The Geopolitics of EU Gas Supply

The role of LNG in the EU Gas Market

Clingendael International Energy Programme
1 May 2008
# Table of Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table of Content</td>
<td>2</td>
</tr>
<tr>
<td>Reading Guide to TOR Questions part II.A.</td>
<td>4</td>
</tr>
<tr>
<td><strong>Abstract</strong></td>
<td>5</td>
</tr>
<tr>
<td>A changing LNG market</td>
<td>5</td>
</tr>
<tr>
<td>Attractiveness of LNG for the EU</td>
<td>6</td>
</tr>
<tr>
<td>The EU’s attractiveness for LNG</td>
<td>6</td>
</tr>
<tr>
<td><strong>1. Introduction</strong></td>
<td>10</td>
</tr>
<tr>
<td>1.1. New market structures</td>
<td>10</td>
</tr>
<tr>
<td>1.2. The state and the gas market</td>
<td>11</td>
</tr>
<tr>
<td>1.3. EU external energy policy</td>
<td>12</td>
</tr>
<tr>
<td>1.4. Energy security</td>
<td>13</td>
</tr>
<tr>
<td>1.5. Balancing Internal and external market developments</td>
<td>15</td>
</tr>
<tr>
<td><strong>2. The geopolitics of security of gas supply</strong></td>
<td>19</td>
</tr>
<tr>
<td>2.1. Old gas flows, new relations</td>
<td>20</td>
</tr>
<tr>
<td>2.2. Competing jurisdiction</td>
<td>22</td>
</tr>
<tr>
<td>2.3. Gas Trade and New institutional relations</td>
<td>24</td>
</tr>
<tr>
<td>2.4. EU and Russia: Access to reserves and markets</td>
<td>25</td>
</tr>
<tr>
<td>2.5. Russian Strategising in a seller’s market</td>
<td>27</td>
</tr>
<tr>
<td>2.6. Government involvement in LNG</td>
<td>28</td>
</tr>
<tr>
<td>2.7. Managed supply?</td>
<td>30</td>
</tr>
<tr>
<td><strong>3. Demand for natural gas and LNG in the EU market</strong></td>
<td>32</td>
</tr>
<tr>
<td><strong>4. The LNG supply outlook</strong></td>
<td>35</td>
</tr>
<tr>
<td>4.1 Reserves and supply sources relative to the EU</td>
<td>35</td>
</tr>
<tr>
<td>4.2 LNG supply sources and their position relative to the EU market</td>
<td>37</td>
</tr>
</tbody>
</table>
4.3 New Business Models in the LNG industry

5. Competitiveness of the EU in the global LNG market
   5.1 The LNG markets
   5.2 Competitiveness of the EU for flexible, short term LNG supplies
   5.3 The impact of short term, flexible LNG on Security of Supply for the EU
   5.4 Competitiveness of the EU for long term LNG supplies
      5.4.1 The regulatory environment in the EU
      5.4.2 The gas demand outlook
      5.4.3 Continental Eu's hybrid pricing system: Help or hindrance?
      5.4.4 Eu's Tradition of Scouting for new Supplies

6. Pipeline disruptions: can LNG help and if so, how?
   6.1 LNG also knows of supply disruptions
      6.1.1 Possible shipping bottlenecks
   6.2 LNG can reduce market exposure
   6.3 LNG may enhance market resilience

7. Is there an optimal pipeline-LNG balance for the EU?

8. Could the Eu become more attractive for LNG?

9. Conclusions

References

Magazines and Industry Journals
READING GUIDE TO TOR QUESTIONS PART II.A.

1 ARE THE RESERVES OUT OF REACH....
Refer to sections 4.1 (p32~) and 5 (p40~)

2 WHAT ARE THE COMPARATIVE ADVANTAGES....
Refer to Section 4 (p32~)

3 THE PRESENT AND FUTURE DEMAND....
Refer to Abstract (p6), section 1.5 (p13~), section 2.5 (p24~)

4 IN CASE OF A MAJOR GAS PIPED....
Refer to section 6 (p48~)

5 WITHIN THE EU, WHAT WILL BE THE PROBABLE....
Refer to section 3 (p9~) (as well as Section 1.1 of Part I)

6 WHAT ARE THE LIQUEFACTION PLANTS....
Refer to section 4 (p32~) and also to Part I of the study

7 WHAT IS THE ATTRACTIVENESS LEVEL......
Refer to section 5 (p40~)

8 WHAT IS THE OPTIMAL BALANCE....
Refer to section 7 (p51~)

9 WHAT SHOULD BE THE OPTIMAL DISTRIBUTION OF LNG TERMINALS....
Refer to section 8 (p54~)

10 IS AN LNG ACTION PLAN JUSTIFIED...
Refer to advice in section 8 (p54~) and conclusions (p56~) for recommendations.

11 ON REGIONAL DEPENDENCIES OF CERTAIN PARTS OF THE EU GAS MARKET ON ONE OR TWO SUPPLIERS
Refer to section 1 (p.16/17)
ABSTRACT

The global energy scene is changing rapidly. Producing countries are tightening their grip on the development of their resources. Emerging (and other) economies are taking direct political interest in securing supplies. There is growing integration between politics and business in international energy deals and energy is now on the political agenda of every government.

World gas reserves are plentiful to satisfy gas demand for the foreseeable future, including the expected increase in demand for LNG. The bigger issue however is not the availability of reserves, but the pace of development, as well as the potential for development. The global development effort, both in pipeline gas and LNG, does not currently appear to be keeping pace with the demand prospects. While Europe is geographically well positioned for new supplies, surrounded as it is by the majority of global gas reserves, there are not many major supply developments ongoing in producing countries specifically earmarked for its markets other than those from Russia.

The pace and potential of LNG development is slowed down by limited (human and material) resources for project construction, the increasing complexity of LNG projects, and (geo)-political factors. Producer governments are reconsidering their LNG export strategies and begin to focus on “supply management” as a means of ensuring value protection for their resources. They also prioritize the use of gas for growth in their domestic economies. They control most world reserves of oil and gas through their National Oil Corporations (NOC’s). As a consequence NOC’s often have different agenda’s than International Oil Corporations (IOC’s). As a result, a sellers’ market for LNG is expected to persist in the foreseeable future.

A CHANGING LNG MARKET

LNG business models are changing. The traditional model is based on long term contracts between producers and buyers. Driven (mainly) by arbitrage opportunities, high prices and the opening of the US market for LNG, the industry today moves away from this model in various manners. These include:

- producers reserving part of their liquefaction capacity for short term deals,
- producers contracting their own production,
- the emergence of aggregators buying LNG long term and selling it in a mixed portfolio.

These developments may well lead to chronic surpluses in shipping and regasification capacity accommodating this business model. Growing volumes of this “flexible” LNG are no longer committed to any market. This LNG responds mainly to price signals, although politics and customer relations could also play a role in deciding the final destination of these volumes. Therefore, even if the EU were able to match prices in Asia or the US, this would not guarantee that it would be able to secure the limited volumes of flexible gas in a global market at all times it would need it.

Relative to the East Coast of North America, Europe is geographically well positioned to receive LNG, notably from the Mediterranean and West Africa. As regards LNG from the Middle East, Europe also has a cost-advantage over the US, but there is no geographical advantage for Europe relative to the Asian market. In fact, the Asian market is currently buying short and long
term LNG from the Middle East and has the potential to lay a significant competitive claim on future LNG from this region. For the foreseeable future Europe will be in competition for LNG supplies with the rest of the world.

**ATTRACTIVENESS OF LNG FOR THE EU**

The attractiveness of LNG for the EU lies mainly in its potential to contribute to security of gas supply: LNG supplies under long term contracts will contribute to security of supply as these add supplies in a tight gas market and increase diversity of supplies. Flexible LNG could improve security of supply by helping to accommodate (seasonal) shortages. Thus, LNG could make a positive but for flexible LNG uncertain, contribution to security of supply, both for the long and short term. Conversely, there is a risk that the EU market players will rely on flexible LNG to make up for seasonal and other shortages, at the expense of further investments in underground storage. This could lead to a reduction in the EU’s short term supply security. While Europe cannot count on flexible LNG to be available to provide secure flexibility in the EU market, it is recommended that the EU make sure that there are no avoidable barriers to the development of underground storage, a more secure and probably cost-effective way of creating the necessary flexibility in the market. It is also recommended that further analysis is carried out to establish the relationship between the costs and opportunities for LNG to contribute in a secure manner to flexibility and the use of underground storage.

Flexible LNG may help reduce the effect of a disruption of pipeline gas supply. It is important however to realize that LNG can also suffer supply disruptions and is in certain aspects more vulnerable to geopolitical risk than pipeline gas. Provided that regas and shipping capacity are available, flexible LNG can help to alleviate the effect of disruptions or higher winter demand in Europe, but at a price (topping other markets) and provided there are no other (political) obstacles. Given increasing global competition for LNG there will be no certainty that the short term LNG will be there when needed.

In today’s market there is no optimal balance between LNG and pipeline gas. Instead, given the current dynamics of the market, Europe should be aiming at being the attractive outlet for both pipeline gas and LNG. Pipeline supplies should continue to form the solid basis of gas supply for the EU. There is no rationale for a fundamental shift to LNG. LNG offers a welcome prospect of new supplies and of supply diversification. Flexible LNG can also make a contribution to short term supply security, but not one that the market can count on.

**THE EU’S ATTRACTIVENESS FOR LNG**

In a sellers’ market producers will be looking closely at the EU’s attractiveness as a consumer market compared to options in Asia and North America.

Continued regulatory uncertainties in the EU market may undermine efforts to attract long term LNG supplies.

Price uncertainty is another issue. For buyers in the continental market a major long term LNG contract with other than oil-indexations creates significant price exposure in a market, dominated by oil-indexed prices. The producers have a choice of markets and of prices. It is not certain that Europe will be able to out compete Asia Pacific buyers on price.

The uncertainty of future EU demand for natural gas further compromises the EU’s attractiveness. The extent of growth will be determined by many factors of which their eventual
effect is very hard to establish today. These uncertainties are felt not just with regards to the EU, but exist universally, albeit to different extents. For Europe, demand uncertainty is compounded by the strong position of Russia as a supplier of gas and questions regarding future incremental pipeline supplies to the EU. Producers of LNG will be looking for security of demand and will not draw much comfort from the EU outlook, unless they are protected by long term contracts with strong buyers.

The EU is politically not a transaction partner. Instead, member states have turned to bilateral/country-by-country deals to secure long term LNG supplies (so called government-to-government relations to underpin the business-to-business relations).

EU market players have traditionally been actively scouting for new supplies and creating the conditions for new supplies to their markets. These initiatives should be useful in a sellers’ market. However, the EU is facing similar competition from the Asian markets, which have also shown their ability to secure supplies in this manner.

LNG regas terminal capacity is currently expanding, indicating that the market for LNG is responding with capacity expansion. However, it should not be surprising if the construction initiatives will slow down as many players may first want to see new LNG come to the EU’s markets. If new LNG flows would fail to come to the EU market, the regas expansion would imply some cost burden to the market players. A slowdown in regas capacity additions should not be seen as a reason for new measures promoting the construction of LNG facilities, but as an investor’s response to market circumstances.

Narrowing the quality band for gas in Europe could be useful. Gas that meets the EASEE standards should become acceptable to and accepted by EU markets, be it pipeline gas or LNG. Introducing further requirements for interoperability could not only increase the costs of terminals, but could also interfere with innovative initiatives like the development of offshore regas terminals and facilities based on onboard regasification, such as in Teesside (UK). All of these initiatives are aimed at lowering the barriers to entry for new LNG, which should be heartily encouraged.

The EU is fortunate given its substantial supplies through pipelines from Norway, Algeria and Russia. In the future new possibilities should be explored and encouraged to expand these existing supplies and complement them with supplies from Central Asia and the Middle East. First in the EU, and perhaps later also in Asia when East Siberian reserves are developed, pipeline supplies and LNG both have a role to play and, ideally, should compete for market share. The current large share of pipeline supplies and its potential for growth might make it uncertain for LNG producers to measure the demand for LNG in the EU. Long term LNG supply contracts with strong buyers in the EU could overcome this concern and add to the EU’s supply security.

Competition between pipeline supplies and LNG in the EU market cannot prevent the market logic of dependence on one supplier in certain parts of the EU market, when the line of arbitration between LNG and pipeline gas stretches across the EU, leaving certain local markets dependent on either certain LNG supplies or one pipeline supplier. The answer to diversifying supplies and enhancing security of supply in these markets, lies not in accommodating other gas supplies in that part of the market when they are uncompetitive (and would run counter to the EU policy to establish an internal market with a level playing field), but rather to try to diversify the energy mix away from gas or to try to tie in the local market interests into the rest of the EU gas market through partnering with other companies. This way gas is forced to compete with other energy sources for market share or the local market is tied into the interests of other parts of the EU market. Thus when alternative gas flows are not a commercial option to reduce the gas dependency on one dominant supplier, mixing economic
interests in infrastructure and markets with other important upstream and downstream players could be an opportunity to reduce the exposure to disruption risk, when a relatively small regional market thus becomes tied in to larger market interests. Such a strategy, when carried out properly, goes back to the core idea of economic integration as a means to reduce (potential) conflicts. EU competition policy and particularly abuse of market power can help discipline the market behaviour of the players in that part of the internal market.

In case of the Baltic states and Poland, where concerns about dependency on Russian gas supplies run deep, if diversified supplies cannot be developed through the market, they should either be stimulated to be fast tracked on the 20-20-20 policy for 2020, despite the fact that results from this policy might take a few years. Perhaps that the EU regional policy or structural funds could help stimulate the expansion of sustainable energies in the region to diversify the fuel mix. They could also enhance regional cooperation with neighbouring member states such as Finland and Sweden, for instance in increasing market interconnection in the power sector, allowing these countries to tap into the fuel mix distribution of their neighbours or they could tie their gas markets to the interests of other parts of the EU gas market (and their governments), for instance by participating in the Nordstream consortium.

A crisis management mechanism could become the (political) minimal requirement for all member states to support strategic external energy relations and the accompanying investment strategies of companies. This is particular important for gas with a value chain extending beyond the jurisdiction of the EU. For member states to cooperate and, perhaps in time, relinquish some of their sovereignty in the foreign (energy) domain, the absence of a crisis mechanism which fairly distributes costs and benefits over the member states in the event of market failure (perhaps also along the IEA method of cost distribution), and which helps to reduce the cost of risk management at the member state level, is a major (political) stumbling block for any EU initiative in external energy policy becoming successful. Such a mechanism would necessarily be best implemented within a EU minimum framework setting for reasons of cost and benefit distribution (and the avoidance of free-riding on other member states' national energy security policies) and to create a level of political comfort for the external energy policy initiatives.

In the Asian Pacific market most LNG supplies are under long term contracts, while it appears that in the Atlantic basin LNG supplies are increasingly part of the flexible portfolio of suppliers and aggregators. This is not only due to the EU’s pipeline supplies and market liberalization efforts but also because of the organization of the American gas market, the other market for LNG in the Atlantic basin. In the short and medium term, the Atlantic basin seems to be developing as a market for both medium to short term flexible LNG supplies and LT supplies, while the Asian Pacific remains a predominantly LT LNG market, competing for additional short term supplies with the Atlantic Basin. Based on its available long term pipeline supplies, EU gas prices have been lower than those of Asia, which relies nearly completely on LNG. While this benefits the EU consumer, it does not help EU’s position as a potential outlet for long term LNG in a competitive global market.

The gas and LNG market will be characterised as tight for the foreseeable future. There will be global competition for gas between the EU and other regions. This implies the need to refocus from the “internal market” to the “external market”. The current internal market design is of value in a buyers’ market with an abundance of supplies. In today’s sellers’ market a successful energy policy and low consumer prices depend on obtaining competitive supplies from outside the EU. Price competition in the gas market takes for a large part place in the international market. The EU gas market design should take this into account, and not focus too much on organising company structures, and inadvertently drive up prices for consumers due to supply
shortages. Also gas is gas, and no supplies should be singled out for special treatment in the sense of hampering its access to the EU market. Competition policy, and particularly the ability to punish companies for abuse of market power, should be a strong instrument to manage competitive forces in the EU.

