2009–2012 Triennium Work Report
June 2012

Geopolitics and Natural Gas
(Full Report)

Produced by:
TASK FORCE 3
International Gas Union

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in collaboration with
CLINGENDAEL INTERNATIONAL ENERGY PROGRAMME
ACKNOWLEDGEMENT

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Chapter 1
Purpose of this study

Purpose of this study
Geopolitical developments affect the gas industry in ways that stretch beyond the visible time horizon. Geopolitical forces can affect the timing, direction and size of gas flows, whether by pipeline or liquefied natural gas (LNG), and these geopolitical forces flow forth from decisions, which also take time to materialise. The objective of this project is to examine the interplay between economic and political factors in the development of natural gas resources using geopolitics as an analytical tool to this end. Pursuing this objective will enable us to grasp how political challenges impede or stimulate the expansion of the international gas sector.

Natural gas as a new frontier in geopolitics
Among other things, energy—and in particular fossil fuels—has become a key factor in shaping international political and economic relations and interests. Indeed, many observers foresee that fossil fuels and their transport will be the single dominant factor in international politics in the years to come. The realisation that finite fossil fuels form the lifeline of modern economies has brought control of and access to these resources back up the agenda in industrialised and industrialising countries alike in the 2000s. In a world where the need for versatility and environmentally friendly sources of energy is high, gas stands a good chance of becoming a fuel of choice for many economies, despite the geopolitical complexities of gas trade. This endows gas with a certain economic and strategic value, which both governments and firms seek to extract. Since gas exports depend more on rigidly interconnected infrastructure and long-term production arrangements that generate lower revenue streams than those derived from oil, gas sector arrangements carry an intrinsically long-term and strategic character. The capital intensity of the gas value chain and the lower energy density of gas vis-à-vis oil implies a greater profitability in the oil sector. Geopolitical considerations tend to heavily influence gas infrastructure interconnections and long-term production arrangements.

The perception of the gas sector as being exposed to geopolitical forces, and the attempt of governments to influence the playing field for gas flows has catalysed concerns over import dependency. Growing concerns with import dependency find their origin in changing international political and economic relations, in which dependency has become more problematic. These concerns may well be mirrored in gas-exporting countries, particularly those with a strong dependency on transit countries or a small number of markets. Regional frictions, which are difficult to get round in the short term (given the rigidity of gas transportation infrastructure) also play an important role in this regard. In light of the strong ‘interdependence’ between importing and exporting countries that characterises gas trade, increasing import and export dependency, and the pending environmental constraints on fossil fuels (e.g., consider climate change policy) further contributed to the strategic importance of energy on the geopolitical agenda.

Internationalisation of the gas trade
Parallel to the political dimension described above is the growing internationalisation of natural gas trade. This internationalisation introduced the gas sector first to the intricacies of regional politics, when natural gas was mainly traded on a regional level in North America, South America, Europe and Asia. From the 1990s onwards the sector became increasingly exposed to geopolitics, when regional markets became more connected by and competed for the same LNG flows. This new competition for energy flows, also from new markets such as India and China, are bringing geopolitical realignments, particularly because the political and economic strategy to compete for these energy flows is diverging from what the dominant power in the world, the US, expected them to evolve at the onset of a new phase in internationalisation of the economy.

Expectations viz. reality
The expansion of natural gas trade and interregional gas flows as result of growing demand and supply of natural gas was not seen as problematic in the first instance. In a world driven by commercial relations, as was expected to emerge at the end of the Cold War, growing global economic integration and the accompanying interdependency was seen as a sign of the growing efficiency to overcome the different allocation of resources among countries and part of the free trade paradigm. A world of free trade and capital flows that loomed on the horizon in the 1990s never materialised because both producing and consuming countries reserved the right to act in their national interests and reduce or impede these free flows. These interests stretch from the short to the long term and the (strategic) economic and political, where geographical factors and how they influence states’ perceptions are central to geopolitical developments. The increased integration of the world’s major regional gas markets and the impact of changing relations in the geopolitical and regional sphere will thus have a wider impact on the development of the natural gas markets than before.

The growing role of the state...
Governments determine the boundary solutions of commercial projects in the gas industry. This perception appeared vindicated with the intensified emergence of resource nationalism after 2001-2003 and access to natural gas resources became an issue for consuming countries. The stimulation of renewable energy in consuming countries was partly driven by a wish to manage import dependency. From the vantage point of the producing countries, free access to their resources for both domestic and foreign capital, apart from the political interests, was a different issue. The expansion of the natural gas sector emphasized the prerogative of producing countries to reserve the exploitation of national resources to the state and manage their resources in the national interest. Although these reservations about the free flow of capital and trade of both natural gas producing and consuming countries are understandable from a national interest perspective, the accompanying policy choices and measures of states have both political and economic consequences from an international perspective.

...is affecting market outcomes
Consequently, the overall politico-economic context of the internationalisation of gas markets is shifting with the replacement of a free market paradigm by one involving the role of the state as an entity that shapes market developments beyond the purely economic domain. In such an environment, strategic economic and political behaviour to protect diverging national interests of states and the fabric of the natural gas value chain, provide
fertile ground to geopolitical and/or regional conflicts over natural gas flows, regulatory choices and the ability to balance risks and benefits along the value chain.

**The intertwining of commercial and political forces**

In such an environment, commercial competition quickly becomes intermingled with the political and economic interests of the individual states that participate in the international economy. States engage in strategic behaviour to defend and further these national interests to position their states in the international arena, and this strategic behaviour is manifested by policies that are geopolitical rather than purely economic. Such geopolitical competition changes the ability to capture economic rents between companies and governments and among states along the natural gas value chain. It also shapes the wider politico-economic agenda of states and their position in the hierarchy of power. Faced with these complex changes in the energy sector Daniel Yergin thus concludes with regard to geopolitics and energy that: “The potential flash points in this new world of oil will arise not from standard commercial competition, but rather when oil (along with natural gas) gets caught up in larger foreign policy issues (…)”.2

**Concentration of gas resources also shape the policies**

A geographic given is the fact that conventional gas resources are highly concentrated and asymmetrically distributed underneath a comparatively small area of the world’s surface.3 Some 70 percent of the world’s known conventional gas resources are found within the so-called ‘strategic gas ellipse’ (stretching from Russia’s north, via central Asia to the Middle East).4 The fact that all governments and firms in the gas industry, in both gas-producing and consuming countries, must deal with such a geographic given, shapes their policies and strategies in attempting to reap the value from gas. Access to and the direction of gas flows become important to these actors by default, and this leads their attempts to jostle for a position of advantage over one another.

**Geopolitics, geo-economics and geo-strategies**

There is no broad, internationally used or commonly accepted definition of geopolitics, both in policy and academic circles. All matters ‘geopolitical’ are often, and in general, referred to as such in an ad hoc manner, often without a clear definition of why certain issues are of a geopolitical nature. Let us take a step beyond such backhanded allusions. Roughly speaking, geopolitics covers the relationship between territory and/or geography and the pursuit of power at the state level.5 Napoleon, a geopolitical contender of old, once claimed that to know a nation’s geography is to know its foreign policy: “la politique de toutes les puissances est dans leur géographie”. MacKinder, an early 20th century British Admiral and geo-strategist refers to geopolitics as the “usage of territorial determined comparative advantages in the balance of powers between states”.6 Both Napoleon and MacKinder were individuals who applied what would later come to be known amongst international relations’ scholars as geopolitics.

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3 Although unconventional gas and gas hydrates may change the geographic distribution of natural gas and the constraints that come along with it.
5 It is the scientific field of study belonging to both political geography as well as international relations, which seeks to investigate the relationship between political behaviour of man and his territorial surroundings D. Criekemans, *Geopolitiek: 'Geografisch geweten' van de buitenlandse politiek?* (Geopolitics: ‘Geographic conscience’ of foreign policy?), (Antwerp: Garant Publishers, 2007).
Gray, a modern and noted scholar on geopolitics, succinctly notes that “geopolitics refers to the relation of international political power to the geographical setting.” Gray further claims that geopolitics “is an attempt to draw attention to the importance of certain geographical patterns in political history [...] geopolitics combines historical knowledge with a sophisticated capacity for theorising. The result has been a powerful analytical tool”. Barnes et al. (2006) describe geopolitics in the context of their study on gas as “the influence of geographic, cultural, demographic, economic, and technological factors on the political discourse among international actors.” Barnes et al. (2006) openly recognise the importance in their definition of relative gains amongst actors (states and firms). Such a versatile and widely encapsulating definition of geopolitics helps us study both the (regional) political and, as will be argued below, the economic dimensions that we are looking for in a study on geopolitics and natural gas.

We propose the employment of the aforementioned definition, broad as it is, in combination with the notions of geo-economics and geo-strategies, which are discussed below. We hereby aim to come to an exact and consistent approach to analysing issues in the gas industry from a geopolitical perspective. Just as geopolitics is about territory and power, geo-economics is about economic flows and how, just as political forces, they are influenced by geographic factors. Geo-economics pertains to the relationship between territory or spatial relationships and economics. From the moment governments become involved with attempts, in our case, to influence gas flows for want of greater power, they are confronted with the geographic features around them and their actions, including rent-seeking, become geopolitical. States can become involved in the international gas sector for:

1) geopolitical purposes, involving motives that are largely non-economic in a geographic context, i.e., geopolitics as described above;

2) geo-economic purposes, where the opposite is the case because states are motivated by socio-economic factors, also in a geographic context.

In order to pursue any of these two motives, states take into account the geographical context. States’ strategies, when a function of geography, become geo-strategies, and geographic features or the control of geographical features become geo-strategic (see also

7 C. Gray, The Geopolitics of Superpower, (Kentucky, University Press of Kentucky, 1988). In the study of International Relations, notions like 'heart' and 'rim' land, 'centre' and 'periphery' are often alluded to. Such terms often refer to the Eurasian continent and its outer rim, with implicit references to the concentration of all types of resources on that continent and its impact on state power. Other noted geopolitical thinkers include Spykman, Kissinger and Brzezinski as well as Lacoste, all coming from different geopolitical schools of thought.

8 With their concept of the 'geopolitics of gas', Victor et al. refer mostly to political forces affecting gas at the project level: "not simply an endless jockeying for global position, but also other key actors who decide which gas trade projects will be built, how the gains will be allocated, and how the risks of dependence on international gas trading will be managed," where our study aims to discover what geopolitical motives are present at the level of the state, before moving to the issue of the impact of these motives on gas flows and development. J. Barnes et al., 'Introduction,' in Natural Gas and Geopolitics: From 1970 to 2040, D.G. Victor et al., (eds.), (Cambridge, MA: Cambridge University Press, 2006), pp. 3-26.

9 Certain decisions based on economic factors can have geographical constraints and underpinnings and vice versa. Geo-economics is about flows and exchanges and the constraints set by national borders to those flows A. Hudson, 'Beyond the Borders: Globalisation, Sovereignty and Extra-Territoriality,' Geopolitics, vol. 3, no.1, (1998), pp. 89-105.

10 Formally, the economic rent from the production of a natural resource can be defined as "any payment made to a production factor above the amount necessary to keep that factor of production in its present employment” Baumol, W. J. and Blinder, A. S. (2000), Economics Principles and Policy, Mason, OH: South Western College. 753.
Figure 1). A simple comparison with chess encapsulates the essence of these arguably vague concepts: The movement of chess pieces across a chessboard is in of itself strategic within the confines and context of the chessboard, whatever the goal. The extent to which states can act as ‘geo-strategic players’ and are able to carry out geo-strategies depends on whether they are rule-setters or rule-followers (see also Chapter 2).

**Figure 1** Geopolitics, geo-economics and geo-strategies

The recent globalisation of energy supply is matched by increasing globalisation of demand, not only in oil but to some extent also in coal and natural gas. Increasingly, more consumer markets are competing for energy flows, and in particular natural gas flows. They impact not only the security of demand and supply at the level of the state, but also influence the choices of investors along various components of the value chain.

**Approach of this study**

A study on the interplay between economic and political factors in the development of natural gas resources requires us to deconstruct the complex relationship between politics and economics at the regional and international levels (also refer to Figure 2). More often than not, situations involving the exertion of power by one state on another, leads to quarrels, for one reason or another. Therefore, the aim of this study is simultaneously to discover the drivers underlying certain situations related to the gas sector, which may develop into geopolitical quarrels. On the one hand, certain situations of such a nature can quickly be ‘dissolved’ by market forces at the regional level. On the other hand, such quarrels may be left to linger. The strategic importance of natural gas and the level of internationalisation of the regional gas markets play an important role in the perception of states in the international political system. Therefore, these states may become involved directly or indirectly depending on what position any given state has in the power hierarchy. Each player has its part to play in shaping the business. Occasionally, the above may create ‘areas of strategic interest’, i.e. areas of current or potential future tension. Geopolitical manoeuvring is not necessarily the prerogative of a few powerful states, such as the US, China and Russia. In other words, geopolitics can also be of a more regional nature, e.g., regional allies and foes of such states also practice geopolitics. The states’ geographic location is an important driver in this regard.

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Based in part on geographic givens, the most powerful states in the international system ultimately determine whether a quarrel can migrate to a global level. More often than not such disputes first reveal themselves at a regional level and evolve to become of a more extra-regional nature. Much depends on the perception of the actors involved and the extent to which their national interests are at stake or the interests of their allies, either today or in the future. Therefore, an important question is whether regional proxies deal with a given situation in the first instance or whether a larger power also possibly becomes involved? In Chapter 2, the process of geopolitical manoeuvring and the relevant value drivers will be further explained. This study intends to focus on two levels of analysis in this regard. At the first level, geopolitics is practiced by actors able to affect the entire global political and economic system, so-called rule-setters, followed by other powers that are able to resist these actors to one extent or another (also see Chapter 3). At the second level are regional situations and actors that are not rule-setters on a global level but practice geopolitics, where regional disputes can eventually spill over beyond the regional dimension, so as to draw in the rule-setters in the first level. This approach is designed to address geopolitical issues at both a regional and extra-regional level which have or may have an significant impact on interregional gas flows.

**Figure 2** Interaction of Geopolitics and Gas Developments

In the course of this study, and in order to deconstruct the complex relationships between states and both the international and national gas sector, we will use a further sub-set of definitions concerning strategic behaviour of players and more localised issues that may or may not have geopolitical ramifications (either today or in the future). These definitions help us bring in perspective certain relations between states and their respective positions. Overlap may be a potential issue because geopolitical concerns are usually multifaceted. In due course, action, starting in one domain, may well move up or down the ladder, by design or because of unforeseen effects. Developments with a serious regional impact but with the potential of more geopolitical ramifications, perhaps at a later stage, are an indication of the
dynamic nature of geopolitics. Therefore, we have to include certain regional issues that are of a potentially geopolitical or geo-economic nature, and can influence the strategic behaviour of states. In particular, we need to take a look at regional situations and how the geopolitical relations involved in such situations can spill over into a dimension involving superpowers.

Because issues involving geopolitics can migrate from a bilateral to a regional or to an extra-regional level, involving both economic and geopolitical forces, we are compelled to approach the subject in a somewhat open and flexible manner. This study will address those developments and issues which have, or may have, international political dimensions. These can include those regional political or strategic developments with the potential to impact either geopolitics or the natural gas sector. The intention of this study is not only to analyse current geopolitical or geo-strategic issues which may impact the gas industry, but also to examine those developments in the gas business environment, which may be translated into geopolitical action later on. For this reason, the approach used in this study is as follows:

- chapter 2 sets out the dimensions of geopolitics and discusses the global developments, trends and dynamics around the interface and interaction between geopolitics and energy, with a particular focus on natural gas.

In the following five chapters geopolitics and natural gas are addressed from different angles. Each of the chapters represents a particular theme and contains specific subjects, selected for their perceived or potential role in the interaction between gas and geopolitics. The following themes are presented:

- in chapter 3; the geopolitical positions of the major powers, also in the context of gas;
- in chapter 4; major international policy issues and their potential impact on the gas industry;
- in chapter 5; developments in the (international) gas market which could have international political implications;
- in chapter 6; the main issues around the “areas of strategic interest”, i.e. the areas of particular interest in the gas business.
- in chapter 7; international organisations and energy policy making.

Most of the subjects in these chapters finish with a paragraph called “Final Observations”. These contain some of the key points, issues and questions, which are expected to be further addressed during the course of the roundtables and in other discussions of this report.

Given the nature of the material presented above, the approach described here will involve overlapping elements of analysis. For example, the US is a rule-setter in the first level, whose geo-strategies can affect a number of different regional settings. The US is also an

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12 The selection of subjects covered in this study is, by the nature of this study, inevitably subjective. It is indeed affected by time and business and political perspective. The selection is based on what is today regarded as subjects of interest, which rise or may rise above local or bilateral issues, for reflection in the natural gas industry at large. There are other (future) areas of strategic interests and themes, which could have a (significant) impact on interregional gas flows. Which other cases could be addressed in addition to the ones already covered here remains open for debate.
important member and driver of certain international organisations. Occasionally, the same developments will be addressed from different angles, and from different perspectives. This merely testifies to the evidence of the multi-faceted nature of the subject of geopolitics and gas.
Chapter 2
The Power of Change: Geopolitics and gas

2.1 INTRODUCTION
Geo-strategic players may have geopolitical and geo-economic motives when becoming involved with the workings of the international political system. They can exert force at an extra-regional level and at an intra-regional level to pursue their national interests. Their interests reach beyond the natural gas sector to wider political and economic interests, but the governance over natural gas flows can nevertheless be part of their strategic agenda when these flows are important for their own or their allies’ energy mix.

Only a limited number of geo-strategic players can truly affect extra-regional developments, also as far as natural gas flows are concerned. Apart from issues such as investment climate and capital availability, the behaviour of these geo-strategic players can also determine the level of internationalisation of the natural gas sector of a producing country withholding or stimulating investors to develop export capacities, as the cases of Iran and Qatar show.

At both an extra- and intra-regional level, therefore, states can influence the direction and size of gas flows, and ultimately also influence developments in gas markets. Conversely, gas market developments, e.g., related to technological change and the rise of new business models, can affect states’ decisions. The tendency of governments to seek to influence the outcome of certain gas flows and the impact of geopolitics on the gas industry is obvious. Also, developments in the gas industry can affect the playing field in which governments find themselves via policies and international institutions.

Analysing geopolitics and natural gas requires us to study the development of the international system and its main drivers. It is necessary to construct an analytic toolbox with which scenarios can be made. Section 2.2 describes how players interact and identifies motives or value drivers concerning (geo)political developments and actions, which can have an effect on the gas market structure and a gas firm’s room for manoeuvre. In addition, the section identifies value drivers at the firm level that can have an effect on market structure and (geo)political relations. Use is made of geopolitical mindsets, as described in Chapter 1, although we will also include the thinking of Strange (1989) and others to develop indicators on how these comparative advantages are developed into sources of strong states that can project geopolitical power. In section 2.3, the nature of the changing international political system and who the main actors are, will be addressed.

2.2 STRATEGIC MANOEUVRING OF GOVERNMENTS AND GAS FIRMS
States and firms, often but not always in conjunction, strategically manoeuvre in order to affect gas flows. Different motives or value drivers exist for investments in gas production and transport projects and energy projects in general, ranging from purely commercial to economic-strategic and to geopolitical motives. Just as much as corn-based biofuels would not be part of the energy mix in a purely commercial setting, the Chinese gas pipeline from Turkmenistan illustrates that criteria other than or beyond the conventional, commercial benchmarks may be employed in the development of new energy systems. These two
examples show thus that other value drivers may be in place as well, besides purely commercial motives, and that performance in the short term and the longer term can lead to different investment decisions. Commercial activities at the firm level can have an impact on market developments and (geo)political relations and vice versa. For example, the recent development of unconventional gas in the US has changed the US gas market structure radically, because fewer imports were necessary (in 2008, the LNG imports of 10 bcm were less than half the level of 2007). This development feeds into government policies, and in turn these feed into (geo)political relations, which may then also change course (see also Chapter 5).

Because of the complexities involved in gas transport routes and competing fiscal regimes, for example, the gas sector sees short term commercial value drivers easily being elevated to a more (longer term) economic-strategic level. Because natural gas is also a sector crossing regional or sub-regional borders, it very quickly escalates gas relations and diplomacy to a (geo)political rather than merely economic-strategic domain. The passage of gas transport routes through difficult transit countries has created areas of strategic interest for commercial gas trade, directly elevating these gas flows to the economic-strategic and at times even (geo)political level. The size and direction of gas flows through the Ukraine’s pipelines exemplify how a state can exert maximum ‘nuisance power’ for Russian gas to reach its main export markets in Europe.

The question is then to develop a toolbox with which to position the issues, and its moves over time, in the different spaces of value drivers in order to identify the areas of strategic interest in geopolitics, but more importantly to identify in how far natural gas is a subject of these movements or vice versa. According to the toolbox, the relevant (geo)political and gas issues can be positioned in different spaces (see Figure 3):

- A a (geo)political space;
- B a (geo-)economic space; and
- C a commercial space.

As mentioned in Chapter 1, a space or action can be considered as ‘geopolitical’ or ‘geo-economic’ when a geographical sphere is supplemented with power plays. The value components are based on different motives, or value drivers, on the state and market level. The framework can identify value drivers concerning (geo)political developments and actions, which can have an effect on the gas market structure and a gas firm’s room for manoeuvre (from the upper layer, A, to the lower layers, B and C). In addition, it can identify value drivers at the firm level that can have an effect on market structure and (geo)political relations (from the lower layer, C, to the upper layers, B and A).

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Geopolitical power
Looking more in detail at the different value components, (geo)political power can be obtained from a relative advantage of a state (see Chapter 1). Here we will focus on those aspects in which the gas business is used as one of the instruments to generate relative advantages and which have a wider regional or interregional impact or potential impact. Just as for the Russian state, its gas wealth can offer a means to develop a relative advantage with respect to other states, China can obtain a relative advantage (and thus power) in exporting industrial and consumer goods on the back of its abundance of relatively cheap labour. The economic wealth generated can be translated into geopolitical power over the longer run.

(Geo-)economic value
The (geo-)economic value is driven by strategic moves of gas firms and other (governmental) actors to enhance their market circumstances to their advantage. The involvement of a government in a gas (national) firm’s strategy, either directly or indirectly (e.g., through taxation, ownership, governance), leads to an economic-strategic dimension. This dimension pertains to the economic-strategic interests of states, which are often of a geo-economic nature. Therefore, issues which are referred to as economic-strategic in this study are of a geo-economic nature (refer to the definitions provided in Chapter 1) in the long run. The pursuit of economic-strategic interests, involving flows that are geo-economic, can eventually be translated into geopolitical power.

The commercial value
The commercial value that can be achieved directly from a gas project depends on the general investment attractiveness of the industry in which the firm operates and on the competitive advantage of a specific firm over its competitor(s), such advantage may be related to a cost advantage or technological know-how, for example.14

Here we focus on the first two components of value or power. The different value drivers are not mutually exclusive *per se* and the definitions are potentially overlapping. They can be of an ‘inter-locking’ nature, for example, when in the first instance a project leads to a competitive advantage for a firm which also serves a strategic purpose at a higher level. Thus, action, starting in one domain, may well in time move up or down the ladder, by design or because of unforeseen effects. Moreover, the motives or value drivers in the different spaces can change over time, which means that it is a dynamic process.

**Strategic behaviour**

The room for strategic manoeuvring differs for the actors involved. It is argued that most of the publicly-listed gas firms are driven by (short-term) profit maximising incentives. This is stronger in the Anglo-American model of society than for instance in the Chinese economic model, where longer-term profit maximising incentives are strong as well. Hence, the Chinese model tends to emphasise relatively more value to strategic-economic moves. Moreover, from the national oil and gas companies in some OPEC countries, it is known that income maximisation of the state can also be an important driver.¹⁵ Lately, the government support for some (state) companies to gain access to resources or technology, cross subsidies among companies and sectors through the state can be argued to be used (for the short term) to calibrate the optimisation of power, i.e. functions as power maximisation. The interplay between the state and the market and strategies to improve wealth and the relative importance in international affairs can often not be explained by economic theories alone.

Yet, governments, both in producing and consuming countries, employ a wide array of subsidies, taxes and other (political) instruments and policies to manipulate the (national) firm’s competitive advantage of one over the other (i.e. in a strategic-commercial space). Such practises are commonplace in all economies, despite the efforts of international organisations such as the WTO and International Monetary Fund (IMF) to remove these. In the energy sectors, the International Energy Agency (IEA) has repeatedly reported about these practises and the false signals they produce from an end-user market point of view.¹⁶ Conversely, these and other international organisations, such as the World Bank and the European Investment Bank (EIB), are taking part in strategic manoeuvring as proxies for strategic-economic or even (geo)political motives. Examples of such interference are the low interest loans provided by these organisations for firms’ infrastructure investments, firms primarily of Western origin. Subsidies, taxes and other forms of government policy and support also play a role in other parts of the value chain and in inter-fuel competition.

**Final observations**

- The actions of the different actors on a state and government level are driven by motives of a commercial, economic-strategic and (geo)political nature.
- These motives do not necessarily exclude one another.
- This process is dynamic by design or because of unforeseen effects.


2.3 Change of Power

States matter in the gas industry, since three quarters of global conventional gas reserves are exploited in part by government-controlled companies. The policies resulting from a state-level desire to affect gas flows is a function of the surrounding geography, and states which do so also across regions, can be referred to as geo-strategic players, who pursue geo-strategies. Geographic features become geo-strategically important, and largely as a function of these features and value drivers (see Chapter 1), geo-strategic players try to affect the geopolitical and geo-economic playing field by means of gas flows. It is important to understand how the fundamentals of power, i.e., the ability to affect the system and other states in it and at what level, have changed. First we must grasp how power has changed since the end of the Cold War, for this determines the context in which geo-strategic players currently influence gas flows. Next, what dynamic changes that have occurred in the international political system can be discussed.

2.4 Towards Relative Economic Power: The Place of Gas

In today's world, and even since before the collapse of the Soviet Union, relative economic power gradually displaced absolute military power as a key determinant of influence in the international political system. Military power is but one of several sources of power in the international political system. States seek to attain various forms of power. Strange (1989; 1994) uses a concept of structural power to explain how state power can vary in relative terms through financial, military and production means, as well as through intellectual capital (knowledge). The structural power of nations defines the place and role in the international system and determines the ability or capacity of a state to advance its national interests. Each form of power can spillover or affect other forms for each state. That means, for example, that a country’s knowledge and production can lead to financial wealth, which can be used to further boost production, develop the intellectual capital base and (further) develop the means to defend itself.

The structural powers of states, the relationship between the state and market and the international economic and political system are presented, forming the basis on which theories of International Relations and economic theories can be connected in the strategic space, while at a more applied level, political and economic relationships can be studied. The outcome of such an analysis can then help to position the various crucial players in the forces that shape the international political and economic system.

Power, natural resources and gas

Up to this point, relative advantage has been described as a combination of different power dimensions. Of increasing importance is the role of access to energy (and gas), where energy-consuming countries are becoming more dependent on ever more scarce and steadily more concentrated natural resources. In essence, countries with great endowments in energy resources have a natural absolute trade advantage. Given the concentration of natural gas in only a handful of countries (which also holds for many other natural resources), the balance of power is skewed in favour of those countries with access to resources for valuable exports or firms that have the right to exploit them. States rich in

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17 Before, Western countries used international energy firms to perform this function. The unconventional gas develops show, however, that scarcities can also be lifted by a combination of investment and technology change, changing the dependency outlook drastically.

natural resources upon which others depend for economic development have a strong relative advantage. This advantage can subsequently be translated into other dimensions of power in the long run.\textsuperscript{19}

In the specific case of natural gas, this resource is gaining in importance as a cleaner-burning fuel than oil and coal and the potential contribution of gas as a partly sustainable energy source mix.\textsuperscript{20} The applications of gas are becoming more numerous and the reserves for gas also exceed those of oil in terms of reserves-to-production ratio, offering long-term potential in terms of future trade while the industry is still in a relatively early stage of development. Since gas exports depend more on rigidly interconnected infrastructure and long-term production arrangements that generate lower, but often longer lived, revenue streams than those derived from oil, Gas sector arrangements carry an intrinsically long-term and strategic character, geopolitical considerations tend to heavily influence gas infrastructure interconnections and long-term production arrangements. A gas-exporting country can use gas dependence and pipeline (and even LNG) flows to enhance its structural power.\textsuperscript{21}

Great powers (geo-strategic players) in the international political system are also assumed to be taking into account access to and control of the scarce resources necessary for economic growth and development.\textsuperscript{22} These geo-strategic players could either encourage or discourage activities of gas-exporting countries, which support or undermine, respectively their geo-strategy. They seek to balance their absolute advantages or disadvantages in natural gas endowments to their own geopolitical and economic interests. It uses gas thus as a vehicle in its broader geo-strategic agenda.

Having discussed the changing nature of power in the international political system and the still modest role of gas herein, we move on to ascertaining in what way the international political system has changed. It is clear that the natural gas sector, as a fairly young and still emerging true international sector compared to the coal or oil sectors, does not yet feature as prominently on the international political agenda as oil does. However, the emerging importance of natural gas in more countries’ energy mix, the potential role of natural gas in a more sustainable energy mix, and the increasing internationalisation of the market will elevate the strategic importance of this fuel. The emergence of the natural gas sector as an important sector with geopolitical properties takes place in a changing world system.


\textsuperscript{21} F. Hill, \textit{Energy Empire: Oil, Gas and Russia’s Revival}, (London: The Foreign Policy Centre, April, 2004). However, this structural dependency works also reserved, i.e., gas-exporting country is dependent on the income stream from a gas-importing country.

2.5 GEO-STRATEGIC PLAYERS AND THE CHANGING INTERNATIONAL POLITICAL SYSTEM

The importance of connecting the drivers of the international political and economic system – both empirically and theoretically – is that it can provide more insight in how and where the international system is developing. In addition, it is also important in understanding the (perceived) space for nations to protect and/or preserve their sovereignty over their domestic affairs and the potential for cooperation, formation of coalitions and rivalry. In the economic sphere, rivalry or competition is theoretically argued to produce an optimal equilibrium and an efficient employment of factors of production (capital, labour and land) when markets are perfect. The level of market imperfections, such as natural monopolies, state intervention, and government imperfections can produce (theoretical) suboptimal outcomes for the world economy as a whole. Yet, from the perspective of one state or a coalition of states/economies, this outcome can give a strategic advantage over another (others), when argued from the national interest of one or a group of states alone.

Changes within the international system take place continuously, and are driven for example by the change in the means of transportation, communication, and the way war is fought, but also by changing dependencies, such as on imported energy, and new governance structures, such as the European Union (EU), Association of Southeast Asian Nations (ASEAN), World Trade Organisation (WTO) or security organisations. Also the integration or disintegration of states in the international system influence the relations of nations. Although these developments can have a large impact on relations among the states and the interaction among other actors in the system, they leave the structure of the international political system intact. These changes do however affect the structural power of the various actors in the system (including non-state actors such as companies and/or non-governmental organisations). The position of the different players in the system can influence the gas sector as well.

The bipolar system of the Cold War period ended in 1989 and was replaced, by default, by a short period of unipolarity in which the United States (US) remained as the sole superpower. The brief period of sole American supremacy was characterised by advancing market liberalisation, also known as globalisation, and the western expectation that liberal democracy would automatically follow.

The notion that unipolar systems appear the least durable was proven correct in the beginning of the 21st century. Such system may raise concerns over future behaviour with weaker states over this unbalanced power, who will then build up their own power to increase their strength. It not always matters what the unipolar power actually does, but what matters is the perception of other players in the international system of what the unipolar power does or may do in the future.

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23 Ferguson compares the world system to other complex systems, functioning between order and disorder and claims that rather than a slow decline, complex systems can ‘go critical’ by a relatively small event. Moreover, predicting change or disruption in a complex systems is very difficult. Niall Ferguson, Complexity and Collapse, Empires on the Edge of Chaos, in Foreign Affairs, March/April 2010, p. 22-26.


perception can lead to a weakening of a coalition that was considered very strong. For instance, the US invasion of Iraq divided the US coalition partners in Europe because their national interests were deemed not served by the US approach, while support for North Atlantic Treaty Organisation’s (NATO) activities in Afghanistan remains hesitant.

With the particular emergence of China as a great power, it is now often said that a change in the polarity of the system is underway. This change can affect the way how states can provide for their security. Discussion has emerged if such a change in polarity is a shift in the structure or of the system. And does this changing polarity and the way political and economic governance is pursued and applied in the years to come, also include the loosening of the transatlantic coalition and the possible independent emergence as a geopolitical power of the EU? Other geo-strategic powers include India, Brazil and Russia, adding to the increasing polarity of the system. Rather than a change of the system, this changing polarity, driven by re-balancing against the existing power(s), must be considered a change in the system, which has implications for the role and position of states in that system and the orientation of governance of the system.

The upcoming powers have all tried to further the relative strength of their structural powers (security, production, finance, knowledge) to counterbalance the strengths of the US. China became in a short space of time the factory of the world, with a very positive balance of trade and swelling monetary reserves, adding both to their structural power in production and finance. Increased defence spending, however modest compared to US defence spending, and improving the technological base of the economy support the view that China is on its way to become a geopolitical challenger to the US. Both Russia and Brazil have advanced their strength in (resource) production and finance and have formed alliances outside the orbit of the US. Energy as a basic input in the economy is an important feature of the structural power in production (domestic resources viz. imported energy) and finance (trade balance and monetary reserves), while strength in the security domain also rests on access to energy resources to project and employ this power.

The rise of more nationalistic approaches in the past decade of some players, whether it was in the form of resource nationalism or active trade balance promotion or otherwise, invoked a more national interest oriented approach of more players in the system. The expectation that globalisation would actually reduce the role of the state in the international system and that interactions and relations among nations would predominantly be played

out in the commercial space was proven unfounded. Instead, the role of the state, also in the economic domain actually gained prominence. In addition, the structure of trade and investment is changing with the advent of stronger state capitalism, bundling economic power strategically, and perhaps limiting access to flows of energy by (more atomised) market players.

Looking back, the past twenty years were very much transition years, where new competition among states emerged, not in the least over access to scarce resources, including energy. The first decade of the 21st century saw several emerging economies also gain political strength in addition to their rising economic importance. These newly emerging powers bring their own dynamic to the international system. This is particularly true in the way their states have taken the lead in the functioning of both their domestic (political and economic) systems and the way they interact in the international system.

**Final observations**

- Geo-strategic players can exert force at an extra- and intra-regional level to pursue their national interests.
- The international system is dynamic, changing all the time, influencing the relative position of states.
- States can employ a different timeframe with regard to investment decisions that fit in their strategic positioning, also with regard to natural gas.
- Access to resources and markets are considered part of the remit by great powers.
- The structure of the international political system is in transition from a bi-polar to a more multi-polar world, after a brief period of uni-polarity.
Chapter 3
Geo-strategic players

3.1 Rule-setters versus rule-followers

Not all states in the world can equally affect the geopolitical and geo-economic playing field around them. There are rule-setting geo-strategic players which are able to affect their surrounding environment at a global—and by extension regional—level, and there are those which may be regional rule-setters but are rule-followers at a global level. The extent to which powers can affect the international political system around them by being a rule-setter is in large part determined by their structural powers. For example, the central role of the US as the economic and financial hub in the world (financial power) throughout much of the post-Second World War period has enabled it to call on vast capital flows, which it fed into its military-industrial complex and its economic productivity in other sectors. By contrast, the current relative weakness of the Soviet system in creating such financial and economic strength, and the overemphasis of that system on military power ultimately led to the Soviet Union’s collapse. Since then, in structural power terms, Russia is seen today as a geo-strategic player that sets its own rules in its own neighbourhood, but can challenge the global rule set only to a limited extent. Given the above, geo-strategic players each have a different position regarding gas and gas flows and each can have different impact on gas flows.

Four geo-strategic player that seek to affect gas flows, i.e. the US, Russia, China, Europe, are reviewed below. Obviously the US and China are important geostrategic players, although they have different positions with regard to natural gas, and have different structural powers. They play a important role in shaping the current and future international system. These geo-strategic players are important for their nuclear capability, hold a permanent seat in the UN Security Council and are crucial regional players with interregional impacts. Although, the security powers are national powers in Europe rather than EU powers, the continued elevation of sovereignty to the EU level thus far warrants inclusion here. Yet, the completion of this process is uncertain and therefore also represents a geo-strategic weakness. Europe, although not a state, is also included because it represents a large natural gas market, and is increasingly import dependent. Russia, though weakened as a super power after the demise of the Soviet Union, is an important natural gas supplier and a regional strategic player on the geopolitically important Eurasian continent. Brazil and India will not be discussed in detail here, because it seems that they have not a big impact on international governance issues (yet) and their impact on international natural gas markets is still relatively small. However, they are important regional players.

Final observations

- There are geo-strategic players that act as rule-setters and others as rule-followers.
- Rule-setters and followers seek to form coalitions in order to pursue their goals.

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3.2 The US

From a historical perspective, the US has always been largely self-sufficient in meeting its natural gas needs, albeit with some 15-20 percent worth of natural gas imports coming from Canada. The share of US LNG imports in domestic natural gas consumption is marginal. The recent advent of unconventional natural gas and its impact on US import needs has further buttressed the US' self-sufficiency. This has alleviated the preoccupation of US policy-makers with energy security as far as natural gas is concerned. In addition, Obama's determination to continue his predecessor's policy to reduce US dependence on imported energy should also be taken into account. For example, concerns about growing import dependencies have been a strong incentive for developing a corn-based liquid fuels but also to increase fuel efficiency in cars.

Back to more self-sufficiency

Indeed, while global competition for access to oil and gas accelerated, American energy supply underwent a silent revolution in recent years. While in the EU, the focus lay on the reticence of the US to commit to binding CO₂ emission reductions and the American energy mix, new US policy priorities in fact caused an important shift in import dependencies. Policy achievements made by picking low-hanging fruit has led to the prediction that American crude oil consumption may have peaked in 2008.²⁹ As a consequence of new policy priorities in demand and supply management, liquid import dependency will actually decline compared to outlooks of a few years ago. As for the natural gas sector, the transformation is larger, although this was not enacted by government policy but by relatively small gas companies that used the period of robust gas prices to unlock the vast unconventional gas reserves with a successful combination of technologies. As a result, the rise of imported LNG is not materialising as foreseen, and new LNG production, originally destined for the US, is left to find other markets. This American gas revolution has fundamentally changed the interest of the US in securing access to gas reserves and flows. Indeed, until this unconventional gas revolution began, gaining access to and securing LNG flows (including in the military sense) was increasingly seen as an important interest, up to as recently as 2007.³⁰ Another consequence of the surge of unconventional gas production is that the further internationalisation of the gas market, in which the US was expected to become a major buyer of LNG, is not developing as perceived, making a continuation of more regional based gas flows more likely.

US position in the international political system

²⁹ EIA Energy Outlook 2010. "Net imports of energy meet a major, but declining, share of total U.S. energy demand in the AEO2010 reference case. The projected growth in energy imports is moderated by increased use of biofuels (much of which are produced domestically), demand reductions resulting from new efficiency standards, rapid improvement in the efficiency of appliances, and higher energy prices. Higher fuel prices also spur domestic energy production across all fuels, further tempering import growth. The net import share of total U.S. energy consumption in 2035 is 20 percent, compared with 26 percent in 2008. (The share was 29 percent in 2007, but it has dropped considerably during the current recession.) U.S. dependence on imported liquids, measured as a share of total U.S. liquids use, is expected to continue declining over the projection period, from the high-water mark of 60 percent, attained in 2005 and 2006, to 45 percent in 2035.” Section energy production and imports.

The US, though challenged in its post-Cold War position as the sole remaining superpower, still has extensive structural power to affect the international political system. The priorities of the US geopolitical policy can be best summarised by keeping the world's conflicts away from the North American continent and project its power in other regions considered vital to American interests. This includes ruling the high seas and guard important trading routes to underpin its free trade stance (e.g., access to raw materials and markets) and to maintain its position as an important rule setter in international economic affairs (e.g., free trade and capital flows). The US is actively involved in creating alliances to bind other states to the US model, but has difficulty in seeing these alliances as serving something else than the US interests. As a true geopolitical power, its policies in both international economic organisations (such as the IMF and Worldbank) and in security matters (UN Security Council, NATO), the US is pursuing its own interests rather than the interests of the collective. The alliance with the European states is mainly based on bandwagon effects (weaker states following a strong state), and they have engaged less in balancing. The emergence of strong new states has not (yet) led to a different position of the US.

In a post-Cold War environment involving the interdependence of nations and the importance of trade and economic security, it is the control of geo-economic flows that has become comparatively more important. The EU is an important ally, but since the invasion of Iraq in 2003, serious differences of opinion have emerged in that partnership. This is partly due to the fact that the US increased its unilateral stance, but also due to the European idea that they were not so much on the bandwagon any more, but, as a result of enlargement and the Lisbon Treaty, should be considered a more equal partner and a balancer. The European states are however not in agreement on this position which allows for the continued rule and divide policies on the part of the US.

Until recently, the economic strength of both the EU and Japan was large enough to strongly support the US concept of free international energy markets. Securing these flows mainly fell on the US, generating a relatively cheap Security of Supply policy solution for the ‘bandwagoners’. While the US’ close allies enjoyed the protective umbrella of the US, China was, particularly after 2003, less trustful of the US policy and the (future) access to energy flows. In the past few years Chinese government owned companies have been scouring the continents for equity oil in an attempt to gain control over their own flows and at the same time reduce dependence on Gulf oil. China also intensified the energy relations with Central Asia. It constructed an oil pipeline to Kazakhstan and a gas pipeline to Turkmenistan, upping the ante in the ‘great game’ for Central Asian energy flows.

**But gas plays a role in US geopolitical sphere of interest**

For the US, the changing prospect of its import dependency and the geographic diversification of these imports to the Atlantic basin in the last few years, may impact the level and type of involvement of the US in energy diplomacy. While the US may have the prospect of relying predominantly on North American resources, its main allies, the EU and Japan, are very import dependent both in fossils and renewable. Their energy economies depend largely on the availability of energy flows on the international market and their ability to generate sufficient purchasing power to outbid other states for these flows. It is the dependence of its allies on energy flows from a potential geo-strategic rival – in this case Russia – that has the US concerned about gas flows in Eurasia. In the US perception, it is

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such dependence that can undermine America’s power base in Eurasia, and by extension, in the international political system. Thus, even though the US is comparatively import independent, its position as a dominant geo-strategic player in the international political system and its concerns make it a factor in affecting the direction and size of gas flows. US policies in this regard lie largely in the geopolitical sphere, as explained below.

Geo-strategic posture of US and gas flows

The centrality of the Eurasian continent in the US view owes its economic and strategic value to the fact that it is home to 1) the bulk of the world’s population, 2) the bulk of the world’s natural resource and 3) all of the great powers except for the US and Brazil. If the Eurasian powers can be kept from dominating Eurasia, and the flow of its resources to the outside world maintained, the position of the US can be secured from a geo-economic point of view. Particularly throughout the Cold War, the US has sought to ensure its power base on the Eurasian continent, either directly through its own security presence, or indirectly through its alliances. This was seen as an essential strategy in order to counterbalance the Soviet Union. This strategy has not changed since the end of the Cold War: NATO still exists and US spheres of influence have only expanded, it is merely the purpose and context in which the strategy is applied that have changed.

