lower final gas prices. Both markets are still bound by previous long-term supply contracts that are not conducive to fluid spot markets, such as that in the UK, and are also restrained by a significant proportion of importation from a small number of international suppliers. Programs of gas release have the potential to encourage new entrants through the breaking of such contracts although need to be managed carefully. Programs such as these that seek to reduce the degree of dominance by any one supplier would appear to be necessary as simple liberalisation itself only removes the artificial barriers once set by governments to protect and control critical gas supplies. Much in line with the “horse and water” proverb, the member states of the European Union have brought their gas sector to what is a potentially competitive market structure, the next challenge is to try and make it actually compete.

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