Regulation in its widest sense is regarded by producers as one of the biggest risks they are facing. Understanding the extent of concerns of producers would help the EU to consider whether and how it can accommodate producers of LNG (and gas) and turn the EU into a more, if not most attractive market for gas. A structured dialogue on gas between producing countries and the EU could make a significant contribution to lowering, where possible, the barriers to entry, by means of sustainable, long term policies and establishing a reliable framework for the industry to develop the business.
1. INTRODUCTION

The European Union (EU) will increasingly become import dependent, also in natural gas.\(^1\) New gas flows have to be developed to replace the declining domestic flows and to satisfy expected new gas demand. With the increasing import dependency, the need for more diversified gas flows grows in order to manage both the economic and the political consequences of dependency. LNG flows will play an increasingly important role in satisfying EU gas demand, in addition to traditional and new pipeline flows. The penetration of LNG in the EU market will however be regionally unevenly distributed, while also the number of suppliers per regional market may vary. The question of more and more diversified imported gas flows not only has geo-economic dimensions, but also geopolitical ones because the role of government in the gas sector is significant. Business-to-business contracts in the various parts of the gas value chain, including LNG, require a substantial contribution from government-to-government relations. The quest to attract more and more diversified gas flows can not be seen separately from the framework that the dominating political and economic order offers as the context in which these gas flows must be realised.\(^2\)

1.1. NEW MARKET STRUCTURES

The recent changes in the geopolitical and geo-economic balance of power compel us to contemplate the conditions under which gas (and oil) will be produced and traded in the foreseeable future, also on the European/Asian continent. Will we see a world in which gas can flow freely between producers and consumers in a completely liberalised market, and in which companies, operating in a level playing-field, have access to all parts of the gas value chain? Or will we see a world in which, even more so than today, the strategic interests of sovereign states and the geopolitical balance of power will determine the gas investment climate and trade flows. In the latter case such conditions could imply that international oil companies, as the main vehicle for achieving security of supply in an international market setting, would have to materially realign their company strategies with those of producing countries in order to continue to gain access to upstream assets. Already, most new gas projects are developed in joint venture with a national company holding a majority, also in LNG.

The thinking in the 1990s that international oil and gas markets would increasingly be freed from heavy handed government involvement and management, and that the government would condense its role to market regulator and tax collector has evaporated in recent years. Instead, governments in producing countries are asserting their control and management over the energy resources and economic rents through (majority) ownership. This trend is prevalent in many of the oil and gas producing countries. To be sure, also consumer governments are increasing their control over the energy sector again, despite the liberalisation and privatisation processes in the 1990s. They are regulating markets within the constraints of their public interests (environment and security of supply), they are breaking up the value chain by

---


Ownership unbundling, they are subsidising new energy sources and taxing the energy sector to capture the economic rents, thus constructing a limited space for competitive forces to work. At the heart of all government intervention in the energy sector is the distribution of risks and benefits through the energy resource value chain in the short and the long term, often branded as security of supply and security of demand policies.

The explanation for the more interventionist energy policies around the world can be found in a paradigm shift in international oil and gas markets, from a long period of ample supplies, where production capacities around the world had grown faster than demand, to world oil and gas markets that have recently become much tighter. In the past years, demand has grown much faster than supply, and overcapacities in the oil and gas industries have disappeared, reducing the flexibility in the value chain. Maintenance work, political and social protests in the oil industry, acts of nature, and accidents in any of the producing countries would create immediate shortages of supply. In gas, the excitement over the increasing availability of Liquefied Natural Gas (LNG) with the unlocking of the substantial, previously stranded, reserves of the Middle East, quickly dampened when it became clear that also in this market demand would outpace supply and that the much heralded flexibility to supply markets will remain limited for some time to come.3

1.2. THE STATE AND THE GAS MARKET

Import dependency in a perfect world economy or world market for gas, is different from import dependency in an imperfect world economy or gas market. The level of imperfection of energy markets is an important determinant of the need and level of government policies to compensate for certain imperfections. Public interests, such as the environment and security of supply, are typical matters that need to be secured by government policies. In a market based economic system, imperfections can also involve the government to apply its competition policies to prevent abuse of market power. Moreover, governments may decide to overcome some of the perceived imperfections by implementing a certain market design with the express notion of overcoming those market imperfections, and in such a trade off must accept that new imperfections are the result. The difficulty is that both competition and imperfections come in many manifestations, with their own set of peculiarities and outcomes. In addition to market imperfections, government can also for political or social reasons intervene in the market when the market outcomes run counter or thwart desired outcomes in the other spheres of government responsibility.

In energy the role of government is crucial both in a market based system and a mixed or state oriented economic system, going beyond their role as regulator, market model designer or even prime owner of energy assets. Governments play a vital role in shaping the investment climate in a country or region, which is important for the, in certain segments, very capital intense

3 Gas for Tomorrow, Dutch Energy Council, www.energieraad.nl, p. 54
energy industry. They are responsible for macro economic and monetary stability, but in energy, also as owners of the subsurface responsible for issuing permits to explore, produce, transport, transit and distribute energy. In energy they also have a role as tax collector, laying claim to both profits and the large economic rents.

It is therefore unthinkable in energy, including the gas industry, that government would not be involved or would allow the industry to be governed by some simple or basic rules of market behaviour or by self-regulation. The potential benefits from capturing economic rents, the impact on the balance of trade (and payments), and the social and political stakes are simply too high for any government, whether they are producing, transiting or consuming to leave to the industry. At the same time, the value chains in energy are often not limited to a single jurisdiction, which complicates the choice of regulatory regime but also may thwart capturing the full benefits from the energy sector, or make the achievement of public interests, such as security of supply and the environment, harder to obtain. It is in this sphere that security of supply, transit and demand may clash, and introduce strategic political interests to the decision-making.

In a free world energy market, energy, including gas, is assumed to be available to those that are willing to pay the market price, which is determined by demand and supply. The assumption is that there are no serious bottlenecks in the value chain that would prevent demand and supply to match. But in energy, the long lead times between discovery and production, the capital intensity of certain parts of the value chain, the inflexibility of transportation (particularly in gas and coal), the dedicated investment requirements, and the large economic rents create severe imperfections along the value chain and in the various sub-markets. These imperfections could not always be dealt with in the market in the sense that the management of risks and benefits was difficult outside the company. Over time, companies have tended to deal with these imperfections by vertical integration, which internalises the management of risks and benefits. Both backward and forward integration are models along which energy companies have developed. Asymmetric information about the risks and benefits in the various parts of the value chain and government intervention were further incentives to develop along this business model. For governments the internationally integrated company poses difficulties with regard to their wish to stimulate competition but also security of supply or demand, because the company stretches beyond the jurisdiction of one government into that of another. Companies can easily find themselves in the middle between the diverging interests of two or more governments covering the gas value chain.

1.3. EU EXTERNAL ENERGY POLICY

The changes that took place in the international energy markets around the turn of the century did, however, impact the ability of the European market to deal with these changes. The confidence that market principles would be the guiding principle to balance supply and demand was challenged when it became clear that producer governments began to actively manage the energy value chain. Furthermore, the pre-occupation with internal market discussions and the environment overlooked both legitimate producer country concerns about security of demand as a result of the EU market design, and the impact of climate change policies on their main source of income. The changes in the international energy markets and the renewed importance of the modus operandi of politics as opposed to economics in energy diplomacy, have in a sense prompted the more prominent role of national states in the EU. Government-to-government relations have become important to facilitate the business-to-business. As it were, the EU Commission cannot make the ‘hand shake’ on gas contracts, because the EU is not a state. This also complicates the development of EU external energy policy.
In the new make-up of the world economic and political system, energy is both an economic good, a strategic good, and a geopolitical power tool. Producing countries are aware of their position and are, more than ever before, aware and in a position to generate maximum political and economic benefits for their own states and economies from energy. This awareness of the properties of oil and gas as an economic and strategic good and geopolitical power tool implies that investment levels and production levels will be maximised to serve the interests of the producer state(s) and their state companies in the first place, and not automatically for the good of the world economy.

The EU member states have always been comfortable with the arrangements in the International Energy Agency (IEA) on oil security and the crisis mechanism, due to the continued limited political and strategic role of the EU in securing oil flows, but also due to the intergovernmental character of this cooperation. The coalition on oil crisis management has been a great benefit for the EU countries and against a relatively low cost could tap into the US foreign policy to guarantee oil flows. Although the benefits of the IEA go undisputed, the policy of the US in Iraq did create unease among European and Asian countries about the US policy to guarantee oil flows in the future, and led to increased efforts to shore up their national and/or regional efforts. The call for 'one voice' in external energy affairs exemplifies this position.

1.4. ENERGY SECURITY

Energy security means different things to different countries. The US and China are mainly preoccupied with oil security, while the energy security debate in the EU has focussed mainly on the flow of natural gas, the limits to diversification (due to the regional context of the market and the inflexibility of pipeline routes), and the monopolies over supply and transportation of state gas companies (Russia, Algeria). The IEA does not have competency in the field of gas, nor is there a crisis mechanism at this level. Moreover, also the EU does not have a gas security policy or crisis mechanism, which leaves the gas sector more vulnerable to disruptions. In addition, gas security of supply is mainly a member state issue, perhaps explaining the bilateral nature of many of the new long term (LT) supply contracts involving both government and company hand shakes.

In the 1990s, Russia became an important energy supplier for the EU member states. The East European countries had been traditional importers of Russian energy, but increasingly also EU member states imported oil, gas, coal and electricity from Russia. Most of these imports had to flow through infrastructural corridors that were constructed to serve the Comecon countries’ energy needs and the gas export contracts. This led to immediate worries about security of transit. From an overall EU perspective, diversification of routes, even if it involves one supplier, will reduce the risk of supply disruption due to transit risks. The commitment of a supplier to supply a market also increases when large dedicated investments have been made to reach that market. Valuation of this interdependency has not always reached the awareness of the European public discussion, leading to a discussion focussed on conflicting interests and not on the obvious shared interests that can balance the relationship between the EU and Russia.

The emphasis on the economic issues in Europe, exemplified by the deepening of integration and enlargement, has sidetracked the discussion at the EU level from geopolitical issues and the strategy to defend security interests. European leaders have failed to properly communicate the implications of the changing international geopolitical and geo-economic context and the role they wanted to claim for Europe, while public support is a crucial underpinning for any stepped up international engagement, other than trade and investment. The instrumentation of the EU foreign and security policy has fallen short in the context of the EU ambitions and the changing international context it must operate in. The question is then if the new geopolitical
circumstances warrant a revision of the European design from a predominantly economic organization to a new EU design that includes political and strategic issues. The question for the development of an EU external energy policy is whether energy diplomacy can be developed without such a new design or that energy diplomacy should be used to develop such a new design, without the other elements of a full foreign and security mandate in place.

Despite the foreign policy initiatives in the new treaty, which still have to be tried and tested, the Commission so far is short of the competencies in the foreign policy domain to compete with the member states for supremacy in this domain. That said, developing a common foreign policy is going to take a lot of time, particularly in highly controversial areas, and areas where national interests are deemed at stake. It is unlikely that a common foreign policy will develop quickly enough to deal with the current strategic energy policy issues, let alone to have energy policies in place to deal with an energy crunch the IEA has cautioned for in its 2007 World Energy Outlook.  

From the above, it is already clear that the EU has not developed a full policy toolbox yet to underpin any full-fledged external energy policy. Yet, even if the member states have a more complete toolbox, the market integration has rendered this box less efficient because of market integration. That is why a smarter use of toolboxes at both levels makes sense. Yet before an external energy policy can come about, there are certain preconditions that must be considered. In the absence of these conditions, there is a distinct danger that the calls for ‘one voice’ are for public consumption only, and not meant to be taken seriously.

For member states to cooperate and, perhaps in time, relinquish some of their sovereignty in the foreign (energy) domain, the absence of a crisis mechanism which fairly distributes costs and benefits over the member states in the event of market failure (perhaps also along the IEA method of cost distribution), and which helps to reduce the cost of risk management at the member state level, is a major (political) stumbling block for any EU initiative in external energy policy becoming successful. While transition to a low carbon economy is a long term containment policy (in the sense that it reduces gas and oil import dependency and exposure to disruption risk), the short and medium term risks are not covered. A crisis management mechanism could become the (political) minimal requirement for all member states to support strategic external energy relations and the accompanying investment strategies of companies. This is particular important for gas with a value chain extending beyond the jurisdiction of the EU. Such a mechanism would necessarily be best implemented within a EU minimum framework setting for reasons of cost and benefit distribution (and the avoidance of free-riding on other member states’ national energy security policies) and to create a level of political comfort for the external energy policy initiatives.

4 IEA, World Energy Outlook 2007, Paris

The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II.A/ DMV

EU. Such a mechanism would necessarily be best implemented within a EU minimum framework setting for reasons of cost and benefit distribution (and the avoidance of free-riding on other member states’ national energy security policies) and to create a level of political comfort for the external energy policy initiatives. Also a fuel by fuel approach should be avoided, but instead an integrated approach should be realized that fully benefits from the strengths of energy diversity among and within the member states and compensates for the weaknesses.\(^6\)

What can the EU do now to prepare the ground for a more European based energy policy? The things the Commission can do are rather mundane and could and should have been done at the beginning of the liberalisation process in the first place, because they are part and parcel of a properly functioning market: 1. provide the market with transparency on flows and prices, 2. prepare the ground for creating some sort of benchmark for security of supply, and 3. set up a peer-review system for member states to look at each others’ arrangements. With the ground prepared properly, the EU can begin to build, based on its coming shared responsibility, an external energy policy, not the other way around. The Commission has not yet made a convincing case for the member states to relinquish their national oriented gas policies, while their oil policies are secured in the IEA. The absence of a crisis management policy is particularly important for smaller or follower member states, while large member states are better positioned to secure their energy interests, despite the decline in effectiveness of national instruments due to the internal market.

The EU should thus recognise that the current incomplete competences in the field of energy and the strategic foreign policy dimensions will take a long time to develop into what can be constituted as ‘one voice’. The Commission can start by enhancing transparency and begin prepare the ground for a crisis mechanism. They should focus on stimulating the member states and the companies in a race to the top, and reward best practices, bottom up rather than top down. It is also important that the development towards a low carbon economy, as the EU’s long term containment policy, is made an integral part of security of supply approaches. A smart crisis mechanism is the basis for external energy policy to be developed upon, not the other way around.

1.5. BALANCING INTERNAL AND EXTERNAL MARKET DEVELOPMENTS

In conclusion, the natural gas industry in the EU and Europe\(^7\) is a fairly young industry and its international dimensions date back to the first imports of natural gas from Norway, Algeria and the (former) Soviet Union. The various enlargements of the EU and the introduction of the internal market have brought a large part but not all of the member states’ gas industries within the EU jurisdiction. With the internal gas market incomplete, and competency over important aspects of energy policy still in the hands of the member states, it is hard even to refer to the EU as a single policy space. The recent Third Energy Package\(^8\) contains some disputed elements on


\(^7\) EU is defined by the member states but does not encompass all of the European countries.

market design, and also in external energy policymaking the member states are far removed from a consistent and single approach.\(^9\) For the purpose of this study it is clear that the EU gas industry and the gas value chain are not limited to one jurisdiction. This is an important issue because, unlike the US where most of the value chain has fallen and still falls within a single jurisdiction, this was never the case in Europe\(^10\). For those to take inspiration in the American market design and regulatory model, it is important to understand this vital difference. The EU will also have to take the relationship with other regulatory systems into account in order to match EU demand and international supply without throwing up regulatory barriers through mismatches in systems, this includes the ability of companies to manage their risks and benefits in the value chain through vertical integration spanning more than one jurisdiction.

The EU is fortunate given its substantial supplies through pipelines from Norway, Algeria and Russia (see figure 1). In the future new possibilities should be explored and encouraged to grow these existing supplies and complement them with supplies from Central Asia and the Middle East. First in the EU, and perhaps later also in Asia when East Siberian reserves are developed, pipeline supplies and LNG both have a role to play and, ideally, should compete for market share. The current large share of pipeline supplies and its potential for growth might make it uncertain for LNG producers to measure the demand for LNG in the EU. Long term LNG supply contracts with strong buyers in the EU could overcome this concern and add to the EU's supply security.

Competition between pipeline supplies and LNG in the EU market cannot prevent the market logic of dependence on one supplier in certain parts of the EU market (...). The answer to diversifying supplies and enhancing security of supply in these markets, lies not in accommodating other gas supplies in that part of the market when they are uncompetitive (and would run counter to the EU policy to establish an internal market with a level playing field), but rather to diversify the energy mix or when gas remains a fuel of choice to seek a tie in with interests in other parts of the EU gas market.