The concentration of such economically vital strategic resources such as oil and gas in Eurasia further emphasises the need for the US, as a non-Eurasian power, to establish ‘gateways’ in Eurasia. The dominance of Eurasia by other powers would lead to the direct control of natural resources vital to the economic survival and prosperity of the world’s great powers, including the US and its allies. Here the role of natural gas pipelines, and those who control them, plays a critical role in the US perception, particularly in and around Europe. While the geo-strategic thinking of the Cold War pertained mostly to the direct control of territory and security issues, in today’s world the relevance is more of a geo-economic nature. By extension, the US is concerned more with the maintenance of free flows oil and gas. In US eyes no single power should be able to monopolise gas flows. Geopolitically the US aims to create new gas flows in an effort to achieve such a geo-economic diversification of gas flows. As a result, this also prevents any one single power from attaining too much geopolitical power, particularly in Eurasia. Even if almost self-sufficient in gas terms, the US will therefore project its power geo-strategically to affect the direction and size of gas flows. The ultimate goal, namely maintaining America’s position in the international political system, is geopolitical in nature because its concerns are more about power than economics.

In a post-Cold War environment involving the interdependence of nations and the importance of trade and economic security, it is the control of geo-economic flows that has become comparatively more important and conducive to international power. Aiming to secure its position by influencing the emerging geo-strategic dimension to gas flows as a result of the changing international political system, the US seeks to create spheres of

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34 Nonetheless, military action or intervention as hard power tools can be employed to affect the geo-economic playing field (i.e., geo-strategies affecting geo-economic flows).
influence in Eurasia. It does so in order to prevent one single power or coalition from dominating the Eurasian continent. This is done either in the form of military and economic alliances or by establishing key regimes politically receptive to US policies in the rimland.

As far as the impact on gas flows of geo-strategic US involvement in Eurasia is concerned, some concrete examples bear this impact out. These examples primarily concern the flows of gas from the strategic gas ellipse in general, and Central Asia in particular:

1. From Central Asia, the US aims to create two main gas corridors (also refer to the Caspian Sea section in Chapter 6):
   a. The trans-Caspian corridor from Turkmenistan to the Caucasus across the Caspian Sea. The trans-Caspian corridor would be extended through the Caucasus by means of the existing trans-Caucasus corridor (i.e., the SCP pipeline).
   b. The trans-Afghanistan-Pakistan-India corridor, running from southern Turkmenistan through a now highly unstable Afghanistan towards Pakistan and India, both of which are important US allies in the rimland.

2. From the Persian Gulf (also refer to Middle East section in Chapter 6) region, the US, as well as the EU, aim to unlock the energy potential principally of Iraq and Qatar. Gas flows flowing from Iraq (by pipeline) and from Qatar (by LNG), amongst other countries, may eat away at Russia's gas market share in Europe. These flows would break Russia's dominance over Central Asian gas flows and help tilt the playing field for gas flows against Russia, not only upstream (in Central Asia), but also downstream in European gas markets. Recently, however, the Obama Administration appears to have softened its stance on Russian gas in Europe. The moves to support these corridors are geo-strategic on the part of the US, lying in the economic-strategic sphere, and pertaining to geo-economic goals. In the longer run, the US is then able to achieve a better position in Eurasia vis-à-vis Russia, which is more a geopolitical goal.

3. An important obstacle to US power in the Middle East and Central Asia is Iran. With the second largest conventional natural gas reserves in the world, Iran faces a range of domestic complexities which inhibit its ability to become an important gas exporter (also refer to section on Iran). Simultaneously, US-led economic sanctions against Iran prevent it from attaining the necessary investments to develop its natural gas resources. Significant spheres of US influence around Iran (e.g., in Iraq, Afghanistan, Pakistan) undermine Iranian ambitions to develop successful gas exports. With its large military base, the US also protects Qatar against a possible Iranian aggression in the Gulf region and actively patrols the Gulf to protect Qatar's gas extraction from the North Field.

The flows mentioned under point 3) can also cause a significant loss of market share for Russia in Europe, in and of itself a geo-economic loss, to the benefit of US geopolitical

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35 Bressand (2010) European Integration and the Development of a European External Energy Policy in Eurasia, Berlin: Global Public Policy Institute, for example, argues that "the Obama Administration's effort to 'reset' relations with Russia has reduced the divergences of views between key continental European countries and the US regarding the risks associated with dependence on Russian gas. Washington's all-out opposition to the Nord and South Stream pipelines has been replaced" by an effort "to engage Russia constructively," as stated by Richard Morningstar, the US Special Envoy for Eurasian Energy (Wall Street Journal Europe, 2009).

ambitions to maintain strong transatlantic ties with European countries in the NATO alliance because Russia’s influence is diminished.

**US gas market developments and their impact on geopolitics**

The considerable rise of US unconventional gas production and its aforementioned impact on US import dependence is an example of how technological and market developments in the gas sector itself can affect geopolitical developments over the long run. Since the development of unconventional gas in the US is indirectly depressing interregional gas prices, particularly as far as flexible supplies are concerned (see the Chapter 5), there is a knock-on effect for Russia, which finds itself with reduced gas export earnings. This then helps constrain Russia’s financial power and ultimately also reduces Russia’s room for geopolitical maneuvering in Eurasia and beyond. In this manner gas market developments impact the geopolitical dimension. As for the US, with the American oil and gas import dependency changing (both in size and origin), their appetite for incurring large costs to secure these oil and gas flows, for instance from the Gulf, may be waning. This would leave both Europe and Asia more exposed to the instability of the region. In addition, the application of unconventional gas extraction technology to China, which is estimated to have considerable unconventional production potential (also see the section on China in this Chapter), can also affect geopolitical relations in Eurasia. With a US-style reduction of China’s (conventional) gas import-dependency with regard to Central Asia or Russia, for example, China will be less inclined to play an active role in Eurasia in general and in Central Asia in particular. Moreover, such a development prevents China from becoming too close an energy partner for Russia, thus preventing coalition building in Eurasia. Both the US and China have so far been much more focused on their oil import dependency than on their natural gas import dependency. That important oil regions overlap with natural gas importing countries, such as in the Middle East and the Caspian Sea region, does however impact the natural gas industry as part of the wider relations of these two powers with these regions.

**Final observations**

The US is largely involved in and with large natural gas exporting countries to serve its wider geopolitical interests in the Caspian Sea region and the Middle East. The more comfortable domestic energy base in natural gas and coal explains that most of the foreign policy focus was in the past concentrating on oil. The US is concerned in how natural gas resources are developed and that the flow of natural gas remains largely within the structure of the market economy model. This would guarantee that natural gas flows are accessible for the American market when needed and to offer their allies the ability to diversify. Given the predicted low natural gas import need of the US in the next 20 years, it is unclear whether natural gas flows can count on the same level of protection from the US, unless they fall within the seaborne protection already provided for oil flows. The fact that the US is focusing its oil import strategy more and more on the Atlantic basin is important for future reference, although its wider strategic interests in the Middle East and Caspian region, also to manage the American interests in preventing further terrorist attacks, will continue to involve the US in both regions. To conclude:

- For the foreseeable future, the US is likely to become virtually self-sufficient in gas supplies, owing mostly to unconventional gas production and policy changes.
- The US is at this point in time the world’s only superpower, whose preoccupation lies in maintaining a strong power base in Eurasia.
- The US is concerned with natural gas dependency of its allies and the potential of these dependencies to drive a wedge in the alliance.
- The US interest in the Middle East and the Caspian Sea region serves its wider geopolitical interests, and is not focused primarily on natural gas.

### 3.3 European Union

**Important, but neither meat nor fish as a geopolitical player**

The European Union underwent a tremendous transition as a result of the collapse of the Berlin Wall, and the collapse of the Soviet Union shortly thereafter. After nearly 30 years of moving slowly from a customs union of 6, known as the European Community, to an internal market of 12 in 1992, the new political make-up of the European continent catapulted the EU, as it was known then after the implementation in 1993 of the Maastricht Treaty, into changes both in the depth of integration and the number of its membership. Both the monetary and economic union, exemplified by the single currency Euro in a large number of member states, and the Eastern enlargement were the result of this new political and institutional make-up for which the groundwork was laid in the Maastricht Treaty of 1993. This grand renovation of the inter-European relations had wider implications on political and economic relations in the world. The new grouping represented, after the new member states had joined in 2004, the largest market in the global economy, and with it, it was expected, came more political clout. The Lisbon process, started in the 1990s, was to make the new European grouping the most competitive economy, not only competing for economic prowess but also competing for relevance at the international political scene. Apart from institutional innovations to accommodate the enlarged membership with a workable brief, the processes of Amsterdam, Nice and Lisbon to come to a new agreement for the EU was also set in motion to also include more competence for the EU in foreign policy. Although the EU is not a state, it was clear that some important member states were interested in developing the EU in a state-like direction in terms of dealing with the external world, but competence in foreign affairs remains a delicate issue between the Commission and the member states.

The 2001 attacks on New York and Washington first led to a highlighting of the transatlantic relationship, also in NATO, but soon afterwards, in particular with regard to the invasion of Iraq in 2003, this unity in the EU disappeared and exposed fault lines in the geostrategic approach of areas of strategic interest. Support of the US in the Iraqi invasion also opened these fault lines among the member states and left the idea of a single foreign policy approach pretty much in tatters. The expansion of NATO was the next battleground in the transatlantic relationship, with the US advancing early membership for Georgia and Ukraine, putting the regional European-Russian relationship and the inter-EU relations, under tremendous stress. The mission in Afghanistan, when it was promoted from an American to a NATO mission never received much political support in the European member states and perhaps underscored the notion that the EU was a geo-economic player but not much of a geopolitical one. The bleak successes in the area of common foreign policy, with regard to Iran, Afghanistan, the Middle East in general, and the strategic vigour with which the European Neighbourhood policy was pursued shows that the EU is mainly a regional strategic player and that geopolitics still predominantly resides in the capitals of the member states.

Even with a fully functioning Lisbon Treaty in place in December 2009, the EU is not a geostrategic player *per se* as for instance the United States, China or Russia is. The open
ended and evolving nature of the EU is defined by the formal and informal interactions among varied stakeholders comprising foremost EU institutions, member states governments, associated countries and economic, public and civil interest within the EU domain. This means that despite its formidable economic power the EU’s geo-strategic stance remains fluid and relatively weak in comparison with the much more robust and potentially rigid geo-strategic position of established powers.

**European Union’s growing import dependence**
The European Union (EU) is the premium growth market for external gas suppliers. Gas import dependency is set to grow against competitive market prices from some 50 percent to possibly more than 80 percent from 1990 to 2030.\(^{37}\) Decline rates in indigenous gas production and the relative advantage of gas in a more sustainable fuel mix, over other fossil- and nuclear power generation, continue to offer potential for growth within EU markets and hence for more imports for gas. Though it is a certainty that imports shall grow, the range of growth-rates varies greatly, which erodes security of demand (see Figure 4). This variety in the range of natural gas import growth rates is partly due to the climate change policies the EU has embarked on, also known as the 20-20-20 policy, and the security of supply policies of the various member states. The growing dependence of particularly Russian gas raised geopolitical concerns among particularly the Eastern member states which wish to reduce dependency on Russia, partly for historical reasons and partly because of the geographic determined dependence which makes it hard for these markets to physically and economically reach out to more diversified natural gas flows. The internal market was the EU’s answer to these asymmetric dependencies in the regional EU markets, hoping that virtual diversification through market integration could counter the strong position of one or two suppliers in Eastern Europe.

The constraint that climate change policy imposes on fossil fuels and rising security of supply concerns negatively influenced potential demand for gas. These developments narrowed the energy mix options available to member states that until recently were in a ‘dash for gas’. An upsurge in interest at the political level in nuclear energy and the possibility to capture and store CO\(_2\) to maintain coal in the energy mix, reflect these environmental and security concerns, that will impact on future demand for natural gas, if left unaddressed.

Since the 1990s, EU relations with external gas suppliers have shifted from open market integration towards a more strategic stance as a consequence of asymmetrically evolving policies. The EU successfully integrated Norwegian gas supply into its open market model and expanded this eastward through EU enlargement. Other external suppliers, such as Russia that supplies around a quarter of EU gas demand, or transit corridors such as Turkey and Ukraine thus far remain outside the EU model, opting for more vertically integrated control of their gas sector and transit routes.

Figure 4 Different long-term gas demand projections for the EU (in bcm)

Duelling market models
Though the two models of energy market development in the EU and Russia are not wholly incompatible, reliance on state monopolies has implications for the secure functioning of an open EU gas market and vice versa. Upsets in the transit of Russian and Central Asian gas through Ukraine to the EU, a more assertive stance by gas producers gathering in the Gas Exporting Countries Forum (GECF), and divergent energy security policies of EU Member States towards external suppliers amplify geopolitical risk perceptions and expose the EU’s open and liberalised gas market model to the potential abuse by external monopolies.

Mind the widening policy gap in between
European Neighbourhood policies and the Eastern Partnership that involve Belarus, Ukraine, Moldova, Georgia, Armenia, and Azerbaijan provide a broad framework for cooperation with the EU to advance open market integration. The Energy Charter and Energy Community Treaty, in addition to the Deep and Comprehensive Free Trade agreement for energy that the Eastern Partnership provides, advance energy sector cooperation and integration specifically in trade, transit, transport and investment among these energy markets. Such frameworks, however, remain difficult to implement and do not involve all relevant stakeholders along the gas value chain. Russia has recently withdrawn from the Energy Charter Treaty and the Energy Community Treaty only involves South Eastern European energy markets with Ukraine, Moldova, Turkey, Georgia and Norway as observers. Russia, and Caspian oil and gas producers, strategic sources of supply for EU consumers, reassert their sovereign interests over resources and remain at arms-length of...
these energy market policy frameworks. This poses both geopolitical and strategic economic challenges for the EU that, whether these are real or perceived, influence both its internal and external gas market policies. Both require new policy responses and possibly project specific initiatives. Pending the evolution of a distinct foreign energy policy, the EU mandate is limited to advance its own market model towards external energy partners. In hindsight this has led to a counterproductive dialogue with Russia that has regressed during the last decade. Increased pressure has prompted Russia to counter EU’s market driven security of supply policies and cease provisional application of the Energy Charter Treaty though it remains involved in the process.

**Choice of arms and policy posture**

EU gas sector policies, traditionally dedicated to the functioning of the internal market where it has a clear mandate, now also seek a more strategic policy stance towards external suppliers. Here the EU mandate is emerging since the entry into force of the Lisbon Treaty in December 2009. This will strengthen the common foreign and security policy of the EU and might lead to a ‘common foreign energy policy’. Both tracks require reinforced solidarity and coordination of gas sector policies among member states. Aside of the EU’s complex institutional issues and the need to maintain consistency among its internal and external policies, corporate and public policy interests among EU member states value gas sector liberalisation and relations with external suppliers differently. Their gas sector characteristics and external relations with producers vary across the EU. This means that despite calls for ‘a common foreign energy policy’, regionalisation of gas market policy based on bilateral arrangements to support the company-to-company contracts with external suppliers will remain an important driver in EU gas sector strategies. Deepening gas sector liberalisation, enhancing cross-border interconnectivity and the development of security mechanisms characterise internal EU policies. Diversification of routes to decrease reliance on transit dependent gas imports and efforts to diversify sources from dominant suppliers through more direct access to Caspian and Middle Eastern gas supplies, introduce important project specific initiatives in the external energy relations of the EU. Southern corridor projects such as ‘Nabucco’ have become more important due to the polarisation that has occurred in international energy policy frameworks. The EU and Russia each prefer to advance their own distinct market models rather than accommodate the varied producer, transit, trade and consumer interests they jointly hold, within a robust and effective multilateral accord.

*Where does EU foreign energy policy reside and what language does the single voice speak?*

The EU does not have exclusive, but shared competences on energy with individual Member States. Though the Lisbon Treaty introduces a chapter on energy, requiring member states to ‘act in a spirit of solidarity’ this, thus far, does not encroach on their sovereignty to make bilateral arrangements with external suppliers. The European Commission, however, the de facto executive branch of the EU, is taking new initiatives to strengthen coordination among the deals that individual member states make to secure their security of supply and to conduct a more robust dialogue with external suppliers that remain outside open market model. By introducing the concept of a ‘single voice’ in external EU policy in addition to internal ‘solidarity’ among member states, EU institutions hope to project a more geostrategic stance. The latter clearly resides under the authorities of the newly installed High-Representative on the Common Foreign and Security Policy of the EU, Catherine

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Ashton. While 'the spirit of solidarity' should guide the new Commissioner for Energy, Gunther Oettinger. He recently announced that:

"Over the next five years I want to contribute, with you, towards a Europeanization of our energy policy...Our goal must be to bring the raw material, under fair conditions and with planning security into the European market and then make it available to every purchaser but on the same terms".  

The Commissioner 'hopes to win over the governments on this' but his proposal to end bilateral deals and 'ring fence' the EU’s open market model for trade and investment with external energy suppliers such as Russia appears to fly straight into the face of the High Representative. The Lisbon treaty requires her to pursue a foreign policy that is consistent with EU market norms and among others, strengthens multilateral cooperation and economic integration through the progressive abolition of restrictions on international trade.

The Caspian Development Corporation (CDC) provides for another geostrategic policy initiative that the EU may develop to facilitate access to Caspian gas and could be seen as a forerunner of the new concept announced by the new Commissioner. Here the Commission proposes to intervene in the market by aggregating demand to unlock direct gas supply from Turkmenistan in particular. The European Commission concluded that such innovative measures are required and seeks to implement the concept together with the European Investment Bank and the Energy Community.

The latter initiative, its particular merits aside, again appears to lead to a departure from well-established EU norms and practice in particular the European Union’s internal energy market rules and international obligations. The EU market model and its multilateral engagement typically challenge market aggregators in favor of open, non-discriminatory market rules and of competition.

**Stepping down the market policy high grounds**

Still the North Western European energy market, where gas penetration is high but import dependency on a single supplier low, is not comparable to that of South Eastern Europe where gas penetration is low but dependency on Russian supplies a major issue. Increasing interconnectivity and promoting southern gas corridors to Caspian producers are both rational policy objectives here. Internal energy market regulation of the EU and the varied strategies of host countries and commercial actors however mute the necessary commercial justification to mobilise the required investment.

**Different interests lead to different policy objectives**

The economic incentive for investing in cross-border infrastructure is weak, whereas the regulatory exposure, that private sectors investors have to take on, remains prohibitively high without a geostrategic engagement by EU institutions and public financial support for

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45 Terms of reference for World Bank technical assistance of the 24th of February detail this preliminary concept.
Southern corridors. The Russian state export model, however, can easily trump EU efforts to promote new market entrants and gas import diversity on what it considers its premium market, by exploiting the willingness of EU members to make bilateral deals as sovereign countries. In conjunction with the incumbent gas companies within the EU and through its economic leverage over Caspian gas producers, Russia can develop alternative strategies that will continue to pre-empt project specific gas sector initiatives of the EU. To avoid increasing investment costs and long-term demand destruction both market models have yet to evolve.

**Demand security going down**

The ensuing geopolitical tensions in gas market relations between Russia and the EU underestimates the exposure of pipeline gas imports in the EU fuel mix to LNG imports, renewable energy, clean coal and nuclear power. The ambition of the EU to make the transition to a more sustainable fuel mix to mitigate the risks of Climate Change and become 20 percent more efficient, 20 percent reliant on renewable energy sources and emit 20 percent less carbon in 2020, however either understates the role of gas as a transition fuel and thus risks misrepresenting long-term gas demand (see also Figure 4) or presents real prospects of much lower import requirements and thus little security of demand.

**Final observations**

- The EU is today actively seeking to diversify its supply. At the same time, it must manage the stability in relations with all its natural gas trading partners. The combination of its internal regulatory transformation process and the changing landscape outside the EU has challenged the institutional construction of EU energy policy-making.

- To off-set geopolitical tensions and to restore confidence in both Security of Supply and Security of Demand, the EU gas sector strategy should focus more on inclusive agreements on investment, trade and transit terms as for instance laid down in the Energy Charter. Producer and consumer interests mutually depend on these. For this the EU could revive the policy dialogue with Russia and further include Caspian, Central Asian and North African producers, such as Libya and Algeria, in a common neighbourhood policy with Russia.

- Alternatively, Russia, and Caspian oil and gas producers, reassert their sovereign interests over resources and remain at arms-length of these energy market policy frameworks. This poses both geopolitical and strategic economic challenges for the EU that, whether these are real or perceived, influence both its internal and external gas market policies. Both require new policy responses and possibly project specific initiatives. Here the key question for the EU is how to maintain policy consistency and credibility on the international scene.

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46 Note that perception plays an important role in geopolitics, also for Russia and Gazprom. In a recent article by the Deputy Chairman of the Board of Gazprom the EU, and the EU Member States are jointly referred to as ‘the farther abroad’ or European countries. This exemplifies that Gazprom has no contractual relations or acknowledges business and policy affairs with the EU. A.I. Medvedev, On the marketing Policy of “Gazprom” within the context of the global financial-economic crisis, *Vedomosti* (Moscow 24th of February 2009) retrieved through Eurogas at: [http://www.vedomosti.ru/cgi-bin/get_document.cgi/vedomosti_24-02-2010.pdf?file=2010/02/24/226396_2341160105](http://www.vedomosti.ru/cgi-bin/get_document.cgi/vedomosti_24-02-2010.pdf?file=2010/02/24/226396_2341160105).
Another possible option to decrease geopolitical tensions is to seek ways in which Russia can facilitate the import of Caspian gas to the EU aside of allowing for the transit of Caspian gas across its territory. Finally, if indeed the concept of a CDC is implemented, WTO and Energy Charter Treaty rules may require its non-discriminatory application to other external energy trade partners of the EU. For this Russia might have to re-engage with the Charter Treaty or accede to the WTO, also in energy sector affairs. This would mean a return to a multilateral market model and repudiate all of the EU’s geostrategic motives for CDC.

3.4 THE RUSSIAN FEDERATION

Resurrecting Russia’s position through energy revenues
Still engaged in a process of transition, Russia is seeking to rebuild its position as a ‘super power’, especially on the Eurasian continent where Russia finds China and Europe on either side of its borders (see also Chapter 2). Energy provides Russia with an important role in international affairs, where especially gas may be regarded as a potential tool to resurrect some of its geo-strategic position. In the first instance, Russia is concerned with protecting its territorial integrity and regional economic and political interests within the post-Soviet space.

In the immediate aftermath of Soviet Union’s collapse, Russia had limited recourses to develop a relative advantage vis-à-vis other countries, except from its oil and gas reserves. Russia is therefore mainly focusing on the development of the oil and gas sector. However, due to the privatisation of the energy sector in the 1990s the government lost partly its control over the sector’s resources and windfall profits flowed largely to the private sector.47 Even though the gas sector underwent a privatisation process, partial government control in the gas sector remained and ensured a certain centralisation of decision-making.

Sharply rising oil and gas export revenues during the 2000s provided Russia with additional (foreign) revenues and a much-needed psychological boost, given the economic malaise of the 1990s.48 The increasing energy revenues from exports, including gas, are therefore seen by Russian leadership as a way to provide the basis for Russia’s entry into the world economy and could offer the means to modernise Russia’s military and industrial complex.49 It is expected that Russia’s oil and gas resources, and the corresponding hard-currency export earnings, will continue to play an important role in this respect.

It is unclear whether Russia can employ its energy resources such that it can become a ‘super power’. This mainly depends on the extent to which it can successfully translate the wealth generated from these resources into other structural powers, such as financial wealth and intellectual capital. For instance, for Russia, like for other oil and gas producing

states, the risk exists of becoming overly dependent on revenues from energy exports. This is one of the risks inherent to the so-called resource curse. The impact of these revenues on its economy depends in part on the absorption capacity of the economy in question and the management of the surplus incomes over absorption in a so-called sovereign wealth fund.\(^{50}\) Also the political coherence (among elites) to manage this wealth in the short and long run is important in order to avoid instability due to internal distribution issues.

It can be argued that in the long run gas is better positioned as a resource to create a relative advantage for Russia than oil, since it holds roughly one quarter of the world’s total conventional gas reserves and has a dominant position in production and export.\(^{51}\) Moreover, in the oil market, the countries of the OPEC are and will continue to be dominant exporters, where Russia has no real place as a price setter. In gas terms, Russia has regional dominance, especially in the former Soviet countries and Europe (see below), and may be able to expand this to global dominance (in GECF, for example, see Chapter 7).\(^{52}\)

**To conduct geopolitics through gas?**

Most of Russia’s gas trade is conducted by pipeline and long-term take-or-pay contracts, which brings on long-term political and business relationships, due to the rigid nature of natural gas pipelines. As mentioned in Chapter 1, pipeline gas flows, upon which other countries depend, can enhance influence, perhaps more in economic rather than (geo) political terms. Yet, pipeline trade, and particularly the development of new pipeline corridors, has always had, to a certain degree, a (geo) political dimension.

The structural dependency primarily of European and CIS states on Russia’s gas can be translated into the development of structural power for Russia. Conversely, Russia is just as dependent on the income stream provided by exports to mainly European countries as Europe is on its gas flows.\(^{53}\) Given the above, the use of gas as a tool of coercion (e.g., shut-offs) as part of their pursuit of geopolitical goals, has its risks. If and when dependence is highly asymmetric, as in the case of small, isolated gas consuming countries, geopolitical goals could be more easily achieved. This is especially the case when such geopolitical goals are of a short-term and localised nature.

In order to control a stable and reliable revenue stream from its natural resources, the Russian government has since 2004 increased state control over and ownership in its energy sector, including gas, around national champions (see also Chapter 4 on Liberalisation).\(^{54}\) In this respect, the Ministry of Energy of the Russian Federation has stated that these state-controlled companies can be used by the state as an instrument of internal and external policies.\(^{55}\)

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\(^{54}\) One of the most prominent cases was the arrest and conviction of Yukos’ chief executive Michael Chordorkovski, which led to the dismantling of the Yukos’ Empire.

\(^{55}\) Ministry of Energy of the Russian Federation, The summary of the energy of Russia for the period up to 2010 (Moscow, 2003).
Russia’s dependency on gas exports
Gazprom, as a government-controlled firm, has come to embody Russia’s awareness of its role as an important future gas supplier with global aspirations (see below). Gazprom has a dominant position in Russian gas production, although the role of independent (foreign) producers is growing (25 percent in 2008). Gazprom owns the Russian united gas transmission system (UGTS) and since 2006, it officially holds a monopoly over Russia’s existing and potential gas exports, although it is possible that Gazprom must share this position with Rosneft, who also is developing its gas resources.

During the late Soviet times, Russia was dependent on Europe as a hard currency-earning market, while providing its Soviet allies with cheap, subsidised energy for political-strategic reasons. Nowadays, Gazprom is still highly dependent on the European markets – yielding almost 70 percent of Gazprom’s revenues, while the related gas volumes only account for around 30 percent of the total volume sold. Moreover during the last few years, Gazprom accounts for almost a third of overall government revenues.

Russia’s domestic market: policies affecting exports
Russia is a major gas consumer, with domestic demand in Russia taking up almost three quarters of Russia’s gas production. The Russian domestic market is one of relative low regulated prices. In November 2006, the Russian government took the decision to gradually increase regulated gas prices, so that by 2011 they will reach export parity with Europe (excluding transmission costs and customs duties). This policy could encourage investments in Russia’s gas sector, but can also stimulate efficiency and energy saving programmes. In the longer-term, a netback parity with West European prices would make the domestic Russian market more attractive than exports (due to additional transport costs), which may have a negative effect on Russia’s export potential.

Russia’s export markets: largely strategic-economic driven
Gazprom’s current exports – and therefore the interaction between geopolitics and gas – should be seen as split into European and CIS exports. Russia has, at the political level as

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63 J.P. Stern, 'The Russian Gas Balance to 2015: difficult years ahead,' in Russian and CIS Gas Markets and their Impact on Europe, S. Pirani (ed.), (Oxford: Oxford University Press, 2009), pp. 54 - 93. From Russia’s governmental point of view, exports to the foreign markets, however, will still be more attractive to Russia (as a government), due to export duty revenues (30 percent on exported gas), except for Belarus and Kazakhstan T. Mitrova et. al., 'Russia, the CIS and Europe: Gas trade and transit,' in Russian and CIS Gas Markets and their Impact on Europe, S. Pirani (ed.), (Oxford: Oxford University Press, 2009), pp. 395 - 441.
well as in the commercial sense, more global ambitions via pipeline projects to Asia and LNG ventures. An official statement concerning Gazprom’s strategic goals included:64

‘Becoming a leader among global energy companies by conquering new markets, diversifying business activities and pursuing supply security.’

At the same time, the Ministry of Energy of the Russian Federation argues that:65

‘The main aim of the Russian Energy strategy is strengthening of competitive positions of the Russian energy industry in the world market.’

CIS markets
Most of the CIS sales (83 bcm in 2008) are concentrated in Ukraine (61 percent) and Belarus (23 percent).66 These countries, which are also Russia’s main transit countries to Europe, are highly dependent on Russian gas imports and have mature gas markets. The radical changes in the national, regional and geopolitical make-up since 1990 had resulted in major restructuring of transit and business relationships across Russia, the newly independent states and Eastern Europe. These changes led to increasing transit problems and new business risks, whereas geopolitical interests of the Euro-Atlantic community and Russia are still influencing these (transit) markets (see Chapter 6 on Ukraine).

European markets
In a number of regions within Europe, Russian gas plays a dominant role in terms of share and end-usage. Figure 5 includes Gazprom’s market share in total gas consumption and in power generation. The absolute values of Gazprom’s market shares are greater in countries of Western Europe than in Central and Eastern Europe. In Germany and Italy, for example, Russian gas enjoys a larger market share but on average, in terms of power generation, the share is actually quite small (except from Turkey). In Central and Eastern Europe the absolute volumes of Russian gas are smaller, but Russian gas has a much greater market share in terms of total gas consumption and power generation. In a way, the Russian gas supply is part of the solution in terms of security of supply in West Europe, the EU 15, while in East Europe (EU 12) these supplies are part of the problem.

With respect to Gazprom’s new investments, Gazprom’s Yamal-Europe, Blue Stream, Nord Stream, and the newer planned South Stream pipelines are all ostensibly part of a strategy aimed at strengthening Gazprom’s market position, as well as reducing reliance on Ukrainian transit. These pipelines aim to supply the south-south eastern and north-western European markets, together, responsible for almost 85 percent of the total current European demand.67 Russian pipeline diplomacy through high-level visits by Russian officials to purchasing countries supported these new projects and downstream activities.68 In Europe, Gazprom’s moves can be explained from a strategic-commercial logic to ensure its position and reliability vis-à-vis its competition and customers, respectively. Moreover, these projects can be seen as part of ‘vertical swaps’ along the value chain and joint

65 Ministry of Energy of the Russian Federation, The summary of the energy of Russia for the period up to 2010 (Moscow, 2003).
ventures between Russia and counterparts in European countries, backed by governments on both sites. In a broader sense, becoming an important supplier also fits in Russia’s perception of the importance of gas as a source of relative advantage (see above).

**Figure 5** Gazprom’s sales and market share in European countries in 2008

As a result of the seller’s market in the first decade of the 21st century, security of supply became increasingly important for European policy-makers to take into account (see section 3.3 on Europe). In this respect, some policy-makers tend to perceive Russia’s investment behaviour as driven by geopolitical factors. These views gained currency especially after the 2006 Russia-Ukraine gas conflict. As a result, in some European countries the perceived reliability of Russian gas was put in question. Subsequently, combined with the assumed impact of climate policies (see Chapter 4); this has had a negative impact on Russia’s security of gas demand.

**Asian market and LNG**

During and after the Soviet era, LNG projects and pipeline projects to Asia never materialised due to geopolitical and commercial obstacles. In the 1980s, the US was not considered as a potential market for Soviet LNG with the coming of the Reagan administration and the gas deregulation in the US. In Japan, the government was unwilling to enter into a closer economic and political relationship with the Soviet Union due to disputes over territory, the lack of a Peace Treaty, and their tendency to follow the political

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lead of the US. The pipeline proposals from Siberia to eastern Asia (China and South Korea) are still pending, largely hampered by disagreement on pricing terms and financing, but possibly also through a fragile geopolitical relationship (see China section 3.5). Only Sakhalin II now provides Gazprom with the opportunity to sell LNG to the Pacific Basin, which is part of Gazprom’s focus to diversify its export activities.

**Commitments with other gas-producing countries**

In the former Soviet republics in the Caspian Region, Gazprom aims to maintain its control over gas production from the Caspian Sea region and their flow to European gas markets. This is the result of Russia’s broader geo-strategic agenda to preserve its political and economic influence over this region (see also Chapter 6 on the Caspian region). Gazprom’s Kremlin-backed strategy to secure Caspian reserves on market-based netback prices has apparently helped push the company to its financial limits, in terms of solvency. This put in question the realisation of domestic exploration and production projects (e.g., Shtokman and Yamal).

Moreover in the period running up to 2008, Gazprom has been increasingly developing upstream exploration and production opportunities in other countries. These activities fit into Gazprom’s strategy to become a global gas player and help to reduce competition. The Russian government assists Gazprom in pursuing stronger ties with gas-exporting firms and countries on both a bilateral basis and through the GECF and Gas Troika. Some bilateral deals are part of a broader cooperation in other sectors (such as military and nuclear technology). In a certain way, the cooperation with other gas-exporting countries provides Russia with clout in a comparatively new dossier in international affairs. Arguably, however, at a state level Russia may not be willing to make fully binding commitments in the GECF, given its self-perceived status as a great power that wishes to preserve its policy independence in global affairs (see also Chapter 7 on GECF).

**Final observations**

For Russia, its gas resources and exports help provide Russia financial resources and could offer the means to re-establish Russia as a 'super power', both at a political and economic level. The Russian leadership at the state level is aware of the importance of its gas resources. However, it is unclear whether Russia can become such a geo-strategic player mainly via its oil and gas revenues, given the risks of a resource curse, for example. In order to fully exploit gas as a source of relative advantage, the government assumed its position as an important actor in the gas sector. Gazprom, as a government-controlled company, has aspirations to become a leading gas company by strengthening its position in existing markets and conquering new markets. The Russian export investment strategy, involving the development of pipeline capacity investments to Europe, appears to be underpinned by an economic-strategic rationale. Gazprom’s investment strategy in Europe is supported at a Russian governmental level and, in particularly, at a country level within Europe. It remains

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73 D. Finon, La Russie et l’"OPEP du gaz": Vraie ou fausse menace? (Russia and "gas OPEC": A real or perceived threat?), (Paris: Institut Français des Relations Internationales, November, 2007).
a point of discussion whether the political support regarding new value chain investments is part of a geopolitical ‘design’. It seems that the strategy towards former Soviet republics fits into Russia's broader geo-strategic agenda to preserve its political and economic influence over this region. However, whether the motives incline more towards a geo-economic approach or a geo-political one is still open to debate. Interregional gas market coordination, such as possibly in the GECF, is likely to be geo-economically driven over the longer run, with political factors possibly influencing the level of formality of cooperation. To conclude:

- Natural gas is a very important export product for Russia in terms of its trade balance and government income.
- The EU is an important export market for Russian gas.
- The natural gas infrastructure and trade were designed for a different organisation of the state (Soviet Union) and its associate states, and is now slowly adapting to the realities of the new institutional make-up of the Eurasian continent and different economic dynamics.
- Supplies from former Soviet states in the Caspian region are important for Russia’s gas (domestic and export) strategy and investment plans to unlock new resources.

3.5 CHINA

The rise of China and the role of energy in Chinese foreign policy

The influence of China as a rising geopolitical power is felt increasingly around the world. This also holds for international energy markets, since energy security considerations drive a significant part of China’s foreign policy agenda. China’s energy policy for a long time was driven by the objective to be self-sufficient. It created a very prominent role for coal, which the country has in abundance. However, the phenomenal growth of its economy has fuelled demand for energy and forced the country to include imports in its energy system. This is most obvious for oil. In the time-span of little more than one decade, China shifted from a position of self-sufficiency to an import dependency of 50 percent. As a consequence, securing overseas oil supplies has become a major factor in China’s overseas diplomacy. Some of its activities in this field have generated much controversy, such as the deals with Iran and Sudan, which sometimes have run counter to political objectives of Western countries. Although purchases on the international oil market account for the largest share of China’s imports, analysts have observed a preference for bilateral deals in the oil sector under which equity production is set apart for Chinese consumption.

Gas as an emerging factor in China’s energy diplomacy?

So far the impact of demand for natural gas from China on world gas markets has been rather limited because natural gas is still predominantly a domestic affair. Domestic gas consumption and production increased to 87.5 bcm and 83 bcm in 2009, respectively.\(^\text{74}\) Consequently, China’s import dependency for natural gas stood at only five percent of total consumption. A second consequence of the objective to avoid energy imports is that natural gas still plays only a small role in China’s energy system, accounting for only 3 percent of

\(^{74}\) Gas consumption and production grew with 11.5 percent and 7.7 percent compared to 2008.
China’s total primary energy consumption. However, this role is expected to change in importance. Environmental concerns in the coastal cities and economic growth drive the demand for natural gas. According to official targets, the share of gas in total energy consumption should grow to 10 percent by 2020. Although domestic production has been increasing rapidly as well, in the longer term it may not be able to keep up with demand.

The projections of future domestic production from international analysts and institutions differ considerably, while the potential of the contribution of unconventional gas has not been fully assessed. Domestic production therefore may turn out to be a surprise over time, but does not offer a solution for today’s growing demand for gas.

Signs that natural gas is becoming an increasingly influential element of China’s energy diplomacy are emerging as China has entered the global LNG market and large investments in natural gas pipeline projects are being undertaken. China’s growing economic and financial strength provide it with opportunities to support overseas gas deals with loans, investments and trade agreements, as is already customary in the oil-related investments by Chinese NOCs. While the LNG supply deals are being made in a global competitive market and can be seen as commercial activities by the Chinese NOCs, the pipeline projects point at a more geo-strategic approach.

**China on the global LNG market**

Until very recently, all imports have been met by LNG, four-fifth of which has been contracted from Australia. China has invested heavily in building LNG terminals along its densely populated coastline, where they serve an increasing demand for gas for power generation and residential and commercial purposes. Three LNG terminals are now operational in China: in Guandong (2006), Fujian (2008) and Shanghai (2009), while two more are under construction in Jiangsu and Dalian (both scheduled for 2011). Two more are approved and four more are in an advanced planning stage.

Of Chinese NOCs, both CNPC (with its listed subsidiary PetroChina) and CNOOC have been active in securing overseas LNG deals. At the moment, the imported volumes amount to less than 2 percent of the world’s LNG trade. However, according to some Australian analysts, LNG imports might rise to 60 bcm by 2020, which would make China a significant global LNG importer. Current contracts show that most LNG is sourced regionally, although a shift to more Middle Eastern imports might take place in future. The relationship with Australia will remain of high importance, also given the other resource-related deals that China is pursuing there, such as coal and iron ore.

**Pipeline gas imports**

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76. Apart from Australia (supplying 81 percent of China’s LNG), other minor partners are: Egypt (5.6 percent), Nigeria (5.4 percent), Algeria (3.8 percent), and Equatorial Guinea (3.6 percent). CNOOC, despite being the smallest of the three Chinese NOCs, is the largest Chinese oil company engaged in long-term LNG sales and purchase agreements (SPAs), having struck deals with Australia (NWS, 3.3 mtpa; QC LNG, 3.6 mtpa), Indonesia (Tangguh, 2.6 mtpa), Malaysia (Tiga, 3 mtpa) and QatarGas II (2 mtpa). CNPC, with its listed subsidiary PetroChina, has negotiated contracts with Qatar (IV, 3 mtpa) and Australia (Shell /Gorgon+, 2 mtpa; ExxonMobil; 2 mtpa).

77. IEA/Higashi, p. 14.

Apart from LNG deals, China is also increasing its supply options by pursuing various natural gas pipeline options. Despite questions about the economic profitability compared to LNG imports, China pushed ahead with the construction of the domestic West-East Gas Pipeline (17 bcm), which traverses China from the western Xinjiang province up to Shanghai. This has been interpreted as a sign of the strategic considerations present in China’s gas policy. Apart from fitting in with China’s ‘Develop the West’ policy which aims to address China’s regional imbalances in economic growth, it also allowed for pipeline imports from Central Asia and hence a diversification of gas imports, albeit with very limited capacity.

The first cross-border pipeline, the Central Asia-China Gas Pipeline originating from Turkmenistan, opened in December 2009 and in time should be able to provide 30 bcm annually. In February 2010, first supplies arrived in China and for 2010 gas supplies from Turkmenistan are estimated to total 5.8 bcm. Apart from energy-related deals, China is clearly strengthening its ties with Central Asian states in the economic field by increasing trade and on security matters by cooperation through the Shanghai Cooperation Organisation (SCO). For China, engagement with Central Asian countries also serves the purpose of assuring stability in the western Xinjiang province that borders Central Asia. This is an absolute top priority for China, even more so since discontent under the large minority of Uyghurs in the province erupted into violent protest in July 2009. Xinjiang is of strategic importance to China as it holds a significant share of domestic energy resources and represents one sixth of China’s total land area.

Furthermore, a gas pipeline from Myanmar has been designed to supply 12 bcm per year, running from Kyaukpyu on the west coast of Myanmar to China’s Yunnan province alongside an oil pipeline. Directing imports along this route has the strategic advantage of avoiding the Malacca Straits sea-lanes. Construction began in September 2009.

The future of Sino-Russian relations
Russia is potentially one of the most significant suppliers of natural gas to China, as Siberia and Russia’s Far Eastern provinces hold significant gas reserves while China offers a market with a strong potential for security of demand. Yet, exchanges and expressions of joint commitments between Russia and China on energy affairs have not been followed up until now, despite the potential benefits for both parties. This seems to be a consequence of both commercial disagreement and a lack of political will. Framework agreements on natural gas supplies from Russia have been made at several times, but are hampered by disagreement on pricing terms and financing. A renewed announcement was made in October 2009 on the supply of 70 bcm of gas starting in 2014, with pricing issues to be resolved in 2010, yet this has still not led to a conclusive agreement. The most prominent candidate for gas delivery from Russia to China, the Kovykta field, has been under evaluation by BP and CNPC since mid-1990s but is still not being developed. Other options, such as gas deliveries from West

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79 More West-East pipeline branches are currently considered or already under construction: the 2nd West-East pipeline runs largely parallel from Xinjiang to Guangdong (30 bcm); the 3rd West-East pipeline is proposed (Xinjiang-Fujian) and a 4th West-East pipeline should start at either the Tarim Basin or Sichuan.
80 Adelphi Paper, ‘Strategic Implications of China’s energy needs’.
81 In August 2008 the SPA was extended to 40 bcm.
82 Caijing, 2010.
84 Reuters, ‘China, Russia bolster ties with gas, trade deals’, 13 October 2009.
Siberia or Sakhalin, which seems to be favoured by the Russian side, have, so far, not made significant progress.

On the political side, cooperation between China and Russia is impeded by a troubled historical relationship that has remained uneasy despite longstanding border issues being resolved in 2004. Even though Russia and China are united in the Shanghai Cooperation Organisation (SCO), which has incorporated energy as a field for further cooperation, ties remain rather cool. How China’s increasing activities in Central Asia and in particular the construction of the Central Asia-China gas pipeline will influence Sino-Russian relations, will be a critical factor shaping the regional power balance.