---


\(^{10}\) When the US required more gas imports and investment was perceived to be impeded by TPA requirements, they quickly introduced the Hackberry decision (December 18, 2002). See for more on the Hackberry decision: http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/ferc.html
be fast tracked on the 20-20-20 policy for 2020, despite the fact that results from this policy might take a few years. Perhaps that the EU regional or structural policy could help stimulate the expansion of sustainable energies in the region to diversify the fuel mix. They could also enhance regional cooperation with neighbouring member states such as Finland and Sweden, for instance in increasing market interconnection in the power sector, allowing these countries to tap into the fuel mix distribution of their neighbours or they could tie their gas markets to the interests of other parts of the EU gas market (and their governments), for instance by participating in the Nordstream consortium.

Based on the successful strategy of economic integration, European companies could integrate their activities along the value chain with upstream companies and vice versa. The idea behind this strategy is that with intertwined economic and/or energy interests, or interdependency, both producers and consumers have a vested interest in maintaining good economic relations. At the same time, such ventures work towards securing additional supply and demand between the producers and the consumers. In the case of Russia and the EU such interdependency exists and could be seen as an important disciplining force in their relationship. For smaller countries or markets that are very dependent on Russian supplies, becoming part of the larger economic interests of the EU-Russia relationship, can provide them with additional security that a bilateral relationship perhaps cannot muster. When alternative gas flows are not a commercial option to reduce the gas dependency on the one dominant supplier, mixing economic interests in infrastructure and markets with other important upstream and downstream players could be an opportunity to reduce the exposure to disruption risk or abuse of market power, when a relatively small regional market thus becomes tied in to larger supply and market interests. EU competition policy and particularly abuse of market power can help discipline the market behaviour of the players in that part of the internal market, while a crisis mechanism could further increase the level of comfort of those countries.

**FIGURE 1 EXTERNAL EU GAS SUPPLIES**

**Imports by gas pipelines**

*Pipeline export capacities to Europe: 268 Bcm/year (not including Norway)*

**SOURCE:** CEDIGAZ
In the Asian Pacific market, most LNG supplies are under long term contracts, while it appears that in the Atlantic basin LNG supplies are increasingly part of the flexible portfolio of suppliers and aggregators. This is not only due to the EU’s pipeline supplies and market liberalization efforts but also because of the organization of the American gas market, the other market for LNG in the Atlantic basin. In the short and medium term, the Atlantic basin seems to be developing as a market for both medium to short term flexible LNG supplies and LT supplies, while the Asian Pacific remains a predominantly LT LNG market, competing for additional short term supplies with the Atlantic Basin. Based on its available long term pipeline supplies, EU gas prices have been lower than those of Asia, which relies nearly completely on LNG. While this benefits the EU consumer, it does not help EU’s position as a potential outlet for long term LNG in a competitive global market.

The gas and LNG market will be characterised as tight for the foreseeable future. There will be global competition for gas between the EU and other regions. This implies the need to refocus from the "internal market" to the "external market". The current internal market design is of value in a buyers’ market with an abundance of supplies. In today’s sellers’ market a successful energy policy and low consumer prices depend on obtaining competitive supplies from outside the EU. Price competition in the gas market takes for a large part place in the international market. The EU gas market design should take this into account, and not focus too much on organising company structures, and inadvertently drive up prices for consumers due to supply shortages. Also, gas is gas, and no supplies should be singled out for special treatment in the sense of hampering its access to the EU market. Competition policy, and particularly the ability to punish companies for abuse of market power, should be a strong instrument to manage competitive forces in the EU.

The EU will always be a market where international gas will arrive by both pipeline and LNG. The recent expansion of the LNG sector and the subsequent prospect of more LNG penetrating the traditional pipeline EU market could change the prospect of diversifying gas flows, but the initial impact should not be overstated. The LNG flows have their own rigidities and competition for attracting LNG trains in the current tight market could reduce its impact on the (perceived as concentrated) pipeline flows in the EU. Also, Russia and other traditional suppliers to the EU market do not sit still and prepare new strategies to defend their market share.
2. THE GEOPOLITICS OF SECURITY OF GAS SUPPLY

World proven oil and gas reserves are sufficient to meet demand over the next decades, and technically these reserves could be developed, but a combination of political, institutional and economic factors have prevented these investments to take place at the desired pace and level. Investment levels, both in the upstream and the downstream part of the gas value chain\(^{11}\), which would allow supply to catch up with growing energy demand, have in the eyes of the International Energy Agency (IEA) been disappointing, despite the recent higher price levels. This has amplified anxieties in the EU over security of supply for several reasons: The maturity of existing large gas fields might not be replaced in time with new fields in f.i. Russia to both facilitate traditional and new pipeline flows; demand from new markets, such as China, could reduce the diversification options when they begin to draw on Central Asian gas supplies; investment capacity is mainly going to develop LNG supplies and these do not only bring gas in smaller increments but also service more diversified markets. The problem is that the EU needs to attract lots of new gas flows to replace the substantial domestic production and at the same time to satisfy new demand. The sheer size of the volumes the EU is looking for in the coming decade cannot be satisfied alone by LNG nor by the three traditional suppliers, but must necessarily be a combination of both. The search for new gas will require the EU to expand its gas diplomacy efforts from the traditional regional suppliers to embrace also new producing countries. At the same time that will increase the competition among consuming countries which are also looking at the same gas flows. The EU is moving from a regional market with mainly captive supplies to a market with partly captive demand (Northwest and East) and demand for supplies in the world market.

Security of supply concerns are now matched by security of demand concerns on the part of the producing countries. These latter concerns are focussed on the return on investment for the national companies and the governments, control over export routes and access to markets.

In the 1990s, gas import dependency mainly had economic dimensions, but increasingly, this dependency achieved geopolitical and strategic dimensions when energy also became a priority of foreign policy among the main geopolitical players in the world. In particular, the way in which China has secured oil and gas flows in recent years through predominantly bilateral political deals with countries such as Iran, Venezuela and Sudan, has troubled foreign and energy policy-makers in the OECD’s capitals. The gas crisis between Gazprom of Russia, a 50% +1 state-owned company and the Ukraine, has particularly alarmed EU policy-makers. Although, the conflict was predominantly a commercial one, and must be seen as part of the painful transition of energy trade relations among the states of the Former Soviet Union to a more market-based energy trade, many judged the refusal to deliver gas on January 1 of 2006, as an act of Russian regional energy power politics. The conflict has greatly impacted the EU-Russian

\(^{11}\) The upstream part of the oil and gas sectors involves exploration and production, while the downstream side consists of the transportation, processing and distribution segments of the industry.
relations. Moreover, the concerns over gas supplies from Russia are responsible for the narrow focus in the EU on gas security instead of wider security of energy supply issues.

2.1. OLD GAS FLOWS, NEW RELATIONS

Traditionally the European gas market was supplied by three large exporters: Russia, Norway and Algeria. The relative concentration of these external supplies was balanced with substantial domestic production capacities, although regional dependencies on one supplier could be rather extensive. Diversification was limited to mixing and matching domestic production in the EU and importing from one or two of the external suppliers. Algeria mainly supplied southern European gas markets, Norway supplied mainly the NW European market and the UK and only Russia supplied both the continental northern, central and southern European markets. The limited level of diversification was due to the inflexible nature of pipeline supplies and bilateral delivery contracts. When in the 1980s, with the Cold War far from over, West Germany, France and Italy decided to contract Soviet gas and participate in extending the Unified Gas System (UGS) into Europe, the American Reagan administration protested strongly against becoming import dependent on a geopolitical adversary. European countries were about to embark on a long term relationship with the Soviet Union through the pipeline, embodied in the long term take-or-pay gas contracts. The US was afraid that the West European gas contracts and the accompanying infrastructural technology to transport gas over large distances, allowed the Soviet Union to free up oil deliveries traditionally destined for Eastern Europe, which could then be exported to world oil markets for hard currency, and at the same time gasify the economies of the Comecon, shoring up that alliance. The new European-Soviet gas relation could thus strengthen the Soviet economy and buttress the capability to strategically challenge the US around the world, including in Europe with gas as a tool of foreign and strategic policy. The gas imports from the Soviet Union were at the time a serious bone of contention in the Trans-atlantic relationship, not unlike today, and illustrated the fundamentally different policy of the leading countries of continental Western Europe in the regional balance of power.

The dependency of the Soviet Union, and later Russia, on the hard currency income, but perhaps also the inflexibility of gas transportation to other markets, reduced the potential threat to disrupt supplies, particularly when the limits to growth and flexibility of the centrally planned economy were reached. As a matter of fact, the dissolution of the Soviet Union and the subsequent severe economic breakdown, never affected the flows of gas to European markets.

The collapse of the Berlin Wall in the late 1980s and the break-up of the Soviet Union in the early 1990s heralded profound changes in the institutional make-up of economic and political relations on the European/Asian continent and purported a major shift in the balance of power in the world. These changes also impacted energy trade and diplomacy across the region.

The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II. A/ DMV

---

12 New member states in 2004: Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia, and since 2006: Rumania and Bulgaria.
of Mutual Economical Aid (Comecon)\(^{14}\) and the Baltic states, which were part of the Soviet Union.\(^{15}\) The Common Wealth of Independent States\(^{16}\) (CIS) is far removed from being a successor to the old power structure of the Soviet Union. From 1991 onwards, both the EU, NATO, Russia and other former Soviet Union states were in a process of digesting these profound changes. Particularly because some of the new institutional arrangements partly overlap and allow for some degree of pick and chose orientations in the foreign and security policy options, the development of EU foreign and security policy has been both stimulated and hampered by the parallel process of redefining NATO’s focus.\(^{17}\) This has also affected the energy policy discussion in the EU.

The process of digesting these profound political, institutional and economic changes and subsequent process of redefinition of the new nation and the accompanying national interests, has been uneven and is becoming increasingly more conflicting, both within institutions/groups of countries and among them, when national political and economic interests clash. The Western European EU member states are struggling with the integration of the new member states into the EU mores and the fact that integrating a large group such as the 2004/2006 enlargement has fundamentally changed the EU itself, particularly in the political sphere. The Treaty of Maastricht could not prevent the centrifugal forces on the European continent to run free after the dramatic change in the balance of power on the continent.

Ten years on, in a new geopolitical and regional environment and a weaker transatlantic alliance\(^{18}\), the discussions about the EU constitution and a new Strategic Partnership Agreement with Russia epitomise the centripetal forces that shape today’s inter-European relations. NATO’s

---

\(^{13}\) New NATO member states: Bulgaria, Czech republic, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania and Slovakia.

\(^{14}\) Members of Comecon were: Soviet Union, Poland, East Germany, Czechoslovakia, Hungary, Rumania, Bulgaria, Cuba, and Mongolia.

\(^{15}\) The new NATO memberships were realised before the EU East European enlargements in 2004 and 2006.

\(^{16}\) The Commonwealth of Independent States (CIS) is a confederation, or alliance, consisting of 11 former Soviet Republics: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, and Uzbekistan. Turkmenistan discontinued permanent membership as of August 26, 2005 and is now an associate member. The creation of CIS signaled the dissolution of the Soviet Union and, according to leaders of Russia, its purpose was to "allow a civilized divorce" between the Soviet Republics. However, many observers have seen the CIS as a tool that would allow Russia to keep its influence over the post-Soviet states. Since its formation, the member-states of CIS have signed a large number of documents concerning integration and cooperation on matters of economics, defense and foreign policy.


The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II.A/ DMV

struggle to find a new purpose and the divergent views among the old NATO member states on the intervention in Iraq and how best to tackle Islamic terrorism has also left this organisation less coherent than before. The difficulty NATO has in committing their member states to contribute to the Afghanistan mission is an indication of the hesitant support of the members to NATO’s new mission. The new EU and NATO member states in Eastern Europe and the Baltic (and aspiring members in the Caucasus) tend to rely less on the soft powers of the EU and the old member states and more often than not side with the US on security issues in the region. Particularly in the relation with Russia this has led to divergent foreign policy approaches and a different approach to future energy relations within the EU.19 Both Belarus and the Ukraine, with their disappointing transition records, have been left in the middle between the EU and Russia, in a crush zone between diverging national interests. Yet, they are crucial to both Russia and the EU for security of transit. The support for further eastward enlargement of the EU has become low, while the US would not want these countries, nor the countries in the Caucasus to fall in with Russia again, because it would reduce the ability and likelihood to develop new energy corridors outside the realm of Russia and Iran, the world’s two largest gas reserves holders. The development of an energy community as part of the EU’s neighbourhood policy must, in a way, bridge this gap in extending the regulatory control over export pipelines. Obviously, these attempts have stimulated Russia to promote its own approach of controlling supplies and export routes and securing their market access.

2.2. COMPETING JURISDICTION

As stated, in the case of the EU, the gas value chain not only stretches beyond the jurisdiction of the member states, but, importantly, also beyond that of the EU. The consequence is that the EU’s choices with regard to managing the gas value chain risks and benefits are partly limited or determined by choices made in another jurisdiction and covers a different part of the value chain. With the Energy Community initiative, the EU attempted to at least include some of the neighbouring transit countries in to its regulatory orbit in order to manage the Russian gas flows earlier on in the value chain than now possible. Unfortunately, Turkey, as a potential main transit country also for Central Asian gas flows, did for various reasons not want to adopt this model and, except for some smaller countries, the proposal has not really led to extending the regulatory reach of the EU beyond its borders. Also the transit protocol of the Energy Charter has not been accepted by Russia, and instead Russia imposed a transportation and export monopoly for gas, fortifying its perspective of managing the risks and benefits of the gas value chain.20 In addition, Russia is actively diversifying its transportation routes to the European market with both the Nord and South Stream projects. The dependence on the Ukraine, where 80% of the Russian gas destined for the European market must transit, is large and creates a security of transportation problem. Recent difficulties to re-negotiate gas contracts with both the Ukraine and Belarus as part of the long awaited normalisation of economic relations after the demise of the Soviet Union evidenced the nuisance power of both countries. Reducing the nuisance power of both the Ukraine and Belarus, and at the same time create some spare transportation capacity in the transportation system allows Gazprom to better manage its risks and benefits and creates more security of demand for Russia. It is likely that they will also do

19 Yuliya Tymoshenko, Containing Russia, in: Foreign Affairs, May/June 2007, p. 75.
that by increasingly mixing long term supply contracts and spot gas deliveries. With their expanded multi-entry points in the European market (Germany, Italy, Poland, Slovakia, Austria, Hungary, Bulgaria) they enable themselves to optimise this mix, and at the same time built a better economic case for developing the Yamal peninsula gas potential. A vital element in this strategy is the availability of transportation capacity.

What is remarkable is that Gazprom and the Russian government have been very effective in up scaling intentions to diversify into real projects, with joint ventures partner companies and governments stretching into the EU. Compared to competing initiatives, such as Nabucco, the time span between plan and investment seems very short, giving the Russian initiatives important first mover advantages if realised. The difference between the Russian initiatives and the other initiatives to bring Central Asian gas to the European market through pipelines is the fact that the Russian initiatives bring gas in the pipeline, while the other initiatives so far have failed to find sufficient gas for the pipeline to be fully developed. Only Azeri gas seems to be available for the moment. Competition from both Russia and China for Turkmen gas, for instance, has so far prevented to get a commitment of Turkmen gas to flow through Nabucco to the EU market. Turkmen gas has been sold 100% over the current production capacity to Russia, while the Chinese seem second in line to buy Turkmen gas once the capacity has been more than doubled. The extension of the East-West pipeline into Central Asia, as a pipeline still to be filled by gas contracts, will thus directly compete with the proposed European Nabucco pipeline. A possible alternative source for Nabucco, Iran, is politically blocked. Moreover, Iran might prefer to develop LNG projects first.

For the European initiatives to bring Central European gas through the Nabucco pipeline, the potential Russian supplies into the Turkish, Bulgarian, the Balkans, and possibly the Hungarian market, which would effectively complicate additional en route market development in the short and medium term for other gas projects, could possibly make the Nabucco project more difficult to realise, particularly because this project needs to be developed on commercial grounds and because the consortium has not yet contracted any gas supplies. The EU, but also the US, attaches strategic value to the development of this pipeline route because it can bring gas from an alternative source via an alternative route, which helps to diversify supply. Pipeline projects are sometimes initially developed for strategic reasons, i.e. without its capacity fully contracted. Once they are in place it is possible that they can benefit from first mover advantages and complicate additional pipeline capacity from being developed along that route until the pipeline is filled (think about the Chinese initiatives, but also the Bluestream I project). The economic case for the pipeline thus is conceivable to come only after the pipeline is in place, and not before. However, for such a development to materialise substantial public funding would be required to overcome the huge commercial risks attached to a project that has perhaps little upfront gas and a very unclear timeline on the return on investment. The EU has so far helped the Nabucco consortium with its good offices. But given the speed with which the companies and governments have recently responded to the southern pipeline initiatives of the Russians, indicates that the prospect of a real gas flow is a major determinant to prefer the Russian projects, in addition to the share in the pipeline itself. Given the size of the gas markets along the routes of both pipeline projects (Southstream and Nabucco), it is not very likely that they can be developed commercially side by side rather than sequenced in time. The timely availability of sufficient gas in the producing regions is another concern.

For the EU to develop a healthy gas market, developments in both producing countries, transit and competing consumer countries should be taken into account. They cannot alone change the

The EU will also have to take the relationship with other regulatory systems into account in order to match EU demand and international supply without throwing up regulatory barriers through mismatches.
politics and economics of potentially EU bound gas flows, but because government are involved in every step of the value chain and their national interests and those of their national companies matter too. For large gas projects to come about, very often government-to-government relations are important for business-to-business to materialise, also in LNG. The international companies can perhaps develop a market for their equity share, but most of the gas is sold by the state company, and perhaps trains are more efficiently developed when a consortium can develop a market for the entire train. The EU has to develop sensitivity for the national interests and the regulatory choices other (competing and partner) governments make, while also pursuing its own strategic choices. At the same time, the dynamics of the gas value chain, the regional markets for gas and the nascent international gas market should also be firmly on the EU’s radar screen. The EU is not an island.

2.3. GAS TRADE AND NEW INSTITUTIONAL RELATIONS

The dissolution of the Soviet Union also had a major impact on the organisation of the gas flow (and gas value chain) to Europe. The number of countries (and regulatory jurisdictions) that governed the value chain increased from but a few governments and companies to many government and company stakeholders. First the Soviet gas ministry was in charge of organising exploration, production and transportation through the Unified Gas System (UGS), which stretched from the gas fields in West Siberia, Turkmenistan, Kazakhstan, Uzbekistan to Belarus, Ukraine and the Comecon countries in Eastern Europe. The fact that the Soviet Union and the East European countries were organised in the Comecon brought them under a unified regulatory regime, in this case state owned and international regulated. After 1990, not only the Soviet Union broke up in 15 independent states, but also the Comecon ceased to exist as a unifying regulatory system (for gas). The Baltic states and 5 former Comecon countries have become 9 new EU member states, adopting the ‘energy acqui’, and one was absorbed into the unified German state. Initially, ownership of the part of the UGS in the newly independent former soviet states fell to new national companies, while the old contracts remained largely in place, perhaps hoping that the CIS would be the vehicle to re-knit the system back together again in a coherent gas production, transportation and distribution system. As a result, both the Ukraine and Belarus throughout the 1990s enjoyed low non-market based gas prices, and managed to re-export to East European markets with nice margins. Moreover, their payment record was spotty at best. The restructuring of economic and political relations, also in gas, is still ongoing today. The reconstruction of the energy sector in Russia of recent years and the slow introduction of higher prices which are planned to reflect the European netback prices in 2011, necessitate a reconstruction of the contracts with both main transit countries.

In return for lower than market-based prices, ownership of the Yamal pipeline is shared with Belarus, while in the Ukraine Russian gas supplies were eventually replaced with Central Asian ones when the Ukraine refused a joint ownership deal after both countries attempted to renegotiate the gas contracts on a more market-based footing after the 2004 Orange revolution. For Russia the political justification for continued gas subsidies to the Ukraine had disappeared due to both the changes in the Ukraine and the new government energy policy leading up to the restructuring of ownership of Gazprom in 2005. Prices in Russia were increasing and would
have become higher than those in the Ukraine if they had not been renegotiated. Moreover, also Turkmenistan began to push for higher prices and had, to underpin its demand, stopped exports for 3 months in the year before. It became clear that the old arrangement were severely under pressure and that the old Soviet based arrangements had to be replaced with new contracts reflecting the new gas market circumstances. The fact that both Belarus and the Ukraine were economically not really ready for these new market realities, and that in the Ukraine elites were fighting to benefit from the new realities did not help finding a solution. Particularly the Ukraine used its Orange revolution and the anti-Russian atmosphere in the EU (due to the Yukos affair and the restructuring of ownership in energy in general) to gain some sympathy. Yet, the EU did not provide the Ukraine with much support but instead used the crisis to rally internal support for security of supply policy-making at the EU level.

The EU, while extending their regulatory reach over the gas value chain through enlargement, had at the same tried to bring the rest of the gas value chain under one umbrella agreement, through the Energy Charter. With Norway in the European Economic Space, and Algeria part of the Mediterranean policy initiatives, Russia was the last major supplier outside the policy space of the EU. Why then did the EU not forge a new strategic energy partnership with Russia ahead of the 2004 enlargement, in which they could have helped the Russians to restructure the CIS energy relations when the discussions in the framework of the Energy Charter ran aground? The explanation is not obvious. Clearly the influence of the US in the Eastern European sphere cannot be underestimated in its impact on European policy-making. Economically weak and politically disorganised states such a Belarus and the Ukraine continue to hold both the energy interests of the EU and Russia hostage. Rather than further deepening the political and economic relations, we have witnessed a growing distrust between the two blocs, epitomised by the dispute about the transit protocol. Only a few years ago, Russia was eager to conclude new and renew old long term supply agreements in order to solidify their position in the EU market. Now their strategy has changed and they seek new types of agreements in which not only they can reach the EU markets through diversified routes, but also gain direct entry to the EU market as a distributor.

2.4. EU AND RUSSIA: ACCESS TO RESERVES AND MARKETS

The explanation for the growing EU-unease lies in the unwillingness on the part of the Russians to open up the huge reserves for foreign direct investments and the way in which the Russian government resolved its problems with the oligarchs and their companies. Just when ownership of reserves and production was so near for the western investors, the Russian government closed the door on the sale of foreign majority holdings in Russian energy companies, and instead, ruled that foreign owners could only hold minority shares. The restructuring of Gazprom and the enlargement of the ownership by the government to a 50%+1 share does, however, hold the promise of upstream investments in gas, much like the investments in Qatar and other producing countries allow. Yet, participation in the near gas monopoly of Russia and its new gas projects did not measure up to the EU’s expectation that the Russian government could be persuaded to break-up the monopoly. Such a break-up would allow Russian gas to compete for the European market and would assist in realising the internal gas market in the EU. Undoubtedly, the monopolistic grip of transit countries on the pipelines and export storage facilities would have been the EU’s next target.

It is likely that the position of the EU, on insisting that long term contracts and destination clauses had to be dissolved in a period when Gazprom had not been fully able to restructure its domestic sector and gas relations with the transit countries, fed the growing suspicions of Russia that it was the EU’s intent to maximise the redistribution of rents towards the downstream end of the value chain, while reaping the remainder of the rent through foreign direct investments.
The growing dependence of government income on oil and gas exports\(^{21}\) necessitated the Russian government to prevent such a development. With oil and gas markets tightening and prices increasing, the Russian government acquired the means to seriously pursue its domestic and foreign ambitions and thwart the designs of the EU and others for the Russian energy sector.\(^{22}\) Energy was already a part of foreign economic policy of the US and Europe and became an instrument again of national and foreign policy of Russia. The enlarged EU had triggered Russia in pursuing security of demand, which implied that some of the new gas is now developed for new markets in North America and Asia. Gas that was traditionally seen as destined for only one market is, partly as a result of the 'LNG-revolution', now diverted to other markets. Initially, the Sakhalin development was seen as separate from the strategy of the national gas industry, including Gazprom, but the growth of demand for LNG and the re-organisation of the Russian gas sector during the second Putin administration, has brought both East Siberia and the Far East Russian gas projects within the realm of the Russian gas strategy to diversify demand. The connection of the energy-rich region in East Siberia including Yamal, first oil and later gas, with the Far East through a new pipeline network, is also strategically important for the development of an economically (and politically) prosperous border region with China. The energy hunger of China creates both economic potential but also a strategic challenge. Russia’s population is mainly centred in the European part of the country. Russia is concerned that the population pressure in China and the energy hunger could in time jeopardise the integrity of the Russian state. Already many Chinese are moving north, changing the demographic balance in the region. Energy is seen as a major stepping stone to develop the region into a viable local economy where Russians can work and live and prevent Russians from moving away. This long term plan for the region is of geo-strategic importance.

The development concerns and strategy of Russia alter the outlook for Europe as the only viable market for Russian energy exports. Already, Europe has to compete for LNG flows from other gas-rich regions with the US and Asia. What is more, Europe is now effectively competing for new gas developments in Russia with other consuming countries because Gazprom does not have an unlimited capacity and capability to develop very many large projects all at once, while Gazprom is the main instrument of the Russian strategy. The merit order of Greenfield, pipeline, LNG and downstream investments changed under the pressure of the changing strategic market outlook and have led to the current expressed ambition of becoming a leading international gas company.

The dramatic change in the institutional make up of the European-Asian continent has also impacted the relationships with the traditional main gas suppliers, Russia, Algeria and Norway. Norway entered the European Economic Space (EEC) but failed to make the step to become a full member of the EU. With oil production in the North sea over its peak, and gas production moving north to more inhospitable regions, Norway is reorienting itself as a major energy supplier to the EU. The merger of Norske Hydro and Statoil are a indication that also Norway wants to maximise its energy wealth for the Norwegian economy. The resultant long term strategy, stretching the energy period over a large number of years, may run counter to the immediate energy and diversification needs of the EU. Also in Norway, the government owns

---

21 Shinichiro Tabata, Price differences, taxes and the stabilization fund, in: Micheal Ellman, Russia’s Oil and Natural Gas, Bonanza or Curse?, Anthem Press, London, 2006, pp.41-46.

more than 50% of the newly merged company StatoilHydro, a further indication of the importance that the government attaches to the management of the energy wealth. The new company allows for a more optimal mix of oil and gas production in Norway, creating the option to optimise income from oil and gas, and to engage in developments in the Arctic and elsewhere in the world. Security of demand and diversification of markets has also become more important for Norway. Developing a position in LNG, with the development of Snohvit and the participation in Shtokman, will help to achieve this diversification of demand.

2.5. RUSSIAN STRATEGISING IN A SELLER’S MARKET

Nearly two decades after the dramatic political and institutional shake-up of the Eurasian continent it is clear that also energy relations have changed. The gas sector of Russia is becoming more market oriented, also in the domestic market. In March 2008, the independent producers, who could only sell on the domestic market, are now poised to benefit from gas export proceeds when a proposal in the Duma is passed. The importance of the independents for the Russian gas balance is important and the export monopoly of Gazprom prevented them from benefiting from higher EU prices. Increasing domestic gas prices and allocating their share of export income should help to optimise gas production and stimulate new investments. These investments and those of Gazprom are necessary to make the next step in developing the new generation of gas fields in faraway places like Yamal, East Siberia and Shtokman. The success of the investment strategy and the development of domestic gas demand will be decisive in determining how much gas will and can find its way to the EU market. The developments in the Russian market, such as netback pricing by 2011, will also impact the volumes of Central Asian gas flowing to Russia and the EU. Russia is trying to become an aggregator for Central Asian gas, offering both a spot market and LT arrangements through Russia. Diversification of routes to the market and creating market outlets in the EU play an important role in managing the risks and benefits. At the same time both Russia and Central Asian suppliers are also developing export routes to Asia, allowing them, in time, to arbitrate between the two important markets for gas (see figure 2).

FIGURE 2 PIPELINE GAS AND LNG COMPETITION IN EU MARKET

![Supply Competition will have an effect on price movements (increased arbitrage)](source: Shell)
The volumes of ‘Russian’ gas entering the EU market will, in their turn, largely determine the penetration of LNG into the market. For the moment, Russia seems geared towards maintaining its market share and is creating the ability or flexibility to compete with LNG on price. The crucial position of Russia for balancing world gas markets is confirmed by the IEA: “Russia is also important to the world because future trends in Russian gas exports to Europe are a key factor in determining the degree of tightness in global gas markets and pressures on alternative sources.” The challenge for the EU is then to create a market and regulatory system which attracts gas into the market. A decade ago, the buyer’s market implied allowing suppliers of gas to compete for the buyers in the EU market. In today’s sellers’ market it implies buyers competing for gas with other buyers. This competition for flows is not localized in the EU market among the various consumer groups, but more and more at the international market level with other economies. This competition will also impact the availability or balance between LT and spot supplies and the pricing system preferred. Suppliers have to make long term investments in both production and transportation to maintain market access and seek a proper balance between long term income flows and benefitting from short term spikes. Although the bulk of gas trade is still under LT contracts, both pipeline gas and LNG, the share of spot and short term contracts is increasing. In the current market conditions it allows the producers or aggregators to both balance among markets and generate arbitration gains.

It is clear that Russia’s gas strategy has evolved in the past decade or so from a regional to a world market strategy, in which the national rather than the regional economic interests are central. Russia is moving away from a position of being a captive supplier to the EU. The EU at the same time is trying not to become a predominantly captive consumer of Russian gas. The supplies from the traditional suppliers, Algeria, Norway and Russia will continue to play a crucial role in the EU gas market.

2.6. GOVERNMENT INVOLVEMENT IN LNG

The LNG business developed in the wake of the oil crisis of 1973/74, and began to deliver markets across the globe. In the US and EU, growth of the LNG business was arrested when both domestic and regional gas production took off (see figure 3) and pipeline deliveries from Russia began to flow. In the EU, LNG remained a largely southern European affair. Algeria was initially the main supplier to these markets, both in LNG and pipeline gas. The main development of the LNG market was focussed on Asia, with no domestic resources available, and some gas suppliers in the region (Brunei and Indonesia).

---

23 IEA, Natural Gas Market Review 2007, p. 129
In the 1990s, LNG went through a second expansion when cost reductions in liquefaction and transportation unlocked the previously stranded gas in the Middle East and Africa for world markets. The structural upward movement in energy prices, in addition to these new producing countries, has dramatically changed the economics of the gas markets in the space of 10 years. Initially, the large oil companies as holders of both the capital and technology of LNG trains, were the main market players. They developed the gas field, the liquefaction and the market for LNG. They negotiated long term contracts with the main buyers of LNG, mainly in Asia, to manage the risk and the benefits in the LNG value chain. This approach changed when the new reserves from the Middle East became economically available and new markets for LNG began to develop in the Atlantic basin. Some projects were developed without the long term contracts with the consumer market in place (See section 4.3). Both the EU and the US were already then projected to become in need for new gas imports, in the EU because domestic production was declining and needed at least to be replaced by new gas, while in the US demand for gas outpaced production. The stricter environmental requirements for industry and power generation and the availability of domestic gas had boosted the market outlook for gas demand. In addition, the inevitable CO2 taxing or pricing had favourably influenced gas as the preferred fuel for electricity generation. Gas had become also a transition fuel in the plans of policy makers to transform the economy from a high carbon to a low carbon economy, giving gas also a long term favourable outlook. With the development of the market for gas in both the EU and the US, in the early years of this decade, some LNG projects were developed without a firm commitment of a market for the gas (See section 4.3). Yet, both the markets in the US and the EU were rather mature, markets grew modestly compared to new markets in Asia. In addition, additional pipeline flows in the EU, from Norway and North Africa, filled some of this new demand, leaving opportunities and demand for LNG. But it is the recent gas market development in Asia that has really created new opportunities for new LNG suppliers. The preference for LT oil price based contracts in the Asian market and the upswing in oil prices since 2004, has maintained the competitive position of Asian buyers towards the European and American buyers. Gas prices in the US and EU have continued to be lower than Asian prices. Available uncommitted (new) LNG so far predominantly finds its way to Asia.