**Important developments in China’s gas sector**

The arduous negotiations with Russia point to another issue crucial to the development of natural gas in China: i.e. the domestic natural gas pricing regime in China. Natural gas remains one of the most under-priced fuels in China: the IEA estimates that on average consumers pay little over half the true economic value of the gas they use.\(^{85}\) The root of this lies in the structure of natural gas consumption in China: demand is dominated by industry (a large part for feedstock/fuel for subsidised fertilizer production) while gas use by households and power generation is only recently emerging as an increasingly important factor. It is recognized that the low price of gas is hampering both imports as well domestic exploitation and production and gas reforms are currently under consideration and might very well be enacted in 2010, raising domestic gas prices and linking them to external pricing factors.\(^ {86}\)

As a final consideration, it should be taken into account that China still has some means to influence the emerging dependency on overseas gas resources. Energy security concerns over gas imports have already led to the adjustment of earlier policies stimulating the use of natural gas. Since 2007 gas-fired power generation is no longer specially promoted and even restricted in some areas.\(^ {87}\) As natural gas is not occupying such a central and essential position in China’s energy system as oil, China is still relatively little constrained in both its domestic and foreign policy related to gas. Second, continuing exploration has increased domestic gas reserves significantly in the past few years and the development of large coal-bed methane reserves could potentially mitigate the need for overseas resources.

Also with regard to the development of the energy industries and climate change, the way China will handle their external political and economic relations will greatly impact the course of these industries in the next few years. Will China in natural gas be satisfied with importing natural gas from the international market based on long term contracts as they do now, or will they employ, once natural gas imports grow further, a similar strategy as in oil, where equity matters and where bilateral relations are very important? How will they manage their diversity of supply and how will they manage their newly developing resource (and natural gas) relations with Australia?

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\(^{87}\) Michael Priestly, ‘China’s reliance on Australian LNG exports’, Parliament of Australia, Background Note, 6 January 2010 (updated). See section ‘Demand for Natural Gas’. 
Final observations
China’s role on the world’s geopolitical stage is growing rapidly. Energy imports, in particular oil, have been and still appear a matter of considerable political importance. Driven by political concern over dependency on energy imports, China has maximised the exploitation of its domestic coal. China has more coal gasification plants in operation and under construction than anywhere else in the world. Natural gas still has a small role in China’s energy system. China does not appear to be strongly promoting the use of gas due to import dependency concerns, but economic growth and environmental concerns leave it with few alternatives. China has considerable coal deposits and shale formations, offering promises of major growth in unconventional domestic gas production. Today, however, gas demand is greater than available supplies, leading to policies of prioritising its use and ongoing growth of LNG imports, for which the country’s importing companies so far have acquired supplies on normal commercial business terms. Conversely, there may also be indications that gas is used as a vehicle for foreign policy objectives. The development of gas resources in Central Asia and imports to China defies the Western conventional economic rationale, and seems a typical example of the longer term reasoning of the Chinese economic model. If so, what would be the geopolitical implications? Other questions that arise from China’s gas strategy and are related to gas and geopolitics are:

- How will Russia react to China’s growing activities and influence in Central Asia. Will these lead to increased cooperation or more tension?
- What about Sino-Russian political cooperation, e.g. in SCO (see Chapter 7), and the relations with other powers such as the US and EU, particularly when China would follow a similar bilateral strategy on natural gas as with oil?
- Will future LNG purchases on the international market develop into a similar pattern as oil deals? How would this affect the international trade?
- What opportunities for bilateral deals and the consequences of growing ties with other countries (e.g. Iran)? Or will China regard the conclusion of long term supply contracts of similar security for gas as taking upstream positions for oil supplies?

3.6 Geopolitical players, regional interests and natural gas
From a geopolitical point of view, only the US can be said to have a real geopolitical posture, also with regard to natural gas trade flows. Its dependency on imports is rapidly declining as a result of the development of unconventional gas production. Yet, its involvement in developing and directing gas flows is ongoing for reasons beyond the interests in the free flow of gas alone. Through NATO, the US has played an active role in shaping post-Soviet European relations. Moreover, also central Asian relations were influenced by the US, sometimes in a reaction to the US reposition in the post-Soviet region, such as the Shanghai Cooperation Council (see Chapter 7). Furthermore, the discussion about Georgian and Ukrainian membership of the transatlantic defense organisation NATO amidst growing tensions with Russia over a number of strategic issues, also strained inter-European relations. While some East European EU member states welcomed the strong stance of the US with regard to Russia, some large EU member states did not appreciate this approach, and preferred, instead, to preserve their strategic-economic, and natural gas, relation with that country. This difference of opinion is very much an expression of the differences in interests and roles between the US, EU and Russia, a geopolitical player with a larger political agenda, a regional strategic player with mainly economic interests and a previous
The instability of the Ukraine, as a major shatter zone between the EU and Russia, involves not only the regional players, Russia and the EU but also the US.

It is not in many geographic areas that the major powers all converge in interests, albeit for different reasons and with different ‘strategic plays’. Both the Middle East and Central Asia enjoy this position of being of interest to all. For the EU, the Caspian Sea gas producers can offer much desired diversification of natural gas flows for its SE European market and beyond, while LNG flows from the Middle East help diversify the Northwest European natural gas flows. These same LNG flows offer diversity to the other players as well, to China to manage its growing dependency on Australia, and for the US to balance its market. The difference between the concerns of the EU and China with the concern of the US about stability in the Middle East and the Caspian Sea region is that the US does not depend on these regions for its natural gas supplies, while the US dependency on oil supplies is relatively less pressing. In the absence of stability in one of their main supplier regions, the ability of the EU and China to diversify diminishes, and the cost of security of supply will increase. It is this stability and openness to the world market of these major producing regions which is, in addition to other geopolitical interests, the prime US interest. The preferred US type of stability must prevent flows from these regions to become ‘politicised’ in the wrong way, i.e. outside the control of the US and its market economy allies. In oil, the bilateral approach of China is considered to run counter to the security of supply model employed by the US, using the international market and the navy to make the resource available to the highest bidder.

The different models of securing their energy interests by major powers, i.e. through state companies and bilateral relations, has worried the US with regard to the future availability of supplies because it could reduce the confidence in free market models it has propagated. While other powers, such as China, worry that the US will manipulate availability for geopolitical reasons, the US is worried that in a different model a dominant state could easily exert more geopolitical pressure on other states with regard to other political issues.

It is clear that the natural gas sector has so far escaped the geopolitical posturing we have seen in oil. The regional organisation of the natural gas market and the domestic energy endowment of major powers were important. The recent internationalisation of natural gas and the new institutional make-up of the Eurasian continent in many more independent states, organised in different international institutions, has both changed and elevated the interest of major powers in the natural gas sector. The emergence of the natural gas sector as an international industry coincided with large changes in the international political and economic relations.
Chapter 4
Developments in (geo) politics and policies affecting natural gas

4.1 Sweeping (global) political and economic developments

An assessment of geopolitics and natural gas cannot be conducted in isolation from the sweeping geo-economic changes that have taken place since the 1980s. In the previous chapter on geopolitical powers, the demise of the Soviet Union, the integration of China into the world market and the subsequent period of rapid economic expansion, the political and economic reorganisation of the European continent, were discussed. All these changes have had their impact on international relations, economic growth and the role of gas in the energy mix of these countries. For instance, the demise of the Soviet Union and the economic downturn in the first 10 years after, released large volumes of gas for the European gas market, at a time when market liberalisation policies were gathering steam in the member states. These dual, but mainly unrelated, developments led to a ‘dash for natural gas’ in the power sector across Europe. The ample supply situation, the competitiveness of gas and the expectation of the introduction of CO₂ prices certainly helped boost the case of gas in the power mix. At the same time, the hard currency income from gas for Russia, although not as large as oil income, helped to stabilise the economy in those first uncertain transition years.

But also in the economic sphere, large changes occurred. In the early 1980s, large imbalances in the balance-of-payments among the major economies and between oil producing countries and oil consuming countries invoked a radical monetary policy change. Many countries around the world suffered from weak public finances, and the economies stagnated, while inflation was high. The subsequent period of structural adjustment brought about a period of redefinition of the role of the state in the economy, which, apart from the more market oriented economies, ultimately also had a bearing on the economic structure of the planned economies of Eastern Europe, the former Soviet Union and China. The liberalisation of the balance of payments, i.e. trade and finance, and later also large parts of the domestic economies became a dominant model of organisation from the late 1980s onward.

In the wake of the liberalisation trend, another major issue gained prominence on the policy agendas: climate change. Because the liberalisation of the energy markets came with less of a Bang than in international capital markets, the slow removal of traditional government (ownership) constraints on the energy markets turned into a replacement by climate policy constraints in the newly liberalised energy markets, shifting the playing field. Moreover, climate change policies were not implemented everywhere nor with the same vigour, creating different boundaries to energy markets and regionalised interfuel competition. The relatively clean properties of natural gas made natural gas an attractive option to clean up the energy mix. As the climate science progressed it became, however, clear that gas alone could not bring the desired CO₂ emission reduction results, and particularly not when the political goal of global warming was limited to 2°C during the 2009 G-8 meeting in Italy.
Climate change policies will have a great impact on the development of the natural gas sector in the coming years.

4.2 Liberalisation, Privatisation and the “Washington Consensus”

Redefining the role of the state and the market
In the 1980s a process of radical market reforms was initiated, of which many only took shape in the 1990s. Started in the US and the UK capital markets, the so called Big Bang, and later amplified by the demise of the communist system, a wave of liberalisation and privatisation swept across the world. There seemed to be no alternative: a transition to a de-regulated, free and open competitive market economy became sacrosanct. Where developed countries made their own decisions to reform their markets already with the 1947 Havana accords, reforms were much more unilaterally imposed on developing and newly independent economies especially in the 1980s for countries involved in the debt crisis and early 1990s, as a part of ‘transition economics’. These reforms, a.k.a. “Washington Consensus” were promoted for developing countries by Washington, D.C.-based institutions such as the International Monetary Fund (IMF), the International Finance Corporation (IFC) and the World Bank (WB), and institutions in Europe, such as the Organisation for Economic Cooperation and Development (OECD), the European Commission (EC) and newly established institutions such as the European Bank for Reconstruction and Development (EBRD), the Energy Charter Conference and the World Trade Organisation (WTO).

"Stabilize, privatize, and liberalize” became the mantra of a generation of technocrats who cut their teeth in the developing world and of the political leaders they counselled.88

In many countries, the driver for reform, willingly or unwillingly, was the decrepit state of their public finances. In many countries, the state was an important producer of (public) goods. Inspired by the Keynesian economic theory, the role of the state in the economy had grown over time. In developing countries this so called mixed economy came into existence mainly because there was no private sector to guide their economies through a period of ‘take off’. The state thus became the prime actor. In many West European economies, the bargain between the rivalling elites on the right and left had produced extensive welfare states. When these economies ended their period of post-war expansion, and competition from low-wage countries made their mark, the state stepped in with industrial policy to save employment in the labour intensive sectors of the economy long enough to absorb the workers elsewhere. The state of public finances became especially frail after the collapse of the gold-dollar system, first in 1972 and then in 1973 for good, the first and the second oil price increase in 1973/1974 and 1978/1979, and the way the oil dollars were recycled through the international banking system.89 In the US, similar problems existed due to the spending on the Vietnam War and the social spending to stem the unrest of the civil rights movement in the late 1960s-early 1970s. During the Nixon presidency the US developed a structural deficit, effectively disabling the Bretton Woods exchange rate mechanism, when the dollar could no longer play its central role. Already then, currency competition, in this case between the US and the West European countries, played a role in the eventual major

re-alignment between economies that took place in the early 1980s. The major imbalances in the world and the growing public debt undermined the ability of both industrialised and developing countries to invest in the modernisation of their economies. Both Thatcher in the UK and Reagan in the US won elections in their countries on an economic reform ticket, which would sweep the rest of the world in later years.

In the countries of the European Community (EC), the market reforms first led to the 1992 process of finalising the internal market, whose progress had stalled during the early 1980s in the recession, and later, in the 1990s, by the prospect of absorbing both the Northern, central and Eastern European countries into the EU. The need to bring the Internal Market into effect and the liberalisation of the gas and electricity markets with their incumbent dominant suppliers and generators were part of that EU coordinated process.

Already during the 1980s, many countries in Latin America and Asia were forced to begin to restructure their economies as part of the conditionality of the IMF structural programmes. Both the Baker and Brady plans, named after American Finance ministers that launched these debt-restructuring programmes, further stimulated structural reforms and made liberalisation of the balance-of-payments (trade and capital) and privatisation the mainstay of the reforms.

Many of the insights developed in the 1980s debt restructuring days were easily transformed into what became known as transition economics. In order to quickly deconstruct the planned economy and deal with the large external debts, a programme of liberalisation and privatisation commenced in Eastern Europe. These same recipes were proscribed to Russia and Ukraine, the largest of the post-Soviet states, in the early 1990s but their implementation was much slower and less profound because of the domestic political intricacies. In Russia, oil sector privatisation was finally consumed in 1995, but the voucher system flopped and resulted in the formation of large domestic oligopolies. The owners of these large companies, the so-called oligarchs, amassed most of the oil assets in the country. In the chaotic years after the demise of the Soviet Union, which coincided with relatively low international oil and gas prices, the main export products of Russia, not much income from oil and gas exports found its way to the state coffers, leaving the government with very little means to create a minimum social foundation under the market reforms. Only after the second monetary crisis in 1998, the economy began to stabilise, and when oil prices began to increase in 1999, the economic reforms began to gather pace again.

Invisible hand and visible government

The market reform measures brought many benefits, notably for the more mature markets of the OECD, but they, by hindsight, have not been universally hailed as the best recipe for all markets. Many countries have endeavoured to implement varying components of the reform packages, with varied vigour and results, which remain the subject of debate. Some critics have blamed the Washington Consensus for problems such as the Argentine economic crisis in the late 1990s, and for exacerbating Latin America's economic inequalities. The Asian financial crisis and the way it was handled exposed the vulnerability of countries to fast moving short term capital flows. Particularly countries with a weak domestic banking system saw large capital outflows. The open capital markets also implied that governments could do little to stem the haemorrhaging if they wanted to stay true to their liberalisation programme. Countries with some sort of (temporary) capital controls on short-term capital, for instance Chile and Malaysia, fared much better, making other countries aware of other policy options. The recent financial and economic crisis has also
added new questions and concerns on the virtues of the available crisis management tools in an open market.\textsuperscript{90}

For the gas industry, the market reforms were probably the biggest upheaval for its businesses, nationally and internationally. In many places the process is still underway. While in North America it is practically fully operational at the wholesale level, in Latin America it has slowed down or even come to a halt. In some countries, particularly those with ample reserves and production capacities, the state is regaining control over the industry, either in ownership or pricing in the domestic economy. In various Asian countries it has been applied in a more gradual and government-controlled manner and led to less contention. In the EU, the liberalisation of the internal gas market has advanced further than in other parts of the world and as a process will probably never be totally completed; efficient competition still needs to be further strengthened, and a fully integrated internal market is still not in place. Regulatory differences among member states do not always facilitate the larger EU-wide market place, but rather are focussed on the national markets. More coordination among national regulators still has to overcome these barriers. Further industry restructuring has taken place into a handful of more European than national market players. However, in order to secure their external gas supplies, they still need backing from national governments because the EU so far has failed to act with a single voice and representation.

**Reality versus expectations**

For natural gas, the recurring question is to what extent liberalisation and in some jurisdictions it has delivered the expected benefits. It certainly fuelled the development of new business models for the industry, notably for LNG, and it promoted competition in consumer markets and in some cases also in access to resources. It certainly created new interfaces between business and policymakers, mostly of a national or regional nature, but also led to new political tensions in the international arena.

The main issues that emerged in the context of liberalisation and privatisation, which still leave their mark on the business, include:

- Market liberalisation required numerous new regulations. Establishing the appropriate legal and regulatory frameworks for the new market structures is to a large extent still “work in progress”. Consequently mostly incumbent market players now regard regulation as the biggest risk for their business, while for new actors it enabled market entry and new commercial opportunities.
- In the EU analogous reform processes were developed for gas and electricity. Not reforming the two sectors on the basis of their own characteristics, with the different value chains in mind, but rather choosing the electricity sector as the main inspiration showed that the gas industry had failed to accomplish recognition from policymakers for the different natures of these businesses, which were commonly addressed as network industries. It is important to note, however, that the natural gas and power sectors in the EU are becoming more and more integrated.
- In some countries the liberalisation and privatisation processes allegedly failed to deliver the expected benefits. In a few others these processes had not been applied sufficiently carefully. Governments ceded control over the use of their resources or

worse, licenses, and state enterprises and assets ended up being sold below their true value, leading to excessive enrichment at the expense of the state. Subsequent governments have sought to restore control and ownership in what they perceived to be legitimate sovereign actions to return to the state the value and management of its natural resources. Where this “resource nationalism” in reaction to the Washington consensus occurred, it created serious frictions and concerns of “politicising” the gas business (see also Chapter 6 on Bolivia).

- During a number of years the EU attempted to export its market model to its major gas suppliers. This created tensions between the EU and Russia, leading to a breach of confidence (see also section 7.4 on the Energy Charter Treaty) between the two major stakeholders in the future of gas supply.

Due to a preoccupation with only market models, alignment of Security of Supply with Security of Demand interests, the inseparable twins of the natural gas, and other energy, industries, were not a concern in the policy agendas during the processes of market reform. The amply supplied markets in 1990s and the relatively low natural gas prices were seen as a result of liberalisation and not as a result of special economic circumstances, such as the large decline of domestic demand in the former Soviet Union. The EU security of supply issue was elevated to the political agenda mainly due to the prospect of greater import needs, the asymmetry of import dependence and diversification opportunities and the risks related to Russia and the Ukraine.

More recently, the issues regarding energy sustainability are also high on the energy policy agenda. The introduction of new fuels to the energy mix is another challenge for the natural gas sector because of the larger demands for flexibility, but also the uncertainty of the share of natural gas in the future energy mix. Import dependency debates and a general dislike of fossil fuels among some policy makers, have neglected the role natural gas can play in a more sustainable energy mix and created security of demand issues for producers. The transition to a more sustainable energy mix calls for more government intervention to fill the competitive gap between fossils and new energy resources. These issues tend to have a further impact on the prevailing market models.

With the benefit of hindsight both Security of Supply and Security of Demand suffered in the process. This has strained political and business relationships between producers and consumers in later years. Today, these aspects receive more attention in the political scene, but unfortunately more as a source of concern than as a co-dependency that was characteristic to the business before. Political tensions and policy uncertainties are bad medicine for any business, but particularly for natural gas with its heavy dependence on a proper international political imbedding, its major investments, long lead times, long pay-out times and long-term (pipeline) interrelationships.

**Final observations**

- In the aftermath of the 2007-2009 financial and economic crises, it is likely that the liberalisation drive will be moderated. Many governments had to come to the rescue of their financial sectors and needed to stimulate the economy to dampen the impact on growth. A discussion on crisis mechanisms, which are mainly national, and the understanding of risk, which are mainly international, is on-going. Yet, the direction of this discussion indicates that national governments want to reduce the exposure to risk, and will likely lead to more regulation.
• With their market reform processes, governments have taken leadership in changing the structure of the natural gas industry. Thus far it is a mixed success. Adjustments will need to be made again, if only to reflect the changing dynamics of the business and its environment.

• At its World Gas Conference in 2006, the IGU produced and discussed a study on market reform. Its analysis showed that market reform is not a “one size fits all” concept. Liberalisation offers most benefits in a self-sufficient, mature market. The natural gas industry could offer the benefit of its global experience to any new process of change by working closely together with all relevant stakeholders, nationally and internationally. No doubt, governments will be in the driving seat in re-determining the rules of the game, and probably taking a more direct involvement in gas market development, particularly in the light of emerging environmental policies. But stronger partnerships between business and governments, on national and international levels, may assist in avoiding future issues causing apprehension and securing the role of natural gas in the wider energy mix as a reliable and economically attractive energy source towards a low carbon energy economy. What existing or new vehicles could be employed? What steps if any would be required from the IGU?

4.3 Climate Change and the Outlook for Gas

Climate change and its political implication is a very significant issue affecting the future of natural gas. Over the last decade, when climate science developed and the UNFCC reporting became more alarming about the rise in CO₂ emissions, concerns about the risks and consequences of global warming became more widespread. Major global changes in energy use will be required to restrain the growth of emissions of greenhouse gases, while the impact of climate change is predicted to be geographically unevenly distributed. These changes to the energy system will come at considerable upfront costs to national economies, and would only be effective if introduced in a coordinated manner by the international community. Industrialised countries have, as it turns out, used to a large extent the space to emit with their unhindered past energy use, implying that developing countries should be constrained in their (future) emissions in an energy intense phase of their development. Moreover, even if an equitable distribution of the available emission space over time can be agreed upon, some states would have to invest early without hard guarantees that others would follow suit. Moreover, the cost of prevention does not equally fall to those that invested most and/or early, while adaptation costs can be particularly high for the weakest countries. Climate change presents the world with a geopolitical prisoner’s dilemma, where geopolitical distrust and geo-economic competition are the virtual walls that keep the prisoners separate to reach a better outcome.

In the run-up to the Copenhagen Conference (officially 2009 United Nations Climate Change Conference in Copenhagen or Conference of the Parties, COP 15,) expectations were running high that, this time around, the major powers would make joint commitments to reduce future CO₂ emissions and offer leadership to the other participating governments about the future climate change route map. International agreement would not only help to set serious steps in the reduction of greenhouse gas emissions, but would also create more
clarity to private industry about the rules and conditions under which future business can be conducted.

This clarity is badly needed across all segments of the energy sector, not just natural gas. The energy industry, despite the liberalisation wave in the 1980s and 1990s, is still subject to many government controls. In some countries, prices are controlled by government, and in others certain types of energy are subsidised, making the interfuel competition very opaque at the national, regional and global level. These interventions in the energy markets have all sorts of rationales, such as employment (coal), balance-of-payment arguments for instance to favour domestically produced fuels, poverty (subsidies for cooking fuels), security of supply arguments, for instance biofuel development in Brazil in the 1980s, conservation of reserves, etc.

In many countries, the focus is on the power sector, where conservation of energy and substitutes for fossil fuels must help reduce CO₂ emissions. Also the nuclear energy sector is emerging as a (transition) alternative, while Carbon Capture and Storage (CCS) developments can keep coal and gas in the mix. Without Carbon Capture and Storage (CCS), coal could not claim a place in a more sustainable energy mix. The fact that coal is important in the energy mix of the geopolitical powers, such as China and the US, make a coal phase-out unlikely, particularly because this coal is largely domestically produced. The optimism about the early introduction of CCS technologies could be misleading. This could result in a larger call on lower carbon fuels, such as natural gas, when CCS does not materialise early enough or in a failure to commit to CO₂ reductions. Also the organisation structures of the energy sectors vary widely across the world in terms of vertical and horizontal integration and the distribution of public and private ownership. The interventions on the part of climate change policies and help introduce new and more sustainable fuels to enter the energy mix are only the newest addition to government interventions.

In the event, no agreement was reached in Copenhagen. After the conference it appeared that important emerging countries were at loggerheads with the US about methods, timelines and commitments, while the EU was side-lined as largely irrelevant to these discussions. As a result, business and governments have to continue to speculate on future steps to deal with the environment. The likelihood that national or regional systems emerge is large, introducing yet another economic barrier between countries.

**Potential Effect of Climate Control Measures on Gas**
The overhang of possible climate control policies and their impact on energy consumption have prompted many analysts to study the ramifications and possible consequences of new policies and to quantify their effect. Box 1 summarises the assessments of the influence of future environmental policies made by three international bodies, all of which have recognised that these policies may have significant impact on the energy business.
**Box 1 SCENARIOS FOR THE IMPACT OF CLIMATE CHANGE MEASURES**

**International Energy Agency (IEA)**

In its 2009 World Energy Outlook the IEA extensively analyses the potential for and impact of major international efforts to curb the emission of CO₂. It introduces a “450 scenario”, describing a world in which global CO₂ emissions are limited to 450 ppm by 2030. Such a major reduction in emissions will require “an international agreement on a structured framework of effective international policy mechanisms and their implementation”.

This scenario assumes a combination of three sets of policy instruments, i.e.

- OECD/EU countries adopting binding emission targets by 2013 by means of a collective “cap-and-trade” scheme covering the power-generation and industry sectors, followed by similar measures for other Major Economies from 2021.
- International sectoral agreements in the iron, steel and cement industries, in addition to the cap-and-trade agreements and aimed at lowering the carbon-intensity of these industries. Similar agreements are assumed for the transport sector.
- National policies and measures complementing the international agreements.

Under this scenario Primary Energy Demand (PED) is down by 14 percent in 2030, relative to their Reference scenario, with the power sector accounting for 70 percent of the global emission reduction. Some 50 percent of the total CO₂ reduction is attributed to efficiency savings, while the remainder is mainly achieved by a bigger role for renewables (22 percent of PED), nuclear (10 percent of PED) and the application of CCS. Demand for all fossil fuels is lower than under their Reference scenario.

For natural gas this translates into a lower global demand of 3500 bcm in 2020 (down by 6 percent from 3700 bcm in the reference scenario) and 3550 bcm in 2030 (down by 17 percent from 4300 bcm idem) (for reference: global demand in 2007 was 3050 bcm).

The regional outlook behind these global trends is that demand for gas will not grow between 2007 and 2030 in the EU, Russia and North America. Growth will still occur in Asia, the Middle East, Africa and to a lesser extent in Latin America.

**EU**

In 2008 Europe agreed the targets for a New Energy Policy, to improve energy efficiency by 20 percent, to achieve a level of 20 percent renewables in PED, and a 20 percent reduction in CO₂ emissions (compared to 1990) by 2020.

Four scenarios for 2020 were developed on behalf of the European Commission: a baseline, business-as-usual scenario and one assuming implementation of the New Energy Policy, each under two different oil price levels (60$/bbl and 100$/bbl).

Taking the 60$/bbl oil price basis, the outcome of these European scenarios for 2020 is summarised relative to the baseline scenario as:

- reduction in PED by some 15 percent;
- nuclear remaining constant;
- renewable share at 15 percent of PED;
- reduction of all fossil fuels, mainly coal.

For natural gas the consequence is that, instead of growth of some 10 percent by 2020 from its 2005 position, demand for gas will be down by 10 percent from 2005 levels in 2020 (compared with a reduction in demand for coal by some 30 percent).

**IGU**

For its 2009 World Gas Conference the IGU developed a Reference scenario for global gas supply and demand. Recognising that this scenario would not lead to reduced CO₂ emissions, it also developed a “Sustainability” scenario.

The main assumptions are:

- 10 percent electric vehicles by 2030;
- Renewables growing to 25 percent of PED in 2030;
- Stable nuclear contribution;
- More gas-fired power generation at the expense of coal-fired plants.

The effect is a 10 percent lower total PED. Total gas demand will be higher under the Sustainability scenario reaching a level of 4900 bcm in 2030, up from 4400 bcm in the Reference case.
All three scenarios make different assumptions about which measures will be taken and arrive at different conclusions for the role of natural gas. The IGU analysis suggests an increase in demand for natural gas, resulting mainly from the replacement of coal for power generation by natural gas. The others suggest a reduction in natural gas demand, resulting mainly from major strides in energy efficiency. These different outcomes illustrate the difficulty to predict what type of policies may be introduced to manage greenhouse emissions and how to assess their impact.

**Meanwhile, uncertainty reigns for fossils**

While governments are struggling to introduce policies to reduce emissions without harming the economy and international competitiveness, businesses search for investment strategies with a minimum in downside risk. All are aware that stricter environmental policies cannot be avoided. Yet, given the range of possible policies, a no-regret strategy is hard to find.

For the longer term, work is progressing to assess the feasibility, timing aspects and investment implications of a low-carbon society by 2050. This could have important consequences for energy investments at a fairly early stage, particularly for the gas industry with its long lead times and pay-out horizons. Also, scant attention has so far been given to the effect that the uncertainty and future policies have on international relations between the gas exporting and importing states. Security of Demand for gas exporting countries could be seriously undermined under some of the scenarios. Conversely, any reluctance by these countries to invest due to uncertainty over future demand may affect Security of Supply.

**Final observations**

- Gas as a transition fuel seems to have lost its momentum. It is telling that two out of the three organisations presented in box 1, sketch a reduced role for gas – as for all fossil fuels – in a low emission scenario.
- It may not be surprising that the IGU Sustainability scenario projects a higher demand for gas and its analysis may have been biased, but the underlying fact is that use of natural gas in combination with its new application technologies results in considerably lower greenhouse gas emissions in comparison to other fossil fuels.
- In this respect gas could make a positive contribution to a transition to a low carbon society. It is questionable whether this potential is sufficiently recognised by policymakers.
- The uncertainties about future demand and the place of gas in the energy mix (as a result of Climate Change, among other factors) are affecting the gas business, including long-term investments in capacities.

**4.4 Dynamic international economic relations**

Before turning to the developments in natural gas it is important to recap some important political and economic developments discussed in chapter 3 and 4. It is these developments that provide the context in which natural gas embarked on its internationalisation. The financial and economic crisis of 2007-2009 has revealed important fault lines among the major powers but also among other states. The increase in sovereign debt in western
countries and the economic dynamism of emerging markets are further challenging the way the international system functions and where it is heading. In the words of Joseph Stiglitz, “the world economy is undergoing seismic shifts”, he further explains in his work that the risks of globalisation have been managed poorly, and that a vision on how exactly to reform the market economy to better manage these risks seems distant. The outcome of the pending reforms is not easy to predict, except that, like a pendulum, the relationship between the state and the market will again be rearranged. This rearrangement will produce new political and economic re-balancing among states, and possibly create new fissures among the great powers. Energy, including natural gas, is bound to play a role in these shifting relations of the coming years. In the course of the roundtables, the new relations emerging from this period of economic crisis may reveal themselves with more clarity. The examples of the stresses and strains in the dynamic international system and the natural gas sector discussed here may have been resolved, by the market or otherwise, and new one’s may have emerged that require inclusion in this analysis.

From Washington to where?

The liberalisation drive of many national economies slowly came to an end in the first decade of the 21st century. The success of China with its managed economy presented an example of an alternative route to economic growth to the Washington consensus. In general, a certain degree of liberalisation fatigue was noticeable everywhere after the Asian Financial and the Dot Com crisis in the late 1990s and early 2000s. Liberalisation had created openness to the international markets that created large economic opportunities, but also led to socio-economic and political governance issues, on a national and international level, to manage these flows. The exposure to rapid and fairly large fluctuations in capital and trade flows created economic and political management problems for states, while the ‘medicine’ from the IMF and World bank was perceived as rather harsh and not always in parallel with the ideas of the ruling political elites. The discussion about the openness of the economy and the national character of the crisis management mechanisms (central bank and public spending ability) intensified further after the outbreak of the financial and economic crisis in 2007-2009. If the international governance and crisis management tools cannot match the risks of the internationalisation of the economy it is likely that national or regional regulations will be implemented to balance these interests. The direction of this governance discussion is still unclear because major differences separate the super powers and their allies. These differences also played a role in the Copenhagen conference, where Brazil, China and India were crucial players.

Also, in resource-rich countries, liberalisation of the capital account, which would include strategic sectors such as the resource industry, implied a transfer from domestic to foreign ownership and potential greater difficulty to capture the economic rents for the state. These difficulties to capture economic rents could occur in states with deficiencies in the tax system or where problems of incomplete information over the resource industries were too large. Very often the resource industries, including energy, were thus excluded from the liberalisation process and kept in or taken back in government ownership. Russia, Kazakhstan, Bolivia are all examples of this (political) change in outlook on the position of their resource industries in the international economy. In quite a few other countries the liberalisation process was reversed in the beginning of the 2000s for similar reasons.

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The success of China helped this discussion along, because it showed a successful case of political centralisation and managed economic liberalisation. China prospered from the openness of other economies to find export markets for its products, but it did not open its domestic market to the same extent. This type of integration in the international economy was at first accepted by the OECD countries with the expectation that this was merely a transition phase. Yet, increasingly the policy of China was criticised when large balance-of-payments imbalances began to occur. In the eyes of the US, China’s unwillingness to bear greater responsibility for the world system became problematic, while in China’s eyes, the US economic policy also became a risk to its economic and monetary stability. Increasingly, the economic and monetary management issues became a bone of contention in the relationship between the US and China.

The current and future big issue, affecting the international economic and political system, will be how China will manage its integration in this system, and its relations with other super powers. The Anglo-Saxon approach to the economy, which became prevalent in the intense period of liberalisation in the late 1980s and 1990s, with its strong focus on short-term efficiency, is not fully consistent with the approach of states such as China, Russia, India and others.92 There is a distinct difference in the time frames that states employ in their vision of the political, social and economic future, where other factors, such as their cultural identity also play a major role in managing their external relations. The fairly short-term approach of the liberalised international economy does not comply with the way certain countries conduct their relations. Other than economic motives, for instance the ideological, religious or philosophical approach to political and social relations in society can strongly influence the policy and the institutional preferences in international relations, where the long-term gain takes precedence over the short-term gain. The way Japan managed its (bilateral) relations with energy exporting countries in the past decades is a case in point for the different approaches. Investment in long term relations with these exporting countries was a crucial element in their security of supply policies, in addition to benefitting from the availability of energy flows on the international market. Also on the European continent, these differences in approach are visible, and explain the difficulty with which liberalisation was sometimes embraced, despite the fact that it was recognised as the way forward for deeper integration among the economies and work away the historical and institutional differences among the EU member states. Also here, the financial and economic crisis will have some fall out for the future perspective on the political and economic organisation of society and how it relates to the outside world.

It would a mistake to assume that the integration of new countries in the international economy and the emergence of new regional and super powers will not have an impact on the way the international system is approached and organised. In how far the Anglo-Saxon approach to international economic and political relations will survive as a dominant driver remains to be seen. Therefore, the integration of China and others in the world system will be the next important development, impacting also the perspective development of the natural gas industry.

In energy, concerns about supply security and notably the need to start the transition to a more sustainable energy economy, has in recent years brought new challenges to competitive market designs exposes numerous flaws in the system that fails to provide

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adequate incentives for investment in essential facilities for 'the public good'. As such the Anglo-Saxon inspired 'Washington Consensus' seems to have lost much of its gloss.
Chapter 5
Developments in the gas industry and geopolitics

5.1 DEVELOPMENTS IN THE NATURAL GAS BUSINESS

The developments in international relations and how these may (potentially) impact on the natural gas business have been amply dealt with in the previous chapters. It is clear that the international natural gas business and the way it will and can develop depends very much on the way states operate in the international arena, how they regulate their economies and which policies will determine the boundaries for further natural gas developments. The natural gas sector, however, also has its own dynamic, which in turn can influence the way in which international relations develop. The sweeping liberalisation process has for instance produced different gas pricing models, which impact the flows of natural gas in the international market and the accompanying relations. Furthermore, national choices with regard to the organisation of the natural gas sector in their countries, also determine international relations. In the past few years, resource nationalism has strengthened the position of national gas companies in the international market. In some countries, the national company or some national companies were provided with monopolies or oligopolies in production and/or exports. In others, governments opted for state owned companies in transportation and/or unbundling of the natural gas value chain. This interplay of organisation of the value chain, ownership issues and the way in which government preferred to capture the economic rents has led to large changes in the way the natural gas business operated in the international market. In many countries, privately owned international energy companies concluded successful partnerships with national companies, combining different interests, new technologies and assets. The LNG ‘revolution’ was followed by the unconventional gas revolution, showing the vibrancy of the natural gas sector. The international natural gas sector is relatively young compared to other fossil fuel sectors and for that reason less set in its international market structure and institutional organisation, while the organisation structure of the national and the regional markets which are more set in their ways are in turn influenced by the international developments.

In the past few years, LNG has connected the Pacific and Atlantic basins and increasingly also pipeline suppliers have to take LNG flows into account when assessing the market for their natural gas. Moreover, the dynamics of security of supply and demand have changed as a result of new gas supplied under new business models, while unconventional gas has greatly changed the import dependency development of the US and the positions of suppliers and other markets. These developments in the natural gas industry thus affect relations, and are part of the dynamics of the wider interplay in the international system.

Yet, national markets are also growing in importance. Even for very outward looking natural gas suppliers such as Qatar, domestic and regional gas demand is increasingly

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93 The enlargement of the Panama Canal is likely to encourage the development of the interregional gas market, particularly as far as LNG flows are concerned (i.e. it strengthens the link between the Pacific and Atlantic basins).
important in the way the industry will continue to develop. The pricing of natural gas for domestic and regional markets is relevant for the inclusion of these markets into the development models, although more factors, for instance regional relations, can play a role in servicing these markets. In Russia, the domestic market is large compared to the export sector, so the domestic supply and demand development, combined with the export income needs, both play a role in the development of supply strategies.

It is clear that developments in the natural gas sector around the world, whether they originate in domestic, regional or international developments, also influence the relations between importing and exporting countries. In order to understand the interplay of natural gas and geopolitics it is important to understand the dynamics of the natural gas sectors around the world.

5.2 Supply and Demand: Are We Moving Towards Pig Cycles?

Generally, in natural gas markets, supply tends to follow demand. In a self-contained gas market like North America, with its fairly ready access to marginal fields, gas supply and demand for a long time were in reasonable balance, with spot prices determining the appetite of the market for gas, on the one hand, and the interest of producers to develop new supplies, on the other. The "rig count" would give a quick indication of activity levels among producers and of the marginal cost of supplies. In other markets, dependent on long distance imports and a lumpier pattern of new supplies, the sales of gas were for a long time "demand-driven". Investments in new supplies were only made subsequent to the conclusion of long term supply contracts with large buyers and resellers in the gas markets. These buyers generally had a firm grip on the demand in their markets, often as monopolist regional wholesale traders. There were always sufficient gas exporters prepared to invest on the basis of these contracts. So supplies were by and large kept in balance with demand in the international arena by means of the "demand-driven” type of coordination.

In more recent years the international gas market has moved from famine to feast. The early years of the past decade saw an unprecedented growth in perceived and real demand for international supplies, and particularly LNG, across all major regions. For the first time in many years, the US became a market for LNG imports, while the Asian market, mainly driven by China’s economic growth, was equally interested in new supplies. Europe, in its drive to diversify its supply sources was likewise interested in acquiring new supplies. A sellers’ market was the consequence.

Supported by this comfortable position, producers developed a new business model alongside the traditional one in the international market (see also section 5.5). Long-term contracts with market players were no longer required as a basis for new investments. Hence, a substantial supply capacity was developed in a variety of countries, all over the world.

In more recent years, the combination of unconventional gas production in the US – reducing the appetite for LNG imports - and the global recession has radically changed the perspective into a buyers’ market of a scale that the gas world has not seen before.
**Final considerations**
Comfortable as the current situation may seem for the consumer markets today, long periods of surplus may stifle future investments, resulting in supply shortages and very high prices down the road.

These very strong swings in the balance between supply and demand create new questions around the forms of coordination that may be desirable to contain the risk of such violent swings in supply availability and gas prices.

Should, or can, the international market return to the traditional basis of long term contracts, or are there other means to address the issue of market coordination? And is this one that can be left to the market players or is there a role for governments? And what is then the role of consumers’ and producers’ governments?

5.3 **International Gas Prices**

**Different regions, different prices**
In the past 40 years, differences in structures and levels of gas prices in the wholesale markets have underscored the regional nature of the gas industry, which was traditionally separated into three main gas regions, the Asia-Pacific markets, the North American market, and the European markets. The Russian domestic gas market is a large island of gas consumption with its own prices. Today, other natural gas markets are emerging, particularly in countries and regions, which were hitherto export oriented, such as the former Soviet republics, the Middle East and North African countries.

*The Asia-Pacific markets*
Dependent as the Asian markets are on international gas supplies, the Asian market has from the outset paid crude oil-linked prices for its natural gas. Changing supply conditions, S-curves in contracts, and occasionally diluted indexation to oil may have created a range of different prices on the day, but by and large the guiding principle for price negotiations has been the linkage to oil prices.

*The North American market*
For more than 25 years North American gas prices have been set by short-term forces of supply and demand, with Henry Hub as the centre of gravity. As a result, gas prices moved independent from those of other fuels, albeit not totally unrelated over the longer term. Inter-fuel competition ensured, until recently, a strong correlation between gas prices and those of fuel oil and gas oil.

*The European market*
Wholesale gas prices in Europe offer a more differentiated picture. For many years, the international trade in continental Europe has been conducted through long-term contracts, with pricing formulae negotiated on the basis of the netback principle. Under this principle, a gas price is set by the price of alternative fuels in a specific geographical and end-use market, notably fuel oil, gas oil and coal. It ensured a successful penetration of gas in the different end-use markets dominated by oil products and offered producers a price, comparable to the value of oil.
Market reform in Europe opened the door for the development of spot markets. Starting in the UK, spot markets are now spreading to the rest of Europe. Prices on these markets are established by supply and demand and can vary significantly from prices under the long-term import contracts. With the exception of the UK spot market, those on the continent constitute so far a relatively small part of the total volume of business and have acted mainly as a means to clear short-term surpluses and shortages between market players.
BOX 2 DIFFERENT GAS PRICES

There is no global gas price

While prices in the international gas trade are still mainly based on oil (product) indexation (Asia and Continental Europe) and spot prices (North America and the United Kingdom), domestic prices in the world’s gas markets are set under a wider range of different pricing regimes, varying from the two pricing principles set out above (accounting for more than 50 percent of the total world’s consumption), to pricing based on regulation (i.e. cost of service, below cost and social and political), responsible for almost another 40 percent of the total world’s gas consumption (see Figure 6).

Figure 6 World natural gas price formation 2005 and 2007

Thus, there is no global reference price for gas, i.e., not for LNG, but rather, a pattern of arbitrage in which relatively small but growing volumes are diverted to a higher paying bidders in another market.

Domestic markets take precedence

The regulated pricing mechanism is largely applied in producing countries, where gas is (partially) consumed locally, and prices are set for social economic reasons. Most countries, in which price regulation is currently dominant, such as in Russia and China, are considering or planning price reforms to bring domestic regulated prices more in line with market-based prices. In China and India, domestic gas prices are under government control, but international prices are paid for LNG imports in these countries.

Increasingly, resource rich countries are focusing on the development of domestic markets for their gas, to support their national economies, attract industries with low-priced gas, and using gas in value-adding processes. This has caused many current and potential exporters to create a pause for reflection, to ensure that sufficient national resources are reserved for future use in the domestic markets. As domestic prices are often regulated (i.e. below international market value, The resulting uncertainty over markets for new gas developments and their different netback prices to the wellhead, may hold IOC's back from making exploration investments, while low domestic gas prices also may create unfair competitive advantages for local industries

Effects of changing policies on regulated prices

The introduction of market-based pricing, either oil-indexed or gas-to-gas, in countries with regulated prices could have effects on domestic markets, but also on international gas trade. It would make development of new production in these countries more profitable, and could make the domestic market more attractive than exports (with their additional transport costs). However, from a governmental point of view, exports to the foreign markets could still be more attractive in view of its contribution of foreign-currency and additional export duty revenues. Nevertheless, a more price-attractive domestic market as may be the case in future for Russia, would seem to make it even more relevant for its export markets to negotiate long term supply contracts on the premise that these will be honoured even under rising domestic demand.
A rationale for oil price linkage?
For quite some time, arguments against the continuation of oil price linkage in gas supply contracts have been mounting. Keen to expose the gas industry to competitive forces – and possibly expecting lower gas prices – the architects of market reform in the EU pleaded against long-term contracts and oil-indexed gas prices. Their reluctant acceptance of long-term contracts in the past few years as an essential feature of the international natural gas business and the importance of these contracts as a security of supply tool in a tight market has not weakened their campaign against oil-price indexation.