FIGURE 3 HISTORICAL DEVELOPMENT OF LNG MARKET

SOURCE: CEDIGAZ

Very soon in the Middle East expansion in gas production, the Qatar government realised the potential of LNG and insisted on a majority share for their national company. This way they could manage both the resource and the money flows from these large projects in a manner that
suited the national economic interests best. LNG projects in Qatar, are now mostly developed in a 65-70% ownership role for Qatar Petroleum. It is likely that other Middle East governments will follow this organisation model, once they begin to exploit their resources. Also in oil we have witnessed a similar development in projects that were first heralded for their large share of foreign direct investors, but later we reorganised to include a larger government company share. The increased government stake in pipeline supplies from Norway and Russia is thus matched by similar government stakes in LNG supplies. Does this impact the potential availability of LNG flows? To a certain extent yes, because already Qatar has decided to reduce the initial fast pace of development on the North field, officially to manage the logistics of the many trains under development, but the fact that the intense and fast speed of development could create difficulties in its relations with Iran, whose South Pars field shares the geology with the North field seems a good explanation too. Also, with a relatively small population, and gas demand growing in the region, Qatar’s national interests may lie with a different profile of development and export destinations than the international gas market would prefer. That the demand for energy is becoming an issue in the region is witnessed by the initiative of the UAE to develop a nuclear industry. The growth of domestic and regional energy demand in the region can certainly impact the pace and purpose of gas developments.

The rapid urban developments in the neighbouring United Arab Emirates and the industrial gas demand in for instance Oman are offering regional gas export possibilities. Qatar, as a small nation and part of the Gulf Cooperation Council (GCC) cannot ignore these regional developments and may want to reserve some capacity for the regional market. Moreover, from a government income perspective the recent increase in oil prices can also reduce the pace of development because government income and monetary reserves have increased due to price rather than volume. As a matter of fact, the sellers’ market and accompanying higher prices could reduce the pace of development in certain producing countries, because incomes cannot be absorbed in the economy at the same pace. The excess incomes must be invested elsewhere but in the current economic climate (with declining dollar, declining interest rates, higher inflation and reduced access to good performing investments) these could alter the development pace. At the same time, new suppliers could be drawn to the market to benefit from the expansion of LNG trade and use the space left by traditional suppliers for its gas to find a market.

2.7. MANAGED SUPPLY?

Managed supply capacity and trade flows is dreaded by the consumer countries. So far the discussions in the Gas Exporting Countries Forum (GECF)\(^{24}\), established in Teheran in 2001, seems to steer clear of OPEC like market behaviour (see figure 4). Invitations have been extended to gas consuming countries but they were not taken up yet. Currently, the GECF already represent around 72% of world gas reserves and 41% of supply. Many commentators point out that the likelihood that the GECF could develop in a cartel-like organisation is small because most gas is traded in regional markets through pipelines and they do not possess the type of spare capacity that gave OPEC its command of the oil market from the 1970s.\(^{25}\)

\(^{24}\)The forum doesn’t have fixed membership structure, although, Algeria, Bolivia, Brunei, Egypt, Equatorial Guinea, Indonesia, Iran, Malaysia, Nigeria, Qatar, Russia, Trinidad & Tobago, the UAE and Venezuela could be identified as current members. Turkmenistan, Bolivia, Indonesia, Libya and Oman have participated at different ministerial meetings. Norway has status of observer.

The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II.

is suffering from certain rigidities, not least in transportation and storage, that oil does not suffer from. However, in OPEC’s early years the same was true for the oil market, and the gas producers have already a much tighter grip on the gas sector in their countries in terms of ownership and pace of development than the oil producing countries had just prior to 1973. The flexibility that is being developed both in EU pipeline supplies (Russia and Norway) and in the LNG market (see section 4.3) could generate the type of marginal supply management that is needed for the producers to influence the market. The importance of the GECF is perhaps in the future when more LNG comes to market and in case of Europe, Russia has diversified its routes and captured Central Asian supplies as part of its market development. Also the may want to be in control over arbitration possibilities in an effort to maximise their share of the economic rent. In case of a slump in gas demand as a result of the current international economic instabilities, the decision of the member states how to manage the market might be brought forward. They can either decide to jointly manage supply or revert to security of demand by more bilateral LT gas contracts. Also, statements coming out of recent meetings of the GECF certainly do not exclude moving towards a managed gas market. In the 6th ministerial meeting on 9 April 2007 in Doha, an expert group was established, chaired by Russia, host to the 2008 meeting, to study how to strengthen the GECF. The group will look at factors including pricing, infrastructure, and the relationship between producers and consumers.

FIGURE 4 GAS EXPORTING COUNTRIES FORUM

Interestingly, the GECF brings together the three largest reserve holders (Russia, Iran and Qatar) and also the countries developing new LNG capacities. The member states are very different and, at this point, seem to have too many different interests to organize the market. The one issue that they have as a shared interest is the prolongation of the current sellers’ market, which could imply a certain degree of investment management or capacity addition management among the members. With more spot LNG or uncommitted LNG in the system, the flexibility needed for some market management might be ‘under construction’. However, even if the gas countries are successful in to some extent organizing supply they should remember that OPEC also had its strong and weak periods in market management. The long period when OPEC was the world swing producer and had to absorb the cost of overcapacity must be a period the GECF member countries wish to avoid.
3. DEMAND FOR NATURAL GAS AND LNG IN THE EU MARKET

Most forecasts, outlooks and scenarios that are publicly available predict demand for natural gas in Europe to increase by anywhere between one and two percent per year between today and 2030, driven by increased use of natural gas in the power sector. As production from gas fields in EU countries will continue to decline, the EU must not only seek supply to meet the incremental increase of demand, but it must also seek replacement volumes for lost “domestic” production.

Long-term forecasts of EU demand for natural gas are prone to great uncertainties. As a telling reminder, the International Energy Agency (IEA) has consistently scaled down its estimates for natural gas demand for OECD Europe in its World Energy Outlooks from 2002 through 2006.26 Looking at some of the current estimates for EU gas demand in the long term by leading institutions we observe a wide margin between the upper and lower boundaries of forecasted demand. To illustrate this point, the IEA reference scenario predicts that EU demand will increase from 541 bcm today to 744 bcm in 2030.27 On the other hand, the EU’s DG-TREN calculates that gross inland production in the European Union member (Europe-27) countries will increase to 607 bcm/a in 2030 (baseline scenario).28 Both institutions have in common that they prudently work with scenarios, accepting that assumptions have been made around a range of uncertain conditions to arrive at the growth figures.

Within the ranges of EU demand for natural gas, could there be a separate demand for LNG? We do not think so. Of course, current levels of supply represent a “base load” of LNG and those interested buyers who have invested in LNG regasification capacity are in search of LNG supplies. But the projections made by the various analysts of future LNG volumes in the EU portfolio should not be counted as specific LNG demand but rather as their assessment of possible supplies of LNG to the EU markets. In so doing they have to make many assumptions. On this basis, the IEA estimates (OECD) Europe’s imports of LNG will reach a volume of between 60-100 bcm in 2010, increasing to between 80-160 bcm in 2015. (See figure 5) The IEA notes that these LNG import volumes do not only depend on LNG production developments, but also on upstream and pipeline developments, price developments in the main consuming regions as well as on demand growth elsewhere (notably China), thus explaining the sizeable range of uncertainty it uses for its LNG outlook for (OECD) Europe.29 By aggregating the full band of uncertainties, an analysis by CIEP suggests a range of 50-130 bcm/a of LNG supplies to (OECD) Europe in 2015.30

27 IEA, WEO 2007, p85
29 IEA, Natural Gas Market Review 2007, p. 63-64.
30 Tönjes and De Jong, Perspectives on Security of Supply in European Natural Gas Markets, CIEP, The Hague, August 2007
A variety of factors is responsible for the greater uncertainty in forecasting future demand for gas:

**COMPETITIVENESS OF GAS PRICES**

The steep rise in natural gas prices has affected the competitiveness of gas vis-à-vis coal and nuclear for power generation, the biggest growth sector. But more recently, coal prices have risen considerably, due to increased demand and higher shipping costs, which in turn reduces its competitiveness vis-à-vis natural gas. In addition, while the economic attractiveness of gas-fired power generation may not be as obvious as it was in the past, uncertainties around timing, permitting and the future cost of CO2 make it more uncertain which options the markets will choose for new power plants.

**SECURITY OF SUPPLY IMAGE**

Heightened concerns about the security of gas supply could negatively impact demand. 

**ECONOMIC GROWTH**

Demand for natural gas and (gas-powered) electricity is closely linked to economic performance.

**IMPACT OF NUCLEAR ENERGY AND RENEWABLES ON DEMAND FOR FOSSIL POWER GENERATION**

Regarding the competitiveness of nuclear power: Policies in many EU countries are still rigid when it comes to adding nuclear capacity. A combination of mandatory CO2 emissions reduction and security of supply concerns may move EU member state governments to reconsider anti-nuclear biased policies. Notably, the UK has recently announced renewed commitment to add

---

The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II.A/ DMV

nuclear capacity. But, it takes many years to add significant nuclear power capacity. At the same time, cost inflation of uranium and construction costs may work to reduce the competitiveness of nuclear power.

IMPACT OF ENERGY EFFICIENCY MEASURES ON ENERGY DEMAND

The EU has issued non-binding energy efficiency guidelines. The potential to use heat from industrial processes more efficiently could lead to significant gains, and possible reduction of demand for fossils.

IMPACT OF OBLIGATIONS TO USE RENEWABLES

Strict policies to curb CO2 emissions in the EU would make coal powered electricity generation less attractive. On the other hand, a push for clean coal technologies such as CCS and gasification could reduce the environmental concerns with regards to coal. The EU has introduced the binding target in its January 2008 Energy directive stating that 20% of EU’s energy needs should be met by means of sustainable sources.

SUPRANATIONAL CLIMATE PROTECTION MEASURES

What will happen after the Bali conference? Will there be a renewed Kyoto-accord, with pledges from all major industrial nations?

It is important to note that these factors of uncertainty will not only affect EU demand. Future demand in North America and Asia Pacific is as difficult to predict as it is in the EU. Other regions face the same (or similar) risk factors and uncertainties that could alter the competitiveness of natural gas vis-à-vis other fuel sources.

Natural gas demand scenarios and demand projections for EU vary significantly as a result of many uncertainties surrounding the competitiveness of gas prices and the impact of energy policies.

For producers this gives rise to concerns around longer term Security of Demand in EU.

Many factors causing the high level of uncertainty/ unpredictability in the EU will be similar in the other main consuming regions. Therefore, while the uncertainty of EU future demand may not help EU buyers in trying to secure long-term supplies of imported natural gas, Security of Demand is a universal issue faced by gas producers.
4. THE LNG SUPPLY OUTLOOK

4.1 RESERVES AND SUPPLY SOURCES RELATIVE TO THE EU

There is general agreement that global proven gas reserves are sufficient to meet global demand for some 60 years. Considering that exploration for gas still offers significant scope for more finds, it is safe to assume that there is no shortage of gas reserves to meet future demand (see figure 6).

FIGURE 6 PROVEN NATURAL GAS RESERVES

As regards the EU, the region is surrounded by well over 60% of all proven reserves. Most of these reserves are to be found in Russia, Central Asia, North Africa, Iran and the Middle East. Given today’s gas price levels it should be possible to bring all of these deposits to development for supplies to the EU on an economic basis.

Most of these developments lend themselves as pipeline projects, but some suppliers have a choice between exports by pipeline and LNG. Homing in on the most important supply sources to the EU from outside the EU market:

**Russia:** Geographically essentially focussed on pipeline developments, although transit problems and aspirations to become a global player have led to a Russian interest in LNG developments in the Atlantic basin, conceivably from the Shtokman field in the Barents Sea. But the mainstream supplies will remain pipeline gas. In this respect the Nordstream and Southstream pipeline projects are well under way.

**Algeria:** Both geographically and economically a pipeline supplier of gas to the EU. Indeed two new pipelines into Southern Europe are on the drawing boards. These supplies are destined essentially for Italy and the Iberian Peninsula.

Algeria is also a major LNG player in the Atlantic Basin and is also supplying LNG to the EU, notably to France and, more recently, to the UK.
Central Asia: Not yet a direct supplier to the EU, but supplies to CIS countries such as Ukraine using the transportation capacity of Russia. The Nabucco project is an attempt to route Central Asian gas through the Caucasus and Turkey, by-passing the Russian pipeline network.

Iran: With regards to supplies to the EU, Iran has two options: Pipeline gas (Nabucco) and LNG. LNG currently seems to be favoured by Iran. As LNG supplier Iran can be regarded as part of the Middle East. If political hurdles can be taken, the potential for regional pipeline supplies (India) is considerable and geographically more attractive than the EU.

Middle East: Essentially an LNG supply region. Qatar is the most prominent of all and has become the world’s number one LNG supplier. The Asian market is geographically equally attractive as Europe for LNG suppliers in the Middle East.

West Africa: In this region, Nigeria is by far the most prominent gas supplier. Apart from some regional pipeline supplies, West Africa will be an LNG supplier.

Caribbean region: Today only Trinidad & Tobago is active in this region, but it has more potential with Venezuela as a major resource holder. The region is better placed geographically to supply the North American market than the European market.

Altogether, the geographically and economically most attractive countries and regions that hold potential gas supplies to Europe are mainly positioned as pipeline suppliers with the possible exception of West Africa. The Middle East is equally distanced to Europe and the Asia-Pacific market. Regarding Caribbean and South American supply, the US market has a distance advantage over Europe.

While there is adequacy of reserves to meet EU demand, various factors blur the prospects for such supplies:

a) None of these supply sources seem to be strongly focussed on Europe as the most important market for their gas. There are a number of possible reasons which will be set out in section 5 (price levels, regulatory concerns, EU energy policies, security of supply concerns/measures).

b) Developments of new gas supplies are lagging globally. Gas projects are complex and time consuming in the best of circumstances. In the current business environment this has not become any easier:

   i. many governments today seek a more substantial involvement and are reviewing their stakes in new developments.

   ii. identifying and securing markets today is more difficult, if only because there are more marketing options and a number of these carry higher risks for the suppliers. A great number of risk management processes are involved before any investment decision is taken.

   iii. as the size of LNG units (regasification and liquefaction terminals) is increasing, so are the financial and marketing dimensions.

   iv. today, major cost increases and the limited availability of contracting and specialist resources further hamper the development of new supply projects.
c) Various producing countries are currently reassessing their future domestic gas needs which will take precedence over exports. They will only give the green light for further exports once they have ascertained that their domestic demand can be satisfactorily met.

d) Most of the global gas reserves are now held by National Oil Companies (NOCs), which are controlled by national governments. Their agenda and drivers for new developments are dictated by many national (and international) political considerations and the objective to maximise the economic rent of their national resources.

Considering further that the efforts required to meet the demand for fossil fuels over the next 25 years (about 50% greater than that of today)\(^{32}\), it looks as though the growth in production capacity of LNG will be trailing the growth in global demand.\(^{33}\)

As a result we expect that the current sellers’ market will persist for the foreseeable future.

And as a consequence of that, Europe will be competing with the rest of the world for new supplies, be it pipelines or LNG. Where possible the consuming world will have to step up its endeavours to secure new supplies for its markets.

There is no shortage of reserves to meet the future demand for gas in the EU. However, the global development effort, both in pipeline gas and LNG, does not currently appear to be keeping pace with the demand prospects. While Europe is geographically well positioned for new supplies, surrounded as it is by the majority of global gas reserves, there do not appear to be many major supply developments specifically earmarked for its markets other than those from Russia.

For the foreseeable future Europe will be in competition for LNG supplies with the rest of the world.

4.2 LNG SUPPLY SOURCES AND THEIR POSITION RELATIVE TO THE EU MARKET

LNG, with its lower incremental transportation costs relative to distance than pipeline gas and its ability to cross oceans, has a wider reach than pipeline gas. Given today's gas prices all LNG sources could reach virtually every destination in the world. Consequently LNG is being hailed as the commodity that will globalise the gas industry.

Nevertheless, travelling over long distances does not come for free, so some LNG supply sources lend themselves better for supplies to the EU than others. For this reason the gas sources in the Asia-Pacific region\(^{34}\) will be left out of this evaluation of potential LNG sources of supply for the EU. These sources have markets in the same region that are sufficiently attractive and show sufficient demand to keep Asia-Pacific LNG from travelling to Europe (other than the occasional spot cargo).

\(^{32}\) IEA, World Energy Outlook 2007, p. 41

\(^{33}\) See IEA, Natural Gas Market review 2007

\(^{34}\) The oil and gas producing nations that supply LNG almost exclusively to the Asia-Pacific market (now and in the future) are Australia, Indonesia, Malaysia, Brunei, Papua New-Guinea, Russia’s Sakhalin Island, Alaska and the West-coast of South America (Peru, Bolivia).
What is left as possible supplies to Europe are the LNG sources in and around the Atlantic Basin and in the Middle East (see figure 7). Homing in on the current and potential LNG supply sources from these areas and their position to Europe:

**FIGURE 7 GEOGRAPHY OF THE LNG MARKET**

**North Africa**

Very clearly the distances from its supply sources to the European markets are considerably shorter than to other markets. Geographically Europe would be well placed to acquire any new supplies if these were to come up for sale.

**Algeria**

Geographically a serious option for additional LNG supplies to the EU. There are plans for more LNG capacity other than the refurbishment of their Skikda plant (notably the planned Gassi Touil project), but these have suffered some delay and are awaiting firm commitment.\(^{35}\) Algeria, the natural supplier of pipeline gas to Southern Europe, is experiencing the effect of security of supply issues in Spain, which may affect Algerian perceptions of the attractiveness of the EU market. It has not yet decided on the destination for its Skikda LNG. From an Algerian perspective a return to the US market could be an interesting diversification option.

**Libya, Egypt**

Today, both countries have relatively small reserve positions, but sufficient for limited export potential. LNG is the most likely source of supply (although Libya also exports gas to Italy by

---


pipeline). Egypt has plans for new facilities and Libya has plans to refurbish and expand its LNG liquefaction facilities, but there are as yet no concrete commitments for new developments.

**West Africa**

Distances from West Africa to the European market are shorter than those to North America. However, there are signs that the South American market is also becoming interested in acquiring LNG. If that materializes, those geographic distances could be shorter than those to Europe.

**Nigeria**

Current supplies and developments are essentially committed. Nigeria is preparing itself for the next LNG development. It is more or less equally well placed for the US market and the EU (and also for a future South American market). With its last project supplies destined for the US market, Nigeria may now focus on Europe again. Other than the next LNG train from NLNG, various other new LNG projects are on the drawing board. Among these are, Brass LNG and the OK LNG project.

**Equatorial Guinea**

EG LNG’s first train was committed to BG. Arbitrage opportunities will determine the destination of this LNG supply. There are plans to build another train: Ruhrgas and Union Fenosa have joined the consortium.

**Angola**

The final investment decision for the Angola LNG project was taken in December 2007. Angolan LNG looks earmarked for delivery to the US market.

**Russia and Norway**

There could be rationale in bringing LNG from very remote (polar) parts of these countries to the EU. However, both countries are essentially pipeline suppliers to Europe. Therefore, if and when new LNG projects emerge from these countries it must be assumed that the supplies will primarily focus on the US and Asia Pacific markets to diversify demand. Gas from development of the Shtokman natural gas field in the Barents Sea may feed a future LNG export facility near Murmansk.

**The Middle East**

Current supplies and developments are essentially committed. There are no concrete plans for new developments. If and when new LNG projects emerge from these countries, the EU will be in competition with the Asia Pacific markets, while geographically in a slightly better position with regards to the East Coast of the US market.

**Qatar**

Qatar has called for a moratorium on new projects while it is bringing to fruition some massive, committed LNG and gas-to-liquids (GTL) projects. The extensions to the existing RasGas 2 and

---

36 World Gas Intelligence, *New LNG Trains Still Eyed in Egypt*, 16 May 2007

37 Angola LNG main shareholders: Chevron, Sonangol, Total, BP and ENI
The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II.A/ DMV

Qatargas 2, 3 & 4 LNG ventures tap into the world’s single largest natural gas field and together will form the cornerstone of additional LNG supply coming to market in this decade. Qatar Petroleum and ExxonMobil are the main shareholders in the RasGas extensions. The three Qatargas extension projects are all led by Qatar Petroleum with other main shareholders including ExxonMobil (Qatargas 2, train 4 and 5), Total (Qatargas 2, train 5), ConocoPhillips (Qatargas 3), Mitsui Trade Co (Qatargas 3), and Shell (Qatargas 4). Over the past few years it was expected that most of the additional RasGas and Qatargas LNG will go to US terminals, with some supply moving to Spain, Belgium and Taiwan. Producer strategies are however not cast in stone. Target destinations could still shift, with the large and growing Asia Pacific customers an interesting alternative option for Middle East producers.

Oman, Abu Dhabi and Yemen

Total has been developing the Bal Haf LNG project in Yemen. The bulk of supply from Oman and Abu Dhabi will continue to head for the Asia Pacific and US markets. No further projects are expected in the near future in Yemen, Oman or the United Arab Emirates.

Iran

Iran is struggling to launch its first LNG project.

South America and Caribbean

Trinidad & Tobago

Trinidad started originally with part of its supplies destined for Europe and part for the US, but today it predominantly supplies to the US market. A fifth LNG train has been proposed.

Venezuela

Venezuela has for some twenty years been trying to launch an LNG project. With ample gas reserves, the country would be a natural LNG exporter. However, the proposed Mariscal Sucre LNG project is still merely a proposal.

Current LNG supplies and developments are essentially committed (but not necessarily with fixed destinations). There are only a few projects for additional LNG supplies, from the regions which would normally be expected to supply the Atlantic Basin, in a sufficiently advanced stage of planning to start discussions with possible buyers in the near future, but there are more interested buyers than there will be new capacity. Consequently, there will be serious competition for new LNG from all regions.


39 Today approximately 70% of Trinidad LNG is shipped to US terminals, including Puerto Rico. (BP, Statistical Review of World Energy 2007)

40 World Gas Intelligence, Venezuela Back in Pipes-over-LNG-mode, 26 September 2007
Relative positions of the EU and North American markets

All potential sources of LNG supply lie south of the EU. Southern Europe is obviously well positioned to take LNG from North Africa and the Middle East. Northwest Europe has a cost advantage in LNG supplies over the East Coast of the US for supplies from Africa and the Middle East (approximately 50 US$cents/MMBtu). However, these cost differentials may well be dwarfed by price differentials between market outlets in the US, Northwest Europe and Southern Europe.

Relative to the East Coast of North America, the EU is geographically well positioned to receive LNG, notably from the Mediterranean and West Africa. As regards LNG from the Middle East, Europe also has a cost-advantage over the US, but there is no geographical advantage for the EU relative to the Asian market. In fact, the Asian market is currently buying short and long term LNG from the Middle East and has the potential to lay a significant competitive claim on future LNG from this region. All potential LNG supply sources lie to the south of the EU, so southern Europe has a cost competitive advantage over Northwest Europe.

All potential LNG supply sources lie to the south of the EU, so Southern Europe has a cost-competitive advantage over Northwest Europe.

4.3 NEW BUSINESS MODELS IN THE LNG INDUSTRY

Similar to the gas pipeline business, under the traditional business model LNG is sold “FOB”\(^ {41}\) or “Delivered” in large volumes under a long term contract to a substantial buyer in a specific market (or with limited defined destination flexibility). This process of commercialising gas reserves is still employed by many LNG producers and remains the solid financial foundation for an LNG project. LNG projects tend to be among the biggest capital projects undertaken in producing countries in absolute size, and therefore generally require very large financing packages. The quality of the sales agreements plays an important part in the finance-ability of new plants. However, new forms of marketing LNG are coming into play. As these gain weight in the market, they could have an impact on the EU’s ability to secure its future LNG supplies.

These new developments include:

a) LNG producers reserving part of the capacity of new LNG liquefaction projects for short term marketing (arbitrage)

The combination of the emergence of the US market and the high gas prices has encouraged LNG producers to accept more risks in return for higher rewards. By not committing all capacity under long term contracts to financially robust buyers in specific markets as security for their investment, producers retain some capacity to “play” the market, on a global basis. This policy may be followed by LNG producers already established in the market with assured cash-flows from earlier investments or by new LNG players to the extent there is sufficient cash-flow from supplies committed under long term contracts.

\(^ {41}\) Free On Board
b) **LNG producers reserving or self-contracting (part of) the capacity of new liquefaction projects for own marketing**

For liberalised markets producers can elect not to depend on major buyers to take their LNG under long term contracts, but to acquire capacity in LNG regasification terminals and sell the regasified gas directly in the markets. Duration and reliability of supplies to a particular market become far more uncertain. While the producers of the LNG may initially have earmarked specific markets for their production, they can always decide to take the LNG elsewhere, if better value can be realised by doing so. This process of controlling and owning supplies all the way along the value chain is applied by some IOCs and also by combinations of IOCs and NOCs. The development of LNG from Qatar by Qatargas/ExxonMobil for the UK market and the supply of LNG to the UK by Sonatrach are examples.

c) **The emergence of LNG aggregators**

In some LNG projects IOCs have contracted part of the LNG production. With regasification capacity in the US market as a backstop, they aim to develop a portfolio of LNG from which they will sell under long and short term contracts in various markets.

These combined developments shall be referred to as flexible LNG, i.e. LNG with destination flexibility.

In addition, the phenomenon of medium term LNG contracts is developing:

d) **LNG producers entering into medium term (e.g. 3-5 year) contracts from existing liquefaction plants**

Algeria has indicated that it is considering selling LNG under medium term contracts from its existing liquefaction plants. This half-way-house contractual model, which offers a compromise between flexibility and revenue security, positioned between long term contracts and spot sales, could be appealing to those LNG producers whose assets have been largely paid off and who expect a continuation of today’s sellers market or who, like Qatar have developed a project under model “b” above and find an opportunity to sell in another market.

---

Driven by arbitrage opportunities, high market prices, market liberalisation and the opening of the liquid US market for LNG, new business models are emerging which have in common that more and more “flexible” gas comes to the market, notably in the Atlantic Basin. This LNG is not committed to any particular market.
5. COMPETITIVENESS OF THE EU IN THE GLOBAL LNG MARKET

5.1 THE LNG MARKETS

There are three main LNG consumer market regions: North America, Europe and Asia Pacific:

North America

For LNG supplies, this market mainly consists of the US market, with some supply coming into Mexico. The region is blessed with vast gas reserves in Mexico, the US and Canada. But production is declining. Pipeline imports into the US from Canada and Mexico are expected to decline substantially in the coming years. As demand for gas in the US is seen to increase, the region has no other option for imports than LNG. Consequently, a major boost in LNG imports may be expected. Based on these expectations new LNG regasification terminals have been built or are under construction and a large number are planned. Most of the capacity is owned or booked by potential LNG suppliers. It remains to be seen how many of the planned and speculative designs will see the light of day. It is expected that the added capacity from the projects that are already under construction will be sufficient to receive increased demand for the foreseeable future. The demand outlook for the US market is uncertain, given the political drive to reduce dependency on imports of oil and gas.

The speed at which the US managed to develop LNG regas terminals was helped by the decision in 2002 by the Federal Energy Regulatory Commission (FERC) to remove regulatory barriers to the construction of new terminals, also known as the "Hackberry decision". In essence, from a regulatory perspective, LNG import facilities would be treated as supply sources rather than as part of the transportation chain.

Most regas terminals are on the East coast and are expected to be supplied by the suppliers in the Atlantic Basin and Middle East.

The gas market in the US is characterised by short term and spot contracts. It has a high liquidity. Also, LNG imports are based on short term supplies. Only very few long term supply contracts with buyers in the North American market exist. "Henry Hub" prices have become a household word in the LNG business in the Atlantic Basin. It is believed that various contracts concluded between producers and their buyers in recent years contain price formulae, partly or wholly indexed with Henry Hub (HH) prices. To attract new supplies, the US market will continue to compete for LNG with Europe and Asia on price as its most important instrument, in the absence of long term contracts. HH prices historically have had a strong correlation with oil product prices.

Where it comes to imports to meet its growing demand, the North American market has virtually no alternative to LNG. Its markets are mainly short term, with HH prices as the prime criteria. HH prices show significant swings around oil-product prices.


43 The Petroleum Economist Encyclopedia of LNG 2006 lists 30 planned, proposed or speculative LNG regasification projects in the US, with 6 new or expansion projects under way (p45-46).
prices. In recent years they have shown strong swings around oil-related prices.

**European Union**

By contrast to the US, the EU is already a significant importer of gas. Most of it is pipeline gas, supplied under long term contracts, with prices indexed with oil product prices. Europe has significant domestic reserves, concentrated in North Sea countries (UK, Norway, The Netherlands), but production is dwindling. With gas demand forecasted to grow, imports will have to increase substantially. The EU’s gas market is not one integrated entity. Overall, the dependence on pipeline imports from Russia and North Africa is significant and must grow if demand growth is to be met. Demand projections for Europe show a wide range of uncertainty (See section 3).

Today the EU sources its LNG mainly from Nigeria, Algeria, Egypt, Trinidad and Qatar. Most LNG imports today are based on long term contracts with oil indexed prices (but below oil parity). LNG provides two thirds of natural gas supply to Spain and over half of Portugal’s gas supply. In other parts of Europe LNG plays a role more at the margin of the market. Europe will have to compete for LNG with the US and Asian markets.

Like the US market for gas, the market in the EU is expected to grow but the degree of growth is uncertain. Unlike the US imports of LNG to date are mainly based on long term supply contracts with oil-related price indexation. Unlike both the US and today's main Asian markets, Europe is not solely dependent on LNG imports to meet the expected growth of its markets. Additional pipeline gas supplies form a realistic alternative.

**Asia Pacific**

The Asia Pacific is still by far the largest market for LNG. In the Pacific Basin Japan, South-Korea and Taiwan are the main consumer markets. Neither of these is connected to foreign natural gas pipeline systems and all have to rely on LNG for 100% of their gas supply portfolio. Although pipeline plans to Russian gas fields have long been discussed in both Korea and Japan, such plans should not be expected to materialize in the near future, nor would they fundamentally alter the LNG dependence of East Asia. These countries will therefore seek increased LNG imports to cover increasing demand for gas. Today, India and China have appeared on the scene as important growth markets. They are planning pipelines to import gas from Russia, Turkmenistan, Uzbekistan, Myanmar and Iran. Also, they are expected to become increasingly substantial players in the LNG market. This development is watched closely by the Asian market’s incumbents Japan, South-Korea and Taiwan. Furthermore, demand for natural gas is increasing quickly in the developing economies of Indonesia, Vietnam, Thailand,

---

44 BP, Statistical Review of World Energy 2007

45 BP, Statistical Review of World Energy 2007

46 According to figures from BP’s Statistical Review of World Energy 2007, the Asia-Pacific region held a market share of over 64% of the world market for LNG in 2006. It kept its leading position in 2007, with imports growing in all of the region’s LNG importing countries. (Oil and Gas Journal, 5 February 2008)
Philippines, etcetera. This puts pressure on the available export capacity from Indonesia in particular.

Pacific Basin LNG suppliers include Indonesia, Malaysia, Brunei, Papua-New Guinea, Australia, Alaska and Sakhalin. Increasingly, Asia Pacific consumers have looked towards the Middle East for additional LNG supplies. Most of the LNG in this region is acquired under long term contracts with oil related indexation. Historically the region has paid a higher price for its LNG than the EU, with prices around parity with oil. In the current market this appears to continue to be the case.

New consumer markets in the Asia Pacific region are Mexico (also as a way of accessing the US market) and Chile.

Flexible LNG can respond relatively quickly to price signals from the markets and could be directed to the markets that offer the best netback value at the time of a decision to direct a cargo. A condition is that there is ample capacity in LNG shipping and regasification terminals. This seems to be the case in the current Atlantic LNG market.

It is worth noting that currently some Qatar LNG, originally earmarked for the US and Europe, is being diverted to the Asian market, which currently offers higher netback value than Europe. Moreover, Qatar has entered into long term contracts with buyers in the Asian region from LNG facilities under construction. It is not unlikely that these supplies were originally destined for the European and US markets.

Given the geographical advantage of the EU relative to the East Coast of North America, and hence the lower cost of transportation from most LNG supply points, spot price parity between both markets would thus bring the short term LNG supplies to the EU, all other things being equal. However, market prices may differ considerably. For example, in summer the US is generally more attractive as a result of higher demand for air-conditioning.