They are supported by a variety of observers and consumers – all arguing against the continuation of oil-product indexation – either in expectation of lower gas prices, or based on the argument that there is no actual competition anymore between gas and oil products in the market. They all raise the question why gas prices should piggy-back on oil. Why does natural gas not fight its own corner and set its own prices, like all other commodities? Meanwhile, however, producers and buyers of long-term international supplies were willing, until recently, to enter in these new agreements or prolong their existing ones on the basis of oil-indexation. The discussion about oil-indexation is in many ways also a discussion about the longer term investment setting, sharing the risks and benefits in the value chain and the vertical forward and backward integration moves of the various market players, while the proponents of delinking natural gas prices from oil focus on unbundling the value chain and releasing economic rents in the downstream part of the value chain.

Recent developments, changing conditions

The end of self-sufficiency of the UK market, followed by the expected emergence of a market for LNG in North America stimulated a change in the LNG business. Prompted by the short-term nature of these markets, ‘self-contracting’ (i.e. producers buying their own LNG production under long-term contracts) became a new business model. As a result, arbitrage strategies are the logical consequence, mainly in the Atlantic basin. Many of these contracts were priced on the basis of the spot prices in these markets, either NBP or Henry Hub related. Because LNG supply under this model has little or no supply commitments to specific markets, it is also referred to as ‘flexible’ LNG.

The global recession in 2008/09 affected gas markets in all regions. Many markets experienced a serious demand reduction, and supply-demand balances have come under pressure. At the same time, the US market enjoyed a major surge in indigenous production of unconventional gas. This has virtually restored the regional supply/demand balance, obviating the need for the expected high volume of LNG imports. Much of the new, flexible LNG is coming into production these days. This LNG, originally earmarked for the US market, is now in surplus and will be offered in other markets, which already are having difficulties in meeting their existing contractual obligations. All of this is putting pressure on spot prices in Europe and elsewhere.

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Given the state of the global economy and the volume of new, flexible LNG entering the market, a market of consistently low spot prices can be expected, possibly for more than a few years, and not only in the summer, but also in the winter, if production levels, nationally and internationally, remain unchanged. This will put the oil-linked pricing terms of the international long-term contracts under more pressure than ever. In Europe the combined effect of sagging demand and low spot prices resulted in the renegotiation of supply contracts in 2010 (e.g. the long-term contract between Gazprom and E.ON Ruhrgas) to the effect that minimum off-take obligations were lowered and contract pricing formulae were adjusted to a mix of oil-indexed and spot prices, effectively resulting in a price reduction.

Decoupling oil and gas prices: winners and losers

There may be good reasons for both sellers and buyers to uphold the oil-indexed price principles under long-term contracts, particularly because the natural gas price has been persistently discounted relative to oil. But it is not unthinkable that current market conditions will drive a transition to spot-price linkage in international supply contracts. Given the prospects of a prolonged buyers’ market, at least for the next 5 years\(^{95}\), it could imply considerably lower prices for gas in those regions experiencing the change from oil-indexation to spot prices. Lower gas prices would be welcomed by governments and consumers in these markets, and create a more level playing field for industries competing with those in the US and the UK markets, where spot prices already dictate the market. Price volatility may be higher as a result, but the expectation of lower gas prices may well be considered to justify the costs of hedging from a consumer perspective.

In a low price environment, new natural gas projects may be deferred until the moment that producers consider the natural gas price outlook sufficiently positive to warrant an investment decision.\(^{96}\) For self-sufficient producer countries like the US and, until recently, the UK, lower gas prices represent merely a shift of economic rent inside their own economies, among producing firms, traders and end-users.

Changes in rent distribution in international supplies, however, could have geopolitical implications. By de-linking natural gas prices from those of oil, natural gas would be treated like other commodities: fair value is the price dictated by the market. Gas-exporting countries may take a different view, however. They may take the view that, over the longer term, gas is a scarce energy resource and has a value, which should be realised in the export markets. Subjective as this viewpoint may be, the ‘real’ value of gas may be considered to be close or equal to oil in terms of its heat content. Once the market price is significantly lower than the perceived value for a prolonged period, a gas-exporting country will become uncomfortable seeing its resource exported at a price far below what it thinks it is worth. What options would be open to such exporting countries to restore export price levels? First, they could reduce their supplies to the extent contractually possible. This could be a painful process for any exporting country, particularly if it observes that other exporters do not follow suit. From its perspective it would be more even-handed and the effect would be higher, if other exporting countries would do the same. Such a response would not necessarily have to be formalised between them. It could be a logical reaction of all exporting states. But the stakes are high and reaching some form of joint understanding


\(^{96}\) The economics differs in the case, for example, of associated gas released with profitable oil production.
might be beneficial, at least between some of the key exporting countries. Would they consider employing GECF, the international organisation among gas-exporting countries, as a vehicle to manage volume and price? (See also Chapter 7.)

**Final observations**

Natural gas exports characteristics differ from oil trade and a global market for gas does not exist in the way it does for oil. Gas price linkage to oil price has been a long-standing arrangement in international gas supply and purchase contracts. It may have lost some of its original rationale, but it remains a convenient understanding between buyers and sellers (particularly since contractual recognition of gas-to-gas competition may have removed its ‘sharp edges’). The current surplus of gas supply capacity in the global market has brought new pressures to abandon or dilute the oil-indexation price principles. It is yet not certain whether these will lead to structural changes in the longer run. But decoupling gas prices from oil is likely to invoke response of some kind from the main exporting countries if this results in consistently lower gas prices and the GECF may be a suitable vehicle for action and coordination.

### 5.4 Unconventional Gas

**Emergence of Unconventional Gas**

Unconventional gas is the collective name of tight gas, Coal Bed Methane (CBM) and shale gas. The first two have been on the charts for quite some time. Tight gas developments have featured in the gas industry for a long time, but were limited essentially because of their costs. Over time, its production has grown steadily, particularly in North America. CBM has been a success in North America for many years, but did not get off the ground easily in other parts of the world. Its economic recovery is not only affected by costs, but also by the geological nature of coal deposits. Other ‘sweet spots’ include Australia, China and India. The latter two offer much potential with their vast coal resources, but so far production has not been substantial.

The most exciting development is in shale gas. In 2008, total shale gas production in the US reached nearly 50 bcm with 44 bcm from a single field in Northeast Texas, known as the Barnett shale.\(^97\) Other fields are now being brought into developments in North America.

**Surprise, surprise...**

The unprecedented growth of shale gas production in the US has taken the international gas industry by surprise. Over a period of little more than three years, shale gas has totally changed the North American gas scene: it has been turned from a region with a declining indigenous supply base and a growing need for imports to one that is expected to be virtually self-sufficient for the foreseeable future.\(^98\) In 2008, the US imported 10 bcm, which is less than half the level of 2007.\(^99\)

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\(^98\) EIA Annual Energy Outlook 2010 (http://www.eia.doe.gov/oiaf/aeo/index.html)
Economically, the relatively high gas prices of the 2006/2007 gave a lot of impetus to exploration and development of unconventional gas, mainly developed by relative small gas companies. Technologically, as regards shale gas, the process of drilling horizontal wells with multiple fractures created the breakthrough, both in terms of costs and volume of gas produced per well. Moreover, in the US the production of unconventional enjoys an advantageous tax regime.\textsuperscript{100}

The development of shale gas still needs many wells and much water for the hydraulic fracturing. Altogether, the drilling and production effort to achieve this contribution from shale gas resources was considerable: the 44 bcm of the Barnett shale were produced from 12,000 wells, of which 3,000 wells had been added in 2008 alone.\textsuperscript{101}

**Domino effect for prices and supplies**

The change to self-sufficiency in the US market had a considerable effect on the global gas market. In the US market, the rapid growth of the indigenous supply base had its effect on gas prices. While the marginal costs of US gas production has risen due to the higher costs of shale gas production (estimates vary between $5-9 per MMBtu), the availability of additional gas supply within the US market coupled with the reduction in demand from the global recession, has brought prices down to levels at or slightly above these costs.\textsuperscript{102} It is quite likely that gas prices in the US will remain at these levels for the foreseeable future. This could change the historic correlation with oil product prices (see section 5.3 on pricing natural gas).

Outside the US, in the Atlantic basin and Qatar, various LNG projects were developed over the last 3-4 years, destined for the US market, as it was expected to show a growing supply deficit. These projects are now coming on stream, only to find that the US market is now well supplied and that gas prices in the US market are low, possibly lower than the full LNG supply costs. The producers/owners of this LNG must now turn to other markets, which are also suffering from the recession. As a consequence, it is most likely that the international gas business will be conducted under an overhang of supply capacity until 2015 or beyond, depending on the speed of recovery of the global economy and that spot prices everywhere will be consistently low during this time.

**A ‘game changer’ for the US, could it become a ‘game changer’ for the rest of the world?**

The successful development of shale gas in the US has spurred on the industry, analysts and governments to take a lot of interest in its potential in other parts of the world. Shale gas successes along the lines of the US could have a significant effect on gas supply systems and the competitive position of imports.

Shale deposits of a similar nature are indeed present worldwide.\textsuperscript{103} Statistically these may hold very considerably volumes of gas. Speculation over its potential contribution to gas supply is very high. However, there are many reasons why the North American successes may not be replicated in all shale formations around the world. First, the productivity may

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\textsuperscript{100} Dr. Marc Bustin, The Push Toward Unconventional Gas, At http://www.safehaven.com/article/9474/the-push-toward-unconventional-gas


\textsuperscript{102} http://tonto.eia.doe.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm

be different from field to field. Even within the Barnett field, well performance varied considerably, rendering some wells clearly uneconomic. The economic productivity in other deposits around the world may offer very different results from area to area.

The other hurdles are all of an above-ground nature. The very high number of wells needed to develop a shale gas field, combined with the difficulties around the ownership of land and sub-surface, the extensive use of water for fracturing, the risk of contamination of ground water, water treatment and disposal have a major impact on the local environment. This could make it very difficult to start the development of a shale gas field, particularly in densely populated countries.

Even if such developments were given the green light, the measures and conditions to be met could lead to much higher production costs than experienced in the US. Nevertheless, the potential of shale gas production in countries like Australia and China could be the most significant, as for other unconventional gas. Other potential of shale producing countries is as yet more uncertain.

Shale gas has already shown that it can create dramatic changes in the global supply outlook. From a (geo)political perspective, successful development of indigenous shale gas resources offers visions of abundance of gas, leading to lower prices, a contribution to the domestic economy, better environmental prospects (a larger share of gas in the fossil fuel mix) and less dependence on gas imports. In the US market it undoubtedly changed the political energy agenda, since US’ direct interest in gas imports are reduced (see Chapter 3). Other countries, particularly China, could pursue such a development as well. Lower structural import dependence would temper concerns of gas as a geopolitical instrument in the hands of the exporting countries.

Furthermore, shale gas has shown that, in case of proximity to markets and pipelines, it can be developed with relatively short lead times. This compares very favourably with conventional, long haul supply investments. While investments in new LNG facilities were still under way, unconventional gas made its debut in the US. By the time the LNG came to the market, unconventional gas had taken its place. This must be accepted as a business risk. For LNG producers, those investments earmarked for the US market, were priced at or around US spot prices. Their investments may look considerably less attractive than a few years ago. Suppliers of flexible LNG,(see Business models section 5.5) did not look for price or volume assurances at the time commitments to invest had been made (even today, LNG producers may be prepared to invest on the basis of spot prices, against the expectation of a return to a sellers’ market later this decade). For investors in LNG regasification terminals in the US, the risks are high that their investments will be underutilized.

The situation may become more complex in a situation where international long-term supply agreements are concluded by gas producers (and producing countries) with buyers in markets in which unconventional potential is yet to be explored. The long-term contracts contain assurances for the producers that agreed prices will be paid and volumes will be taken (and vice versa for the buyers that the gas will be supplied at agreed terms). They form the backbone for the economic and financial robustness of the investments, which normally have a very long pay-back period. Political assurances of the performance of these contracts by the market party, other than the normal government-to-government agreements and treaties behind these business-to-business contracts, are not normally part of the package.
Final observations

- The surge of shale gas production has undoubtedly influenced the US energy policy, e.g. by putting the development of gas supplies from Alaska on the back burner and more broadly for its international positioning for energy and concerns around the international trade in gas (see also section 3.2 on the US).

- The emergence of unconventional gas in other parts of the world as an indigenous source of supply (and potentially later also gas hydrates given the programmes of Japan and Korea) would further reduce international gas trade potential and hence temper any concerns of geopolitical leverage around gas imports, but it could also deprive gas exporting countries from an important source of income.

- In the event that in countries, dependent on imports, a further (unplanned and unforeseen) advance of indigenous unconventional gas production inhibits the ability of their market players to honour long-term international supply contracts, would they resort to political intervention?

- And is there anything that can be done politically to prepare for and manage any possible further ‘surprises’ of significant volumes of new indigenous unconventional gas production in gas importing countries?

5.5 NEW SUPPLY MODELS

LNG leading the way
LNG has been the staple food for the traditional markets in Asia, Japan, South Korea and Taiwan. As an attractive alternative to pipeline gas, offering supply diversity and few transit complications, it created a strong interest in LNG by markets in Europe. The liberalisation of these markets has further stimulated the growth of LNG because of its modular development and easier control over midstream logistics than would be the case for pipeline gas, thus offering lower barriers to entry for new players in the sector. New LNG outlets were also developed in other parts of the world, in the United States and South America but also in the fast-growing developing economies of China and India. On the supply side, traditional LNG suppliers – Indonesia, Australia, Malaysia, and Algeria – have been joined by other countries with major gas resources, such as Qatar, Nigeria, Egypt, and Equatorial Guinea.

Towards Flexible LNG (and pipeline gas)...
In recent years, business models for the gas business (both LNG and pipeline) have been experiencing major changes. The traditional model was based on long-term contracts between producers and buyers in Asia and Europe. A number of LNG producers – notably those aiming for the liberalised markets of the Atlantic Basin – moved away from this model. In the context of high gas prices and a seller's market, they were driven mainly by the expected demand for LNG by the US market and the pursuit of arbitrage opportunities between the US, Europe and Asia. Over the first years of the 21st century, US gas prices rose
to levels not found anywhere else. This stimulated investments in new LNG supplies, developed specifically for the US market. In the absence of US buyers willing to enter into long-term contracts, suppliers had to make their own arrangements to dispose of gas in the liquid US market, by taking capacity in US LNG regasification terminals and using Henry-Hub related price assumptions as the basis for their economics. At the same time, they had the option to take their LNG elsewhere: their LNG was not committed to the US market.

To realise the value of arbitrage opportunities, LNG producers moved to business models offering more destination flexibility of supply. To create a bridge between the need for financing security for the LNG investments and the prospects of greater gains from flexible supplies, financially strong producers bought the LNG they produced in the joint ventures with producer countries under long-term contracts. Subsequently, they dispose it, either in the form of LNG to buyers under short- or medium-term contracts or by taking the LNG to a (liberalised and liquid) market, regasifying it, and selling it directly in the market. The Qatargas/ExxonMobil development of two trains of LNG, 7.8 million tonnes a year each and earmarked for the UK market, is an example of self-contracting by producers and based on market prices. It was announced as the world’s first fully integrated value chain LNG venture (see also section 5.5 on supply models).

Another new phenomenon is the third-party aggregator, which acquires a portfolio of LNG, purchased under long-term FOB contracts from different sources with destination flexibility and sells it under different terms in a variety of markets. All this LNG, not committed to a specific market, is commonly known as ‘flexible’ LNG. Flexible LNG is likely to become a truly global commodity, looking for markets where it can realise the best netback value. In addition, more flexibility was introduced in long-term supply contracts under which, mostly by mutual agreements, volumes can be diverted to other buyers.

For internationally traded pipeline gas, a shift away from long-term supply contracts to short-term supplies and flexibility has been more cautious. In North America, and subsequently in the UK, the wholesale business has for a long time been driven by short-term transactions. In Europe, producers from Norway and Algeria, the Netherlands, and Russia have started to produce and trade gas on short-term/spot basis. In South America long-term contracts still form the basis for international gas business. Volumes of this ‘flexible’ pipeline gas are still relatively small, compared to the contractual long-term business.

... And more vertical integration
A further consequence of flexible LNG (and pipeline gas) is that producers are taking positions in liberalised markets to enhance their ability to find profitable outlets for their gas. Offering their gas at the beach or on the border of a market that may not be large and liquid enough to find suitable buyers or realise the full value of the commodity, particularly at times of a buyer’s market. Direct marketing in high volume market sectors by LNG (and pipeline gas) producers in consumer markets thus is a growing feature of liberalised markets, notably in Europe.

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104 http://tonto.eia.doe.gov/dnav/ng/hist/n9190us3m.htm
Globalisation
The globalisation of LNG trade did not begin until after 2000. Initially, LNG trade was concentrated in the Atlantic Basin and the Asia-Pacific Basin, respectively; the connection between these two regional markets is only a relatively recent development. The emergence of Qatar as the most significant LNG supplier has made the gas market intercontinental. Qatar’s geographic position makes it possible to supply both the European and the Asian markets at similar costs, while the US market is also within competitive reach. Both European and Asian markets are interested in acquiring LNG from Qatar, while Qatar producers have also been interested in preserving the option to supply all markets to diversify their sales portfolio.

More flexible gas in future?
Estimates of potentially flexible LNG trade in the Atlantic Basin have been 40 percent of total trade. That was before the economic downturn, however. The share of flexible LNG in the Asian market was expected to be considerably lower, as its customers remain focused on the destination security of long-term supply agreements (with some spot purchases on the side). Until recently, it was widely expected that the percentage of flexible LNG in the market as a whole would rise. In the tight market for LNG over most of the past decade, the downside risks were considered to be relatively small. However, with the post-2008 surge of unconventional gas supplies in the US and the current international economic problems, the resulting low spot prices for gas in the main liberalised markets increase these risks substantially. This could (maybe temporarily) raise the appetite of producers for traditional long-term commitments with customers, although the current differential between spot prices and those sought by producers for long term supplies may hold them back. It is too early to judge whether the higher costs of creating flexibility are justified by higher income for producers over a longer period of time. The fall in US and European spot prices has certainly changed perceptions.

The US market expects its purchase of LNG to vary, depending on price. LNG is a marginal US source and a price taker in this market. While US gas prices have fallen due to the development of unconventional gas, and more recently also due to the economic downturn, it is likely that much of this LNG will now find its way to European markets, until US prices make that market attractive again for suppliers. When this will be the case is unclear. Estimates of both longer term unconventional production capacity and its production cost show broad bands of uncertainty. For the time being it looks as though the US has become the market of last resort for LNG.

The impact of flexible gas... So far mainly on Europe
European markets have been most affected by the new business models and the global competition for LNG. For quite some years, Europe’s markets have been unable to secure new supplies of LNG under long-term contracts, with the exception of Spain. First, US gas prices worked as a magnet to new LNG production, then the secure demand of the Asian market at premium prices attracted the attention of LNG producers in the Middle East and obviously Asia. During this time, the ability of Europe to acquire LNG under long-term contracts, and thereby create diversification and hence enhance security of supply, has been affected. The lower prices in the US post-2008 changed the competitiveness of Europe for LNG, although it did not lead to new long term contracts. The view that flexible LNG is now

plentiful and available at lower prices than under long term contracts, make it low hanging fruit to be picked first.

Another feature of ‘flexible’ gas is the growing investment in ‘optionality’, particularly in liberalised markets. While gas suppliers may acquire more pipeline and regasification capacity and take trading positions in more than one market outlet to create arbitrage opportunities, similarly buyers and resellers will be driven to develop more options to manage their supply portfolios. This may involve more investments in storage but also in pipeline capacity and possibly in regasification capacity. The call for more interconnection between markets, not so much to accommodate more business volume but to enhance optionality, is also louder as a result of the new business models.

**Flexible gas and Security of Supply**

Flexible LNG enhances the potential to draw on available LNG at times of high demand, as long as adequate regasification and shipping capacity are available. Flexible LNG can alleviate the effect of disruptions or higher winter demand, but at a price topping other markets and provided there are no other factors of a commercial, logistic or political nature limiting the availability. In this way it has the potential to enhance security of supply for consumer countries.

If the trend towards shorter-term contracts and more flexible natural gas persists, the traditional form of security of supply and demand through long-term contracts will be replaced by one that relies on the working of a (global) market. In this market, supplies will developed by a variety of suppliers to meet expected global demand, while obstacles to trade are minimised and liquidity assured. This will also be a market with little or no room for special government-to-government relationships. The LNG business, with its greater inherent flexibility, lends itself better for such development than the pipeline gas trade.

The overall effect of such a transition from long-term contracts to increasing supply of flexible gas on supply security could be significant. Its impact may depend on:

- the (global) supply/demand situation: in a buyer’s market, security concerns – and natural gas prices - will be low; in the event of a tight market they can be high, as could be the natural gas prices;
- the portfolio position of markets and market players: a broad portfolio of supplies and supply options reduces security risks, even to the extent that flexible supplies may be considered to enhance security.

If governments take the view that a transition to flexible gas requires more measures to ensure supply security this may come at an extra costs for the market (and consumers).

**Final observations**

Since gas exports depend more on rigidly interconnected infrastructure and long-term production arrangements, gas sector arrangements tend to carry an intrinsically long-term and strategic character than in, for instance, oil where international market are more deeply integrated. With some markets becoming more import-dependent, natural gas will have to travel further from the wellhead to the final consumer, crossing through more jurisdictions, and playing a strategically different role along the way.

The cost of security of supply increases when alternative routes or types of transportation must be developed in order to satisfy the security of demand and supply needs of both supplier and consumer. The attraction of LNG lies in part in its diversity of supply, the
smaller quantities and the avoidance of transit countries, which may exert their ‘nuisance’ power over pipeline corridors. At the same time, the ability to service several markets along a pipeline is part of the economic attraction of long haul pipelines, while the large size of the volume may make diversity of supply more difficult to absorb. The development of unconventional gas may be stimulated (fiscally or otherwise) to manage import dependency, but when the price and cost development do not match, for instance because also major infrastructural developments are needed to bring the gas to the market, this part of the sector will not come off the ground in certain markets.

Increasing domestic and regional demand in producing countries, in combination with a persistent export strategy (also for balance-of-payments and government income reasons) have become new stresses and strains that policy-makers must resolve. The period of fast economic growth in the period 2004-2008 has created new challenges for certain producing countries. Energy efficiency and diversity of the domestic energy mix is quickly rising on the producing country political agenda, while neighbourly energy relations also gained importance. In Indonesia the importance of coal in the energy mix increased significantly in order to maintain the natural gas export strategy. Investment in production capacity must include these demand trends, while domestic pricing systems come under pressure. It is likely that the organisation of the energy sector, including natural gas, will be influenced by these developments. The level of success of these new energy policies will impact the availability of energy, including natural gas, for export markets.

- The growth of flexible gas, particularly LNG, has created new dynamics in the gas markets in the Atlantic Basin, particularly providing more options in suppliers and buyers portfolios. If this development grows, and gradually long term supply contracts with players in consuming markets are replaced by supplies of flexible gas by producers, it will fundamentally change the global gas market. It would also depoliticise international trade as country-to-country transactions do not exist in such a business environment. There may be countries, however, which take more comfort from bilateralism and hence from long-term contracts. Will the two positions be able to go hand in hand?

- The growth of flexible gas may also not persist. The recent experience of low prices for flexible LNG as it is finding its way to spot markets, compared to the relatively high prices with current oil-price indexation under long-term contracts, may slow down the move of producers towards greater flexibility and eventually lead to a continuing predilection for long-term contracts with market players as the principal part of a new gas supply project. Market players may or may not be agreeable to long term contracts. Some may prefer the continuation of using flexible supplies for their portfolios. This could well be accommodated via part of a producer’s supply portfolio.

- A concern might arise as a result of diverging perceptions among market players and policymakers regarding the impact on supply security of a transition in the business from long-term supply contracts to flexible supplies. If some market players welcome flexible supplies as a positive development, while others see an erosion of supply security, policy makers may find it necessary to respond by imposing costly security measures or even by reducing the share of gas in the country’s energy mix. The overall effect may not be in the society’s interest. Similarly, if the emergence of flexible gas leads to more public or private...
investments in infrastructure to enhance optionality and/or security, the total costs may not be beneficial to the consumer.

5.6 GAME CHANGERS AND OTHER DYNAMICS

The recent developments in the natural gas sector, such as the changing business models, the emergence of unconventionals and the associated changes in gas prices, have radically changed the outlook of importing and exporting countries and those of the businesses involved. Combined with the economic downturn, the tight markets of recent years have been transformed to amply supplied markets for the next years to come. These changing market conditions will unquestionably affect national energy policies, and possibly international relations. It will be interesting to see whether the new dynamics of the market under a new business model will instil sufficient confidence by producing and consuming countries in an efficient commercial business environment and adequate security of supply and demand or cause a geo-strategic response from the countries involved.

With the increasing internationalisation of the natural gas value chain, more areas of special interest play a role in the perception of risk, either because of past problematic relations or because future instability is feared to interfere with the development of the sector. The ability to manage these real and potential risks, both economic and political, is a strong factor in assessing the capacity of the business to get around them and develop their markets unhindered and against a reasonable cost. Before turning to the governance structure of the international gas business, it is important to analyse developments in the areas of special interest that are vital to the governments' perception of risk involved in the international natural gas sector.
Chapter 6
Areas of Strategic Interests

6.1 Location, Location, Location
In the past few years, with the internationalisation of the natural gas sector fully underway, some stresses and strains appeared in certain regions important for natural gas production, transit and consumption, which undermined the perception of security of supply and demand. These areas of special interest find their own unique origin, in the demise of the Soviet Union and the still incomplete transition to new relations, economic instabilities in general, domestic and regional conflicts with an ethnic-religious root, poverty and politically unstable countries, but also in geopolitical manoeuvring in developing areas of special interest. Yet, all these root causes can translate in difficulties for a natural gas value chain to develop to potential or to relations becoming exclusive rather than inclusive. The wider changes in the economic dynamics of the world economy also play a role because it shifts trading routes, creating opportunities but also drawbacks, while new regulatory insights in one market can affect the balance in others. Moreover, changing relations can also infringe on traditional distribution patterns of economic rents and create new ones, sometimes creating discussions among governments along the value chain.

From a geopolitical perspective, a number of areas of special interest stand out, because of their (potential) impact on international natural gas markets, particularly when dependency from one strategic region is shifted with changing trade flows to another, and because geopolitical relations itself are changing across the traditional gas flows. The selected areas in this chapter today appear to have this impact or at least the potential to develop into such positions.

6.2 The Caspian Region

Many suitors but few true friends
Geopolitical and strategic-economic dynamics characterise gas market development in the resource rich Caspian Sea region, with the established regional powers of Russia and Iran in the North and South and the aspiring newly independent states of Central Asia and the South Caucasus to the East and West (see IEA map below this section). To add complexity to an already highly diverse and volatile region, the Caspian is located on the nexus of land-bound gas trade between Asia’s emerging markets, in which China is a new assertive player, and established demand centres in Russia, Ukraine, Turkey and the European Union (EU). In response to the high dependency on gas imports through fragile transit states, South Eastern and Central European gas markets within the EU seek to gain more direct access to the gas export potential of Caspian producers. Mobilisation of investment in new cross-border infrastructure to diversify transit routes and innovative gas purchase arrangements to access Caspian and Middle Eastern production are central to this strategic-economic and political effort of the EU. Moreover ever since the 1990s, the US is an important geo-strategic player in the Caspian region, whereas until the end of the 1990s, EU and its
member states policies were not successful in gaining access to the then still largely stranded Caspian gas resources.\textsuperscript{106}

**Figure 7** Natural gas balances of Caspian countries in 2007

Collectively as a region, Central Asia and Azerbaijan hold almost 7 percent of total world's gas reserves (12.54 tcm).\textsuperscript{107} Currently, Turkmenistan is the biggest reserve holder, producer and exporter of gas in the Caspian region. Other countries produce a relatively small amount of gas (Azerbaijan and Kazakhstan) or consume their gas largely domestically (Uzbekistan). The bulk of Caspian exports go to Russia. Turkmenistan has recently started exports to China and opened a second pipeline to Iran. Azerbaijan supplies gas directly to the Turkish market (combined with minor exports to Iran, Georgia and Russia).

**Gradual diversification of export routes**

The strategic-economic perspective of Caspian states varies between the incumbent oil and gas producers on the Caspian North South axis and the potential new market entrants on the East West axis of the Caspian Sea. On one hand Russia and to a lesser extent Iran, have a vested interest to control, if not limit the direct access of oil and gas export from Central Asia and Azerbaijan to international markets.

\textsuperscript{106} In other countries, the success of a new pipeline projects was limited during the 1990s due to internal, structural socio-economic problems, such as an ill-functioning legal system, combined with low oil and gas prices, intense competition for Caspian gas production and new possible off-take areas, issues of the legal status of the Caspian Sea and transit risks. For instance, despite a number of feasibility studies and heavily backed by the US government, the Trans-Caspian gas pipeline project was not realised during the 1990s.

Open-ended debates on Caspian Sea delimitation and the environmental integrity of the Caspian Sea provide useful vehicles to slow track development. However, to optimise the revenues from their oil and gas resources and finance the socio-economic recovery to underpin their newly found sovereignty, Caspian oil and gas producers, pursue an opposite strategic-economic interest in complementing the historic transit and export routes through Russia with multiple new pipeline export routes.

**More political obstacles for gas diversification**

The more liquid characteristics of the oil market and muted geopolitical developments in the nineties meant that the strategic objective of the newly independent Caspian states could at least in part be achieved. Major Euro Atlantic investment in oil production spurred the development of new westbound market interconnections. Revenue to Caspian state budgets accrues largely from these diverse and multiple oil export options. Gas sector characteristics and the lack of tangible development in notably the Central Asian gas market; reveal the enduring dominance of Russia and Iran. To date, these incumbents still hold considerable leverage over efforts to diversify exports and access Caspian gas.

Though gas markets have moved from a tightly supplied an oversupplied market, exposure to fragile transit routes and monopolies means that the objective to diversify supplies remains unchanged for most markets. The geographical location of the production potential of Caspian gas therefore means that it will remain central to the strategic considerations of most Euro-Atlantic and Asian-Pacific stakeholders as well as those of Caspian states themselves.

**Re-orientation and new developments started in the 1990s**

Apart from the much larger natural gas reserves of both Russia and Iran; Turkmenistan, Uzbekistan, Kazakhstan and Azerbaijan are the new Caspian natural gas producers whose strategic choices can have a disproportionate impact on the existing gas sector arrangements. Access to these new supply sources directly affects the status quo between incumbents and new market entrants in Russia and the EU. Azerbaijan, until 2006 import dependent on Russian supplies, is the only Caspian State that successfully built-up its own gas production and export infrastructure in favour of access to EU markets through Turkey. Though as in Ukraine, also here transit and security of supply considerations remain difficult to match. This development was largely routed in the oil market dynamics of the 1990s. A withdrawn Russia, the precedent provided by historic oil sector routes across the South Caucasus and the geographical location of Azerbaijan on the Western shore of the Caspian Sea favoured independent westbound oil routes. The Shah Deniz offshore block was licensed as an oil exploration and production area. Here, however, unlike the major oil reserves discovered in the Azeri Chirag Guneshli blocks, large volumes of gas were found. The first Shah Deniz development phase and South Caucasus Pipeline followed the strategic choices of the Azeri International Oil Consortium that developed the Azeri Chirag Guneshli license area and constructed the ‘Heydar Aliyev’ Baku-Tbilisi-Ceyhan Pipeline. Thus it had the benefit of sustained high-level geopolitical support from the host governments of the South Caucasus and Turkey next to those of the individual corporate stakeholders within the Shah Deniz and AIOC consortia. A concerted diplomatic effort by the regional stakeholders backed up by sustained Presidential support from the Clinton administration and UK government of Tony Blair meant that corporate interests had sufficient comfort to strategically invest in both projects and direct west bound pipelines away from a diplomatically grumbling but otherwise acquiescent Russia.
The gas-courting season in the new millennium

Gas market diversity only emerged as a major issue for EU import markets in the first decade of the new millennium. The favourable oil sector momentum in the Caspian had turned against Euro-Atlantic investors, when more self-confident and astute host-governments started to ‘claw back’ the investment incentives they granted earlier. Russia’s geopolitical leverage strengthened over Central Asia and the South Caucasus as a consequence of the inclusion of Central Asia’s gas exports in Gazprom’s gas balance and a much more assertive stance towards any challenges to the status quo in which Russia retains a major geopolitical and economic interest. This found its sharpest expression in the Russian-Georgian war in August 2008. According to Russia any geopolitical changes in the region cannot help but affect its national interests and therefore it cannot sit on the fence while decisions affecting the Caspian region are taken by other global powers.108

Also in response to the market and above implied sovereign risks involved in gas sector relations with Russia, the EU has enhanced the policy focus on developing Southern Corridors to facilitate independent Caspian gas exports to the EU through Turkey and even the Black Sea. These could be supplied from the second phase of the Azeri offshore Shah Deniz field and from Central Asian gas fields in Turkmenistan and Kazakhstan via a Trans-Caspian export route. However, after the oil market boom of the 1990s, Caspian states can afford themselves to be more prudent as the geopolitical dynamics of the wider region became more complex and allowed them to become more assertive.109 This has left the EU playing catch up largely without the support of the US. The US appeared less concerned with the gas market dynamics in the region and was happy to leave the EU fend for its own security of gas supply interests, while it was aiming to reset relations with Russia for wider strategic reasons such as Iran. Turkey also appears to have turned a corner as it seeks to exploit its geo-strategic transit route possibilities and off take of Caspian gas in its wider accession talks to the EU. Moreover, it also seeks to stabilise trade and investment relations with other regional gas exporters such as Russia and Iran.

Final investment decisions on the second phase of Shah Deniz are therefore still left hanging over volume commitments, export prices and transit tariffs. Regional geopolitical dynamics in the wake of a Turkish-Armenian ‘rapprochement’ that undercuts the Azeri negotiating stance on Nagorno Karabach, add new geopolitical hurdles. Recent announcements on pipelines and gas volumes available for export show a further cooling of Central Asian stakeholders to diversify their gas exports to EU. Kazakhstan downsized volumes available for export outside its own market and Turkmenistan, still largely dependent on exports to Russia to monetise its considerable gas reserves, recently concluded a major production and export deals for exports to China (see section 3.5 on China) and Iran (see section 6.3 on Iran). This involves both new green field development of the huge new Eastern South Yolotan field (average estimate is at 6.5 Tcm) and the declining resource base of the giant Dauletetabad-Donmez field in South Turkmenistan; the traditional source for Russian supplies.

109 See for instance a presentation by Deputy Minister of Energy and Mineral Resources Kiinov in which he indicates that Kazakhstan’s gas export potential will drop of to near zero by 2020 against an overall production volume reaching towards 120 bcm per year “Prospects of development of oil and gas branch of Kazakhstan” MEMR,RK, (Almaty 7-9 October 2009) sl. 5.
Final observations

- The East-bound deals may be less controversial to Russia, since the strategic-economic interest it holds on EU gas markets is not affected. In fact potential competing volumes are diverted away from Russia’s premium market. Iran and China may also be in a better position to accommodate the limited host government capacity in Turkmenistan, as they do not require the levels of scrutiny and sophistication in negotiations that their Euro-Atlantic counterparts do.

- However, China’s rapid investment moves in Central Asian gas resources and infrastructure has sparked some concern within the EU Russia and Central Asia itself about the wider geopolitical implications of long-term Chinese involvement in the region. It stands in stark contrast with the EU’s ambiguous policy of balancing its emerging interest in the Caspian with its long-term relation with a much more assertive Russia.

- To position EU demand for Caspian gas more strategically, the European Commission launched the innovative concept of a CDC. This would offer Turkmenistan, in particular, aggregated border off-take terms similar to those of Russia and Chinese state companies. This effort (discussed also under EU) remains controversial due to the fact that it appears to go against the essence of the EU’s open energy market model and not least the EU’s very own obligations and

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110IEA/OECD 2010.
aspirations under international trade and investment law. Although the launch of this discussion enables the EU to keep Turkmenistan engaged, the concept has sparked a timely discussion on the adequacy with which the current external energy policies of the EU address these real and/or perceived challenges. Apart from an interesting policy debate, it is clear that any foreign economic policy of the EU, including on energy, can only be embedded in the open market and multilateral mandate that the Lisbon Treaty provides for. CDC’s implementation therefore remains far from certain and appears inconsistent with the deep and comprehensive free trade agreements that the EU wishes the Eastern Partnership countries, including the South Caucasus, to sign up to. This underscores the scepticism with many Central Asian governments, who are not part of a broader EU strategy, view the EU’s regional initiatives.

6.3 IRAN’S SPLENDID ISOLATION

Gas reserves, production and exports
Iran's proven natural gas reserves total 28 tcm, second only to Russia’s gas reserves estimated at 47 tcm, but are developed for less than one third only and mostly dedicated to domestic consumption. Abundant on- and offshore gas deposits are located in the Southern coastal areas of Iran, such as the offshore South Pars field (contiguous to Qatar's North field). They are all geographically well located to serve both Asian Pacific and Euro-Atlantic markets via sea and land bound routes. Gas production in Iran traditionally equals domestic consumption, which has increased from 30 bcm in 1996 to 80 bcm in 2004. IEA data shows that, since 1996, production follows just below total consumption, and must be seen as a reflection of the impact of sanctions relative to population growth.

During the 1970s, in the era of Shah, there were concrete plans to export Iranian gas to Germany, France and Austria via the Soviet Union, starting from 1980 onwards. However, the export contracts were cancelled in 1979 by the new Iranian regime. The first significant Iranian exports started in 2001 to Turkey, with a maximum of 10 bcm/y until 2025. In 2008, according to the IEA data, Iran exported 5 bcm in 2008. Nowadays, Iran's main export priority is ostensibly aimed in the first instance at Pakistan, to be followed by India.

From 1997 onwards, Iran became a net importer of natural gas from Turkmenistan, which on average amounted to 6 bcm/y to 2008. Imports from Turkmenistan are scheduled to rise to a total of over 20 bcm/y, through the 1997 Korpeje Kurt Kui pipeline from Western Turkmenistan to North East Iran and a new pipeline, opened in December 2009, from the Dauletebad field, the main stay of gas production in South East Turkmenistan, to Mashad in the Sarakhs region of Northern Iran, where most of its domestic consumption is situated. Following this recent pipeline opening, Iran seeks to become a regional gas hub for transit

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of Caspian gas to Iraq, Syria and the United Arab Emirates.\footnote{114} Data on the Iranian gas sector remains fluid depending on source. Iranian data overstate trends derived from IEA statistics and other sources claiming an expansion of production from 55 bcm in 1990 to 400 bcm by 2020. Even with a rapid and substantial change in the geopolitical climate, these ambitions appear difficult to accommodate from a technical and global gas market perspective.

**Domestic gas sector strategies**

The domestic gas sector priorities of Iran are mostly contingent on oil production and export requirements to fund the state budget, in addition to the isolationist and more regional policy orientations within the ruling elite of Iran. Only the combined effect of internal policy decisions in the areas itemized below determine whether Iran can become a more active participant in regional gas market and related geopolitical dynamics. Various sources list Iran's gas sector monetisation policies, in order of priority, as follows\footnote{115}:

1. Re-injection in to oil field production and enhanced recovery (Iran’s oil fields suffer from underinvestment and depletion with recovery rates at only 25 percent of reserves);
2. Domestic gas consumption in residential, power and industrial sectors (Gasification of Iran's economy to reduce dependency on domestic oil demand);
3. Use of gas to strengthen Iran’s petrochemical industries and related industries and technologies such as gas to liquids (GTL);
4. Pipeline and LNG gas exports.

The biggest momentum in domestic gas use growth rates comes from the transport sector that is projected to increase gas utilisation by 40 percent between 2006 and 2015 against growth rates of 9.1 percent for the residential and commercial sector; 9.6 percent for Industry and 7.1 percent for power generation in the same period. Aside of the growing gas re-injection requirements to fulfill oil production growth that vary between 25 percent to 30 percent of total yearly gas production in Iran (approximate to Qatar’s total yearly gas exports or estimated to amount up to 2 tcm between 2005 and 2030) Iran remains a gas producer that loses huge quantities of gas due to flaring and shrinkage.\footnote{116} The lack of a comprehensive strategy, uncertainty over the exact gas production potential and doubts as to whether gas export is a sensible strategy to follow at all from a domestic development perspective characterise the politically charged discussions on gas sector policy within Iran.\footnote{117}


\footnote{117} Marcel, V. (2005), Oil Titans: National Oil Companies in the Middle East, London: Royal Institute of International Affairs.
Regional economic-strategic and geopolitical factors

Since the Islamic revolution in 1979 Iran is in a geopolitical tail spin that could lead to military conflict. In any case, enduring regional security and terrorism threats, deterioration of the Iranian energy economy and more recently severe turmoil within the Islamic Republic of Iran itself. Though at times ‘rapprochement’ appeared momentarily within reach, geopolitical dynamics tends towards sharpening adversities and tightening of the geopolitical isolation of Iran. The effects of the 1995 US Iran (Libya) - and UN Sanctions on investment and trade with Iran, significantly constrain energy sector investment by International Oil & Gas Companies (IOC’s) and financial institutions of OECD countries. In addition, these have sanctions applied to most financial institutions, which have completely divested from Iran’s natural gas sector. A recent sharpening of unilateral sanctions on Iran by the US has further halted international oil and gas companies and traders from supplying refined petroleum products to Iran on which one third of its consumption relies.

The exposure of international oil and gas companies to geopolitically motivated US and UN sanctions trumps their ambition to pursue the rather self-evident strategic economic interest in developing Iran’s still formidable reserves. Asian Pacific investors, mostly National Oil and Gas Companies (NOC’s), while less exposed to the Iran sanction regime, have signed deals to develop some of these upstream gas reserves. However, it is unlikely that they will enable Iran to side step sanctions or successfully supplant the requirement of OECD investment and technology for the development of its gas sector. This is largely due to their limited access to state of the art technology, notably US held LNG technologies and their inability to successfully navigate the politically charged investment climate of Iran. In addition to the current geopolitical limits, Iran is famous for its elusive negotiating tactics, complex bureaucracy and contract requirements under Islamic law. In addition to an almost prohibitive geopolitical climate for any development, this remains a considerable obstacle to both Euro-Atlantic and Asian Pacific IOC’s and NOC’s. In this respect Iran’s energy sector faces challenges in the short-term to fulfil domestic demand and keep up production for export revenue.