---

47 See for example World Gas Intelligence, *Qatar targets Asia in ‘Flexible’ LNG Strategy*, March 19, 2008
5.3 THE IMPACT OF SHORT TERM, FLEXIBLE LNG ON SECURITY OF SUPPLY FOR THE EU

While the EU can be cost-competitive with the East Coast of North America, the question remains whether the EU will be able to acquire short term LNG at times of high demand. The main feature of flexible LNG is that it is not committed to any market by means of a long term contract. The EU, like other markets, depends on the preferences and strategies of producers and aggregators. Price is likely to be the most important means to attract these flexible supplies. Short term spot markets in Europe will offer the platforms from where the EU can set its short term prices to acquire this gas in competition with the US and Asian markets. Whether the EU will be able to match prices from these regions in the event of high shortages in other regions, remains to be seen. It may well be that its markets, with the very high share of pipeline supplies, may find alternative ways of meeting high demand at lower prices. In any case, the EU cannot count on these supplies as a secure means of meeting seasonal high demand.

The corollary of the rise of flexible LNG is that less LNG will be available for dedicated sales to markets under long term contracts.

Estimates of the volume of short term LNG vary. The share of flexible LNG is growing, particularly in the Atlantic Basin. Analysis in part 1 of this study suggests that some 50% of new LNG production can be regarded as flexible LNG, but in any case it will do little more than contribute to meeting short term deficits on the margin of total supplies to the EU, of course in competition with other global markets. In the UK, where the market is struggling increasingly with the need for seasonality in its supply portfolio and where we find considerable LNG terminal capacity, short term LNG may even make a more frequent, though unreliable, contribution to meeting winter demand.

There is also a darker side to this. The existence of flexible LNG in the market could actually undermine security of supply. The notion that flexible LNG could be found and imported to meet high demand in conditions of very high demand (e.g. extreme winters) may lead market players to decide that catering for these conditions by means of storage is in future unnecessary.

If flexible LNG continues to grow in volume and given the sufficiency of LNG regas terminal capacity for winter demand, the EU may be geographically better placed than the US market, but will be facing global competition for this LNG. It is conceivable that other factors, like political or commercial relationships, will (co)-determine the destination of flexible LNG.

Thus, flexible LNG can alleviate short term Security of Supply problems and help to meet higher winter demand in the EU, but at a price and always without the certainty that the LNG will be there when needed. If this leads market players to abandon the prudent process of maintaining supplies in storage to meet severe winter conditions, it could also reduce Security of Supply.

5.4 COMPETITIVENESS OF THE EU FOR LONG TERM LNG SUPPLIES

Possibly more important is the EU’s long term Security of Supply. While markets like the US market seems to be willing to rely on their gas prices to achieve supply security, for the EU its ability to secure pipeline and LNG supplies under long term agreements plays a vital role for
Security of Supply, particularly given its growing import dependence and reliance on Russian gas supplies.

For the last 3-4 years LNG producers in the Atlantic Basin have been strongly influenced by the attractiveness of the US market with relatively high spot prices. In many projects LNG was sold under long term contracts on the basis of price formulae containing a reference to Henry Hub prices with a view to supplying the US market. Firm long term supplies to European buyers were not high on the agenda of LNG producers. Today the Middle East LNG suppliers are focussing on the Asian market, with its prices and price expectations still being on average higher than in the Atlantic basin, while in the Atlantic Basin the markets are waiting for concrete new developments. Markets in both the EU and the US have sufficient regasification capacity. Firm ownership of regas capacity is nowadays an essential prerequisite for reaching any shortlist of potential buyers of LNG supplies. Also LNG suppliers have been actively acquiring regasification capacity, particularly in the US and the UK markets. Together, these developments have created a comfortable capacity for new LNG in a number of EU countries.

Assuming that the first condition of firm regas terminal capacity is met, there are other factors which may specifically influence the EU’s standing positively or negatively as a potential market for long term LNG supplies. These include:

- The "regulatory" environment
- Uncertainties around the gas demand outlook
- Europe’s hybrid pricing system
- Europe’s tradition of scouting for new supplies

5.4.1 THE REGULATORY ENVIRONMENT IN THE EU

At the World Gas Conference in Amsterdam in June 2006, mr Al Suwaidi, the then CEO of Qatargas, said in his key-note address that he regarded "regulatory" risks as the biggest family of risks facing his business.

Indeed, issues around permitting for new LNG receiving terminals as well as the ongoing processes of changing market design and hence the conditions under which business is to be performed in the EU poses a risk of doing business in or with the EU. These risks will be discounted by LNG producers as they weigh their export options. Issues regarding rules of access to infrastructure, the possible consequences of unbundling, the ruling against destination clauses, possible measures limiting the marketing options of non-EU suppliers, debates around the acceptability of long term contracts and price indexation based on oil-products are among the concerns of the producers considering entering into long term contracts. For long term contracts the prospect of long term stability of terms and market conditions is a pre-requisite. LNG producers have more marketing options and will always seek to minimise risks or at least relate these to potential rewards.

The ongoing political debate, new legislation and regulation around market reform in the EU do not help to inspire confidence with LNG producers interested in developing long term supply contracts as a robust basis for their investment in LNG projects. In this respect, the EU is probably less attractive then other markets prepared to enter into long term agreements or the US where for instance the Hackberry decision demonstrated a pragmatic awareness of the need to accommodate imports.
5.4.2 THE GAS DEMAND OUTLOOK

Forecasts of EU demand for natural gas (and as a consequence of LNG) in the long-term show a wide margin of uncertainty. There are many factors that will influence the eventual outcome in the coming two decades (see section three). These include: Competitiveness of gas prices; security of supply image; economic growth; impact of nuclear energy; impact of energy efficiency measures; impact of obligations to use renewables; supranational climate measures.

Furthermore, we have outlined that expected EU demand growth for natural gas will be matched or surpassed by growth expectations for the rest of the world. However, these growth rates will be affected by the same uncertainties as summarised above.

Other than North America and the Asia markets, the EU has the potential to acquire significantly more pipeline gas. The compounded effect of uncertainties around the EU’s success in doing so, and the uncertainties around its total demand for gas, is a high degree of uncertainty regarding Europe’s demand for future LNG.

Demand for natural gas is generally expected to grow substantially in the EU and worldwide in the period until 2030, but demand may differ substantially between regions. The extent of growth will be determined by many factors of which their eventual effect is very hard to establish today. These uncertainties are felt not just with regards the EU, but exist universally, albeit to different extents. For the EU, demand uncertainty is compounded by the strong position of Russia as a supplier of gas and questions regarding its future incremental pipeline supplies to European markets. Producers of LNG will be looking for security of demand and will not draw much comfort from the EU outlook.

5.4.3 CONTINENTAL EU’S HYBRID PRICING SYSTEM: HELP OR HINDRANCE?

A very large proportion of the EU gas market is based on international supplies by pipeline. So long as the majority of these supplies are offered under long term contracts with oil-indexed prices, this creates different conditions of price competitiveness and risks for LNG suppliers from those of the North American market, more similar to the supply conditions of the Asian market. What makes the EU continental market unique is that it has hybrid markets, combining both spot prices and oil-indexed prices. Given the lower volume of business in the spot markets, and the lower number of market parties, its prices are likely to be more exposed to manipulation.

For the EU consumer market the hybrid system means that its prices will be less affected by this volatility, as the great body of supply contracts is based on oil-indexation, which dampens the impact of spot prices. It is questionable whether an LNG producer would be interested in selling to a European continental buyer under a firm long term contract on the basis of its spot prices.

---

The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part IIA/ DMV

(though this can not be excluded as it has already happened). Their volatility and unpredictability may not necessarily offer an attractive prospect for the producer.

If the producer is looking for capturing spot prices, the temptation to aim for arbitrage opportunities, seeking the best price of different worlds, must be great. In such a case the producer is more likely to self-contract or sell to an aggregator. However, here is a cost associated with playing both markets: the cost of redundancy in ships and regas terminals, which may add up to some 75 USc/MMBtu.

The producer may aim for flexible contracts with European buyers, allowing him to divert LNG to different markets from time to time. For European buyers this undermines their security of supply, so these contracts would most likely require the consent of buyers to divert, and would include a value sharing arrangement.

An EU continental buyer would be taking considerable risks buying at spot prices in a market that is predominantly governed by oil-indexed prices, in which the spot market has little liquidity, leaving not much room for price hedging.

As regards the question whether LNG producers would be willing to sell their gas on the basis of oil-indexed prices, this would be largely influenced by their perception of future spot prices, particularly in the US market. Virtually all existing long term LNG contracts with continental buyers are oil-indexed. A few years ago the producers appeared to be mesmerised by the US prices, which indeed turned out to be higher than those in Europe. A round of new LNG contracts followed, mainly linked to Henry Hub (and NBP) spot prices (Nigeria, Equatorial Guinea, Egypt...). Price levels have changed since, and sentiments on the part of producers may have changed, but in recent years there have not been any new long term sales contracts with continental buyers (or any buyers in the Atlantic Basin). Therefore, here again, the jury is out.... What is clear is that the European oil-indexation has shown to offer more price robustness than spot prices. This may be a valuable factor for producers considering long term contracts with continental European buyers. However, oil-indexation in contractual prices based on the netback principle is complex. It requires very good understanding by producers of the market in which they are selling, its segmentation and its evolving dynamics. Producers need to establish means to measure and monitor market developments in order to assess and negotiate a fair market price and indexation formula, and to stand their ground at times of price reviews.

If the medium term LNG contracts become a new contractual model (as has been suggested by Algeria) then producers like Algeria and NLNG, who already have oil-indexed contracts in the market, will have little problem making use of the experience from their existing oil-indexed price formulae. For new sellers however, the process of developing a complex oil-product indexation formulae may be too cumbersome for a 5-year contract. Alternatively, these producers may apply oil-indexation in the medium term contracts without a price review clause, to avoid the lengthy, cumbersome renegotiations.

Finally, major LNG producers may seek to develop sales portfolios to different markets with different pricing structures. A combination of long term and short term contracts, of spot prices and oil-indexed prices, to different markets may add to the long term robustness of their production and their revenue stream. However, particularly for Middle East producers of LNG, selling under long term contracts with oil-indexation to the Asian markets may be more attractive so long as prices in this region remain structurally higher than those of long term contracts in Europe.
Spot prices in continental EU are probably more easily manipulated than those of substantial markets like the US. Indexation, based on these prices, therefore could create significant price uncertainty for LNG producers. Against this option, oil-price indexation offers more price/income robustness. In addition, major LNG producers, may well find comfort in a portfolio strategy under which they sell to a variety of markets under different price formulae, unless they believe that gas prices will rise faster than oil-related prices, for which we have not found any real evidence. However, LNG prices under oil-indexed long term contracts in the Asian markets are structurally higher than those in the EU long term contracts. The jury is out...

For the buyers in the continental market a major long term LNG contract with other than oil-indexations creates significant price exposure in a market, dominated by oil-indexed prices. However, this is a sellers’ market. The producers have a choice of markets and of prices.

5.4.4 EU’S TRADITION OF SCOUTING FOR NEW SUPPLIES

Contrary to the US market, the EU has historically been active in looking for and arranging international supplies for its markets. In the past, consortia of buyers managed to unlock supplies from Russia and Norway by creating the conditions needed by the producers to develop their resources. Many EU gas companies are interested in moving upstream, particularly if only to help to bring gas to their markets. There is a tradition among the major European gas companies of approaching producers and producing countries to negotiate supplies to their markets. More recent examples include the scouting for pipeline supplies of the Nabucco group, and for LNG the supply line created by Union Fenosa and the positioning by Ruhrgas in Nigeria and Equatorial Guinea.

But Europe holds no monopoly on this tradition of scouting for LNG supplies. The main consumers in the Asia-Pacific market have a tradition of scouting for LNG supplies that is at least equal to, if not more thoroughly established than that in Europe. In particular Japan and South-Korea, still by far the largest importers of LNG in the world, have successfully built long-term supply chains with producers in the Asia-Pacific (Indonesia, Malaysia, Australia, Brunei), Middle-East (UAE, Oman, Qatar) and Russia (Sakhalin-2). China is now following this example.

In comparison to the US market, EU players have been far more active looking for new supplies and creating the conditions for new supplies to their markets. These initiatives should come in good stead in a sellers’ market. However, the EU is facing similar competition from the Asian markets, which have also shown their ability to secure supplies in this manner.
6. PIPELINE DISRUPTIONS: CAN LNG HELP AND IF SO, HOW?

Gas supply disruptions are part of the family of **short term Security of Supply** risks. The risks of such disruptions and seriousness of its consequences depend on a host of factors which can be categorised as:

- **exposure**, i.e. the potential for supply disruptions and its dimensions: here we look at factors such as volume at risk, share of the volume in the total gas market, technical and commercial integrity of the supply system,

- **market resilience**, i.e. the ability of the market and the measures it has taken to minimise the impact of a disruption: this depends on many factors, e.g. market location, diversification of supply sources, interconnectivity with other markets, availability of gas storage, market structure, dual-firing potential,

- **supply security measures**, i.e. measures introduced by public authorities to further enhance the robustness of the energy system against supply disruptions; these may comprise a host of possible policy measures, ranging from reinforcing government-to-government relations and international treaties to promoting diversification of types of energy to compulsory “strategic” storage

This paper will not examine these aspects, but focus on the question whether and how LNG could assist in responding to pipeline disruptions.

6.1 LNG ALSO KNOWS OF SUPPLY DISRUPTIONS

LNG supply lines also carry the risk of supply interruptions, perhaps even more so than pipeline supplies. However, the majority of these disruptions are weather dependent and of very short periods, and the design of the supply system normally caters for such type of supply uncertainties by means of LNG storage facilities both at the liquefaction and at the regasification end of the supply line. As a result the LNG system has built in measures to ensure high standards of supply security.

More serious disruptions of LNG supply can be felt in the market: an explosion at the Algerian Skikda plant took the plant out and reconstruction is still under way. There is also a history of underdeliveries, particularly during start-up of new LNG projects.

Although LNG does not know any transit risks, its supplies may also be vulnerable to political/terrorist action. LNG from the Middle East passes through two “choke-points”, which expose the supply routes to potential disruptions. Against these risks stands the (limited) flexibility of LNG shipping. LNG carriers can be re-routed as a way of addressing supply disruptions.

6.1.1 POSSIBLE SHIPPING BOTTLENECKS

LNG from the Persian/Arabian Gulf must pass through the Strait of Hormuz, which is not only a fairly narrow shipping lane, but is competing for space with increasing numbers of oil tankers and naval vessels patrolling the area (see figure 8). LNG destined for the Atlantic basin will next have to pass Bab El Mandab and the Suez Canal. In Europe, regulations with regard to LNG
shipping could potentially experience bottlenecks in Gibraltar, the Canal and lastly the Baltic Sea, where it is still uncertain if LNG ships are allowed to navigate at all. These chokepoints could prevent the foreseen easy arbitration between the Asia Pacific and Atlantic market. Also Asia has its worries.

**FIGURE 8 WORLD OIL CHOKE POINTS ARE ALSO CHOKE POINTS FOR INCREASED LNG SHIPPING**

6.2 LNG CAN REDUCE MARKET EXPOSURE

Every gas market aims to diversify its supply sources where at all possible. Diversification enhances supply security and the competitiveness of the market, both effectively and efficiently. LNG supplies from new sources contribute to a reduction in exposure to disruptions simply by creating more supply diversity. Its supply risks are independent of the risks of other supplies. Therefore the aggregated risk is reduced with every new source of supply (assuming always that any new source of LNG or pipeline supplies does not carry a greater supply risk than existing sources of supply).

Not every market in the EU is in a position to acquire LNG on a cost-competitive basis. So the contribution of LNG to diversity is not automatically extended to all markets in the EU.

6.3 LNG MAY ENHANCE MARKET RESILIENCE

Sections 4.3 and 5 highlighted the growing “flexible”, short term market in LNG, particularly in the Atlantic basin. This LNG will, where possible, flow to the markets offering the best netback value. In the event of a supply disruption in Europe, the first response of the market is to seek to acquire alternative supplies. Flexible LNG may offer such alternative, provided the European markets are willing and able to offer the prices necessary to attract the LNG. This could help those of Europe’s markets, which have LNG terminal facilities. In general, however, increasing supply security in one part of the EU may benefit other parts if there is sufficient pipeline connection.

It should be noted that the flexible LNG is by its nature not committed to the European markets and cannot become committed by policy or administrative action. It only follows price. The three
conditions that facilitate the role that “flexible” LNG can play in alleviating short term security of supply matters are:

- adequate shipping capacity
- adequate LNG regasification terminals
- easily accessible short term markets or buyers with ready access to LNG suppliers

The first is not under the control of the EU or its markets. As regards the latter two, Europe seems to be in good shape, developing significant regas capacity and creating short term markets, particularly in those countries where flexible LNG can play a role.