Iran’s regional aspirations & misrepresentations

From both a geopolitical standpoint and domestic energy sector point of view, the odds are heavily hedged against any significant gas volumes becoming available for pipeline export from Iran in the short to medium term. Iran sees itself as a residual supplier to markets left uncatered for by giants such as Qatar and Russia (e.g., Pakistan, India, etc.) and perceives gas and gas trade as a potential tool to advance geopolitical interests. Its economic-strategic interests are thus subservient to a greater geopolitical design. In that spirit, Iran does entertain various pipeline export projects to Europe which include as a last priority a gas pipeline from the South of Iran to Turkey to feed directly into European diversity of

119 Javier Blas and Carola Hoyos ‘Shell halts supplies to Iran’ Financial Times (FT.com 10 March 2010).
120 Javier Blas ‘Traders cut supplies of petrol to Iran’ Financial Times (FT.com 7 March 2010).
122 Marcel, V. (2005), Oil Titans: National Oil Companies in the Middle East, London: Royal Institute of International Affairs.
supply demands. More covertly, Iran can enable the swap and eventually the transit of Turkmen gas volumes through its territory into the Turkish market. Geopolitical considerations between Turkey, Iran and Turkmenistan may well come to some, further, alignment to enable such a scenario though this squarely goes against the geopolitical interest of the wider Euro Atlantic in the current economic setting (including Russia that seeks to protect its market share on the European market from new market entrants). Other pipeline export schemes, aside of an operating pipeline link to diversify gas supplies to Armenia that otherwise is wholly dependent on imports from Russia through Georgia, remain equally cumbersome. Iran generally misrepresents its gas sector realities in favour of fairly assertive gas pipeline diplomacy to project geopolitical influence in the wider region.

Some type of ‘neighbourhood policy’ could form the spearhead of Iran’s external energy policy, which could manage energy relations with key potential customers and their regulators such as India and Pakistan, but also with significant Central Asian exporters Kazakhstan and Turkmenistan, as far as supply integration and transit is concerned.

Extra regional geopolitical factors: Geo-strategic players

As was mentioned in Chapter 2, the US is an important extra-regional factor in the region (also refer to the section 6.6 covering the Gulf region). As described above, US policies such as economic sanctions have helped ensure that Iran is unable to become a gas exporter. Broader geopolitical concerns as well as regional security issues, compel the US to remain deeply involved in the region’s security, and by extension, compel the US to try to contain Iran’s regional ambitions. These ambitions also include gas flows. For example, the US actively discourages the construction of Iran-Pakistan-India pipeline, even though Iran appears to be going ahead with the pipeline’s construction to Pakistan alone. US geopolitical concerns are also centred on Central Asia and the ‘rimland’ more generally, where Iran is seen as a threat to US abilities to control this geo-strategically vital region.

China is another geo-strategic player that has begun to make its presence felt, albeit without a direct security presence in the Gulf region. Nonetheless, China’s growing economic-strategic ties with Iran indirectly provide the latter with geopolitical clout in the Gulf and beyond. China’s geo-strategic involvement in the region, and the investments of its own energy firms at the economic-strategic level, could lead to gas flows by LNG to China in the future, regardless of US-led sanctions.

Final Observations

- Within the region, Iran is the quintessential geopolitical actor in hard security issues; Iraq and Afghanistan, security and terrorism threats, the Middle East peace process, uranium enrichment and nuclear arms that defy most Euro Atlantic interests (save arguably Russia).

- The current status quo of the Iranian gas markets forces it into a passive role without much prospect of building up any leverage in the short to medium term. However if the current geopolitical quagmire would be overcome and sanctions lifted, what would the impact be on international gas market dynamics? What would this imply for the geopolitical leverage and economic strategy pursued by other
stakeholders? Should Iran return from its splendid isolation where will such a scenario have the biggest impact: the Caspian region or wider Middle East?

6.4 South Asia

South Asia boasts a number of growth markets for gas, most importantly India, Pakistan and to a lesser extent Bangladesh. The gas import options for these gas-importing countries are considerable, both in terms of pipeline gas (mainly from Iran and Central Asia) and LNG. Adjacent to the Persian Gulf, both Pakistan and India are favourably located for LNG imports from that region.

Given the geopolitical tensions in the region, Afghanistan but also between Pakistan and India, and the politico-economic complexities of Iran's position in the region, gas market integration in southern Asia is still far away as supplies have to cross borders. While an integrated regional pipeline system probably offers an economically rational solution to the region's growing energy demand, political difficulties highlight the immense impact geopolitics can have on the prospects for regional cross-border pipeline projects.

India and Pakistan are both short of energy, poised to become more import-dependent in the near future and in both countries gas is seen as an important fuel. For years India's relationship with Pakistan has been tenuous, with political instability in Pakistan and the Mumbai terrorist attacks of 2008 combining to further strain relations between the two countries. Regional tensions over Kashmir have been a traditional stumbling block as well. Geopolitical calculations in both countries are hence also at play. Pakistan is suspicious of Indian intentions in the region in general. Pakistan's position as a transit country for any eventual gas from Iran and Central Asia to India puts it in a favourable position vis-à-vis the latter (also see section 6.8 on transit issues). India therefore faces the conundrum that Pakistan holds the key to much of the potentially cheap sources of pipeline gas in both Iran and Central Asia.

Simultaneously, geopolitical developments concerning Iran also affect the Iran-Pakistan-India (IPI) project. Iran is an important element in the equation because it is the source of potential gas supply for the project. The West's standoff with Iran over its nuclear programme and US-led sanctions against Iran make investments in Iran problematic. This does not rule out foreign participation in Iran altogether, but it does squeeze Iran's access to upstream technology and capital, and thereby indirectly impacts Iran's gas export potential. Domestic demand in Iran further constrains export possibilities (also see section 6.3 on Iran). US-led efforts to isolate Iran stem from US concerns not only over Iran's current nuclear programme but also from Iran's unique geopolitical position. Iran borders the entire Gulf region and holds the geo-economic key to Central Asia's energy resources from the South.

US efforts to isolate Iran also impacts the latter's potential for cooperation with Pakistan and India. As an extra-regional geo-strategic player, the US has sought to discourage India from pursuing the IPI project because of the resulting dependence of India on Iran. The US encourages alternative options for both India and Pakistan, in an effort to undermine the IPI project.  

Based mainly on T.A. Boon von Ochssée and N. Sharyar, Iran-Pakistan Pipeline Confirmed, India to Come?, International Gas Union Magazine, 2010 forthcoming.
project. As far as Pakistan is concerned, the US has been keen to encourage LNG imports, which Pakistan is also envisaging with its planned Mashal LNG terminal. As for both India and Pakistan, the US has been an advocate of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline project since the ‘official’ removal from power of the Taliban in Afghanistan in 2001.

The IPI gas pipeline has suffered delays common to all or most other cross-border pipelines: diverging legal frameworks governing energy trade, laws that govern arbitration and disputes, policies of the regulatory bodies overseeing the energy business and pricing mechanism for oil and gas products in each country. Pricing and tariffs as such have also been a contentious issue as far as the potential business deal itself is concerned. The necessity in the gas industry of long-term agreements, which rest on stability and pre-arranged commercial parameters, confronts Iran, Pakistan and India with issues they are not accustomed to dealing with. With Pakistan and India being political adversaries, the matter is made more complicated with Pakistan being a (unstable) transit country. Above all geopolitical relations inhibit progress on the IPI project between all three countries. Recently, Iran and Pakistan agreed to move forward with the IPI project, with Pakistan appearing to seek reconciliation with India in an effort to proceed with fruitful bilateral relations in general and with the IPI in particular. A joint project such as this one could without doubt contribute to the region’s stability and cooperation. However the geopolitical issues and tensions may still frustrate its progress.

6.5 South America and its Southern Cone

Argentina

In the late 1990s a serious economic crisis hit Argentina. By 2002 the country was forced to abandon its fixed exchange rate. Its currency devalued significantly and the crisis initially deepened.

Natural gas makes up some 50 percent of the country’s total energy mix. One of the measures taken by the then government was to freeze the price of natural gas in order to avoid any more social unrest. The result was that exploration and development of new sources of gas supply to make up for declining production came effectively to a halt. Meanwhile, as the economy recovered the indigenous demand for gas surged. By 2004 it exceeded available supplies. The Argentina government then announced that it would restrict natural gas exports to Chile, Brazil, and Uruguay in order to preserve sufficient gas for the inland market.

Chile depended heavily on the gas from Argentina for power generation (as did Uruguay). These countries were seriously affected by the Argentina decision. Gas had to be replaced with expensive oil products. A diplomatic row developed between the two countries. To date the supplies to Chile have not been restored. Meanwhile, Chile has elected to turn to imports of LNG. It has built a regasification terminal with a capacity of 2.5 mtpa (in Quintero) and is now receiving LNG. A second regasification terminal (in Mejillones) will start operations later this year.

Defaulting on export obligations has serious economic and security implications for any receiving country, which will be forced into taking alternative measures to ensure security of supply. Given the long-term nature of the international gas business it is likely to cast a long shadow over the relationship between producer and receiving countries.

**Bolivia**

In 2006 Bolivia’s president, Evo Morales decreed the re-nationalisation of the country's natural gas and oil reserves. This meant a reversal of the 1996 Hydrocarbons Law, which had opened Bolivia’s hydrocarbons sector to private industry, as part of a broad privatisation programme in which the national oil company, YPFB, was virtually dissolved and state owned assets were sold to private industry.

Major international oil companies entered the country and investment in hydrocarbons surged. However, growing discontent of the Bolivian people feeling disfranchised by successive governments with claims of corporate profiteering and pillaging the country’s natural resources, led to popular unrest. It was widely expected that Morales, following his election, would take measures to restore control and ownership of the oil and gas industry.

The decree returned the country's energy resources to state hands, and it also put YPFB in control of the entire chain of production, as well as domestic natural gas prices, and gave foreign companies six months to renegotiate the terms of their existing contracts under the new rules. Although Bolivia’s renegotiation and dealings were eventually agreed by the international private industry, investments in new gas production tailed off.

Its poor relationship with Chile (the country took away Bolivia's access to the sea more than 100 years ago) has prevented Bolivia to export its gas to Chile, while this country could develop a steady demand for Bolivian supplies.

The current situation in the Southern Cone is one in which Bolivia’s gas development is stalling and in which its three natural export markets, Argentina, Brazil and Chile, all have developed LNG import options. Given its reserve potential to meet higher demand from these countries, Bolivia and its neighbours may have missed a tremendous opportunity.

**Peru**

In June 2010 Peru inaugurated its $3.8 billion, 4.4 mtpa LNG plant, built to develop export opportunities for its gas from the Camisea field. While LNG exports ensure that the gas is sold at international traded prices, the costs of monetising this gas are significant, considering also the construction for a 400 km pipeline through difficult terrain from production to the LNG plant.

Was this the only option open to Peru? At one point, it was thought that Peru could supply the Southern Cone, and in particular Chile, its neighbour in the south. A 1000-km pipeline would have been sufficient. However, the strained political relationship between Peru and Chile made it impossible to develop this alternative. So Peru built an LNG plant and Chile built an LNG regasification terminal.

**Venezuela**

While this actually goes beyond the geographical dimensions of the Southern Cone, it is worth mentioning the rise and fall of the Southern Gas pipeline concept, conceived by Venezuela's government in 2005. It was in response to Argentina's gas shortages and
consisted of an 8000 km pipeline transporting gas from Venezuela, through Brazil to Argentina, integrating their energy systems. The Southern Gas pipeline concept, also dubbed the “Hugo Pipe”, was primarily developed as a demonstration of South American solidarity and unity. Initially it received considerable political backing from the three countries involved. Technical feasibility, environmental and economic considerations did not come into play until later. These turned out to be unattractive and creating massive challenges. Subsequently, in the face of opposition from Bolivia and waning political support from Argentina, the concept was eventually shelved in 2007.

6.6 THE MIDDLE EAST – GULF

Reserves, production and exports
The Middle East is home to an important chunk of conventional gas resources on the Eurasian continent, or in the strategic gas ellipse (see also Chapter 1). The most important gas reserve-holders in the Middle East, besides Iran, are Qatar and Iraq. The UAE, Egypt and Oman are important LNG exporters, but have smaller gas reserves.

Qatar’s gas production totalled 79 bcm in 2008, which amounts to 2.5 percent of the world’s total. The North Field is to Qatar what South Pars is to Iran, in that the reserves of both countries are part of the same geological structure. For Qatar, however, the North Field represents 99 percent of its reserves. Despite its vast export potential (see below) Qatar is likely to maintain a desire to balance exports (pipeline and LNG) and domestic market needs. Qatar’s domestic gas needs are considerable (21.4 bcm in 2008). Gas demand has increased substantially in the region with most this rise in demand coming from the new industrial base, but there is also rising demand for power generation and desalination. Qatar pursues a multi-market strategy, where its LNG exports flow to all major regional markets. The small sheikdom has the advantage of having a large reserve base and being located midway between the Atlantic and Pacific LNG basins. The cooperation between Qatar Petroleum and Exxon Mobil bears testament to successful cooperation between a major private international energy and a national energy firm.

Iraq produced and consumed 1.4 bcm in 2009, mostly gas from associated gas fields located in the country’s Basra area, 60 percent of it is flared due to insufficiently available infrastructure on site to utilise the gas. Iraqi gas available for exports is still subject to
great uncertainty due to country and legal risks and increasing domestic gas demand.\textsuperscript{130} Time will tell whether Iraq's possible gas exports flow northwards through Turkey or to other regional Gulf countries by pipeline. Iraqi gas may even be exported as LNG to other markets, though at this stage this is purely speculative.

Across the Middle East, domestic demand for gas has risen sharply to the extent that various countries now require gas imports, e.g. the UAE, Oman, Kuwait. Also Saudi Arabia has major plans for industrialisation on the basis of gas production. Primary uses include power generation and oil re-injection.

Regional economic-strategic and geopolitical factors
The Gulf region is beset by a number of geopolitical forces, which influence gas, flows in and from the region. First, there is the relationship among Arab countries in region themselves and between Arab countries and Iran. The two gas giants, Iran and Qatar, actively see gas as a tool for furthering their economic and political interests in the region and establishing themselves as economic-strategic players. Iran aspires to achieve geopolitical influence as well (also refer to section 6.3 on Iran). Qatar resents Saudi Arabian dominance in the region, and both countries rival one another for influence, even if they both fear the rising power of Iran.\textsuperscript{131} Saudi Arabia has blocked several Qatari initiatives to transport gas by pipeline to Kuwait and the UAE. As a matter of fact, it was the second phase of the North Field's development which was to export gas via a pipeline to nearby Gulf Cooperation Council (GCC) countries, and the political problems surrounding the pipeline (particularly with Saudi Arabia), which motivated Qatar to export gas as LNG.\textsuperscript{132} The Middle East remains a fragmented region with political, economic, social and ethno-religious fault lines.

At the economic-strategic level, Qatar and Iran have begun cooperating more intensely through the Troika (see section 7.5 on the Troika), where they are accompanied by Russia in possibly developing South Pars. Under the auspices of the Troika and the GECF, all three countries may further institutionalise their cooperation in the form of a joint consortium (also see section 5.5 on new business models).

An important factor of (in) stability in the region, and one which may impact gas flows in and from the region, is Iraq. On the one hand Iraq appears to be stabilising, while on the other domestic sectarian rifts and the influence of Iran, as well as the problem of separatist Kurdish forces in Iraq's north, exert centripetal forces on the country.

\textsuperscript{130} Iraq plans to increase production to 70 bcm/y with exports beginning after 2012, according to the Iraqi Oil Minister Petroleum Economist, ‘Iraq seeks gas investment,’ May, 2009.
\textsuperscript{132} K. Hashimoto et. al., ‘Liquefied Natural Gas from Qatar: the Qatargas project,’ in Natural Gas and Geopolitics: From 1970 to 2040, D.G. Victor et al., (eds.), (Cambridge, MA: Cambridge University Press, 2006), pp. 234 - 267. Qatar's Dolphin project was originally envisaged a project linking the members of the GCC with a possible extension to Pakistan. However, opposition from Saudi Arabia to the pipeline's transit over its territory meant that Bahrain and Kuwait could not join, while the link to Pakistan was not pursued either. This left the project with extending only from Qatar to the UAE and Oman A. Flower, 'Natural Gas from the Middle East,' in Natural Gas in Asia: The Challenges of Growth in China, India, Japan and Korea, J.P. Stern (ed.), 2 ed., (Oxford: Oxford University Press, 2008), pp. 330 - 370. In addition, Saudi Arabia made major domestic gas finds of its own in 1990 K. Hashimoto et. al., 'Liquefied Natural Gas from Qatar: the Qatargas project,' in Op. Cit., Victor, D.G., Jaffe, A.M., and Hayes, M.H. (eds.), (Cambridge, MA: Cambridge University Press, 2006).
Extra-regional geopolitical factors: Geo-strategic players

The US exerts considerable influence in the Gulf region, also impacting the direction and size of gas flows from the region. As was mentioned in the sections on Iran and the US, the US aims to maintain sanctions against Iran, with that country’s rising power seen as a geopolitical obstacle to US influence in the Gulf and in Central Asia. Subscribing to the belief that energy flows should be made available to world markets, the US not only seeks to secure oil flows from the Gulf region as such, but also encourages a diversification of energy flows to international gas markets. While the US is primarily concerned with oil supply security in the Gulf region, the actions it has taken to secure oil flows also impact potential gas flows. In order to contain Iranian ambitions physically in the Gulf region, the US actively patrols the Gulf’s waters and maintains open and protects flows through the Strait of Hormuz. To this end, the US maintains a number of air bases and other military facilities in the region, from Kuwait to Qatar and the UAE and not to mention Iraq.

Iran resents Qatar’s unilateral exploitation of the North Field, which is a geological extension of Iran’s South Pars. US protection of Qatar and its investments from potential Iranian hostility help facilitate Qatar’s LNG exports to various gas markets. In addition, this naturally goes hand-in-hand with Exxon Mobil’s extensive upstream participation as a US firm in Qatar’s major LNG projects.

Despite post-2003 instability in Iraq,133 it is now in the US sphere of influence. With considerable Iraqi gas reserves, the playing field has been levelled for foreign investments (also see Chapter 7), notwithstanding difficult upstream conditions for the firms in question.134 From a geo-economic point of view, Iraqi gas flows to Europe have become plausible since the removal of the Hussein regime in 2003. In the geo-economic competition for the strategic gas ellipse, this has tilted the playing field in favour of the US and its European allies in the long run. It offers an alternative to both Caspian Sea and Iranian gas in the context of the Southern Corridor.

At the economic-strategic level, gas from Iraq and in the form of LNG from the Persian Gulf (and elsewhere) may offer the US with means to alleviate Europe’s dependence on Russian gas. The geo-economics of these flows ultimately feed in at the geopolitical level, where the US enhances its long-term power base in Eurasia by affecting the direction and size of gas flows to Europe, from the strategic gas ellipse and the Gulf in particular.

Gas market development and impact on geopolitical forces

Various developments related purely to the economics driving the gas markets in the region may certainly affect geopolitical relations in the region. For example, rising domestic gas

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133 Iraq offers potential gas for Europe in the longer run, as Matthew Bryza explained: “the US, Turkey and government of Iraq have a trilateral working group (...) that aims to lay the foundations for investment in Iraq’s gas sector to get its (gas) production going and complement Azerbaijan’s production for a project like Nabucco, or the Turkey-Greece-Italy pipeline” Argus Gas Connections, ’US keen to help Europe tap Central Asian gas,’ July 24, 2008.

134 In ‘rimland’ terms, the 2003 Iraq war fits into the wider geo-strategic vision the US has of controlling the Persian Gulf region and the most important oil reserves in the long-run. As former US president Carter notes: “(T)here are people in Washington (...) who never intend to withdraw military forces from Iraq and they’re looking for ten, 20, 50, years in the future (...) the reason that we went into Iraq was to establish a permanent military base in the Gulf region, and I have never heard any of our leaders say that they would commit themselves to the Iraqi people that ten years from now there will be no military bases of the United States in Iraq’” ’Interview with Jimmy Carter,’ CNN Larry King Live, February 1, 2006, available at.
demand in the Middle East in general will squeeze gas volumes available for export to regional gas markets. This certainly is an important factor to take into account in case energy subsidies in these countries remain unchanged, which leave energy consumers demanding considerable amounts of energy, particularly as far as power generation is concerned as well as gas-based industries. This may decrease the tendency of geo-strategic players, such as the US, in pursuing a strategy in which gas plays a central role (oil is likely to remain comparatively more important in this regard).\textsuperscript{135}

Final observations

- The Middle East remains a fragmented region with political, economic, social and ethno-religious fault lines.
- The natural gas potential of the Middle East is very large. The region is bound to continue to play an important role in supplying international markets with natural gas. At the same time, regional demand for natural gas has been expanding rapidly, forcing Qatar to develop a strategy for including these regional markets in its plans. Although the potential of Qatar is very large, some important issues demand that the country manoeuvres with some care. The most important issue is the potential dispute with Iran over the demarcation and distribution of the North field/South Pars resources. Joint development within the Troika may help to manage this potential conflict.
- Another issue is the fast rising regional demand for gas in the Gulf and other countries in the region, such as Syria and potentially Egypt, requiring infrastructure and cooperation among the countries of the Gulf Cooperation Council (GCC) and beyond. The GCC countries were just prior to the financial and economic crisis of 2007-2009 close to forming a monetary union to further cement their relations. These plans have been shelved for the moment but are bound to resurface. As part of the closer relations, energy trade among the GCC must be managed, although the difference between domestic prices and international market prices for regionally traded energy might pose an obstacle. Diversification to for instance nuclear energy is already an actively promoted option, and interest in energy efficiency and alternative fuels is rising.
- The natural gas potential of Iraq is large but it is unclear how these resources will be developed, for the domestic market, for the region or for international markets. The fact that the Gulf is a region with such vast energy endowments ensures continued great power interest in the region.

6.7 Water issues and disputes

A number of lakes and seas are exposed to legal struggles and territorial disputes of ownership, which can result in delays in or blockages of the exploration of offshore gas fields and the possible realisation of offshore pipelines. In addition, uncertainties concerning the safety of strategic sea routes and maritime straights possibly will influence some LNG flows. These issues may increase the attention of the main geo-strategic players besides regional players.

\textsuperscript{135} Unconventional gas production in the US (see the Section on the US) was mentioned as a development which could have a similar effect in terms of perceptions of US gas supply security.
The safety of strategic sea routes and maritime straights for LNG
In the future, for example, the safety of sea routes (and maritime straights, such as Strait of Malacca) from Australia (and Middle East) to China and India may gain in importance, not only to transport LNG, but also other natural resources. This will undoubtedly increase the attention of the main geo-strategic players. Already, both India and China are developing their navies, and more activity in the Pacific Ocean, where the US Navy is a dominant force, is to be expected. Geopolitical rivalry may impact the development of the natural gas business, especially in the Asia-Pacific region, if there is no effective cooperation. Although there are no imminent conflicts in the region, the stability of the Philippines and its ability to control piracy matters for these new energy and resource trading routes.

Other sea routes and maritime straights that may gain attention from geo-strategic players are, for example, the Strait of Hormuz, the Strait of Bab el Mandeb, and the Suez Canal. These straights are possible bottlenecks for LNG flows from the Middle East to both the Atlantic and the Asia-Pacific region.

Legal struggles and territorial disputes of ownership overseas and lakes
As mentioned above, legal struggles and territorial disputes of ownership among regional and geo-strategic players can have a negative impact on offshore gas exploration and the realisation of offshore pipeline routes.

The development of natural resources
In the Asian region, for example, there are some unresolved conflicts, which can easily flare up in the future when not handled carefully. Some of these conflicts concern the boundaries of the economic zones and sovereignty over, for instance, the Spratley islands and their resources in the economic zone. In the Atlantic region, the exploration for resource potential around the Falkland Islands, after the successes of the deep-offshore oil industry, has re-sparked the conflict between Great Britain and Argentina, showing the delicacy of resource relations. Access to resources, in particular oil, continues to fuel the rivalry among states, including geo-strategic players. As natural gas becomes part of a deeper and more integrated market, similar reflexes might develop in the case of natural gas.

In the Arctic regions, oil and gas exploration has increasingly gain attention by some of the main geo-strategic players (i.e. US and Russia), due to climate change and melting ice in the region. For the next few decades, Arctic oil and gas exploitation will be predominantly in the Exclusive Economic Zone (EEZ) of the five Arctic littoral states (the US, Canada, Denmark, Norway and Russia), and perhaps further into the Arctic Ocean outside or close to the Arctic Circle. This involves a large amount of proven and estimated oil and gas reserves, primarily to be found within the Russian borders. There are still uncertainties concerning the legal status of the Arctic region, which will undoubtedly increase the current attention of the main geo-strategic and regional players for geo-economic and geopolitical purposes.

Another prominent discussion is concentrated around the Caspian Sea. After the break-up of the Soviet Union, the Caspian Sea was exposed to legal struggles of ownership, whereby different countries delayed or blocked the exploration of gas fields and the possible

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136 The EEZ is a zone that extends to 200 nautical miles beyond a state’s coast. Within that zone, the country in question has several rights, such as the right to exploration of any natural resources present, the fishing rights and the right to conduct scientific research. A country that imposes an EEZ is responsible for managing that area’s nature and environment. Arrangements on this issue were laid down in the UN Treaty of 1982 (UNCLOS).
realisation of the Trans-Caspian gas pipeline underneath the Caspian Sea for geo-economic and geopolitical reasons, among others.\textsuperscript{137} The controversy of the Caspian Sea countries concentrates on the question whether the Caspian Sea is a sea or a lake, which determines the legal rights of the Caspian Sea littoral states (i.e. Russia, Kazakhstan, Turkmenistan, Iran and Azerbaijan).\textsuperscript{138} A multilateral agreement has not yet been concluded. In the northern half of the Caspian Sea there are bilateral agreements on the borders between Russia, Kazakhstan and Azerbaijan, which provide relative sufficient stability for investments. The status of the southern half is still uncertain.

The development of offshore pipelines
In terms of pipeline infrastructure, transit across the territory of third parties can result in geopolitical risks, as mentioned in section 6.8 on transit. A solution for limiting, to an extent, the geopolitical risks lies in offshore gas pipelines (e.g. the Nord and South Stream), because they reduce the direct influence of local gas firms and governments. Moreover, underwater pipelines make it possible to save on transport costs (i.e. royalties and transport and transit tariffs). However, the countries adjacent to the water through which the pipeline is conducted influence the issuance of environmental permits and other licences.\textsuperscript{139} These consultations can delay the construction process and could act as useful vehicles to pursue geopolitical objectives.

6.8 IN TRANSIT

Transit issues in general
In terms of pipeline infrastructure, ‘transit’ across the territory of third parties occurs if the two countries (or jurisdictions) involved are not directly connected. The interests of the transit countries in between must be guaranteed in terms of such factors as (regulated) transit fees and royalties. Transit agreements are concluded both at the level of the governments and by various industry players: the seller or the buyer, sometimes both, and possibly also involving a national entity involved in transit investments and operation.

The necessity of transiting through other countries may be regarded as being too much of a political risk, thereby ruling out business opportunities. In the development of new business transit countries may create significant obstacles, seeking part of the rent of the business and/or protecting national economic or political interest. This complicates the conclusion of new supply opportunities and generally leads to, often significant, delays in the investment

\textsuperscript{137} Amineh, M. P. (2003), \textit{Globalisation, Geopolitics and Energy Security in Central Eurasia and the Caspian Region}, The Hague: CIEP. The realisation of the TCGP was blocked, among other things, by Russia insisting that the project did not satisfy environmental regulations. For an overview of the problematic development of a new legal status of the Caspian Sea, see for example Zhizin (2007), \textit{Energy Diplomacy: Russia and the World}, The Hague: CIEP.

\textsuperscript{138} In the case when the Caspian Sea is defined as a sea, the littoral states have the sovereign rights over their respective areas of the Caspian Sea. Under the jurisdiction of a lake, the littoral states have to agree on a veto basis. Russia and Iran preferred the jurisdiction of a lake, while the other countries favoured the sea option. L. Kleveman (2003), \textit{The New Great Game: Blood and Oil in Central Asia}, New York: Grove Press.

\textsuperscript{139} Similarly, countries that might be adversely affected by cross-border environmental problems resulting from the construction of the pipeline can also influence the process by way of environmental requirements, using the Environmental Impact Assessment (EIA) procedure. This consultation procedure applies not only to transit countries whose EEZ the pipeline crosses.
in otherwise viable cross-border gas pipelines.\textsuperscript{140} Once in operation, a transit country holds an important physical link in the gas value chain. Essentially, the economic and security interests of transit countries do not necessarily coincide with those of exporting or importing countries. They may be tempted to use the transit card to pursue other, political or economic interests. Certain international institutions have been established (after the collapse of the Soviet Union) in an effort to mitigate these risks (among other aspects), notably the Energy Charter (see section 7.4).

This section focuses on the transit issues in Ukraine. However, there are plenty of examples where transit problems have arisen or possibly can occur in the future, such as Belarus. Besides other former Soviet countries, most transit countries are situated in Europe. The EU jurisdiction aims to lower the hurdles and avoid politically inspired uncooperative behaviour (e.g., the use of its transit function for geopolitical purposes) through international agreements and institutions.

On the border of the EU, Turkey has a special role, because geographically it lies in a strategic area between Europe and the Middle East as well as the Caspian region. Suffice it to say for now that Turkey is a major potential transit hub for a variety of gas flows by pipeline, primarily from the Middle East (Iraq), Caspian region, Russia, and possibly North Africa. In this respect, Turkey can use its transit role as a bargaining chip in geopolitical plays vis-à-vis its neighbours in the West and East.

In Asia, (possible) transit risks and geopolitical tensions are notable, for example, in South Asia (see section 6.4). In addition, if China started to import LNG from Myanmar, the security of transit can be affected as a result of their instable political relation. In Africa, the West African Gas Pipeline is another illustration of successful cooperation, and so is the Dolphin project in the Middle East. A possibly more difficult cross-border pipeline project is the Trans-Saharan Gas Pipeline (TSGP) from Brass in Nigeria via Niger to Algeria.\textsuperscript{141} Regional geopolitical tensions could affect the feasibility of this project and can even lead to the involvement of geo-strategic players.

**Transit issues in Ukraine**

**Effects of the dissolution of the Soviet Union**

Ukraine, the balancing point between asymmetric energy policies and the geopolitical interests of Russia and the Euro-Atlantic community in Eurasia, provides a good example of what happens if multilateral frameworks fail to instil discipline on economic performance and bilateral disputes.\textsuperscript{142} This failure had a large impact on the performance of the gas sector.

The break-up of the Soviet Union and the disappearance of related economic planning and foreign trade organisations for Soviet’s allies in Central Europe meant that there was no

\textsuperscript{140} A solution for limiting, to an extent, the geopolitical risks lies in offshore gas pipelines, see Section 6.7.

\textsuperscript{141} The TSGP has a maximum volume of 20-30 bcm/y and is planned to operate in 2015 onwards. Gazprom, Total and Sonatrach have expressed an interest to participate in a planned Trans-Saharan gas pipeline (in order to gain access to Nigeria’s vast gas reserves).

longer a joint regulation model for gas transports. As a result of these changes in the geopolitical landscape, Gazprom lost control over major transit routes and gas storage capacity in Europe. Ownership of parts of the United Gas Transmission System (UGTS) reverted to new governments and national and private gas companies, leading to fragmentation of ownership and interests under different regimes, implicitly increasing the risks associated with gas supplies and transit to all of Europe.

During the 1990s, it gradually became apparent that the Central European and Baltic countries would choose for Western institutions, such as the EU, which included the acceptance of West European market rules. The organisational transition of gas transports and sales in the former Soviet states in East Europe (Ukraine, Belarus and Moldova) was different from the Soviet’s former allies in Central Europe. The ‘old contracts’ of the Soviet Union community, under which the regulated prices were low, remained in effect, although the prices rose relative to the Soviet times. Moreover, the economic and geopolitical influence from Russia continued to be felt, despite the fact that Western influences also increased.

The decline in the economy in the wake of the collapse of the soviet system and a slow and complex transition to a market-economy and increasing gas prices led to payment defaults and debt issues in the CIS. Combined with volumes of gas above contractual limits during cold winters, the supply of gas was occasionally shut down (for short periods), or with that possibility was threatened. During the 1990s, intermediaries (particularly Itera) gradually became responsible for part of the gas exports. Itera traded gas using complex barter agreements, with most of the gas originating in Turkmenistan. Gazprom’s management allowed these transactions because they had personal interests, which delayed the transition to a normal, commercial relationship between Ukraine and Russia.

Ukraine as a lynchpin in Russian exports to Europe
During the 1990s, most of the Russian gas for the European markets flowed through the Ukrainian system. In the late 1990s, Gazprom started constructing additional capacity for new flows circumventing Ukraine (see below). Yet, around 70-80 percent of Gazprom’s export to Europe is currently flowing through the Ukrainian system, making the Ukraine a lynchpin in Russian exports to Europe.

The lack of control over transit resulted in significant transit risks (see above) through Ukraine and in adjustments to Gazprom’s strategy. After the presidential election of Putin in 2000, and the replacement of the board of Gazprom, Gazprom as a firm introduced reforms that also influenced Ukraine-Russia transit relations, including new policy frameworks and agreements on prices. In 2004, the Ukrainian and Russian governments designed a new policy framework. With this new framework came the replacement of the intermediary firm Itera by EuratransGas (a Hungarian-based company) to handle Turkmen gas sales in Ukraine and some other countries, such as Poland. The new policy framework of 2004 also provided a settlement for the past debt through loans and the establishment of a consortium for the construction of new gas pipelines in the Ukraine.

However, the Orange Revolution at the end of 2004, followed by the election of Yushchenko as the Ukrainian president, changed the views of the parties. The Orange Revolution should be seen against the background of other colour revolutions in Georgia (Rose Revolution) and Kyrgyzstan (Tulip Revolution). In Moscow, these revolutions were seen as foreign attempts to undermine Russia’s (geo) political and economic interests in the Post-Soviet space.144 In November 2005, Andrei Kokoshin, the chairman of the State Duma committee for CIS and compatriot affairs, stated: “If Ukraine demonstrates political and economic movement towards the Euro-Atlantic [region], Russia’s subsidies of the Ukrainian industry at expense of gas prices is absolutely illogical.”145 Then again in 2005, Russia accused Ukraine of illegally taking Russian gas, mainly from gas storage for its domestic use.

Conversely, Central and Eastern Europe, including Ukraine, are perceived by the Euro-Atlantic community as important geo-strategic partners. As a result, they became (potential) candidates for Euro-Atlantic security and economic organisations, such as the NATO and EU. Furthermore, the move on the part of the EU to liberalise its energy markets ran parallel to the move to re-centralise in Russia, leaving the Ukraine as a ‘shatter-zone’ for competing regulatory and governance systems.

In the specific case of gas issues in Ukraine, Yushchenko believed that the consortium concept and the establishment of a new joint venture in 2005 (RosUkrEnergo), also an opaque intermediary with various shareholders, which was replacing EuralTransGas, were not in the national interest of his country. The Ukraine and Russia remained at odds on rising transit and commodity prices, which according to Gazprom should be moved to ‘European’ prices.146 The gas pipelines through the Ukraine are used by Ukraine as an instrument of sovereign power’ for Russian gas to reach its main export markets in Europe.

In the absence of an agreed price in late 2005, the supply contracts between Gazprom and the Ukrainian national gas company, Naftogaz, ceased. However, these supplies were totally intertwined with those to European countries and as a result some European customers reported reduced gas pressure in the beginning of 2006. Although new agreements were concluded, the two parties remained in conflict over the level of prices, the lack of transparency and the position of (new) trading companies, RosUkrEnergo and UkrGazEnergo, illegal tapping of supplies destined for other European markets, and related debt issues, which were underlying the conflicts. These re-emerged in October 2007, February 2008 and most recently in 2009, the latter leading to serious supply problems in mainly Central Europe.

The global recession in 2008-09 and conflicting interests within elite Ukrainian circles encouraged the gas crisis and negotiations between the Ukraine and Russia in 2009 as well.147 A new ten-year contract between Gazprom and Naftogaz was signed, in which market prices for transit and commodity were agreed upon. Intermediaries were abolished, representing progress in the commercialisation of their gas relations. Furthermore, Ukraine

146 In 2005, moreover, Turkmenistan abruptly halted the gas flows, because Russian and Ukrainian counterparts had not responded to Turkmenistan’s request for higher prices, encouraged by the increasing world oil and gas prices.
agreed to stringent gas sector reform requirements identified by the European Union and international financial institutions, which may increase the transparency and change the dubious business structures. This development implies a relinquishment of Ukraine’s sovereign control over its ailing gas sector.

In parallel to these developments, Ukraine notified the Lisbon depositary on the 6th of July the ‘Verkhovna Rada’ ratified the Trade Amendment to the ECT\textsuperscript{148} that entered into force on the 21\textsuperscript{st} of January 2010.\textsuperscript{149} Dmitry Medvedev’s open letter to President Yushchenko of Ukraine highlights that Russia is of the “impression that Kiev constantly seeks to break traditional economic ties with Russia first and foremost in the energy sector.”\textsuperscript{150}

Recently in March 2010, the new elected president, Yanukovich, attempted to get lower gas import prices from Russia, with an offer to relinquish control over Ukrainian transit pipeline system in favour of a trilateral consortium.\textsuperscript{151} It remains an open question how Ukrainian political and economic internal issues, which have an impact on the gas sector, will be solved and to what extent Russia and Euro-Atlantic community will influence this process. In order for Ukraine to pay its rising gas bills, Yanukovich has little choice but to reengage the IMF $16.4 billion loan facility and reform program that his predecessor Yushenko suspended in November in the run up to elections.\textsuperscript{152} The recent agreement to trade continued use of the Sevastopol military base on the Crimea (where Russia houses its Black Sea fleet) for a discount on natural gas for Ukraine, a deal negotiated by the new president Yanukovich, typifies the use of and impact on gas flows from purely geopolitical motives on the part of Russia’s government.\textsuperscript{153} In April 2010, moreover, Putin proposed that Gazprom and Naftogaz should merge.\textsuperscript{154}

\textit{Mitigation of Gazprom’s transit risk: Rerouting and diversifying flows}

In mitigating possible transit and geopolitical risks, Gazprom has tried to strengthen its control and ownership over existing and new transit routes through Ukraine. Throughout the 1990s, various pipeline consortiums were proposed for the purpose of mitigating the operational risks and risks of interruptions by dividing them between multiple private and public parties. However, the government and parliament of Ukraine rejected such propositions, based on considerations of security of supply (i.e. in order to reduce third-party influences). In the aftermath of the economic crisis in 2008-09, this situation has changed, see above. In Belarus, Gazprom has been more successful in gaining some control – although they were a number of gas disputes – mainly due to indebtedness of Belarus and the relative political isolation of Belarus that exposed its strategic-economic interests to the increasing market leverage of Russia.

\textsuperscript{148} The Amendment to the Trade-related Provisions of the ECT updates GATT based treaty provisions with those of the WTO. See also the “ECT Trade amendment enters into force” ECS (July 2009) retrieved at http://www.encharter.org/index.php?id=480&amp;l=0.
\textsuperscript{149} Ukraine Ratifies the Trade Amendment to the Energy Charter Treaty” ECS News (Brussels 24 July 2009) retrieved at http://www.encharter.org/index.php?id=21&amp;id_article=189&amp;l=0.
\textsuperscript{150} “Medvedev ultimatum to Ukraine leadership” Financial Times (12\textsuperscript{th} of August 2009).
\textsuperscript{151} Financial Times, ‘Yanukovich in efforts to win lower gas prices,’ 22 March 2010.
\textsuperscript{153} Financial Times, ‘Fury as Ukraine bows to Kremlin charm offensive’, 28 April 2010. It is important to note that the discount on natural gas is financed from the government take and not from Gazprom’s part of the contract.
\textsuperscript{154} Gazprom (May 2010). On working meeting between Alexey Miller and Yury Boiko. Available at: <http://www.gazprom.com/>.
The response of Gazprom and some European firms was to circumvent and subsequently reduce the impact of this over dependency on a single transit system by developing sub-sea routes in the Baltic and Black Sea. After the completion of the Yamal-Europe pipeline and Blue Stream pipeline, Gazprom proposed two pipelines, Nord Stream and South Stream, which involved (almost) no third country transit risks outside the EU. These additional pipelines were and will not be laid merely to circumvent the Ukraine, but also for additional supplies to Europe (see section 3.4 on Russia). However, after the completion of the Nord and South Stream projects, and if Gazprom decides to use the Ukrainian transit route as a last resort, the transit through Ukraine could fall to 0-20 bcm/y. Yet, storage in Ukraine is expected to remain important for Russia.

**Final observations**

- The existence of transit countries may create significant geopolitical risks in constructing and operating viable cross-border gas pipelines. Essentially, transit countries may behave opportunistically, because they only have their transit fees (and royalties) to lose.

- The combined strategy of ownership of transit system in Ukraine, Belarus and Moldova and transport diversification may increase the odds for Gazprom of decreasing its dependence on the transit role of the Ukraine and could also commercialise and streamline the relationship between Russia and its transit states. The response of Gazprom and some European firms to circumvent and subsequently reduce the impact of this geopolitical ‘area of strategic interest’ by developing sub-sea routes in the Baltic and Black Sea is strategic commercial, and posits this gas transportation firmly between the commercial and strategic-economic space.

- Yet, it remains an open question whether a diversified but under-utilised network is the most cost-effective way to achieve a better bargaining position. Could the problems in Ukraine have been avoided and did Europe and Russia play their cards right? For instance, the several gas disputes contributed to the politicisation of Russia’s position in European gas market and Gazprom new investments (i.e. it has stirred European concerns about security of supply).

- Whether Ukrainian gas trade and transit is used for (geo) political ends or is this purely the fall out of a (messy) commercial process (leading to some political posturing) is still open to debate as well. By all means, there were (geo) political overtones around the gas conflicts. The Ukraine case demonstrates, that gas issues swing from geopolitics to strategic-economic and commercial and back, see also Chapters 1 and 2.

**6.9 Future areas of strategic interest**

From the areas of strategic interest we have learned that there are as many different reasons for being of strategic interest as there are regions. One conclusion is that natural

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155 The Nord Stream company argues that the price tag over 25 years will be some 15 percent lower for an offshore route than for an equivalent route onshore Nord Stream AG [2009], The Pipeline: Contractual Information. Available at: <http://www.nord-stream.com/en/press0/publications.html>.
gas is not the only, and perhaps, also not the most important reason for the geopolitical interest or intricacies in that area, but the natural gas sector is part of the wider interests in the region. Regional complexities often play a more important role in the relations among countries, in which history and cultural differences also play a role. The commonality among these areas of strategic interest is that there is an underlying (latent) political and economic instability, with its origin sometimes in the domestic situation (Bolivia), sometimes in regional issues (Ukraine) and sometimes in wider geopolitical issues, such as oil dependencies and a strategic geographic location (Caspian and Middle East).

In the future, safety of sea routes from Australia to China and India will gain in importance, not only to transport LNG, but also other natural resources. This will undoubtedly increase the attention of the main geopolitical players. Already, both India and China are developing their navies, and more activity in the Pacific Ocean, where the US Navy is dominant, is to be expected. Also there, geopolitical rivalry may impact the development of the natural gas business, if governance fails to organise effective cooperation. Although there are no imminent conflicts in the region, the stability of the Philippines and its ability to control piracy matters for these new energy and resource trading routes. Also the Asian region has some unresolved conflicts, which can easily flare up in the future when not handled carefully. Some of these conflicts concern the boundaries of the economic zones and sovereignty over for instance the Spratley islands and its resources in the economic zone. In the Atlantic, the exploration for resource potential around the Falkland Islands, after the successes of the deep-offshore oil industry, has re-sparked the conflict between Great Britain and Argentina, showing the delicacy of resource relations. Access to resources, in particular oil, continues to fuel the rivalry among states. As natural gas becomes a deeper integrated market, similar reflexes might develop in natural gas.

Other future issues involve the potential resources of the Arctic and Antartica, where energy resource reserves are expected and where climate change could change the current logic of trading routes. The success of developing the resources at Sakhalin has also brought development of natural gas resources in the cold and fragile environments within closer range, but can also change the dynamic of areas of strategic interest.

The energy sector is, because of its strategic nature, governed by many different organisations and agreements, some political and some economic in origin, most of these of an inter-governmental nature, leaving the national sovereignty intact. The management of security of supply and demand risks depends on clear structures for governments to deal with their interests.
Chapter 7
International Organisations, Policy instruments and their impact on natural gas

7.1 Governance
The importance of energy is exemplified by the fact that various international organisations concern themselves with issues related to energy. Some organisations are concerned with one fuel, such as Organisation of Petroleum Exporting Countries (OPEC) for oil, or the International Energy Agency (IEA), also mainly oil, but increasingly also other important fuels for its member states. There are also Charters and agreements among various groups of governments, and also security organisation, such as NATO and the SCO concern themselves with energy matters. The International Energy Forum (IEF), started out as an oil producer-consumer country dialogue, but has evolved into wider energy issues with the aim to channel these divergent interests. Natural gas so far has enjoyed fairly little attention in the international organisation department, at least not at the government level, again showing that the recent internationalisation has not yet led to the type of international engagement among states to channel their interests internationally. The Gas Exporting Countries Forum (GECF) is a recent development (2001) and it recently established a secretariat in Doha, Qatar. The International Gas Union (IGU) is a much older organisation (1931), and organises the natural gas branch organisations and companies of 73 countries.

Parallel to the development of international markets and natural gas trade, international dialogue and cooperation is becoming increasingly important, not only to discuss market developments, but also to discuss issues such as security of supply and demand and the impact of climate change policies on the natural gas sector.

7.2 International Gas Union (IGU)

History and objectives of the IGU
The International Gas Union (IGU) was founded in 1931 as a worldwide non-profit organisation. The objective of IGU is to promote the technical and economic progress of the gas industry. According to its Articles, it organises periodic international conferences, co-operates with other international organisations concerned with energy, stimulates the exchange of information and cultivates co-operative relations amongst its members. The more than 100 members of IGU are national gas associations and the major gas companies of the gas industry in 73 countries. The members represent about 95 percent of the global gas markets. IGU’s vision statement is very clear:

“Recognising that natural gas has an important part to play in satisfying the global need for an environment-friendly energy source, IGU will be the most influential, effective and independent non-profit organisation, while serving as the spokesman for the gas industry world-wide”.

This covers a very broad range of issues. Its mission statement focuses on economic and technical matters and includes:
“IGU will actively, directly and through its members promote the technical and economic progress of the global gas industry”.

In so doing, the organisation aims to “enhance partnership with industry and manufacturers, and co-operation with Governments, policy makers and international energy related organisations, and promote the exchange of information among members in order to help them improving the efficiency and safety”.

To what extent could or should the IGU make a more active and visible contribution to the global energy community in particular towards the political stakeholders and policymaking arenas? The joint IEF/IGU Ministerial Gas Forum certainly demonstrates its willingness to do so. In addition, IGU has also been actively engaged with multilateral organisations like the UN and IEA on sustainability and energy issues.

How do its activities compare with those global NGOs, which also have natural gas in their energy portfolios?

**Other gas NGO’s**

Other NGO’s, which include gas in their agenda, are the World Petroleum Council (WPC) and the World Energy Council (WEC), see Box 3.

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**BOX 3 THE WORLD PETROLEUM COUNCIL AND THE WORLD ENERGY COUNCIL**

**WPC**

The World Petroleum Council regards itself the world’s premier global oil and gas forum and the only international organization representing all aspects of the petroleum sector. The WPC’s prime function is “...to catalyse and facilitate dialogue among stakeholders, both internal and external to the petroleum industry on key technical, social, environmental and management issues...”

By its own statement “the WPC does not have a formal position on issues but does act as a forum to bring together in dialogue the various sectors of society that have views on specific issues. WPC is a non-advocacy, non-political organisation and has accreditation as a Non-Governmental Organization (NGO) from the UN”.

WPC organises the three-yearly World Petroleum Congress, which is generally attended by industry representatives as well as government leaders.

**WEC**

The World Energy Council regards itself as “the foremost global and inclusive forum for impartial dialogue and thought leadership on our common energy future”, with a network of 93 national committees, including governments, industry and expert institutions. Its mission is “to promote the sustainable supply and use of energy for the greatest benefit of all”.

Every 3 years, WEC holds the World Energy Congress, attended by captains of industry from the electric power sector and senior representatives from many governments.

WEC has a strong organisation; Membership in the World Energy Council (WEC) is vested in autonomous country Member Committees, whose members reflect a range of local and national energy companies, Government departments and organisations. In addition it has a well-staffed permanent secretariat, which among other things coordinates the execution of a work plan.

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**Effectiveness of these energy NGO’s as instruments for political dialogues**

The WPC has no position/ambition to take formal positions on issues. In essence its activities are concentrated on organising its three-yearly conference.
Geopolitics and Natural Gas

The WEC is well established. Through its Member Committees, it has direct access to governments and with its secretariat, it has the professional competencies to coordinate, deliver and communicate to the external stakeholders the reports and studies of its work plan, although these do not necessarily reach the wider stakeholder community, or at least are not always making much of an impact.

The IGU has an ambitious vision statement. Its organisation is primarily geared to coordinating activities by its constituents, for delivery at the World Gas Conference, which is a premier event for the gas industry. The recent commencement of combined IEF/IGU Ministerial Gas Forum is seen as a significant step towards further structured dialogue with external, political stakeholders.

Box 4 shows how the global coal industry, organised through the World Coal Institute, is involved in the dialogue with governments and policymakers.

**BOX 4 THE WORLD COAL INSTITUTE**

The World Coal Institute (WCI) and its member companies engage constructively and openly with governments, the scientific community, multilateral organisations, non-governmental organisations, media, coal producers and users, and others on global issues, such as CO₂ emissions reduction and sustainable development, and on local issues including environmental and socio-economic benefits and the effects from coal mining and coal use.

The World Coal Institute’s mission is to:

- Deepen and broaden understanding amongst policy makers and key stakeholders of the positive role of coal in addressing global warming, widespread poverty in developing countries, and energy security.
- Assist in the creation of a political climate supportive of action by governments to include:
  - Coal in national and regional energy portfolios
  - CCS in climate mitigation strategies and plans
  - Coal technologies in environmental strategies
  - Coal to liquids technologies (CTL), with CCS, in energy security considerations.
- Inform and educate communities of the benefits of coal, the contribution that can be made through CCS and other advanced coal technologies, and the constructive role played by the coal industry in improving its environmental performance, enhancing energy security, and strengthening social and economic development.

The World Coal Institute has structural involvement with and participation in various international organisations. It has Category II Consultative Status with the United Nations Economic and Social Council and Consultative Status with the UN Industrial Development Organisation. WCI also attends meetings of the UNFCCC and Kyoto Protocol on Climate Change (as an NGO observer).


What else can IGU do?
The diversity of its constituency puts limits on the ability of the IGU to act as a spokesperson for the industry. But there remain some important messages to convey to and debate with external, and particularly political, stakeholders:
- Establish wider appreciation of the specific characteristics of the gas business, especially around production, marketing and transportation and why it differs from oil and other fuels, in its international business.
- Obtain further recognition of the interdependence and interaction between the gas industry and governments – probably more than there is for other fuels – that new international gas developments depend vitally on political support along the supply line.
- Act as an effective interface between industry and government in promoting the advantages of natural gas as a preferred energy source that is part of a low carbon future.

For putting across these messages, IGU seems the most authoritative body, either directly or through its regional and national gas associations. It could be achieved by means of the production of papers, as and when there appears to be need for such contribution, or by organising discussion platforms, particularly with policy-makers, or both.

Organising platforms can be done either on IGU’s own strength or through structured cooperation with other international organisations. The joint meeting with the IEF and engagements with organisations such as IEA offers a valuable platform for such action.

**Final observations**

- It is difficult to see how IGU can become directly involved in geopolitical or geo-economic issues, also because these generally imply competitive positioning. IGU may have a more generic role to help to avoid, where possible, the development of instances where gas becomes perceived as an instrument of geo-politics, for example by promoting transparency and dialogue.

- The challenge for the IGU could be to further bring into effect the formulae and processes to create and use more opportunities to engage external stakeholders in achieving its stated objectives. IGU has a strong constituency and should be able to capitalize on its authority to serve the interests of the gas industry by establishing broader understanding of the nature of the gas business and its potential contribution to societal goals.

7.3 **International Energy Agency**

The International Energy Agency (IEA) is an autonomous intergovernmental organisation within the Organisation for Economic Development and Corporation (OECD) that acts as energy policy advisor to its 28 member countries in their effort to ensure reliable, affordable and clean energy. The IEA was founded in November 1974 in the wake of the oil crisis brought about by the oil embargo of the United States and certain European countries.

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156 Only the OECD member states can become members of the IEA. All OECD member states are members of the IEA, excluding Iceland and Mexico. There are 28 member states: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, South Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States. The European Commission also participates in the work of the IEA. Norway has a special agreement for oil crisis situations.
by Arab oil producers in response to the October war of 1973. The founding aims and working procedures of the IEA are laid down in the November 1974 Agreement on an International Energy Programme (IEP). These can be summarised as follows:

i) co-operation among IEA participating countries to reduce excessive dependence on oil through energy conservation, development of alternative energy sources and energy research and development;
ii) an information system on the international oil market as well as consultation with oil companies;
iii) co-operation with oil producing and other oil consuming countries with a view to developing a stable international energy trade as well as the rational management and use of world energy resources in the interest of all countries;
iv) a plan to prepare participating countries against the risk of a major disruption of oil supplies and to share available oil in the event of an emergency.

The IEA’s central role is to co-ordinate measures in times of oil supply emergencies, which it did successfully during the Persian Gulf War in 1990, the Iraq War of 2003 and in response to Hurricane Katrina that struck the Gulf of Mexico in 2005. A finding by the Executive Director may trigger an emergency oil stock release on the basis of legally binding measures. This ensures the credibility and effectiveness of any emergency stock draw and limits room for political manipulation. As practice has demonstrated for instance in 2003, at the on-set of the Iraq War the mere readiness of IEA to intervene in times of crisis can calm market sentiments. Over time the IEA mandate has broadened to incorporate the three above mentioned energy policy goals. Though oil market security remains at the IEA’s core, policy dialogue now involves all energy sectors that are commonly grouped under the “Three E’s”: Dialogue on balanced energy policy making; energy security, economic development and environmental protection. International dialogue is further conducted on the basis of the “Shared Goals” that IEA Ministers adopted in 1993. These depart from a fundamental adherence to free and open market principles that characterise the post-world war II governance model of the OECD.

Set-up & tools
The IEA’s governing board is its highest management body to which subsidiary standing groups and one committee report. These are the standing groups on emergency question, the oil market, long-term policy cooperation, global energy dialogue and the committee on energy research and technology. In-depth peer policy reviews impact on national energy policy making, statistical data gathering enhances overall transparency. Regular reporting on oil and other energy sector dynamics and emergency preparedness exercises, including the regular review of mandatory stock holdings by member countries, ensure security of supply. This, in addition to more than 40 implementation agreements on energy technologies, makes up the tool box with which the IEA can operationalise decisions and maintain market security and policy cohesion. Once in every two years the IEA governing board meets at ministerial level to which since 2001 it has started to invite other key non-member countries.

International Engagement: The fourth Element

The IEA’s desire to deepen dialogue with key non-member countries such as China, India, Russia and last but not least, OPEC and the Middle East, reflect progressive oil market integration and a relatively more benign geopolitical climate between the emerging economies of oil producing regions and mature oil consuming market economies of the IEA’s membership. This facilitated IEA’s shift from a relatively defensive club of mature market economies concerned with short-term security of supply, to a more open platform for international dialogue and engagement on global energy security policies and long-term economic sustainability. Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world. However, though IEA has recently taken on a ‘green label’ and evolved to a globally acknowledged institution for international energy policy dialogue, it’s raison d’être remains vested in the fossil fuel economy and the market model of the OECD. This puts institutional limits on IEA’s ability to accept new members that have first to accede to the OECD, and become a credible agent in facilitating transition to a low carbon economy.

The oil reflex to step on the gas

The IEA does not have a mandate to set-up a crisis mechanism for gas market security as the geopolitical dynamics of the early seventies bestowed on it for maintaining oil market security. Still there are striking similarities between the past geopolitical oil market dynamics, now largely overcome, and the geopolitical gas market dynamics at play in Eurasia today. As in the seventies, market domination and geopolitical discord appears to motivate the gas supply strategies of Russia, which like OPEC at the time, takes issue with the open market model and normative foreign policies of consuming markets of the OECD. In the 1980s, energy efficiency and development of independent supply regions such as the North Sea formed part of the policy response. Today enhancing the role of alternative energy sources and diversity of supply from independent gas sources, for instance from the Caspian region, provide part of the solution; what the North Sea was to oil market security in the 1970s, the Caspian and LNG appear to be to Eurasian gas market security today. Additionally, on one hand due to gas sector characteristics, it may be difficult for producers to set up an effective cartel to regulate international gas supply while on the other the IEA will not be able to set-up a gas emergency mechanism as it did for oil market security.

Nevertheless, the IEA does remain vigilant in this regard as Gazprom is effectively a gas export cartel for Russian and Central Asian gas resources. The United States tried to launch a strategic discussion on the risks being run by IEA’s European membership in importing Soviet gas in the the1980s. US attempts met with strong opposition from Germany, the Netherlands, Norway and the UK, either because of their own gas potential or because of the business opportunity of major Russian gas infrastructure projects. Rather counter intuitively, gas market security only emerged as a leitmotiv in IEA’s policy stance under the previous executive director, who drew attention to concerning gas sector trends and launched the first Natural Gas Market Review when other institutions shied away for fear of upsetting established gas industry relations after the collapse of the Soviet Union. This review addressed largely market structure and economic issues such as for instance deferred investments caused by rent seeking behaviour and the need for gas market reform and diversity to off-set sovereign market risks. Sharp policy discussions followed, both in

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the context of the IEA’s membership and in relations with key non-member countries (After a lengthy governing board discussion on the expediency of inviting Russia to the Ministerial in 2006 decided in favour of extending an invite, Russia’s Minister of Energy failed to show-up, only to attend a meeting on energy security organised by the Paris based UNESCO around the corner of IEA’s turf a few days later).

The current leadership of IEA appears less engaged in gas market security issues and has taken a strong profile on environmental sustainability, energy efficiency and technology cooperation launched at the G8 summit in Heiligendam Germany. While these are certainly important contemporary issues for IEA involvement, they risk crowding out the more robust and traditional engagement of IEA on market structure and sector reform with energy producing regions in favour of overall market integration in the global fossil fuel economy.

Final observations

- The IEA has made a significant contribution to gas market transparency and medium-term analysis of gas market trends. It may be worthwhile for IEA to consider the both the strategic and environmental roles of gas in the transition to a low carbon economy in keeping with its G8 mandate.

- What incentives can be deployed by IEA to entice gas producers such as Russia or Caspian producers to enter in to a constructive policy dialogue and come into closer policy orbit with the IEA’s shared goals?

- The IEA has a Coal Industry Advisory Body (CIAB) that analysis coal industry developments and reports on these, among others, in meets with the IEA Governing Board. Should IGU facilitate the creation of a similar body or other appropriate industry government dialogue structure to ensure its voice is better heard in the international policy debates on gas?

- Furthermore, the diversity of gas policies of gas consuming countries can be seen as an impediment to finding a common agenda in gas security. The IEA can contribute to a greater awareness of global gas security issues, but, just as in oil, international organisations can only build where there is a political mandate.

7.4 The Energy Charter Treaty

The Energy Charter Treaty provides a valuable energy policy framework that sets legally binding rules for the conduct of energy trade and transit as well as for investment among its contracting parties. Due to the fundamental and unique character of the Charter framework, an integral part of the rule of law, its instruments cannot easily be abandoned. Alternative approaches¹⁶⁰ might complement or strengthen the base line the Charter sets among its signatories or serve as a model for energy sector cooperation in other regions. Though the conception of the Treaty may have been triggered by transitional requirements, it sets the

¹⁶⁰E.g. A Global Code of Conduct proposed by Yazev, The concept of President Medvedev to work towards a comprehensive conventions in addition to initiatives on energy security launched in the context of the UN, Nato and OSCE.
only internationally legally binding standard in energy commerce (investment and trade) that also non-member countries can take guidance from. This standard has become more important due to the uncertainties of a world in transition that make successful conclusion of new legally binding instruments increasingly elusive. Looking forward the Charter may emphasize the policy objectives agreed in the 1991 Charter declaration and work through peer review mechanisms and diplomatic engagement with non-member countries rather than legal procedure to achieve its policy goals.

The big bang and the expanding market place
The Energy Charter Conference coincided with the disintegration of the Soviet-Union during the last months of 1991 that culminated in the resignation of President Gorbachev and the lowering of the Soviet flag from the Kremlin on the 25th of December. Since the initiative was launched prior to this historic geopolitical landslide, the European Energy Charter Conference was the first to convene the Newly Independent States of the Former Soviet Union next to European countries, the European Communities and major OECD states. New flags had to be found and placed on conference tables only at the very last minute before the Conference opened in The Hague on the 17th of December 1991. The United States, Canada, Australia and Japan hurriedly joined in. The political declaration on intergovernmental cooperation and market economic principles for the international governance of energy trade, transit and investment, engaged parties to pursue the principles of the Charter in a legally binding agreement. This marked the first sovereign expression by former cold war foes in favour of multilateral cooperation and the supremacy of market economic principles over centrally planned systems in energy commerce.

The policy dynamics that played out in the wake of the Soviet Union’s collapse greatly contributed to the rapid adoption of the Lisbon Energy Charter Treaty and a separate Protocol on Energy Efficiency and Related Environmental Aspects in 1994 (the Treaty). Both entered into force in the 16th of April 1998; the following year negotiations on a separate Energy Charter Protocol on Transit were launched and non-binding model agreements were developed in parallel. However, the Charter’s close association with “the greatest geopolitical catastrophe” of the 20th century according to the state of the nation address of former President Putin in 2005, over time strengthened the perception that the treaty allegedly discounts Russian producer- in favour of European Union consumer interests that focused on the notion of freedom of transit and access to resources. On the 30th of November 2009, an arbitration panel initiated under article 26 of the Treaty by shareholders affected by the take-over of Yukos concluded that the Treaty would be provisionally applicable to Russia, which did not withdraw from provisional application in line with article 45(2) when signing the Treaty. This ‘sword of Damocles’ finally pushed Russia’s sharpening scepticism towards this still unique framework for energy trade, transit and investment and related negotiation process, over the edge.


162 Currently the Energy Charter's membership comprises as treaty signatories: the European Union, The Newly Independent States of the former Soviet Union apart from Russia, Australia, Japan, Norway, and Turkey. Don't forget: Switzerland, FY cuntries, Albania, and others! Countries participating in the Energy Charter as observers are signatories of the 1991 The Hague Energy Charter: Afghanistan, Algeria, Bahrain, Canada, China, Egypt, Indonesia, Iran, Jordan, Korea, Kuwait, Morocco, Nigeria, Oman, Pakistan, the Palestinian National Authority, Qatar, Russia, Saudi Arabia, Serbia, Tunisia, United Arab Emirates, United States of America and Venezuela. Key international organizations also participate including the European Commission and Euratom. See: http://www.encharter.org.
Too much too fast; from conception to a crisis of confidence and potential collapse?

With close to two decades of volatile energy market evolution and policy dialogue past, the Russian government of Prime Minister Putin decided to withdraw from provisional application according to art. 45(3) by submitting a respective instrument to the Portuguese Government on 24 August 2009, which entered into force 60 days later.\(^{163}\) According to certain experts the decision taken by the Russian government on the 30\(^{th}\) of July 2009 is tantamount to a withdrawal from the Treaty. This gesture amplified the focus on a new conceptual approach to update the legal architecture for international energy cooperation that President Dmitry Medvedev proposed on the 20\(^{th}\) of April 2010.\(^{164}\) The proposal provides – in addition to its proper benefits - Russia with diplomatic cover for its withdrawal from provisional application of the allegedly outdated treaty arrangements with international counterparts. Yet, the ruling of the Permanent Court of Arbitration in the Hague to move the Yukos arbitration case to the merits phase by virtue of Russia’s obligation to observe The Treaty’s provisional application at the time, reveals that Russia’s withdrawal is mostly of political significance for the Yukos case while new energy sector investment in Russia is no longer covered by the Treaty.\(^{165}\) Aside of Australia, Belarus, Norway and Iceland all other 46 Treaty signatories have ratified and continue to participate in the work of the Energy Charter Conference and its subsidiary bodies. This is a unique success that continues to serve globally as a model for a successful dialogue on energy sector development in Eurasia on the basis of WTO inspired free trade principles and the rule of law. Though to some the expeditious conclusion of these multilateral negotiations in the nineties is exactly what pre-empts genuine Russian engagement today.

Only as recent as on the 21\(^{st}\) January 2010 the so-called 1998 trade amendment also entered into force. This brings the Treaty’s trade related provisions into full accordance with WTO rules\(^{166}\) in support of progressive liberalisation of international energy trade among the Treaty's members. The standoff on customs duties for import and export of energy may be of some importance to Caspian energy producers and key transit states such as Ukraine though, by virtue of its withdrawal, Russia may no longer be affected. Russia continues to play an active role in the Charter Conference, where it provides a vice chairman of the Conference and in its permanent secretariat, in which the quasi political office of the deputy secretary general is held by a senior Russian diplomat. The apparent disengagement, however, of Russia’s leadership remains of concern to the international energy community and to certain policy circles in Russia itself.

The increasing importance that Russia will play in global energy markets as a supplier, investment destination and trade and transit partner, means that further review, if not a way to accommodate Russia’s evolving interests must be found. Mindful also of the signal that Russia’s example provides to other energy producing countries, the 20\(^{th}\) Energy Charter Conference meeting on the 9\(^{th}\) of December in Rome, adopted a statement\(^{167}\) that implicitly

\(^{163}\) This terminates the treaty’s provisional application in Russia on the 20\(^{th}\) of October 2009.


\(^{165}\) The obligation to observe the provisional application of the Energy Charter Treaty survives for a period of 20 years after the date of withdrawal for investments made in the period in which this application was in effect.

\(^{166}\) For those countries who have ratified the Treaty’s trade amendment, which happened all to be already member in WTO.

acknowledges a change in circumstances that opens up to new approaches. It remains unlikely that these will have an impact on the Treaty's provisions itself: the declaration supports modernisation of the Energy Charter process as a whole – as compared to a modernisation of the Treaty. This can be done on the basis of Rome Statement urging modernisation through an expansion of the Charter's membership and by taking account of the above concept launched by President Dmitry Medvedev to keep Russia on board.

**A brief assessment of the Energy Charter Treaty in time**

The political significance and utility of the Energy Charter process and its legally binding instruments is difficult to underestimate. The return of geopolitical discord, rediscovery of energy as a strategic commodity and the emergence of new economic power centres, suggest that the open market model is much less at the forefront of international energy governance. To many energy producers investor-host government relations appear better protected through foreign economic diplomacy than by independent arbitration under international law. The fact that article 26 of the Treaty subjects sovereign states to the rulings of commercial institutions like the International Chamber of Commerce aside of international arbitration is difficult to digest in times of resurging state involvement and rising resource nationalism and security concerns in energy sector affairs. On the other hand the European Union and its member states, once staunch supporters of this multilateral Treaty and progressive liberalisation of international energy trade, now appear to give preference to more regional approaches such as the energy community and bilateral energy frameworks.

Some quarters question whether open energy market integration is desirable at and favour the elaboration of a specific foreign energy policy for the EU. The Energy Charter Treaty was very useful in promoting foreign direct investment in non OECD countries in the early nineties and in familiarising OECD and FSU countries with each other's system requirements. This enabled resource rich countries, which lacked an appropriate legal framework or tradition to attract large inflows of foreign investment to fuel their economic recovery overtime. Two decades down the road there is a false perception that this process has run its course. Apart from the Charter's traditional preoccupation with Russia, countries in the Asia Pacific, Middle East, Africa, and Latin America that thus far have been less involved in the process, share a common interest with other Charter constituents in energy market stability, predictable policy and fair and equitable access to markets, resources and technology. However legitimate Russia’s and Norway’s qualms with the Energy Charter Treaty may be, the Charter still provides the experience and the common denominator acknowledged by 50 states that can make an important contribution to tackle the rising challenges in energy market governance.

President Medvedev’s proposal states that “in energy relations, it is necessary to be guided by the experience in implementation of the Energy Charter documents and approaches stipulated in the G8 Declaration and Plan of Action on Global Energy Security approved by the St. Petersburg Summit in 2006.” In this line, the concept provides an opportunity to take a fresh look at the Energy Charter process and Treaty and the general legal architecture for energy trade and investment with Russia.

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Final observations

- For both the European Union and Russia it is impractical and precarious to stray away from the Energy Charter process that offers the only set of legal instruments and negotiating bodies to pursue policy dialogue on the rule of law in international energy markets. An alternative system is difficult to conceive and will be even harder to find. On the other hand the Charter process has yet to make a tangible contribution to integrate emerging regions, such as the Asia Pacific, and new energy policy themes such as climate change and energy poverty in a coherent global energy governance system.

- Would seeking a special accommodation with Russia (Such as Norway or Mexico enjoy in the context of the OECD and IEA) offer a more productive way forward to ensure Russia’s remains genuinely engaged in the process and its interest are better taken into account overtime? Considering Russia’s soviet legacy and policy stance it is reasonable to accept that its interest will evolve but at a different pace than its counterparts who have fully embraced Charter rules. This is not an uncommon phenomenon in international affairs. It will still take a while before the United Kingdom accedes to the Euro, but does this pre-empt it from constructively contributing to the EU’s political process? Keeping Russia actively engaged in the process and expanding the Charter’s global reach will certainly augment its international appeal and extend its effective global reach. Or is it better to acknowledge defeat here and risk to recede into a system of state competition between producer and consumer interests accepting the geopolitical and project specific risks this implies?

- Reconvening the Energy Charter Conference in The Hague, not merely to celebrate its accomplishments, but to take stock and enable further engagement in the future, should avoid that this unique multilateral energy governance framework falls victim to its own success.

7.5 THE GECF AND THE TROika

From an economic as well as a political point of view, gas-exporting countries, including Russia, may desire a form of managing their supply capacity and trade flows. So far, cooperation in the interregional gas market has only just begun to take shape in the form of the Gas Exporting Countries Forum (GECF). The member states of the GECF together hold around two-third of world’s gas reserves. Together, they are responsible for almost 50 percent of total exports.172 Though long seen as an informal club with little to no

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171 The official member countries are: Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad & Tobago, and Venezuela. Kazakhstan, Norway and the Netherlands have the status of observer (GECF 2009). In the past, Brunei, Indonesia, Malaysia, Oman, Turkmenistan, and the UAE have participated at different ministerial meetings (CIEP 2008).
cohesion,\textsuperscript{173} the GECF has gained much traction since 2006 and, in December 2008, decided to transform into an international organisation.\textsuperscript{174} According to its mission statement, “[t]he GECF was set up with the objective to increase the level of coordination and strengthen the collaboration between member countries. The forum also seeks to promote dialogue between gas producers and consumers.”\textsuperscript{175}

**Towards a gas-OPEC?**

The direct comparison between the GECF and OPEC, or referring to it as a ‘gas-OPEC’, can be misleading because of their structural market differences. The functioning of a group examining the common interests of gas exporting countries is not the same as a quota-driven OPEC, which regulates prices almost overnight in a global and liquid market. With the current structure of the gas markets, exporters’ market power is limited through their long-term contracts. This limits the possibilities of cartel-like behaviour.\textsuperscript{176} In the perception of many Western countries, however, GECF may risk becoming a collusive organisation. This perception finds its origin in the fact that many GECF members are also OPEC members, e.g., Iran, Algeria and Venezuela. With the set-up of a secretariat and a secretary general, GECF has become slightly more formal in its institutionalisation than it has been in the past. The GECF Secretary General took office in February 2010.

**The faces of cooperation between gas-exporting countries: The GECF and Gas Troika**

In what has been called an effort to further reshape the GECF, Russia, Iran and Qatar established the Gas Troika in October 2008, holding together more than half of the world’s gas reserves.\textsuperscript{177} The aim of the Troika is, at least officially, to hold up to four meetings annually to discuss gas policy, including cooperation between the three countries, covering exploration, gas processing, transportation and sale of gas in an effort to create a “fair market for producers and consumers” and discuss “the most important gas market developments that are of mutual interest”.\textsuperscript{178} According to Gazprom, the Troika is to act as a “locomotive” for the GECF, which suggests the spearheading of the three largest gas reserve-holders in shaping long-run gas market developments.\textsuperscript{179}

Because of the small number of players in the Troika, some form of tacit cooperation is attainable. Gas market developments, amongst other factors, may influence to what extent such cooperation can eventually become coordination,\textsuperscript{180} whether it is explicit or tacit in nature. It should be noted that all three countries also have potentially divergent interests (see below). Therefore, cooperation and/or coordination is likely to remain ad-hoc, and


\textsuperscript{175} www.gecf.org


\textsuperscript{178} Platts International Gas Report, ‘Russia, Iran and Qatar Form Gas-OPEC’s Core,’ November 3, 2008.

\textsuperscript{179} Nefte Compass, ‘Gazprom extends global reach,’ November 20, 2008.

\textsuperscript{180} Coordination may refer to open and explicit as well as more tacit forms of cooperation on the part of gas-exporting countries. Coordination is a neutral term which may, given the discussion about and market developments surrounding cooperation between gas-exporting countries, refer to cartelization and/or collusion, depending on market and political developments which affect such cooperation amongst gas-exporting countries. Collusion is an agreement, usually but not always covert, which arises between firms (and in this case, quasi- or fully state-owned firms) where markets are divided or where prices and/or supplies are in some way coordinated upon in the interest of suppliers. See Chapter 4 for an overview of the theory, definitions and types of collusion and cooperation in this regard.
tacit, guided in large part by the largest reserve-holders. Iran is also far from able, as of yet, to become a major interregional gas exporter due to both domestic as well as extra-regional circumstances (also see section 3.2 and 6.3 on US and Iran, respectively). The Troika could act as a core group of countries at the heart of the GECF. Because of the latter’s diverse membership, cooperation may have to be more formalised.

**The medium of cooperation between gas-exporting countries**

The GECF and the Troika appear to be geared towards the regulation and coordination of long-run investments, which may—with the emphasis on ‘long-run’—determine a certain level of gas supply, traded either in long- or short-term contracts. The mechanisms for further cooperation in the GECF and/or the Troika can consist of the following:

1) Limiting flexible supplies
2) Coordinating capacity expansions
3) Coordinating pricing regimes in contracts. The group had several significant meetings in 2006-2008, most notably one which involved the formation of a high level ‘pricing group’ (see below).
4) Shared investments: An ultimate step in avoiding price competition in the long-run, as the industry matures, would be establishing common sale consortia centred on common gas production, transport and storage. Given the widely diverging interests amongst gas-exporting countries, this form of cooperation is not very likely to arise on a broad scale.
5) Market division of regional and sub-regional markets is a possibility for long-run pipeline and LNG flows.

Gas-exporting countries are often oil-producing and exporting countries as well, and thus the relative value between both fossil fuels is an important factor in their decision-making. In light of the above, cooperation between gas-exporting countries is aimed further at recovering for gas the same or greater value per unit of energy as oil, i.e., what they perceive to be the intrinsic value of their gas resources. If successful, cooperation between gas-exporting countries will likely be tested in times of a buyer’s market when downside risks materialise (e.g., the collapse of short-term prices, which can spill over into long-term contracts). In the interregional gas market, very long-term commitments would be needed to sustain effective cooperation across all regional and interregional projects.

Other forms of cooperation are imaginable that do not include a cartel per se. It would not be impossible for the forum to be more proactive in regulating how natural gas is traded, collecting data, coordinating policies, and consolidating cooperation between its members.

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182 Ibid.

183 Algeria’s energy minister, Chalkib Khelil called in March 2010 on other gas-exporting countries for a coordinated effort to restrict gas production amidst historically low spot prices in Europe and the US *Financial times*, ‘Algeria calls on gas exporters to boost prices by cutting output,’ March 17, 2010.


185 Feygin, V. and Revenkov, I., “Gas OPEC” or other forms of interaction, 21 August 2007, Russia in Global Policy.

Diverging interests of gas-exporting countries
Differences of opinion over the charter appear to reflect some disparity between the interests of the member states. Venezuela and Iran, for example, favour a charter resembling that of OPEC, while Russia and Qatar wish to avoid allowing the GECF to resemble OPEC, appearing to take a more commercial position rather than a political one. This is not to say OPEC is solely political but rather that, in the perception of Venezuela and Iran, an OPEC-type cartel for gas may serve as a useful tool to offer resistance to, mostly, Western pressures on other politico-economic dossiers. While Russia and Qatar both prefer to avoid the term ‘cartel’ per reference to the Troika, Iran claims that the Troika is a successful attempt at reaching “consensus to set up a gas OPEC”.

Algeria openly advocates an organisation that calibrates long-run gas supplies to avoid large oversupplies in the long-term. According to some sources, both Russia and Qatar have agreed to at least avoid competing for market share. On the face of it, cooperation may seem desirable to avoid oversupplies. However, Russia may perceive formal, binding commitments to cooperate as an option that could undermine its policy independence.

The impact of geopolitics on the GECF and the Troika
The impact of geopolitical developments on cooperation between gas-exporting countries is a two-way street: certain geopolitical factors, such as relations between the US and Russia and between Russia and Europe may intensify and further politicise the GECF and the Troika. As noted above, the various member states of the GECF have differing positions regarding the GECF, with Iran and Venezuela as the organisation’s political hawks, despite the fact that they do not export any gas. Algeria has in the past favoured a tough commercial position vis-à-vis gas-consuming countries, while Russia and Qatar appear milder in their posture. Geopolitical relations between these countries themselves and between them and gas-consuming and importing countries can further influence its nature as either a geopolitical organisations or an economic-strategic one. Russia’s status in the international political system as a great power and as a geo-strategic player (see Chapter 2) with the largest conventional gas reserves profoundly impacts the character of both the GECF and the Troika. It should be noted that the GECF also publicly claims to seek a stable relationship with gas-consuming countries, where the IEF plays a potential bridging role.

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187 Middle East Economic Survey, ”Big Gas Troika” formed by Russia, Iran, and Qatar to coordinate gas policy,” October 27, 2008.
188 In his speech, Putin continued with the idea that "at the first stage, we agree with Iranian experts, partners and some other countries which produce and supply hydrocarbons to world markets in large volumes. We are already trying to coordinate our actions on developing markets and we intend to do so in the future” RIA Novosti, ‘Putin discusses gas OPEC idea, lower energy transit dependence,’ February 1, 2007.
189 World Gas Intelligence, “Qatar East Europe Foray,” April 22, 2009. Russia appears more interested in avoiding intense LNG competition and cooperating with LNG producers to swap LNG for pipeline gas in optimising short-term trades. Valery Yazev, head of the Duma Energy Committee, has been of the most fervent advocates of creating a gas OPEC. Then Russian Energy and Industry Minister Viktor Khristenko dismissed suspicions of establishing a gas cartel: "a decision on forming a gas cartel has not been adopted.” RIA Novosti, ‘Gas exporters form high-level price coordination group in Doha,’ April 9, 2007. His successor, Sergei Shmatko said in 2009 that “energy and gas markets are such that no one of the participants can go on its own way. It is necessary to seek ways to enhance cooperation and coordinate activities based on mutually accepted principles. These countries will be able to find a wise balance between competition and harmonisation of their energy policies” World Gas Intelligence, “GECF’s peculiar popularity,” July 1, 2009. Qatar’s position is characterised by an interest limited to tracking other exporter’s efforts to enter the LNG market, keeping itself informed of intentions of future market entrants in terms of capacities, especially those eyeing LNG investments.
the first instance, cooperation in the international and regional gas markets is more economic-strategic in nature than geopolitical.

Conversely, developments in the gas market(s), especially in the area of pricing and the rise of new business models, may propel the GECF and the Troika towards more economic-strategic cooperation. The geo-economic nature of potential market division between Troika members is of an economic-strategic nature, as are other forms of cooperation (as mentioned above), especially at the firm level, where government policies of the various gas-exporting countries influence investment decisions. The further evolution of business models and pricing patterns, and certainly the current LNG supply overhang, may encourage greater cooperation between gas-exporting countries and may call on greater formality of cooperation with binding agreements. In this regard, the liberalisation dogma initiated by OECD countries (primarily pertaining to gas markets in the US and Europe) and the corresponding price and other downside risks, have triggered and encouraged greater gas-exporting country dialogue. This could in turn also further politicise relations between gas-exporting countries on the one hand and gas-consuming countries on the other. At their latest meeting in April 2010, the GECF countries reaffirmed their commitment to oil-indexation as a valuation principle. A unanimous move by gas-exporting countries to form a common front against consumer countries on such an essentially strategic-economic issue (within a cartel-like organization) may ultimately morph the GECF into a more geopolitical grouping.

Final observations

- The GECF and the Troika are important newly emerging institutions for cooperation amongst gas-exporting countries
- Gas-exporting countries are driven by the economic-strategic motive of maintaining the value of their gas at a par with or close to the value of oil
- The comparison between GECF and OPEC is erroneous as OPEC is a formal cartel that works with day-to-day production restraints
- Early days but the current surplus of (flexible) gas could give an impulse for further cooperation
- Mechanisms for cooperation between gas-exporting countries could cover both volumes and prices through coordinated capacity expansion, coordinating the sale of flexible gas and pricing and indexation coordination.
- Diverging interests among its members may affect the shape, nature and level of formality of coordination
- Geopolitical developments and gas market developments can affect the shape and form of cooperation and the extent to which it can act as a geopolitical tool.
- Should the GECF successfully limit investments, it could lead to a slow-down the growth of the gas industry.

7.6 THE INTERNATIONAL ENERGY FORUM

The IEF is a platform for further cooperation between energy consumers and producers. It is designed to help bridge the gap between the IEA countries on the one hand and the OPEC countries on the other. The organisation acts as a conduit for discussing cross-cutting issues
in the energy sector, concerning both producer and consumer countries. “In addition to informal plenary discussions, the IEF provides an important venue for bilateral contacts between ministers and also with top level executives from the energy industry, as they participate in the International Energy Business Forum (IEBF) that precedes the Ministerial IEF. The Ministerial IEF and the IEBF provide valuable insights into the key concerns of policy-makers and industry leaders. Drawing on the conclusions the IEF secretariat prioritises its work programme to reflect the key issues and find practical ways to enhance global energy security through improving market transparency, investment and sustainability.”\(^{191}\)

After failing to establish a producer/consumer dialogue in the mid 1970’s, a more successful attempt was made again in the early 1990’s. During the following years, the IEF was a rather low profile platform, meeting at ministerial levels. But since the creation of a permanent secretariat in 2003 (in Jeddah), the IEF became more and more a visible forum on oil and energy issues. With the agreement to create a Joint Oil Data Initiative (JODI) in 2001, and the establishment of the IEF Business Forum in 2004 (when energy CEO’s are meeting with the ministerial forum), the IEF was able to become a more relevant player in bringing oil exporting and importing countries together. Since 2008 the IEF organised a joint forum with the IGU, allowing also discussing oil and gas issues together in combined ministerial and business settings.

Two more particular developments in oil are worthwhile noting as they may have further spin offs to global gas markets and the gas industry. This may be the more relevant as the IEF is about to continue its cooperation with the IGU, when a next joint forum at ministerial level will be organised later in 2010. The developments mentioned are the JODI set up and the follow up of what is called the Djedddah process.

The Joint Oil Data Exercise followed the call by Ministers at the 7th IEF in 2000 to do something about the lack of data transparency seen to cause excessive oil price fluctuations. With the active participation of the Asia Pacific Economic Co-operation (APEC), the Statistical Office of the European Communities (Eurostat), the International Energy Agency (IEA), the Latin-American Energy Organisation (OLADE), the Organisation of Petroleum Exporting Countries (OPEC) and the United Nations (through the UN Statistics Division) the Joint Oil Data Initiative is now acting as a permanent mechanism managed by the IEF Secretariat where its JODI World Database works towards a further improvement of the quality and transparency of international oil statistics. More than 90 countries, representing more than 90 percent of global supply and demand, are now submitting data covering production, refining, demand and stocks of seven product categories: crude oil, LPG, gasoline, kerosene, diesel oil, fuel oil and total oil.

The Jeddah process started in the summer of 2008, with a follow up in London, to discuss the increasing concerns at political levels on energy market volatilities, due to unprecedented increases and decreases in oil prices and its relations with developments in financial markets. These volatilities brought significant impediments to ensuring adequate and timely investment in the energy sector. As a follow-up a High-Level Steering Group was established to provide recommendations for strengthening the architecture of consumer-producer dialogues and for reducing volatility in energy markets. Recommendations focus

\(^{191}\) IEF, http://www.ief.org/.
on an enhanced IEF framework for informal producer and consumer dialogues, and on a further mitigation of energy market volatility. This is to be backed by further tri-lateral IEF/IEA/OPEC cooperation on areas of future energy trends, physical and financial market linkages and energy market regulation and data transparency. This also provides in an expanded role for JODI, including the collection of monthly natural gas data, as well as annual data on oil and gas upstream and downstream capacity and expansion plans. Greater transparency is also needed in derivatives markets to shed more light on the factors influencing the price discovery process.

Final observations

- It seems to be in the interest of the gas industry and the IGU to cooperate closely with JODI when it comes to clearly defining the relevant criteria and definitions regarding data about global gas markets; due account has to be taken however to gas market specifics in relation to global oil markets, especially when it comes to field data and production profiles and to gas storages and their technical filling and release specifications.
- The IGU should consider to what extent and in what format a further enhancement of relations and cooperation with the IEF(B) should be appropriate, taking due account of the fact that the gas industry tends to be more vertically integrated than the oil industry.
- A final observation could be made to considering if there would be any trade-offs between a IEF-IGU 'rapprochement' and the potentials for GECF in relation to OPEC; if IEF has the ambition to bridge IEA and OPEC interests, and if GECF is to be "compared” to OPEC, what would be the place of the IGU?