The role that flexible LNG can play in meeting short term market disruptions is well illustrated by the closure for maintenance of nuclear power stations in Japan. Usually these outages are planned in advance and can be managed without sudden impact on resource markets. The story is more complicated when disaster strikes, but in such an event, too, it has proven possible to attract large LNG volumes. When a severe earthquake forced Tokyo Electric Power Co to shut down Japan’s largest nuclear power station in July 2007 eight gigawatt of production capacity was suddenly no longer available.49 The company immediately increased its acquisition of LNG to make up for this sudden disruption of supply. According to World Gas Intelligence Tokyo Electric succeeded in securing unplanned LNG volumes of over 5 bcm (on an annual basis)50 from the market during the remaining 8 months of Japan’s 2007 fiscal year. As a consequence of Tokyo Electric’s market interventions prices for delivered spot LNG in Asia Pacific spiked.51

The example illustrates that, within limits, buyers of LNG can use the logistical flexibility of the LNG market to acquire “flexible” LNG in the event of a disruption of other supplies. They may however have to pay a sizeable premium for flexibility, as was the case with the market in Asia last year. As a consequence very little flexible LNG landed in European regas terminals.

Any new, reliable source of supply contributes to Europe’s Security of Supply. New long term LNG supplies reduce the exposure to supply disruptions, while the short term LNG market may help to alleviate their impact, thus enhancing market resilience. But it should be noted that the EU market players do not have any control over the movements of flexible LNG.

49 See for analysis: Chrisstoffels (2007).
50 WGI January 30 2008; Calculated with BP conversion calculator (www.bp.com)
51 World Gas Intelligence, Japan Costly LNG Flight, January 30 2008
7. IS THERE AN OPTIMAL PIPELINE-LNG BALANCE FOR THE EU?

Contrary to the Asian markets, where LNG is the dominant source of gas supply, and the US, where LNG is the only incremental supply option, Europe still has and needs the prospect of additional pipeline supplies.

Could there be an optimal balance between pipeline gas and LNG for Europe? Once LNG is regasified and enters a market it cannot be distinguished from other gas. So, inside the market there is no physical difference. Yet, LNG can make an important contribution to Europe’s need for natural gas. It adds potential sources of new supplies at a time when new supplies are slow to come to the markets. It offers diversity of supplies, which makes the most effective contribution towards Security of Supply and forms the bedrock of competition between suppliers. It also offers Europe some comfort of a backstop to provide supplies at times of shortage, while there is a surplus in shipping and regasification capacity. This however, does not offer certainty of supply, as it is influenced and limited by demand from other markets and scheduling complexities.

There is a physical limit to the contribution that LNG can make to the gas markets. Today LNG’s share of international gas supplies stands at less than 30%. While this share may well increase somewhat, it will not replace pipeline gas supplies. Both will be needed to accommodate the growing global demand. Europe has the potential to attract both. Other regions do not have that luxury. As the sellers’ market is expected to continue, LNG will continue to be in short supply. What will producers decide to do with their LNG?

Asian markets may well be prepared to continue to pay their historical prices around oil parity which would represent a premium over European prices (today’s prices in the Asian region are affected by the so-called S-curve, which result in lower effective prices, but it is expected that these will gradually disappear in price reviews and in new contracts). In such a case Middle East LNG would focus on these markets and Europe would only receive what is left after these markets are saturated. Therefore, Europe should expect to remain largely dependent on pipeline supplies to cover most of its current and growing demand.

If there is no difference once inside the market, what other criteria could possibly play a role in determining an optimal balance between pipeline and LNG supplies? Pipeline supplies tend to be more captive than LNG, and generally come in bigger volumes and under long term contracts, which is attractive, also from a Security of Supply perspective. These supplies also come at high load factors, with limited supply flexibility. Load balancing facilities, like storage are increasingly needed in the European market. They may be realised at lower unit costs than LNG, but they have less modularity and thus are likely to require cooperation between groups of buyers (e.g. the Nabucco project).

The LNG industry is developing alternative forms of supply and destination flexibility as discussed in section 4.3. Long term LNG supply contracts normally have as little if not less supply flexibility as long-haul pipeline contracts. New contracts may have more flexibility but in the current market this is flexibility to divert cargoes mainly at the discretion of the producer.

---

52 BP, Statistical Review of World Energy 2007

rather than the buyer, and therefore these contracts reduce security of supplies. It is also possible that long term LNG contractual arrangements are made to offer seasonal supplies at the time the market needs it most. This could be of value particularly to those markets without or with very expensive underground storage potential. Korea may be a case in point. The onus is then on the suppliers to find a counter-seasonal market. This would be a complex and expensive arrangement and limited by the availability of counter-seasonal markets. The US, with its storage capacity could become such a market but its capacity is not unlimited. This looks to be a new business model lending itself only for a few specific cases, rather than becoming a widely applied feature of long term LNG supplies. So, other than for uncommitted, short term, flexible LNG, the main difference between LNG and pipeline gas for long term supplies, committed to the EU market is in the modularity of LNG supplies, which makes them easier to place in the markets.

From a perspective of costs of supply there is no obvious divisor between pipeline and LNG supplies. Each source, be it LNG or pipeline, will have its own, case-by-case, cost-competitiveness for each individual market.

Can we learn about optimal balance from other markets? As shown on the diagram below (figure 9), each of the main regions/markets has its own features. While these markets are moving in different directions, they do not appear to evolve towards an optimal position, but instead are pragmatically accommodating realistic supply opportunities.

FIGURE 9 GLOBAL GAS MARKET DYNAMICS

SOURCE: CIEP

This leaves the point that every new source of supply, provided it meets minimum requirements of reliability, contributes to Europe’s diversification and hence its Security of Supply.

Finally, as we expect the sellers’ market to continue for the foreseeable future, the main challenge for Europe will be to capture as many new supplies as possible, be it as LNG or by pipeline. The market will not have the luxury to choose, even if there was such a thing as an optimal balance.
It is difficult to see how and under what criteria an optimal balance between LNG and pipeline gas could be assessed, particularly as the gas industry is going through a period of changing business models. Instead, given the current dynamics of the market, Europe should be aiming at being the attractive outlet for both pipeline gas and LNG. Pipeline supplies should continue to form the solid basis of gas supply for the EU. There is no rationale for a structural shift in focus to LNG. LNG offers a welcome prospect of new supplies and of supply diversification. Flexible LNG, with its destination flexibility can also make a contribution to short term supply security, but cannot be relied upon as it may also move to other markets.
8. COULD THE EU BECOME MORE ATTRACTIVE FOR LNG?

Should there be any further encouragement to construct LNG regasification terminals?

- Measured for the total EU market, there is sufficient regas terminal capacity in Europe today to accommodate winter demand and some more may still be built. The market has obviously been working so far. The capacity is owned essentially by European market players interested in purchasing LNG and by LNG producers. The possible surplus may vary from country to country, but by and large Europe will have more receiving capacity than known supplies of LNG. Much depends on contracting new LNG supplies. Given the high level of investments in regas capacity, there does not seem to be any need to take measures to promote the construction of more capacity in Europe. All the same, it should not be surprising if the demand for new terminals by interested buyers will slow down. The players in the EU market may first want to see whether the current capacity will manage to attract new LNG to Europe. Will producers, the other group of industry players behind the wave of new built terminals, continue to book new (spare) capacity in Europe? They may slow down also, in particular while there is a strong market developing in Asia.

- The market in Europe has been working so far to lay the foundation for more LNG business. There is sufficient capacity in regas terminals, in some countries more than in other. Some investors may at some point feel the pain of having over-invested in a certain part of the EU market. In the current environment there does not seem to be a need to promote further investments in these markets. Other markets, notably Italy, may well benefit from more LNG regas capacity. Here, investors are planning to build terminals. Some of the obstacles that investors encounter are of a local nature, and need to be resolved locally or nationally. There may also be issues of a commercial/economic nature, which have to be resolved by the market. Investors may also experience hindrances from an EU regulatory perspective, which will be further discussed below. By and large, Europe has become well accessible for future LNG supplies. While it is now waiting for the arrival of this new LNG, the EU should monitor developments.

Should there be more interoperability between LNG terminals?

- Obviously, to require that new LNG terminals can take any cargo irrespective of size and quality could be an expensive overkill. Each market has its own requirements and facilities, tailored to the circumstances of the local environment and market. Narrowing the quality band for gas in Europe could be useful and indeed more work is ongoing with respect to standardisation in gas quality in Europe (EASEE). Gas that meets the EASEE standards should thus become acceptable to and accepted by EU markets, be it pipeline gas or LNG. Introducing further requirements for interoperability could not only increase the costs of terminals, but could also interfere with innovative initiatives like the development of offshore regas terminals and facilities based on onboard regasification, such as in Teesside (UK). All of these initiatives are aimed at lowering the barriers to entry for new LNG, which should be heartily encouraged.

Regulation and the political climate

- The current political regime in the EU around energy is focussed on creating competition between market players in the EU. Suppliers from outside the EU experience the legislative and regulatory processes as well as the political climate as being inhospitable,
creating hurdles and posing risks, which are difficult to measure. To attract more LNG supplies Europe's policy makers will need to be aware that the current sellers' market will most likely continue for considerable time and that in such a market the main challenge is to acquire future supplies in a global competitive arena. Without new supplies on a timely basis, European consumers will find themselves competing for gas with increasingly higher gas prices, in spite of the creation of a competitive, internal market, as was the case in the US market after 2000. This implies the need to refocus from the "internal market" to the "external market". Recognising the objectives and concerns of producing countries and lowering, where possible, the barriers to entry, by means of sustainable, long term policies rather than temporary ad hoc measures, like exemptions.

- The Hackberry decision made by the US Federal Energy Regulatory Commission (FERC) creates a stark contrast between the European regulatory regime and that of the US. The decision by the FERC was aimed at easing the way for LNG suppliers into the US. The European regimes and mindsets are aimed at imposing a "third-party-access" philosophy. In this context also the UIOLI regimes for regas terminals should be seen. These vary from country to country and as a minimum should take account of the drivers for LNG suppliers to build or take capacity in LNG terminals, namely to have the flexibility to dispose of the capacity as and when they need it. Regulatory conditions separating ownership and use of capacity are also potential obstacles to investors.

It could be argued that there is no need to accommodate the market by way of change of policies: clearly the market has managed to build and book the current overcapacity in the present regulatory climate. But this has been achieved by means of special conditions and liberal use of exemptions and still has not brought any new LNG to the EU markets. Also, Europe, if successful in attracting LNG supplies, may require more LNG infrastructure in future. Obviously, if the Asian markets are prepared to offer the producers substantially higher prices than the European markets, an EU regime that paves the way for new supplies would not necessarily change the supply destinations. But in a competitive global market it would certainly contribute positively to the choice of markets by the producers, if the EU would intensify and organise its interface with current and potential producers. Producers have in the past expressed concern around the “regulatory” environment in Europe (See section 5.4.1). This could imply many aspects of regulation, from local processes to EU-wide legislation and/or regulatory conditions. Understanding the extent of concerns of producers and their background would help the EU to consider whether it can accommodate producers of LNG (and gas). A structured dialogue on gas between producing countries and the EU could make a significant contribution to bridging any differences. Providing a stable climate for LT supplies, including LNG contracts, could be one of those measures that would help overcome some of the market uncertainties currently experienced by suppliers.
9. CONCLUSIONS

More than the two other consuming regions, the EU has the potential of supply by pipeline. But this should not create any false sense of comfort. If new pipeline supplies can be found to be brought to the EU market under the current price regimes, Europe will continue to enjoy lower prices than may be paid by the Asian markets. In such a scenario, Europe will have difficulties acquiring much LNG, particularly from the Middle East. Should this lead to shortages in the markets, with insufficient pipeline gas to cover these shortages, the result could be that European gas prices will increase to levels where Europe can effectively compete for new LNG. So far however, Europe should enjoy the competitive prices under its oil-indexed price regime.

That does not imply that Europe should think it is “business as usual”. The global competition for gas supplies intensifies. Europe will have to make itself attractive for gas supplies, be it pipelines or LNG. In the context of security of supply it should support the objective to secure gas under long term contracts. More generally it will need to refocus from the “internal market” to the “external market”. The internal market design is of value in a buyers’ market with an abundance of supplies. In today’s sellers’ market a successful energy policy lies in obtaining competitive supplies from outside the EU. Recognising the objectives and concerns of producing countries and lowering, where possible, the barriers to entry, by means of sustainable, long term policies rather than temporary ad hoc measures, like exemptions, is part of such a repositioning.

LNG is an attractive commodity to complement the current gas supply portfolio of Europe. It will undoubtedly play a bigger role in Europe. Price will continue to play an important role in the choice of markets by LNG producers and little can and should be done by policy-makers to change that situation. “Regulatory” uncertainties are another aspect of concern for LNG producers and here the EU could review its position. With the construction of ample LNG regas capacity, the market players in Europe have rolled out the carpet for new LNG supplies, but as yet not much is coming. It would help the market if both LNG and pipeline gas producers observe that the policy-makers do the same.

The LNG industry is a game-changer in the gas business. More and more “flexible” LNG appears on the market, i.e. LNG with destination flexibility, controlled by producers and suppliers. By implication this LNG is not committed to any market and can therefore not be relied upon as secure supplies for the European markets. Europe in its envious position of having both pipeline and LNG supply options and having a price regime which could remain below that of the Asian market, may not be able to attract much of this flexible LNG. Then again, it may not have to. LNG will most likely provide a larger part of Europe’s supply portfolio, but it will not replace the need for and the opportunity to secure substantial new volumes of pipeline gas. While Europe cannot count on flexible LNG to be available to provide secure flexibility in the EU market, all the more should the EU make sure that there are no avoidable barriers to the development of underground storage, a more secure and probably cost-effective way of creating the necessary flexibility in the market. Further analysis to establish the relationship between the costs and opportunities for LNG to contribute in a secure manner to flexibility and the use of underground storage would be advisable.

While the orchestration of new pipeline supplies to Europe has become difficult under the ongoing development of the EU internal market design, while diversification of supplies is regarded as a valuable complement to Security of Supply, many players have turned to LNG supplies, which are more modular than pipeline gas and comes from new supply sources. The flurry of newly built LNG terminals that followed gives Europe a strong position to receive LNG if it can attract the supplies. The corollary is that there is overcapacity, which comes as a cost to
the market players. It should not be surprising if the construction effort will slow down as many players may first want to see new LNG come to Europe’s markets. This should not be seen as a reason for new measures promoting the construction of LNG facilities other than by lowering regulatory barriers to entry for new pipeline and LNG supplies.

Rather the EU and its member states should invest in reliable and long lasting relations with important suppliers, and develop sensitivity to the needs of suppliers to develop new gas resources for export. It is clear that Asia, the US, the EU and possibly in the future also other countries are vying for new gas supplies. This will lead to regulatory competition, although each of these markets for new gas supplies (pipeline and LNG) have their own characteristics, certainties and uncertainties. Competition for gas is no longer an internal EU affair but an international affair, which should be reflected in the approach to the gas market and creating an environment in which market players can realise a return on their investment and manage their (international) risks.
REFERENCES


BP, Statistical Review of World Energy 2007

Chrisstoffels, Jan-Hein, Earthquake Alarm: The Kashiwazaki Nuclear Incident and the Consequences for Japan’s Nuclear Policy, CIEP, The Hague, August 2007


CSIS, Security Threats and Responses in Central Europe, p.6, www.csis.org


Halper, Stefan and Clarke, Jonathan, America Alone, the Neo-conservatives and the global order, Cambridge University Press, Cambridge 2004


Putin, Vladimir V., Mineral Natural Resources in the Strategy for Development of the Russian Economy, Zapiski Gornogo Instituta 144, as translated and published by Harley Balzer, Vladimir Putin’s Academic Writings, in: Problems of Post-Communism, January/February 2006

The Geopolitics of EU Gas Supply; The role of LNG in the EU gas market, Part II.A/ DMV

Tabata Shinichiro, Price differences, taxes and the stabilization fund, in: Micheal Ellman, *Russia’s Oil and Natural Gas, Bonanza or Curse?*, Anthem Press, London, 2006

Tymoshenko, Yulia, Containing Russia, in: *Foreign Affairs*, May/June 2007


**MAGAZINES AND INDUSTRY JOURNALS**

Forbes

Kommersant

Meed.com

Oil & Gas journal

Reuters

The Petroleum Economist

World Gas Intelligence