7.7 A Patchwork of Governance

Many organisations are involved in energy policymaking and energy relations, each covering a certain aspect or interest in the value chain. The important gatherings of the G-8 and now G-20 have not been covered here, despite their impact on the climate change discussions and the economic governance that is being discusses there. Also the UNFCC was not covered here, even though we realise that a framework for climate change, when concluded, will have a tremendous impact on the energy business in the future, including natural gas. The evolution of the producer-consumer dialogue into the IEF and its function as conduit for the variety of organisations is important, also to streamline governments’ position in the various organisations. In that regard, the IGU has made an important decision to co-host ministerial meeting on natural gas, and link up the concerns of the natural gas business around the world with the discussions of the ministers, represented in so many organisations.
Appendix
Regional Roundtable Expert Papers

Asia roundtable, November 2010, Taipei, Taiwan
Middle East and North Africa Roundtable, April 2011, Muscat, Oman
South America roundtable, August 2011, Rio de Janeiro, Brazil
Europe and CIS roundtable, September 2011, Amsterdam, The Netherlands
Asia

Geopolitics of Natural Gas in Asia Pacific
Edward C. Chow, Center for Strategic and International Studies, Washington DC

Draft November 2010

As the fastest growing economic region in the world, Asia Pacific’s consumption of natural gas almost doubled in the past decade. Yet natural gas represents barely 11% of the region’s primary energy mix as compared to 24% for the world total. For the two key countries of China and India, natural gas represents less than 5 and 1% respectively of primary energy, leaving ample room for a surge in demand commensurate with the size and rapid growth rates of their economies.

The latest International Energy Agency (IEA) World Energy Outlook released on 9 November 2010 forecasts natural gas demand in Asia Pacific to double again in 20 years, with growth particularly strong in China and India which are both projected to increase at an annual rate higher than 5% during this period. Globally, natural gas is seen by the IEA as the only fossil fuel whose share of primary energy increases during its forecast period to 2035, while coal and oil’s shares shrink. Natural gas is the critical transitional fuel as the world moves to a new greener energy economy over the next two and half decades.

Nowhere is this more true than in the Asia Pacific region. China alone represents more than one-fifth of total world demand growth and 40% of future increases in net gas imports according to the IEA. Given high economic growth rates and pent-up demand for natural gas as a premium clean fuel, consumption in Asia Pacific is constrained more by supply availability, under-developed import and distribution infrastructure, and government policy governing natural gas utilization than by booming requirements of the commercial/residential, industrial and power sectors in the region.

Meanwhile nearby gas producing countries in the Middle East and Southeast Asia are expected to consume increasing volumes of their own production, leaving less for exports and putting more and more demand on long-haul international gas trade. It is, therefore, reasonable to project a scramble for future gas supplies in Asia Pacific not unlike what we have seen in competition for oil supplies in the past several years. Natural gas imports for the major economies in the region will rely ever more on maritime transportation of liquefied natural gas (LNG) and long-haul pipelines via unfamiliar territories. These anticipated energy developments will be impacted by geopolitical factors and in turn energy in Asia Pacific, including natural gas trade, will influence global geopolitics.

Demand, Supply, and Trade Flows
More than 60% of the world population lives in Asia and Oceania (including Middle East), yet the same region consumes less than 30% of global natural gas. Nevertheless, due to lack of domestic production and distance from major sources of natural gas, northeast Asia is the largest LNG market in the world.
Large-scale liquefaction plants and LNG terminals were developed after the two oil crises in the 1970s in large part because of Japan’s concern over reliance on oil imports from the volatile Middle East. LNG exporting countries like Indonesia, Malaysia, Brunei, and Australia were not only closer, but also seen as more stable and secure sources of energy imports. Thus, from the beginning, geopolitics played a major role in promoting LNG trade. Japan was also willing to pay a premium for gas as it was valued for being environmentally friendly.

Currently Japan and Korea rank respectively as the number 1 and 2 LNG importers in the world and significant volumes go to Taiwan and China. Together these four markets represent about 60% of global LNG flows today. As income and living standards grow in the Middle East and Southeast Asia, more domestic gas production is consumed locally. The supply of LNG to northeast Asia has spread as far afield as to the Caribbean, north and west Africa. With additional resource development planned, large potential exists for increasing already strong LNG exports from Australia and Russia’s Sakhalin Island to northeast Asia.

The shale gas revolution in the United States has eliminated the need for previously-anticipated higher LNG imports into that market. Pipeline gas imports will continue to predominate in the European market because of proximity to Russian, Norwegian and North Africa gas production. Consequently, northeast Asia will remain the premier market for LNG globally in the foreseeable future.

China has an advantage over its northeast Asian neighbours of being geographically contiguous with Central Asia and Russia. Completion of the Turkmenistan, Uzbekistan and Kazakhstan to China pipeline with a nameplate capacity of 40 billion cubic meters per year (40 bcm/a) at the end of 2009 represents a major step toward long-haul pipeline exports to northeast Asia. Additional pipeline gas may become available from the Russian Far East and East Siberia if long-planned projects finally come to fruition. Thus, even as its natural gas imports increase, China has a much better chance than its neighbours of balancing imports of LNG to its booming coastal markets with pipeline gas from Central Asia and Russia (and from Myanmar) to its less developed interior.

In encouraging pipeline imports, China is motivated in part by concerns over security of maritime import routes. With their bilateral security relationships with the United States, Japan, Korea, and Taiwan are somewhat less concerned over security of sea lanes for their energy imports.

India’s proximity to the Persian Gulf and to Central Asia allows future pipeline imports from these two gas producing regions to be conceivable. In reality, prospects for such projects are fraught with geopolitical difficulties over transit countries such as Pakistan and Afghanistan, in addition to serious concerns over needed upstream investments in Iran and Turkmenistan and the economic viability of the pipeline projects. For the time meaning, India’s increasing demand for natural gas may better be met by higher domestic production, including from offshore, more LNG imports and perhaps from a sub-sea pipeline directly from Oman, skirting Iran and Pakistan, or by pipeline from Bangladesh.

The greatest uncertainty over supply of natural gas may be the future of gas development in Iran. As the second largest gas reserve holder in the world, Iran can in theory be a major exporter of gas in addition to supplying its own needs for gas reinjection for crude oil production and meeting large domestic gas demand. Yet even before current international
sanctions against Iran over nuclear weapon proliferation, major natural gas development projects were stymied by Iran’s restrictive policies toward foreign investment. It is unclear also whether Iran will focus on pipelines or liquefaction for its natural gas exports.

If and when the current period of international tensions and sanctions ends, what Iran decides to do with its vast natural gas resources can have a major impact on global gas trade, including to Asia Pacific. In addition to developing its own gas for export, Iran could also become a major transit country for Central Asia gas (and oil) to Europe via pipeline to Turkey or to South Asia displacing LNG for India. However, Iran’s current flirtation with the Gas Exporting Countries Forum (GECF), even though it is not currently a net gas exporter, suggests it is not in a hurry to invite needed foreign investment to develop its natural gas resources for export. Nevertheless, an easing of geopolitical tension could allow Iran to realize its unfulfilled potential in natural gas development and alter the global gas market, including exports to Asia Pacific, not unlike the surge in Qatar’s LNG exports.

**Market Development and Regional Integration**

Although government policies encouraged natural gas imports for northeast Asia, they have also slowed the development of robust and liquid markets for gas inside each country and region-wide. For example, price controls or subsidies for use of domestically produced gas discourages upstream investment and distorts consumption patterns not necessarily for the economically-highest value use of gas. They also prevent the further development of infrastructure for gas utilization and distribution, thus limiting the growth of gas markets. These are barriers to progress for gas usage even in high growth markets like China and India.

Deficiency of price signals and absence of functioning markets domestically also make it harder to promote regional gas market integration. In this regard, regional government policy promoting the further development of an ASEAN (Association of Southeast Asian Nations) gas grid and an integrated gas market is an encouraging step forward. However, in the vast majority of cases, gas trade in Asia Pacific is conducted bilaterally between countries and between buyers and sellers through relatively inflexible long-term contracts. A liquid spot market does not exist, except in the form of spot cargoes often controlled by international oil companies (IOCs) with equity production for export.

A more robust commodity market for gas in Asia Pacific can improve economic efficiency and promote more gas development in the region. The fact that the Sakhalin II project (when it was still operated by Shell) was able to proceed to a final investment decision and obtain financing without locking in ahead of time a majority of its full volume in long-term take-or-pay contracts was an encouraging sign that this is possible.

Even more encouraging would be if consuming country companies begin to cooperate in a regional gas market. For example, a Japanese trading company may contract for LNG cargoes to sell not just to Japan, but also to China or India. A Korean company can develop gas production in Myanmar with the ultimate export market being in China. Companies from Taiwan and mainland China could jointly obtain equity stakes and contract for LNG from Australia in order to share volume with greater flexibility and bargaining power for each side. A company from India can contract for pipeline gas from Central Asia and swap it with China for LNG cargoes.
As long-haul gas trade grows in Asia Pacific, there little reason why market mechanisms commonly used in international oil trade cannot also increasingly function in gas. For example, Chinese oil companies’ equity crude oil production overseas are mostly sold into the international market rather than brought back to the home market in China for refining. If geopolitical considerations of countries and governments’ mercantilist policies prevent the natural maturation of the gas market in Asia Pacific, it would be at the expense of market efficiency and undermine the trading system that has so benefited economically all countries in the region. Nascent discussion at a ministerial level between China, Japan and Korea annually over energy is a step in the right direction and needs to be strengthened with more substantive agenda.

Long-haul gas trade in Asia Pacific is characterized by long-term take-or-pay/ship-or-pay contracts with prices indexed to oil. The North American gas market has now gone through more than 30 years of deregulation with oil and gas prices fundamentally delinked. Liberalization of the market also led indirectly to innovations in response to market forces and price, such as the shale gas revolution. A more robust spot market is beginning to develop in Europe and oil-gas price linkage has lessened at least temporarily.

As incremental global demand shifts to Asia Pacific and once additional export/import and distribution infrastructure are in place, it will be interesting to see if countries and companies in the region continue to emphasize the perceived security of long-term and relatively inflexible gas supply contracts over the development of a spot market for gas. Recent diminishing of the so-called Asian premium in the crude oil pricing may be instructive, as suppliers compete for the growing market in East Asia.

**Maritime Border Disputes and Political Uncertainties**

Absent a common stake in stronger bilateral and multilateral political and economic relationships, countries can become distracted or preoccupied by other marginal disputes. The importance of sea lanes for shipping in Asia Pacific, including for energy trade, has already been mentioned. Some of the same areas are also subjects of maritime border disputes, specifically in the South China Sea, East China Sea, Sea of Japan/East Sea, Kurile Islands/Northern Territories.

Although potential for natural gas development is often mentioned as connected with these disputes, prospects are unproven or relatively small. Agreement on joint development of such resources has not been possible to date. The issues have a more symbolic importance to each of the contending countries’ domestic politics and sense of sovereignty than the resource or economic potential.

Nevertheless, these emotionally-charged disputes over many decades are barriers to better cooperation in the region, including on natural gas. The larger countries tend to favour bilateral negotiations to resolve the disputes, while the relatively smaller countries tend to favour multilateral resolution of these disputes. It is unclear whether the possible intervention of countries external to the region, e.g., the United States, would be helpful or become disruptive.

Other political uncertainties both inside and outside the region can have unpredictable impact. The most prominent case is North Korea with its challenges over collapsing economy, nuclear proliferation, energy crisis, and political succession. Eventual reunification in the Korean Peninsula would have major geopolitical impact for all of
northeast Asia and perhaps Asia Pacific. Warming relations between mainland China and Taiwan may lead to peaceful resolution of the status of Taiwan and open opportunities for greater cooperation including in energy.

Central Asia, especially Afghanistan, remains highly unstable. Political succession and peaceful transfer of power in the former Soviet republics, including oil and gas producing states, are highly uncertain. This has implications for both the production and transit of natural gas in the region. Pakistan’s internal conditions are also highly fragile and its development can affect its relationship with India and the possibility of Pakistan serving as a transit state for the rapidly growing Indian gas market.

As usual the Persian Gulf is the ultimate game changer, with major gas exports currently out of Qatar, Abu Dhabi, Oman and potentially from Iran and Iraq in the future. However, the impact of political upheaval and hostility or outbreak of peace in the Middle East would not be limited to Asia Pacific, but fundamentally affect energy markets around the world.

Within the region, future policies on gas resource development in Australia and Russia (East Siberia and Far East), specifically in the areas of taxation and stability of investment conditions for foreign investors, will directly impact prospects for additional large-scale gas export projects. Whether such calculations will be based on purely economic grounds or also on geopolitical considerations would be a much more significant factor for Russia than for Australia.
INTRODUCTION

In 2009, MENA countries accounted for more than 45% of global proven gas reserves. This observation on size of reserves usually leads to conclusions about the very substantial increase in production and exports which can be expected from the region. However, in the 2000s, a new phenomenon began to appear in the MENA countries: shortages of gas leading to curtailment of exports and in some countries a need for imports. Some observers claim that the region faces a “gas crisis”, a situation which is difficult to reconcile with the region's massive natural gas reserve base.

One important dimension to the MENA natural gas puzzle relates to the rapid growth in domestic consumption due to improvements in income levels; a rapidly expanding population; a concerted policy of increasing the role of gas in power generation and water desalination; and a low pricing policy. Despite continuous efforts to reduce their dependency on hydrocarbon revenues, the energy sector still accounts for the bulk of export earnings and government receipts and acts as the main engine for economic growth in most MENA countries. High population growth rates, a young population age structure, and higher female participation in the labour force are putting pressure on MENA governments to diversify their economies to generate employment opportunities for the hundreds of thousands entering the labour market each year. Natural gas lies at the heart of these diversification efforts as it has become the fuel feedstock of choice for industrialization through energy intensive industries.

Another important dimension is pricing policy. MENA has some of the cheapest domestic gas prices in the world. This has intensified the gas supply-demand gap by encouraging demand growth and limiting potential supply responses by reducing the incentive for exploration, development and investment in domestic gas infrastructure. Cheap domestic gas prices also create distortions by biasing producers’ decision towards exports rather than supplying the local market. Expectations of low prices have also been a main stumbling block toward greater regional integration.

Another important dimension is the geo-political one. The region has been engulfed with international conflicts and regional disputes which over the years have reduced its ability to
attract investment and transfer technology, limiting MENA’s supply and export potential. In countries such as Iran, these geopolitical factors have been manifested in the imposition of sanctions, which have been partly responsible for preventing investment flows and technology transfer rendering Iran a net importer, while sitting on one of the biggest reserve bases in the world. While most international sanctions imposed during the Saddam Hussein era have been lifted, Iraq currently faces a different set of challenges including a fragile political coalition, security challenges, a weak central government and regional tensions. Libya has also suffered from a long period of sanctions which prevented the country from exploiting its gas potential for the 1980s and 1990s. Sanctions were lifted in 2004 following Libya’s rapprochement with the West, but these sanctions were re-imposed in February 2011 as fighting between the rebels and Moammar Gadhafi’s forces intensified. Sanctions and the increasing likelihood a prolonged civil war suggest that exploiting Libya’s gas potential will not materialise any time soon. In the East Mediterranean, regional conflicts may prevent some countries from maximizing the potential of the recent gas discoveries as well as limiting the scope for regional gas trade.

Geo-political events have also affected the direction of gas trade flows and efforts towards greater regional integration. MENA has entrenched and longstanding political problems and border disputes. Suspicions and fears about Iran’s hegemony in the region make many GCC countries reluctant to rely on its gas supplies. Poor political relations between Mashreq countries and Israel will likely limit the scope of future cooperation in gas trade. In North Africa, political tensions remain the main stumbling block to a more meaningful penetration of natural gas in the energy mix in gas poor countries such as Morocco.

In this report, we focus on the geopolitical dimension. We divide the region into five main sub-areas (Iran, the Gulf Cooperation Council (GCC), North Africa, the Mediterranean and Iraq) highlighting the main geo-political dimensions in each of these countries/sub-regions and then analysing the broader implications for regional and global gas markets. Specifically, we identify three layers of analysis relevant to MENA: local politics; regional politics; and global geo-politics. These layers interact with each other to shape gas markets in the region and beyond by influencing international and regional political and economic relations; by influencing the choice of how best to optimise the use of the resource; by affecting the regulatory and investment decisions, investment flows and technology transfer; and by determining the direction of gas trade flows and the degree of regional integration.

**The Background**

Most accounts of MENA gas start with the data in Table 1 which demonstrate that, both in absolute terms, and in relation to global gas reserves, the resource potential of the region is vast. In 2009, MENA’s proven gas reserves amounted to 84.4 trillion cubic meters (tcm) which constituted 45% of the world’s total proven reserves. Gas reserves are highly concentrated within Qatar and Iran which account for 65% of the region’s gas reserves (see Figure 1). While the region sits on massive gas reserves, its marketed production amounts only to 591.5 billion cubic meter (bcm) or less than 20% of the world’s total production.

The production pattern in the region does not mirror that of reserves, with countries such as Egypt and Algeria with a relatively low share of the region’s gas reserves, accounting for a large share of gas production and exports. Saudi Arabia which is also an important producer is neither an exporter nor an importer. As seen in Table 1, most of the gas produced in the region is domestically consumed. One of the most striking features of the region is the rapid growth in gas demand, which between 1999 and 2009 almost doubled
from around 225 bcm to 415 bcm (see Figure 3). The region’s share in world consumption increased from only around 3% in 1980 to 14% in 2009.

As gas became more valuable and more widely utilised, flaring of gas associated with oil production was dramatically reduced and largely eliminated in many countries. Despite these efforts, gas flaring in the region stands at about 50 billion cubic meters annually, making it the second largest flaring region in the world after Russia and the Caspian. The estimated flared volumes in Iran and Iraq alone amount to more than 20 bcm with eight MENA countries appearing in the top 20 list of countries that flare gas (see Table 2).

Notwithstanding the myth that MENA plays an important role in international gas exports, the region is not homogenous with few countries actively engaged in regional or international gas trade. The UAE, Iran, Israel, Jordan, Lebanon, Syria, Oman, Morocco and Tunisia are all pipeline gas importers. However, the imported quantities are quite small. In 2009 imported gas through pipelines amounted to 32 bcm, accounting for less than 5% of the world’s total (see Table 3). In terms of LNG imports, the region is not a significant player. In 2009, the region imported 0.9 bcm i.e. less than 0.5% of LNG global imports, but this share is bound to increase as many countries turn into net importers in the next decade. In terms of pipeline exports, only five countries export gas through pipelines: Algeria, Qatar, Egypt, Iran and Libya (see Table 4). These countries exported a total of 71 bcm in 2009, accounting for 11% of the world’s pipeline gas exports. Only Algeria and Libya export gas through pipelines to outside the region mainly to Italy and Spain while Qatar’s and Egypt’s pipeline exports are directed to regional destinations in the Gulf and the East Mediterranean. The region has a key position in LNG exports. In 2009, MENA accounted for 42.4% of global LNG trade. This prominent position is in large part due to Qatar, which over the last decade, has witnessed a rapid expansion in its gas exports that has transformed it into the world’s largest LNG player. In 2009, MENA’s LNG exports amounted to around 103 bcm, 49 of which were exported by Qatar (see Figure 4).

In short, while observations on reserves usually lead to conclusions about the very substantial increase in production and exports which can be expected from the region, with the exception of Qatar and Algeria to a lesser extent, the region plays a limited role in regional and international gas trade either as source of gas supply or as transit countries. Thus, from a geo-political perspective, MENA gas does not nearly have the same relevance as MENA oil and thus one should not expect for MENA gas to play a major role in shaping the region’s international and regional political, economic and security relations. Qatar is perhaps an exception where the country has succeeded in forging international and regional relations on the basis of its gas wealth.

Nevertheless, MENA should not be excluded from the geo-political gas map for at least two reasons. First, MENA offers many rich examples of how geopolitical factors can affect the development of the gas sector, the degree of integration in global gas markets, and the direction of gas trade flows. Second, given the region’s massive gas reserves and its geographic position, fundamental changes in the international and domestic political and economic environments such as the lifting of sanctions on Iran, Iraq succeeding in developing its gas reserves, sweeping reforms of domestic pricing and/or creating a more

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194 Cedigaz 2009, Table 18, p. 41. The exception is Iraq where the security situation saw a dramatic increase in flared gas during the 2000s.
enabling investment environment, could all prove to be key game changers for the global gas outlook. Qatar is a prime example. In less than two decades, the development of the gas sector proved to be a transforming factor for the country, changing the dynamics of global gas markets and international trade and increasing both its regional and international influence.

**Iran: The Isolated Gas Giant**

Iran is undoubtedly the region’s most contrast-rich state in pursuit of positioning itself within the global energy playing field. With some of the world’s very substantial reserves of crude oil, Iran also holds large reserves of natural gas, both associated with crude oil, and in giant offshore non-associated gas fields. The country shares the world’s single largest non-associated gas field located outside its coast in the Persian Gulf: the South Pars as it is known on the Iranian side, or the North Field on the Qatari side. South Pars alone is estimated to hold some 13.1 tcm, with Iran’s overall reserves having been estimated at 29.61 tcm in 2009, nearly one sixth of the world’s total reserves.\(^\text{196}\) Iran is also the world’s third largest producer of natural gas, with 131.2 bcm of marketed production in 2009.\(^\text{197}\)

One of the biggest obstacles to developing Iran’s massive gas reserves has been sanctions, which have strongly impacted the energy sector. In contrast to the UN sanctions, which exclude energy sector related policies, the US and Europe actively discourage foreign investment in Iran’s energy sector, which was already relatively unattractive terrain due to restrictive investment codes, harsh fiscal terms and a volatile political situation.\(^\text{198}\) In September 2010, Statoil, Eni, Shell and Total decided to leave Iran due to the threat of US sanctions if they remained in the country.\(^\text{199}\) Foreign technology and investment which Iran dearly needs are thus steadily withdrawing from the country. In 2010, Iran was forced to freeze several planned LNG projects, owing primarily to a lack of access to LNG technology. Longstanding negligence of infrastructure and insufficient international and domestic funding mean much of Iran’s upstream and midstream infrastructure is old and inefficient. Estimates suggest some 80% of associated offshore gas is being flared due to a lack of infrastructure to deliver it to the market.\(^\text{200}\)

Iran has talked about the possibility to supply gas to Europe, as a potential alternative to Russian gas, through the Nabucco system or an alternative pipeline framework. Becoming energy supplier to Europe (and other parts of the world) would undoubtedly aid Iran to reposition itself vis-a-vis the international community. However, Iran’s current nuclear standoff with parts of the international community makes it unlikely that such plans materialise in the near future: Iran would be unable to develop its gas reserves and Europe is unlikely to accept Iranian gas exports, thereby rendering itself energy-dependent on Iran. The EU has already vetoed any Iranian gas participation in the Nabucco pipeline.\(^\text{201}\)

Iran has made many half-hearted attempts to gain both economic benefit and political leverage from its natural gas reserves in the region. Many pipeline projects have been

\(^{196}\) BP Statistical Review 2010, p.22  
\(^{197}\) BP Statistical Review 2010, p.24  
\(^{198}\) Nicholls, T., Crompton, S. “Iran feels the pressure of sanctions and self-inflicted problems”, Petroleum Economist, August 2010, p.5  
\(^{199}\) Dombey, D. “Energy Groups agree to end Iran operations”, Financial Times, 30 September 2010  
discussed over the past four decades, including pipelines to Sharjah, Oman, Bahrain, and Syria. But all these projects appear to be stalled or cancelled. Inability to agree on pricing, combined with the difficulty of Iran establishing itself as a reliable exporter have led to the failure of these talks. Arab-Persian tensions/competition for supremacy in the region; the development of Tehran’s nuclear program which many Gulf states consider as a major security threat; Iran’s dispute with the UAE over three Gulf Islands; and the alleged role of the Iranian Revolutionary Guards in spy cells in Kuwait and Bahrain, are all factors that make many countries in the region reluctant to rely on Iranian gas supplies, contributing to failed Iran-Arab gas relations. The entry of Saudi and other GCC troops into Bahrain in early 2011, following unrest in that country and accusations that Iranian-backed militant group Hezbollah is actively plotting with the opposition in Bahrain to overthrow the country's ruling family have further increased the tensions between Iran and its Gulf neighbours, adding a geo-political dimensions to the current unrest in the region.

Exports to Iran’s northern neighbours Turkey and Armenia come packed with their own problems as well. Actual gas flows to Turkey have been significantly below contracted quantities and suffered repeated interruptions, but the gas-relationship has been deemed politically successful in cementing an Iranian-Turkish alliance within the region. In another politically useful move, Iran has been able to use its stable relations with both Azerbaijan and Armenia to solve a sub-regional policy issue: the supply of Armenian-encircled Azeri district of Nakhchivan. Under a gas-swap agreement, Iran supplies Nakhchivan with gas, which would otherwise be cut off from all supplies under strained Azeri-Armenian relations, while Iran in return receives gas from Azerbaijan's southern provinces.

Political stalemate, and indecision about what is the best way to optimise Iran’s gas reserves, whether to use them primarily for export, for domestic use or for reinjection into oil fields, has constituted an additional hurdle for developing an economically sound strategy for its natural gas deposits. These internal political problems tend to manifest themselves in terms of endless reopening of the price terms agreed in long term contracts. Another important hurdle to becoming an exporter is rising domestic demand for natural gas. Population growth, cheap gas prices, urbanisation and industrial growth all contributed to a surge in domestic consumption over the past decade. Iran’s petrochemical industry is particularly energy intensive, but electricity production for both industry and residential demand is also contributing substantially to Iran’s gas misery. Additionally, gas is used for reinjection into Iranian oil fields, where its use contributes to higher levels of production of more valuable petroleum, supporting the argument of proponents of the greater use of gas in this sector. In the last few years, Iran initiated a subsidies reform plan, which so far has resulted in a tenfold hike in the price of natural gas. Such sharp rises in gas prices will most likely slowdown growth in gas consumption.

Iran’s enormous natural gas reserves, coupled with their longstanding expertise in oil production, in theory predestine the country to be both a regional and potentially an international gas exporter. However, Iran, a country which had been a significant net gas exporter in the 1970s, became a net importer of gas in the late 1990s. It has continued to take more gas from Turkmenistan than it delivers to Turkey and Armenia. Iran’s northern provinces already depend on Turkmen gas imports of some 5.77 bcm/yr. The problems

203 BP Statistical Review 2010, p.30
plaguing the Iranian gas sector are likely to continue into the near future. The current political standoff with the international community and most importantly the remaining in place of international sanctions make Iran an unlikely winner of global gas market dynamics in the near future. There are serious doubts as to whether any of the regional pipelines to the GCC will be completed; as to whether the pipeline project to Pakistan will yield any significant exports prior to 2020; and similarly whether LNG exports will begin before the end of the 2010s.

Four major developments might change this bleak outlook: a dramatic improvement in Iranian relations with the West and the lifting of sanctions; the resolution of domestic political disagreements over exports; an improvement in fiscal terms and the investment environment; and the possibility of combining Chinese investment with liquefaction technology which can be acquired despite international sanctions. Of these factors, a major game changer would be a dramatic improvement in Iranian relations with the West, and especially the United States. Absent such a development, a continuation of its current position as a marginal net importer of gas seems the most likely outcome for the remainder of the 2010s.

Improvement in relations with the West however seemed unlikely at the time of writing. Rather than improving, there is a strong possibility that relations between Iran and the international community could worsen. Iranian frustration with continuing sanctions and the failure to expand its gas exports significantly could lead to hostile Iranian actions aimed at destabilizing gas developments in, and flows from, the region. For instance, Iranian influence in the south of Iraq could impact potential gas export plans in Iraq. Given the potential for conflict about the division of South Pars/North Field reserves, the proximity of Iran to Qatar, and the growing importance of Qatar for global LNG supply, there could be temptation for hostile Iranian action. Such an extreme action remains a remote possibility at the moment, but is there nevertheless.

IRAQ: THE SLEEPING GAS GIANT?

Iraq’s natural gas reserves are vast and estimated at around 3.17 tcm in 2009 with much exploration potential. However, due to insufficient marketed production and very poor infrastructure, Iraq is short of gas for its power generation, which results in regular electricity cuts, igniting wide public unrest. Due to a lack of infrastructure to capture associated gas, Iraq currently flares more than 60% of its current production in the Southern oil fields. The ramping up of crude oil production will make the situation worse as the amount of associated gas will sharply increase. Thus, capturing the associated gas appears to be a top priority for the government. In 2008, the Ministry of Oil signed Heads of Agreement with the international oil company Shell to develop a system to gather the associated gas. However, the deal proved to be controversial amidst concerns that the process of concluding the deal was non-transparent and uncompetitive. As a result, politicians have been wary about being associated with this deal and the flaring of gas continues. Iraq’ current gas production amounts to 15 Bcm of gas, of which some 7 Bcm is flared.

Political instability remains Iraq’s biggest threat in monetizing its gas reserves. The implications of US troop withdrawal from Iraq by the end of 2011 on the security situation are not yet clear. The competition between regional powers over influence in Iraq could lead to further fragmentation of Iraq into regional power bases. Internal competition can cause more regionalization of the Iraqi political scene with implication on the control and the decision on how to develop natural reserves. Popular anger at persistent lack of basic
services and perception of pervasive corruption keep eroding the legitimacy of the
government. Any future decision to export gas without domestic demand being fully
satisfied will likely be met by strong public opposition. For instance, even before the
opening of the bidding round for the Akkaz field in the Anbar province, the provincial
council there expressed strong opposition to exports, stating that produced gas from Akkaz
should be used to supply power stations and to promote different chemical and
transformational industries in the province and other parts of Iraq. Such statements reflect
deeper issues including wider opposition to exports and the need for clear demarcation
between federal and provincial authorities when it comes to upstream contracts.

Despite its current limited production, Iraq should not be ignored from the natural gas
geopolitical map. Given its vast reserves and geographical position, where it is shortest land
route in the Gulf to Turkey, Iraq could become an important supplier to Europe. In fact, Iraqi
gas has become part of the European geopolitical (“Southern Corridor”) effort to diversify
away from Russian gas, and it is difficult for Iraqis to refuse such requests. The Kurdistan
region in the north side of the country enjoys relative autonomy and stability and could
achieve a high supply potential turning Kurdistan into a major source of supply for the
Nabucco pipeline project. The development of the Akkas field near the Syrian border could
also become a possible source of gas for Europe via the Arab Gas Pipeline through Syria and
Turkey. In the past ten years, the Syrian and Iraqi governments have been exploring the
option of supplying the Syrian gas grid with natural gas from Iraq while linking both
countries to the Arab Gas Pipeline project. Given the improved relations between Turkey
and Syria since 2004, Turkey would welcome such a move. Other plans such as building a
pipeline from South Pars in Iran into Iraq and then to Syria to feed the Arab Gas Pipeline
have also been discussed, but with no clear timetable for implementation and seem unlikely
to progress.

In 2010, Iraq’s Ministry of Oil awarded three gas fields following a bid round in Baghdad.
Many of the successful companies were regional, and all had limited credentials in large
capacity gas production and transportation. The dominance of such companies might pose a
risk for Iraq’s gas production, but these deals could consolidate Iraq relations with the rest
of the region. The involvement of Kuwait Energy in development of Iraqi gas fields could
provide stimulus for Iraqi gas export to Kuwait while the involvement of Turkish companies
could encourage linking Iraqi gas to the proposed Southern Corridor pipelines.  

Turkey could also bring closer the positions of the Ministry of Oil and the Kurdistan Regional
Government (KRG) regarding the possibility of exporting oil and gas produced in Kurdistan
through Turkey.

In 2010, there was considerable optimism from international companies that Iraq could
become a major exporter of gas prior to 2020, with volumes up to 15 bcm available for the
Nabucco pipeline to Europe via Turkey. This optimism however is farfetched. Assuming that
Iraq manages to attract foreign investment and increase its production of marketed gas, the
country will need to devote substantial volumes of gas to domestic reconstruction, re-
industrialisation and expansion of power generation. The Kurdistan region remains the
most likely source of gas exports in the near future. However, the constitutional problems
between the central government in Baghdad and the Kurdistan Regional Government (KRG)
are far from being resolved, impacting Kurdistan’s export capability and the direction of gas
flows. The Iraqi Ministry of Oil has prevented KRG from exporting natural gas, considering

204 The Nabucco, ITGI and TAP pipelines,
all the deals signed by KRG with foreign companies as illegal. The federal government seems to have secured an agreement with Turkey not to allow any gas sales through its territory without Baghdad’s approval. Earlier this year, however, the two sides agreed a compromise and oil exports resumed from the region. The parties agreed that oil exports be marketed by the federal government’s State Oil Marketing Organization (SOMO), and with a percentage of the revenues going via the KRG to oil companies for exploration and extraction costs. This deal also applies to future gas exports.

**QATAR AND THE ARAB GULF STATES: RISING DOMESTIC DEMAND AND ITS GEO-POLITICAL IMPLICATIONS**

Countries such as Saudi Arabia, Kuwait and the United Arab Emirates (UAE)/Abu Dhabi have gained considerable political and economic weight both regionally and internationally through their substantial oil wealth alone, which adds up to nearly 40% of the world’s total reserves.\(^{205}\) Perhaps surprisingly, natural gas has long played a secondary role in the region’s hydrocarbon sectors, despite sizeable reserves in their own right: In 2009, the Arabian Peninsula, including Yemen, combined held 44.46 tcm of natural gas reserves, some 35% of the world’s total.\(^{206}\) Natural gas occurs mainly in associated form in the region’s crude oil reservoirs, with some notable exceptions such as Qatar’s North Field, the world’s largest non-associated gas field which alone holds some 25.5 tcm of recoverable reserves. Particularly in its associated form, natural gas was long seen as an unwanted by-product of crude oil and flared. Today, gas is the region’s second most valuable commodity after oil, the trade of which has revolutionised the region’s most important gas producer, Qatar.

The value of gas for the Arab Gulf as a region today extends far beyond its use as an additional export commodity. Despite first attempts to cash in on their domestic reserves of gas, such as in the case of Abu Dhabi’s liquefied gas (LNG) exports since the 1970s, a key trend in the region today is towards the domestic use of its gas in the wake of surging domestic demand. Since the 1970s, natural gas became popular in the Gulf’s domestic economies as a cheap and readily available fuel for power generation and water desalination – important in a region characterised by water scarcity – and as an increasingly popular feedstock for the industry, particularly for petrochemicals production. Within the industrial sector, gas often replaced more valuable crude oil as fuel and feedstock, freeing up oil for export. Availability of natural gas thus also became an important condition for the Gulf’s ambitious industrial diversification programmes, which continue to be largely based on energy-intensive industries such as aluminium and fertiliser production, and petrochemicals. Rapid population growth in all of the Gulf States, coupled with large scale urbanisation and artificially cheap prices for electricity as part of government policies, have additionally contributed to the surge of domestic demand for gas which the Gulf is currently experiencing. Domestic production of gas, on the other hand, has failed to keep pace in a number of Gulf States, owing to a combination of reserves which are more difficult and more costly to extract, and the cheap gas price policy which render expensive such upstream investments unattractive.

In consequence, a number of Arab Gulf states have turned into net importers of natural gas – often from Gulf neighbours, but recently also from international markets. Kuwait became

\(^{205}\) BP Statistical Review 2010, p.6. This is for the six countries of the Gulf Cooperation Council (GCC), Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE. If Iran was added, the percentage would stand at almost half of the world’s proven reserves of oil.

\(^{206}\) BP Statistical Review 2010, p.22
an importer of LNG in 2009. In 2010, it will be joined by Dubai and possibly in the following few years by Bahrain. UAE became a net gas importer in 2008 as pipeline imports from Qatar exceeded its LNG exports. With a shortage of gas in Saudi Arabia requiring increased consumption of liquid fuel for power generation and a wider recognition of the high economic and political costs involved with such a strategy, there is a strong possibility that Saudi Arabia itself could become a net importer of gas in the second half of the 2010s. Some of these countries have already experienced gas shortages at peak times in summer, resulting in power shortages and temporary industry closures. While Oman will not become a net importer, maintaining its LNG exports at current levels will require swift development of additional supplies. Currently, Oman is already dependent on 1.5 bcm of imported gas from Qatar and has several times requested more gas to ease domestic gas bottlenecks.\textsuperscript{207}

**Qatar**

This leaves only Qatar in the region with substantial surplus gas ready for export, a coincident which has proven lucky not only for Qatar’s overall commercial interests, but also for its political leadership ambitions within the region. Qatar’s gas wealth is mainly situated in its North field, which is a shared reservoir with Iran’s South Pars. Blessed with considerably less oil reserves than some of its neighbours, Qatar was originally expecting to run out of oil in the early 90s, and to be resource-deficient thereafter. Instead, oil has kept flowing, but revenues from natural gas exports now exceed the small emirate’s oil income. The country surpassed Algeria as the Middle East’s largest exporter of natural gas and is today the world’s leading exporter of LNG. Exports in 2009 exceeded 68 bcm, and were shipped to growth markets in Europe and Asia.\textsuperscript{208} Meanwhile, Qatar placed a moratorium on further production from its North Field until 2015, limiting its current export growth outlook until that date.\textsuperscript{209}

Regionally, Qatar’s gas deliveries have become essential, particularly since power outages along the Arab side of the Gulf coast have led to the realisation of many smaller Gulf monarchies that natural gas imports must now be a strategic aim if their economic growth based on energy-intensive industrialisation is to continue. Qatar is not only a next-door neighbour, but an Arab country, and as such a far preferable gas supplier compared to Iran. However, original plans for a GCC-wide gas grid failed over a series of political rows and tensions, exacerbating existing territorial disputes over national boundaries, between all parties involved. A smaller version of the gas grid has translated into the far more successful Dolphin pipeline, which connects Qatar with the UAE and Oman and transports Qatari gas at relatively low prices to the gas-deficit markets of Abu Dhabi, Dubai and Oman. An extension of the project, which has generally been deemed a model of partial GCC integration, to Bahrain and Kuwait, both similarly desperate for gas supplies, has been hindered by Saudi Arabian refusals to allow the planned pipeline to cross its territory.\textsuperscript{210} Alternative LNG negotiations between Kuwait and Qatar in early 2009 subsequently failed due to price disagreements, such that Kuwait resorted to purchasing LNG through a

\textsuperscript{208} BP Statistical Review 2010, p.30
contract with Shell from a variety of sources including Russia and Australia.\textsuperscript{211}

But Qatari imports were not seen as desirable by everyone in the region in the first place. Since the current Amir, Sheikh Hamad bin Khalifah Al Thani assumed power in 1995, Qatar has strived for political leadership in the region. The price concessions in the Dolphin contract can be interpreted as a determined effort to foster regional cooperation. However, they can also be interpreted as a defensive measure from a small state surrounded by larger and more powerful states, and an attempt to make a bid for regional leadership and attain security relationships outside direct Saudi control. Qatar’s bid for political leadership has been primarily financed by gas revenues and Qatar is currently playing a leading role in the region’s thorny political issues in Lebanon, Sudan, and most recently, Yemen and Libya. Through diplomacy and the al-Jazeera TV, Qatar has gained influence out of proportion to its size.

Pricing disputes, coupled with concerns on reliance on one major regional supplier, led several other Gulf States, including the UAE and Kuwait, to enter into unsuccessful negotiations for gas imports from Iran, but more successful negotiations to purchase LNG. The development of “flexible” LNG and floating regas terminals offers flexibility and diversity of global sources and delivery profiles. Qatar, however, can do without additional regional sales. With far higher netbacks for international LNG sales, Qatar will in the future find it much less attractive to sell cheap pipeline gas to its next door neighbours, thereby subsidising their markets and LNG exports.\textsuperscript{212} However, Qatar’s ambitions to gain more regional influence might lead to a different outcome in which Qatar’s role in regional gas trade becomes more prominent.

Recent events in Bahrain and the entry of GCC forces into the country have increased the tension between GCC and its neighbour Iran. With Qatar accounting for the bulk of total net incremental exports, any regional political difficulties between Iran and Qatar over the vexed question of demarcation of resources in the South Pars/North Field would create anxiety about global LNG supplies. Qatar’s policies to develop the North Field have triggered tensions in the past, with Iran accusing Qatar of ‘over-producing’ and threatening to resort to ‘other ways and means of resolving the issue’, unless Qatar addressed the equitable exploitation of the field. However, tensions eased after Qatar and Iran reached an agreement to define the North Field/South Pars structure. Furthermore, over the years, the two have built close cooperative relations in many fields with Qatar officially supporting Iran’s right to acquire nuclear technology. Furthermore, the presence of the American Fifth Fleet and the USA Central Command in Qatar reduce the risk of a direct Iranian attack, although the possibility of industrial sabotage should not be excluded. Finally, the Gas Exporting Countries Forum (GECF) could provide a forum for resolution of disputes between the two member countries.

In a step to reinforce its political weight, Qatar was a founding member of the Gas Exporting Countries Forum (GECF), created in 2001, described once by Vladimir Putin as a potential “Gas-OPEC”.\textsuperscript{213} Qatar’s capital Doha serves as the headquarters for the organisation, which

\textsuperscript{211} “Kuwait Receives First Commercial LNG Shipment At Mina Al-Ahmadi”, \textit{MEES} 52:36, 7 September 2009, p.15


is said to be dominated by its three largest gas holders, Russia, Iran and Qatar. Iran has certainly been an enthusiastic GECF supporter but, given its likely limited future as an exporter, can only be a “cheerleader” in the organization. It is highly unlikely that Qatar would agree to restrict its gas exports given its heavy investments in new LNG facilities. Thus, the CEGF has had no identifiable political or commercial influence to date. This could change in the event international gas prices fall well below expectations from gas exporting countries. Until that time the GECF will continue as a meeting place and discussion forum, as well as creating an analytical capability for exporters to project global gas market developments. The Forum will also serve to increase cooperation between influential exporters, such as Russia and Qatar, on range of short and long-term strategic issues.

**THE EXPORT POTENTIAL OF THE GULF**

With exception of Qatar, the export potential of region remains limited, at least during the 2010s. Thus, Gulf gas will not have same geopolitical relevance as Gulf oil. A number of Arab Gulf states have already turned into net importers of natural gas, while others will follow soon. This has raised energy security concerns with many countries aiming at securing imports from international markets to reduce dependency on regional suppliers. Despite the fact that the Saudi gas sector has a large domestic dimension and currently there is a firm policy of not exporting and not importing gas, the development of the gas sector has wider implications on energy markets. By meeting domestic needs for fuel, the gas sector currently frees more than 1 million barrels per day (mb/d) of oil for export.\(^\text{214}\) Therefore, the policy options currently pursued in the Kingdom to meet the challenge of rapidly rising domestic consumption may have an indirect impact on global oil supplies and prices, especially in tight market conditions. Originally, natural gas single or combined cycle stations were expected to drive the capacity expansion in power generation. However, there has been a change in policy and in 2006, the government issued a Royal Decree stating that the country’s largest future power plants which were initially planned to rely on gas will be fired by heavy fuel oil provided at a subsidised price of $0.46 per million BTU.\(^\text{215}\) Thus, the volume of gas consumed in power generation is expected to remain unchanged reducing its share in power generation.\(^\text{216}\) In this scenario, the Saudi power generation sector would be burning around 1.2 mb/d of liquids. A switch back to gas remains a possibility, but this policy shift will only materialise if large quantities of gas reserves are found or if Saudi Arabia change its current policy and starts importing gas.

Two major developments might change the dynamics of gas trade in the GCC: the lifting of moratorium on the North Field and pricing reform which will see gas prices rise close to international levels. Regarding the first factor, the moratorium or “gas pause” is not due to be lifted until 2015, after which a relatively rapid export increase could only be achieved by debottlenecking the existing trains which would provide nearly 19 Bcm/year of additional exports. Assuming a decision to increase production further in 2015, any new project would require a minimum 4-5 year lead time to develop which would mean very little chance of additional exports prior to 2020. Additional production could as easily be channelled towards domestic industrial development or regional gas exports (assuming a willingness to pay international prices) as to additional LNG exports. Existing LNG trains plus


\(^{216}\) This is fundamentally different from IEA (2004) projections where it expected the share of natural gas in power generation to rise from 46% in 2003 to 66% in 2030. *IEA, World Energy Outlook. Middle East and North Africa Insight.* 2005.
debottlenecking would bring capacity close to 140 Bcm and it seems unlikely that a nation with a population of around 250,000 will want to increase exports substantially beyond that level. At the regional level, Qatar’s ambitions to gain more regional influence might lead to bigger role in regional gas trade.

In terms of pricing, it is clear that measures to increase prices to the international level will cause a great deal of economic and political pain in many countries, and create serious challenges for their industrial and development strategies. But, even for resource rich countries (with the possible exception of Qatar), failure to implement such price increases will result in a future of increasing domestic demand for liquid fuels (with corresponding reductions in oil export availability), rationing of increasingly scarce gas between essential users (with additional negative impacts on oil production in countries using gas for enhanced recovery), and increasing power shortages.

**NORTH AFRICA: THE POLITICS OF GAS**

**ALGERIA**

Algeria has played a crucial role in the development of the gas industry, a leader in the region and a pioneer of LNG trade. In 1964, it was the first country to construct a natural gas liquefaction terminal in the world with a capacity of 1.7 bcm per year. In 1979, it completed the Enrico Mattei gas pipeline (the Trans-Mediterranean Pipeline) which linked Algeria to the Italian market via Tunisia. In 1996, it completed the Gaz Maghreb Europe pipeline to transport Algerian gas to Spain. Europe remains the single most important export market for Algeria, with more than 95% of Algerian gas exports going to Europe – some 50.7 bcm/yr in 2009, of which 20.7 bcm were exported as LNG.\(^{217}\)

Algeria is seeking to expand its share of exports to Europe, through expanding its pipeline capacity towards Europe: GME's capacity was expanded from 8 bcm per year to 11.5 bcm per year in 2005, while Transmed’s capacity has reached 32.5 billion from an initial capacity of 8 bcm per year in 1983, reflecting the growth of demand in the European market.\(^{218}\) A recently completed direct pipeline, Medgaz, now connects Algeria and Spain and added 8 bcm/yr of capacity to Algeria’s pipeline network. Another pipeline, Galsi, is planned to add another 8 bcm by 2014 and links Algeria directly to Italy.\(^{219}\) Promoting additional gas exports to Europe follows Algeria’s dual strategy of increasing its foreign market shares while making itself indispensable as an energy supplier to Southern Europe. Seen from the European perspective, the experience of Russia-Ukrainian and Belarusian gas disputes during the winters of 2006-2009, has heightened fears over too great a reliance of Central and Eastern Europe on Russian gas supplies, despite the fact that the Libyan gas disruption to Europe was mainly compensated by Russia. The fact that Algeria’s domestic political situation has calmed down considerably since the conflict-ridden 1990s has additionally worked in Algeria’s favour, raising the country’s profile as a reliable and politically stable partner. Euro-Mediterranean efforts of increased cooperation on security issues, including energy security, have moreover created an overall more favourable climate for more North African gas exports to Europe – so far on paper.

Both Morocco and Tunisia also serve as transit countries for Algerian exports to Europe. Morocco and Algeria have had a record of particularly poor neighbourly relations,

\(^{217}\) Calculated based on BP Statistical Review 2010, p.30
\(^{219}\) BMI (2010), pp.43-4.
culminating in two military confrontations in 1963 and 1976 over territorial disputes, the most of important of which remains the unresolved conflict over Moroccan-claimed Western Sahara.\textsuperscript{220} This has defined the trajectory of gas market development in Morocco, whose continued aversion to contracted gas imports from Algeria remains the main stumbling block to a more meaningful penetration of natural gas in its energy mix. As a result Morocco, which imports more than 95% of its energy needs, has consistently refused to import gas from Algeria, although the Kingdom currently does import Algerian electricity as a stop-gap measure. Tunisia, on the other hand, imports Algerian gas but is also exploring the possibility of additional Libyan supplies, the plans for which are underway and highlight Tunisian efforts to diversify its gas supplies.

Regional rivalry between Morocco and Algeria delayed the development of pipeline export infrastructure to Spain until the late 1980s and early 1990s, although it should also be noted that an export pipeline, crossing international borders and deep maritime waters, was an extremely technically and economically complex undertaking in the seventies. Both Morocco and Tunisia have evolved as reliable transit countries despite the otherwise looming political tensions within the region. As a measure ensuring the de-politicisation of the gas transit, Algerian contracts with Spain’s Enagas, Portugal’s Transgas and Italy’s Eni transfer ownership and operation of the GME and Transmed pipelines to the recipient companies in Spain and Italy at Algerian borders, thereby making any potential supply disruptions in Moroccan and Tunisian territory an issue between the transit country and the European customer. Possibly owing to this factor, gas transit through North African countries to Europe has so far been conflict-free and reliable. Both Morocco and Tunisia have, furthermore, benefited from transit fees paid to Tunisia, and since 2002 also to Morocco, in kind as a percentage of total gas throughput.\textsuperscript{221}

**LIBYA**

Libya, since 2004 back to the international community, has attempted to similarly monetise its gas deposits, which some estimate to be larger than currently stated owing to more than a decade of lack of exploration under international sanctions.\textsuperscript{222} In 2004, supplies started to flow from Libya to Italy through the Greenstream pipeline. In 1971, Libya became the second country in the world to export LNG. But Libya’s LNG exports remained low, largely due to sanctions which prevented the country from acquiring the necessary liquefaction technology. Morocco and Tunisia, in turn, have negligible reserves of natural gas, and are gas net importers. The uprising in Libya and the civil conflict that ensued have created an immediate geopolitical crisis and led to the passing of the UN resolution 1973, imposing a no fly-zone and other sanctions on Libya. As a result of the fighting between the rebels and Moammar Gadhafi’s forces, annual gas flows of as much as 9-10 Bcm and 1.6 million b/d were taken out of the market. While the market has shown great resilience in dealing with these disruptions, the long-term effects on the oil and gas industry are less clear: Will the production infrastructure suffer any lasting damages? How long will the


civil war last? What type of landscape will emerge at the end of conflict? Evidence from other countries suggests that it often takes many years for a country to reach the pre-crisis levels of productive capacity. This may be due to many factors including the emergence of new power elites who wish to exert their control over the oil and gas sector, weaknesses in the administrative and bureaucratic apparatus that often follows a civil war; the desire of the new government to revise oil and gas contracts and create a new regulatory structure, and the rise of oil and gas nationalism. The government may also decide to revise the fiscal terms and may feel politically constrained to grant better terms for companies than those granted by the regime it replaced.

EGYPT

Egypt was also successful in establishing a gas export industry and to ascertain itself as a key gas player in the Mediterranean. The rapid expansion of gas reserves in Egypt formed the underlying basis for Egypt’s export programme. The most obvious candidates for Egypt’s pipelines gas exports were Israel, Jordan, and the Palestinian Territories. It successfully completed the Arab Gas Pipeline from Egypt to Jordan, Syria, and Lebanon and the Egypt-Israel pipeline. It has also built two LNG trains making Egypt the EU’s sixth largest natural gas supplier and serving a large number of countries all over the world. This success has been achieved through fruitful cooperation with foreign gas companies, which form the backbone of the gas industry in Egypt. The possibility of trading Egyptian gas for Libyan oil was also entertained. However, given the high costs involved in building the necessary infrastructure and the lack of commitment by the Libyan government, the project never got off the ground. In terms of LNG, there were plans to supply Turkey and a memorandum of understanding (MoU) was concluded between both sides in 1996 to that effect.

Egypt’s success in its export strategy has given rise to political controversy. The desire to increase gas export revenues, the rapid rise in domestic demand and concerns about the availability of sufficient gas reserves to meet export commitments have led to changes in policy ranging from providing foreign investors with more attractive terms, to the imposition of a moratorium on new export projects until 2010. Unless the removal of subsidies has a much more immediate impact on demand, it is not clear how growing domestic demand can be covered in the medium to the long term, which will force Egypt to review its export strategy. Great uncertainty still prevails following the revolution that saw president Hosni Mubarak ousted from power. However, at least in the short term, any future government will be reluctant to remove subsidies as this will trigger widespread public unrest. New governments may also decide to revise the contracts granted under the old regime. In April 2011, the Egyptian Prime Minister Essam Sharraf asked for the revision and review of all gas contracts. It is yet to be seen what impact these revision may have on investment, production and Egypt’s export potential.

Egypt’s exports to Israel proved to be politically controversial. Negotiations to construct an Israel-Egypt gas pipeline began in early 2000, but the eruption of the second Palestinian Intifada led to the deterioration of the diplomatic relations between the two countries and the project stalled. The Israeli withdrawal from Gaza in 2005 reduced the political tension in the region and the project was put back on track with the signing of an intergovernmental agreement in June 2005 for the supply of 1.7 bcm/yr of gas for 15 years.

from 2008. Export flows brought to the fore the issue of export prices to Israel, which were believed to be below domestic prices. Under the pressure of public protests, the Egyptian government announced in June 2008 a moratorium on new gas export deals and promised to undergo a review of prices in all long-term supply agreements. The government attributed these decisions to changes in international market conditions and the appraisal of domestic needs, but it is widely believed that such a move has been intended to ease public anger over the Israel export deal. Following the revision of contractual terms, exports to Israel were resumed but not without public opposition. In February 2011, natural gas exports to Israel and Jordan were halted following an explosion which damaged the gas pipeline. In April 2011, natural-gas exports to Israel and Jordan were suspended again after saboteurs blew up a monitoring room in the pipeline. This prompted some officials in Israel to declare that the country needs to prepare itself for a future without Egyptian natural gas supplies.

THE EXPORT POTENTIAL OF NORTH AFRICA

Currently the most pressing question is whether or not North African countries have the capacity to raise their gas exports to Europe. In Algeria, rapidly increasing domestic demand, both as a result of population growth, higher electricity consumption and industrial demand by energy intensive industries such as petrochemicals have undermined future export plans. Without a significant acceleration of upstream development, Algeria may struggle to maintain projected export levels. It is clear that the country did not remotely reach its enunciated export target of 85 bcm in 2010 and is unlikely to do so until after 2015. Egyptian export facilities are projected to operate at less than 60% capacity, reflecting a judgment that in the context of limited gas availability, priority will be given to the domestic market. There is also a wide uncertainty in policy with changes ranging from providing foreign investors with more attractive terms to imposition of a moratorium on new gas export deals. Measures to restrict demand through pricing reform are likely to remain limited as subsidies removal would trigger widespread public unrest which both new and old political regimes would rather avoid. Libya’s investment climate remains particularly problematic given sustained political tensions with Europe and a particularly volatile legal framework. Even after the lifting of international sanctions in 2004 and the return of foreign investors to the country’s upstream gas industry, Libya has achieved little in the way of expanding proven reserves and ramping up production. Institutional informality and a lack of political predictability continue to preclude the realisation of Libya’s elusive gas potential. Its currently limited reserves will not sustain planned increases in exports from its current 9.9 bcm/yr unless substantial new commercial finds are made. Libya’s civil conflict will only worsen the situation and all indicators at the time of writing suggest that the realisation of Libya’s gas potential will not materialise any time soon. In February 2011, Eni suspended Greenstream pipeline gas to Italy citing worsening security conditions.

226 BP Statistical Review 2010, p.30
In the North African context, the following factors could change these dynamics. First, a quick resolution of the current conflict in Libya and the emergence of a new regulatory and fiscal regime that is conducive to investment in the energy sector and which could help increase Libya's gas potential. Second, the emergence of new political leaderships in Egypt and Algeria that adopt a different economic development model, embraces a new social contract between the state and the citizens which is less based on policies of rent distribution through energy subsidies, and undertakes pricing reform and other measures to dent the growth in domestic gas consumption, allowing more room for exports.

**THE MEDITERRANEAN: THE NEXT SURPRISE?**

Until very recently, the East Mediterranean (Syria, Lebanon, Israel, and the Palestinian territories) did not feature prominently in the region's gas scene given their limited size of reserves and the relatively low penetration of gas in their domestic economies. However, this might change with the discoveries of Israel's Tamar and Leviathan gas structures in 2009 and 2010 with combined estimated reserves of around 700 bcm. A decade earlier, the UK's BG Group, acquired a 25-year exploration and development license from the Palestinian Authority (PA) in 1999 covering the entire Palestinian marine area. BG discovered gas reserves of about 35 bcm off the coast of Gaza. These discoveries in the last decade have raised expectations of a significant gas play, extending to Lebanon, Syria and Cyprus which could transform this part of the region into a new producing province.

The gas discoveries in the East Mediterranean however are embroiled with their own complex problems. Gas production from Gaza Marine was projected to start in 2010. However, the project was delayed due to a series of factors. The start-up date of 2010 was linked to the decision of BG to sell gas to Israel. However, the negotiations with Israel collapsed in early December 2007 over disagreement over prices, guarantees of future gas supplies to Gaza and assurances that the funds generated from the gas deal would not “fall into the wrong Palestinian hands”. Furthermore, the deal to sell gas to Israel was challenged in the Israeli Supreme court on the basis that it was granted without going through a competitive process. Given the complexities involved in the sales deal to Israel, BG announced that it was exploring the option of selling the gas to Egypt, which is in need of the extra gas given its rising domestic demand and large export commitments. The extra gas not used domestically could be exported using the under-utilised Egyptian LNG facilities. This option however is likely to be blocked by Israel, which still insists that any gas produced should be channelled through Israel. Hamas’ subsequent gain of control over Gaza reduced the likelihood of developing the Gaza find in the near future.

Recent discoveries are also embroiled with border disputes. Natural gas discoveries have already sparked a debate between Israel and Lebanon, with politicians on both sides exchanging threats over the right to develop gas reserves. The tension is likely to escalate as any border disputes between the two countries cannot be settled through diplomatic channels. In February 2003 and January 2007, Cyprus signed an Agreement on the Delimitation of the Exclusive Economic Zone (EEZ) with Egypt and Lebanon respectively. In December 2010, the Agreement on the delimitation of the EEZ between Cyprus and Israel was signed. **Turkey opposed such moves and** voiced its disapproval of these agreements. It also criticised Cyprus’ launch of an offshore bidding round claiming that such actions did not take into consideration the interests of the Turkish Cypriot community in the Turkish-occupied areas of northern Cyprus, warning gas companies not to participate in the development of these offshore reserves. Under pressure from Turkey, Syria has not yet demarcated the EEZ with Cyprus.
If the size of the gas discoveries recently announced in Israel proves to be correct, the country could move from being an importer to an exporter. However Israel’s gas trade situation will be complex both commercially and politically. If Israel manages to increase its production and has no need for the gas contracted from Egypt, then arrangements could be made for that gas to remain in Egypt or to be exported through that country’s (under-utilised) LNG facilities or alternatively through the Arab Gas Pipeline to the Mashreq countries of Jordan, Syria and Lebanon. Despite a compelling commercial incentive on all sides, Israel’s political relations with its Mashreq neighbours are such that direct gas exports currently seem impossible. Instead, other options are currently being explored. Deteriorating relations with Turkey have brought Israel and Greece closer together and plans have been discussed to export gas to Greece. Israel not only sees Greece as a gas purchaser, but also a hub from which Israeli gas could be sold to Europe. This option however seems to be costly especially if border conflicts are not resolved. Given the financial difficulties facing Greece, any such project will require the participation of the private sector. Israel can instead develop an LNG export capability and export to Europe. Another possibility would be for Israel not to export its gas and instead use it domestically to ensure its long-term energy independence. In this case, the recently discovered reserves will be developed at a very slow pace.

While the recent discoveries have the potential to be a game changer in the East Mediterranean, the development of a vibrant gas sector is most likely to fall victim of border disputes and geopolitical tensions, with a high risk of armed conflict. A key factor that could change these dynamics is a comprehensive peace process between Israel and Palestine and between Israel and its neighbours in which case gas trade can play an important role in cementing political and commercial relations. However, at the time of writing, this looks highly unlikely with the peace process seeming to have faltered. The 2011 unity deal between Fatah and Hamas is likely to put a halt to the peace talks altogether.

CONCLUSIONS
Based on the above review of the different sub-regions, it is possible to draw the following conclusions. First, the interplay between rising demand, low pricing policy and geopolitics implies that the MENA region is unlikely to make a major contribution to future global gas exports, with the exception of Qatar LNG and to a lesser extent Algeria. At the beginning of the 2000s, the only significant importers in the region were Iran (from Turkmenistan), internal transfers of UAE gas between Sharjah and Dubai, and Tunisia receiving gas from Algeria as payment for transit and contracted imports. During the 2000s, two major regional pipelines were established: the Arab Gas pipeline taking Egyptian gas to the Mashreq; and the Dolphin pipeline taking gas from Qatar to UAE and Oman. In addition, flows through the Egypt-Israel pipeline commenced in 2008. By 2008, five regional countries had become net importers compared with one (Iran) in 2000. With Lebanon joining the ranks of pipeline gas importers in 2009, all the Mashreq countries will become steadily more import-dependent, but Israel is likely to become increasingly self-sufficient as its new gas finds are developed. Regional trend towards imports will strengthen by 2015, not just in terms of pipeline gas but also LNG. Kuwait became an importer of LNG in 2009 and in 2010 will be joined by Dubai and possibly in the following few years by Bahrain. UAE

became a net gas importer in 2008 as pipeline imports from Qatar exceeded its LNG exports and while Oman will not become a net importer, maintaining its LNG exports at current levels will require swift development of additional supplies.

Second, because the region’s limited role in gas trade, MENA gas will not have same geopolitical relevance as MENA oil. Historically, the security of oil supplies from the region has played a major role in shaping international relations between the West and the Middle East and has been a central tenet in the West’s energy and foreign policy towards the region. Natural gas will not assume a similar position as oil and is likely to play a secondary role in shaping Middle East’s relations with the rest of the world. Qatar remains a notable exception. By leveraging on its gas revenues, Qatar has gained influence out of proportion to its size and has been increasingly playing a leading role in the region’s thorny political issues in Lebanon, Sudan, and most recently Yemen and Libya. Qatar is also a founding member of the Gas Exporting Countries Forum (GECF).

Third, regional cooperation on gas matters is likely to remain limited. Geopolitical factors within the region are a potential complicating factor for regional gas trade. Longstanding and entrenched political problems and border disputes have adversely affected the development of the gas sector, the dynamics of gas trade and the degree of integration within the region. Regional geo-politics and border disputes played an important role in delaying and limiting the geographical reach of the Dolphin pipeline. Suspicions and fears about Iran’s hegemony in the region make many GCC countries reluctant to rely on its gas supplies. The problems of political relations between Mashreq countries and Israel limit the scope of cooperation in gas trade. Political tensions in North Africa remain the main stumbling block to a more meaningful penetration of natural gas in energy mix in this sub-region. Whether regional gas integration will accelerate and whether such integration could help ease some conflicts/tensions between countries remain to be seen. The region offers different experiences. Gas relations between Algeria and Morocco and Egypt and Israel did not help reduce political tensions between these countries; while gas relations between Qatar, UAE and Oman and between Egypt and Jordan helped improve already strong political ties.

Despite its limited role in the global gas scene, MENA should not be excluded from the gas geopolitical map. Given the region’s massive gas reserves and its geographic position, fundamental changes in the international and domestic scenes could prove to be key game changers in the global and regional gas outlook. Of these potential game changers, the following five stand out: Firstly, an improvement of Iran’s relations with the West and neighbouring countries enabling Iran to attract investment and technology; secondly, an improvement in Iraq’s political situation allowing the country to develop its gas and oil reserves and integrate with the rest of the region; thirdly, the relaxation of the moratorium on gas development in Qatar after which a relatively rapid export increase could be achieved; fourthly, a comprehensive peace process between Israel and neighbouring economies leading to a rapid development of the new finds; and finally, pricing reforms and more attractive local investment environment which will contribute to the rapid development of the region’s reserves, slowdown the growth in gas consumption and foster regional gas trade.

At the time of writing however, the enabling conditions for a structural transformation in the MENA gas scene seem to be absent. Rather than improving, there is a big possibility that relations between Iran and the international community could worsen. Iranian frustration of continuing sanctions and the failure to expand its gas exports significantly could lead to hostile Iranian actions aimed at destabilizing gas developments in, and flows from, the

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region. Obama’s arrival in the White House has failed to make a breakthrough in the Arab-Israeli peace process and the new discoveries in the East Mediterranean may fall victim to border disputes, geopolitical tensions, and even armed conflicts. In Iraq, political instability remains the country’s biggest threat in monetizing its gas reserves. Competition over influence in Iraq could lead to further fragmentation of Iraq into regional power bases. Popular anger at persistent lack of basic services and perception of pervasive corruption has eroded the legitimacy of the government and any decision to export gas without fully meeting domestic demand will likely to be met by strong public opposition. In Qatar, the moratorium or “gas pause” is not due to be lifted until 2015, but even if lifted it seems unlikely that a nation with a population of around 250,000 will want to increase its exports substantially beyond the current levels, particularly when management of the above ground assets has become more challenging following the instability and uncertainty in aftermath of the 2008 financial crisis. Conservation may be a proper course in such a case. The Libyan conflict has interrupted exports from that country, and Egyptian instability has interrupted all pipeline exports to Israel and the Mashreq, although some of these interruptions may be temporary. Pricing reform seems more remote with the recent uprisings in the Arab world. For old and emerging political leaderships, the survival of the regime will be the main priority for years to come and no government will want to deal with the destabilizing political and social consequences of removing subsidies.

FIGURES AND TABLES:

Table 1: Basic Facts about Middle East and North Africa Gas

<table>
<thead>
<tr>
<th></th>
<th>Level (2009)</th>
<th>Global Share</th>
</tr>
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<tbody>
<tr>
<td>Proved Reserves (tcm)</td>
<td>84.42</td>
<td>45.02%</td>
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<tr>
<td>MENA Production (bcm)</td>
<td>591.48</td>
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<tr>
<td>MENA Consumption (bcm)</td>
<td>414.81</td>
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<td>Total Pipeline Imports (bcm)</td>
<td>32.17</td>
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<td>Total Pipeline Exports (bcm)</td>
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<tr>
<td>Total LNG Imports (bcm)</td>
<td>0.89</td>
<td>0.37%</td>
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<tr>
<td>Total LNG Exports (bcm)</td>
<td>102.84</td>
<td>42.36%</td>
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Source: BP 2010 Annual Statistical Review
Table 2: Estimated Flared Volumes from Satellite Data, 2006-2010 (volumes in bcm)

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<tr>
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<td>10.9</td>
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<td>7.1</td>
<td>8.1</td>
<td>9.1</td>
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<td>5</td>
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<td>Egypt</td>
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<td>1.6</td>
<td>1.8</td>
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Source: World Bank, the Global Gas Flaring Reduction public-private partnership (GGFR)

Table 3: 2009 Pipeline Imports (32 bcm)

<table>
<thead>
<tr>
<th>Column1</th>
<th>Imports (bcm)</th>
<th>Sources</th>
<th>Pipeline</th>
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<tbody>
<tr>
<td>United Arab Emirates</td>
<td>17.25</td>
<td>Qatar (17.25)</td>
<td>Dolphin Gas Pipeline</td>
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<tr>
<td>Iran</td>
<td>6.17</td>
<td>Turkmenistan (5.77), Azerbaijan (0.40)</td>
<td></td>
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<tr>
<td>Jordan</td>
<td>2.85</td>
<td>Egypt (2.85)</td>
<td>Arab Gas Pipeline</td>
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<td>Israel</td>
<td>1.7</td>
<td>Egypt (1.70)</td>
<td>Arish-Ashkelon pipeline</td>
</tr>
<tr>
<td>Oman</td>
<td>1.5</td>
<td>Qatar (1.50)</td>
<td>Dolphin Gas Pipeline</td>
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<tr>
<td>Tunisia</td>
<td>1.25</td>
<td>Algeria (1.25)</td>
<td>Transmed</td>
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<td>Syria</td>
<td>0.91</td>
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<td>Morrocco</td>
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<td>GME</td>
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<tr>
<td>Lebanon</td>
<td>0.04</td>
<td>Egypt (0.04)</td>
<td>Arab Gas Pipeline</td>
</tr>
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</table>

Source: 2010 BP Statistical Review
Table 4: 2009 Pipeline Exports (71 bcm)

<table>
<thead>
<tr>
<th>Destination</th>
<th>Exports (bcm)</th>
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<tbody>
<tr>
<td>Iran</td>
<td>5.67</td>
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<tr>
<td>Azarbaijan (0.42), Turkey (5.25)</td>
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<td>Algeria</td>
<td>31.77</td>
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<tr>
<td>Italy (21.37), Spain (6.94), Other</td>
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<tr>
<td>Qatar</td>
<td>18.75</td>
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<tr>
<td>UAE (17.25), Oman (1.5)</td>
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<tr>
<td>Libya</td>
<td>9.17</td>
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<tr>
<td>Italy (9.17)</td>
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<tr>
<td>Egypt</td>
<td>5.5</td>
</tr>
<tr>
<td>Jordan (2.85), Israel (1.70), Syria (0.91), Lebanon (0.04)</td>
<td></td>
</tr>
</tbody>
</table>

Source: 2010 BP Statistical Review

Figure 1: Region's Proven Gas Reserves Highly Concentrated in Iran and Qatar

Source: 2010 BP Statistical Review
Figure 2: Production Patterns Don’t Mirror Reserves

Source: 2010 BP Statistical Review
Figure 3: Rapid Increase in Gas Demand reaching 415 bcm in 2009

Figure 4: 2009 LNG Exports (103 bcm)

Source: 2010 BP Statistical Review
Figure 5: Projected Increase in Imports/Exports between 2008 and 2015

Source: Fattouh and Stern (2011)
South America

GEOPOLITICS AND NATURAL GAS IN SOUTH AMERICA
by Sylvie D’Apote and Agustín Castaño, Gas Energy, Brazil
August 2011

THE ENERGY MIX IN SOUTH AMERICA
South America is a region well-endowed with energy resources: it holds 17% of global oil proven reserves and 4% of global gas proved reserves, and these reserves are due to rise when the huge Pre-salt discoveries in Brazil are fully quantified and proved. The region also has some coal resources (1.5% of world’s total).

Aside from fossil fuels, the region is rich in renewable energy resources: mainly hydropower and biomass-derived fuels, some geothermal resources, with solar and wind starting to be developed. The region already has a well-developed hydropower capacity, supplying 70% of the region electricity demand and accounting for 20% of the world’s hydropower generation, with substantial remaining hydro potential. The region is also leader in the use of biomass to produce commercial fuels (i.e. ethanol from sugarcane, and also biomass-fired electricity).

South America includes fourteen countries, eight of which produce 95% of the total energy, 100% of natural gas and generate 89% of the electricity: Argentina, Bolivia Brazil, Chile, Colombia, Peru, Venezuela and Trinidad & Tobago. Figure 1 shows the participation of these eight countries in regional energy and power supply.

Figure 2 shows the energy supply mix and the electricity supply mix of the region as a whole. Two things are immediately noticeable. First, the average share of gas in the energy supply mix in the region is basically the same as the world’s average (22%); however, the share of gas in power generation is much lower (15%, compared with 21% for the world), due to the high share of hydro. Secondly, the share of renewables, both in the energy mix and in the power is much higher than the world’s average, indicating that there is less scope to advocate for gas as a cleaner fuel, but a good opportunity to position gas as a complementary and transition fuel.

Average regional statistics are strongly influenced by Brazil, which accounts for half of total regional primary supply and half of total regional power generation. Indeed, the regional

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228 In reality, there are 13 countries in South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela. Trinidad & Tobago (T&T) is geographically situated in the Caribbean and not generally included in South America. However, we have included T&T in this analysis because of its importance as a gas producer.
picture is quite diversified on a country-by-country basis. As shown in Figures 3 and 4, gas share in the energy and power mix is high or very high in just a few countries, and very low or null in all the others.

**Figure 1. Country Participation in Regional Energy Supply and Power Supply**

![Figure 1](image1.png)

Source: Gas Energy, IEA statistics.

**Figure 2. Fuel Share in Primary Energy Supply and Power Generation**

![Figure 2](image2.png)

Source: Gas Energy, IEA statistics.
Natural gas supply, demand and trade flows

Natural gas has a relatively recent history in South America: with the exception of Argentina, most countries only started to develop natural gas markets in the last 10-15 years. In some cases, gas market development was supply-driven: domestic or export markets needed to be found for associated gas, produced as a result of successful oil exploration. Brazil is a case in point. In other cases, it was the opposite: the opening of new market opportunities (the construction of an export pipeline or LNG export terminal and the signing of export contracts) generated a surge of exploratory activity, which in turn led
to growing reserves and production capacity. This happened, for example, in Bolivia and Peru. Figure 5 shows natural gas production and proven reserves for each of the main producing countries.

**Figure 5. Natural Gas Reserves and Production by Country**


Like in other parts of the world, reserves are not always close to markets, thus gas market growth required the construction of a number of cross border gas pipelines: Bolivia to Argentina, Argentina to Chile, Uruguay and Brazil, Bolivia to Brazil, Colombia to Venezuela. It has to be emphasized however that these cross border pipelines never amounted to a real regional (or even sub-regional) integration, but were merely a series of bi-national pipelines connecting a producing area with a market. Essential conditions for solid regional integration, such as harmonized regulation and common pricing, always lacked in South America.

Furthermore, in some of the main exporting countries, the success in expanding markets was not matched with an equal effort in expanding reserves and production capacity. As shown in Figure 6, while regional natural gas primary consumption increased by 122% between 1989 and 2009 (equivalent to 4.1% per annum), proven gas reserves only grew by 56%. In Argentina, natural gas production nearly doubled between 1990 and 2010 while proven reserves halved. This led to export cuts to Chile, Brazil and Uruguay, and generated a strong distrust and diffidence in regional integration. This divergence between consumption growth and exploration efforts to replace and increase the reserve base is the main reason why regional integration failed to fulfil its promise.
A few years ago, it would have been easy to classify South American countries into natural gas exporters and importers, but the supply-demand situation is evolving rapidly and roles are changing: Venezuela, which has the eighth largest gas reserve in the world and was eager to export gas to Colombia, Central America and even Argentina, but is still a gas importer; Argentina used to be an exporter and is now an importer; Brazil, a traditional importer, might become a net exporter in the midterm; Peru has now become the second regional LNG exporter after Trinidad and Tobago.

**Specificities of Natural Gas Markets in South America**

Natural gas markets in South America present some particularities which have and will continue to influence their development:

- The preponderant role of hydropower in many countries means that it is more difficult to develop new natural gas market using power generation as an “anchor”. The absence of a large anchor means that transportation and distribution pipelines have a longer ramp-up and thus initial gas supply is much more costly, making gas less competitive with alternative fuels. However, in many cases, large hydro project are increasingly difficult and costly to build, not least because of environmental opposition; thus gas-based thermal power plants may be a simpler and quicker option in countries that have local gas supply and/or importing infrastructure.

- Low population density makes it less economically attractive to develop natural gas networks and interiorize natural gas supply. Because of this, creative solutions involving distribution of natural gas by CNG or LNG trucks or barges are being developed (virtual pipelines).

- There is a high use of natural gas in the automotive sector (CNG), especially in Argentina and Brazil, which have the second and third largest CNG fleets in the world. Other countries (Bolivia, Peru, and Colombia) are launching successful CNG programs. However, the abundance and cost competitiveness of sugarcane-based ethanol as well
as the rapid diffusion of flex-fuel technology is a strong challenge to natural gas use in the transport sector.

- In South America, climate change is not (yet) at the top of the policy agenda. Because the share of renewables is already high, climate change is not an important driver for natural gas development. Issues such as energy diversification, reducing dependence on imported oil (or freeing more oil for exports), reducing power generation costs, reducing local pollutants, play a more important role in promoting natural gas use.

- There is a predominance of integrated state-owned oil and gas companies.

- In many South American countries, domestic gas prices are either government-controlled and subsidized, or set "freely" by a dominant producer with control over the transportation system. This generates great discrepancies between prices in different countries.

**Regional Gas Market Integration**

During the 1990s, in parallel with a wave of market opening and privatization, there were ambitious expectations about regional energy integration in South America, in particular gas integration, and great efforts and substantial investments were put into interconnecting resources and markets, and fostering gas-to-gas competition ("cooperation/trust"). However, as we mentioned previously, the executed infrastructure was basically country-to-country pipelines, based on bilateral contracts and agreements, with a view to market the reserves of a single basin, with a concentration in the southern part of the continent (Southern Cone).

In the first decade of this century, however, this trend was radically modified. Excessive monetization of productive fields, lack of major new finds (the Brazilian Pre-salt being the exception) and distorted pricing policies that discouraged further exploration while boosting demand, in particular in Argentina, generated shortages of supply and cuts to export contracts. At about the same time, nationalization in Bolivia also reduced investment in new exploration and generated doubts on the country's future ability to supply its domestic and export markets.

The result was a general mood of "distrust" which stopped all new interconnection projects. Governments reacted reinvigorating the concept of natural gas as a "strategic resource" and focused on supply security and energy diversification. Producing countries gave priority to their domestic market. Receiving countries that faced unexpected constraints and increasing cuts looked for alternative solutions. As a short-term solution, LNG regasification plants were rapidly built. Even liquid fuels recovered important presence in the power generation and industrial segments, impacting supply decisions (gas-to-oil competition).

The current trend is one that could be called of "rearrangement": countries are looking for new local reserves to supply (and foster) domestic markets, and/or honour selective and limited export contracts (producing countries), and/or complement with LNG imports (receiving countries). The potential weaknesses of the current situation could derive from a lower than hoped for development of local gas reserves (conventional or unconventional) and/or from the increase of LNG global prices.

There is a discussion on whether LNG can or will replace pipelines, and whether pipeline integration is at all feasible in the continent due to the large distances, low population
density and uncommon geographical obstacles. What can be observed is that pipelines and LNG imports/exports have different characteristics and different roles to play in the regional gas context. Pipelines provide a secure source of supply for integrated projects, while LNG offers flexibility of supply (to cover demand peaks, for example), reinforce diversification and security of supply, and is more cost effective for large distances. The future development of South America’s gas markets will probably need both.

Another discussion has to do with the choice that producing countries face between exporting gas as a raw material or using it domestically to aggregate value and boost industrial development and economic growth. This is a politically charged discussion, and one that in many countries is used by governments to gather votes and political support ("gas nationalism").

PERSPECTIVES FOR FUTURE GAS MARKET EVOLUTION

In our view, there are four main factors that will have a significant impact in the future evolution of natural gas markets in the region:

- The construction of several LNG regasification terminals coupled with the abundance of LNG in world markets;
- The Brazilian Pre-salt discoveries;
- The potential role of unconventional resources;
- The roles of NOCs and private companies and their interaction.

All four factors will likely change the “rapports de force” between countries, by allowing importing countries previously tied up to one supplier to diversify their sources of gas or become self-sufficient.

While the first three factors will have an influence on the availability of natural gas for the region and its price, the fourth factor will influence the own dynamics of the natural gas sector. Hence, scenarios mapping out the future of natural gas markets in South America can be constructed considering two critical variables:

A - Competition between natural gas and other fuels/raw materials, and thus degree of expansion of natural gas share in the energy mix;

B - Own dynamics of the natural gas sector, represented for example by the level of competition between players

Key factor A: Expansion of natural gas share in the energy mix
A.1. Limited expansion of gas natural share in the energy mix

- Already high penetration of natural gas in some countries (Argentina) or segments (CNG) – only incremental growth;
- Current significant share of renewables in some countries (hydropower in Brazil, Colombia, Uruguay, Venezuela; ethanol in Brazil) – obstacle for natural gas penetration;
- Medium development of a new wave of renewables (biomass, wind) with significant Government incentives;
- Slow pace of solid/liquid fuels substitution; slow implementation or poor enforcement of environmental regulations;
- Low use of natural gas as chemical feedstock.
A.2. Significant expansion of gas natural share in the energy mix

- Significant growth of regional/local reserves and production capacity, which fosters market development (unsatisfied demand) and creates reliability of supply – gas as a “transition fuel”;
- Existing and new transportation infrastructure adapted to demographics and geo-economics (pipelines, CNG, coastal LNG);
- Slow development of a new wave of renewables with moderate Government incentives;
- Medium pace of solid/liquid fuels substitution, forced by a more active implementation of environmental regulations;
- Increasing use of natural gas as chemical feedstock (C1 and others).

Key factor B: Level of competition between natural gas players

B.1. High level of competition between natural gas players (market-driven approach)

- Increasing diversity of players, local and foreign, with regulations allowing/fostering open competition;
- Reliable interconnection between different markets and basins;
- Business environment attractive to focused players, fostering de-verticalization and specialization.

B.2. Low level of competition between natural gas players (government-driven approach)

- Vertically integrated mega plays – upstream, midstream, downstream – led by current incumbents and their partners, supported by the Government;
- Both local and foreign players negotiating their presence in the plays;
- Increasing importance of State-owned oil and gas companies.

Geopolitics and Natural Gas in South America

South America as a whole is relatively free of broadly expanded regional geopolitical and social conflicts that could significantly impact the evolution of the natural gas sector. However there are a few specific, and geographically-focused, issues, which can be divided in two categories: those that are genuinely geopolitical and those that reflect the impact of national internal policies and politics.

In the first category are included the historical tensions between Chile, Bolivia and Peru linked to past border disputes, which have impeded the export of Bolivia LNG through Chile, or the construction of a pipeline from Peru to Chile. Another example is the dispute between Argentina and UK about the Malvinas/Falkland Islands, which will likely generate different obstacles (from diplomatic to logistic ones) to natural gas exploration and production in that area.

In the latter category (internal policies having regional impacts) are the natural gas supply cuts from Argentina to Chile, which generated tensions between the two countries and led Chile to develop alternative sources. Or the political and/or social tensions in Bolivia and Peru with regards to natural gas exports versus supply to the domestic market. Although there have been some specific bilateral difficulties in the past, which have been caused by, or have had impact on, natural gas trade and investments, we see little or no potential for major regional geopolitical and social conflicts impacting the natural gas sector. Nor is energy in general, and gas in particular, likely to be the cause of regional conflicts because of the availability of diversified energy resources.
The crucial issue for the region, looking forward, is whether the current “re-composition” will evolve toward a new period of trust and regional integration, or whether distrust will prevail and countries will look both at domestic sources and/or the international market to sustain and expand their domestic gas markets.

A first scenario, which we could call “renewed trust”, is one where substantial new reserves are found and developed (pre-salt and other in Brazil, unconventional gas in Argentina, potential new discoveries in Bolivia and Peru, etc.), governments feel more secure about future supply and enter (cautiously) into selective regional integration, with country-to-country pipelines and bilateral contracts subscribed by NOCs and backed by the Government. Aside from existing and new pipelines, interconnection may be through LNG (“virtual pipelines”), given that the region is already an exporter and importer of LNG, and there are plans for both new exporting and importing LNG terminals.

The opposite scenario, which we could call “each one for itself”, takes place when new reserves are lower than hoped for, existing country-to-country pipelines are partially idle, building of new ones does not gain momentum and bilateral contracts are “soft” in clauses and fines. In this scenario, imports from the international market grow in some countries, while other ones develop export capacities, with little or no new efforts towards regional integration.
Europe and CIS

GEOPOLITICS AND NATURAL GAS IN THE EUROPE-CIS REGION

Professor Jonathan Stern, Director of Gas Research, Oxford Institute for Energy Studies, Oxford, UK

October 26, 2011

INTRODUCTION AND APPROACH

This paper seeks to explain how geopolitical factors have been, and continue to be, crucial in gas trade between European and CIS countries, and how these same factors are also shaping gas relationships between Europe, CIS and other geostrategic actors, specifically China.

DEFINITION AND KEY ELEMENTS OF GEOPOLITICS IN EUROPE-CIS GAS RELATIONS

The paper does not propose a new definition of the term “geopolitics”, but focuses on some specific elements of the definition thus far employed by the Task Force: “the influence of geographic, cultural, demographic, economic, and technological factors on the political discourse among international actors”. The elements which this paper will emphasise as being particularly relevant to Europe-CIS gas trade are: geographical, political, economic (including commercial/contractual), legal /regulatory (including environmental) and technological issues.

The vast majority of gas trade around the world is bilateral – i.e. between two countries – and hence is unlikely to have geo-political ramifications but pipeline gas trade between Europe and CIS countries, is multilateral (i.e. involving more than two countries) and hence geopolitical; the same can be said of future pipeline gas trade between Europe and the Caspian/Central Asian regions.

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229 A Discussion Paper for the International Gas Union’s Task Force on “Geopolitics and Natural Gas”. Oxford Institute for Energy Studies, 57 Woodstock Road, Oxford OX2 6FA UK Telephone: 44(0)1865311377, Fax: 44(0)1865310527, e-mail: information@oxfordenergy.org, http://www.oxfordenergy.org. Registered in England, No. 1676971. Reg. Office: 57 Woodstock Road, Oxford (Registered Charity, No. 286084)

230 This definition is from Barnes et al, p.5, from CIEP 2010, p.8.
REGIONAL/INSTITUTIONAL DEFINITIONS

Discussion in this paper will principally relate to regional groups of states (with the clear exception of the Russian Federation), defined both geographically and institutionally. In a European context the groups are the European Union (EU) and a wider Europe of 35 countries including Turkey. The Commonwealth of Independent States (CIS) will be considered in a geographical (not institutional) context with the main regional groupings being: the Russian Federation, western CIS transit countries (Ukraine, Belarus and Moldova), and Central Asia/Caspian producing and exporting countries (Turkmenistan, Kazakhstan, Uzbekistan and Azerbaijan).

FROM COLD WAR TO POST-COLD WAR: GEOPOLITICAL AND GEO-INSTITUTIONAL CHANGES

Pipeline gas trade between Europe and the Soviet Union was always geopolitically significant. During the Cold War, the national security aspect of this trade was prominent as many – both in Europe and the United States – questioned whether energy dependence on Europe's principal military adversary could jeopardise political and economic security.

The post-Cold War era – following the break-up of the Soviet Union and its political and economic institutions in Europe - added a number of additional geographical, political and commercial/contractual dimensions of much greater complexity. This complexity increased during the 1990s and 2000s with the expansion of European Union membership, and hence the reach of its institutional and legal/regulatory frameworks (“the acquis”). All of these changes had, and continue to have, a major influence on Europe-CIS gas trade and remain at the heart of the problems which have been, and continue to be, encountered in this trade.

Maps 1 and 2 show the changes in institutional affiliations – and therefore legal/ regulatory frameworks and contractual conditions – which evolved over the past two decades in the Europe-CIS geographical space, with a schematic gas pipeline network which shows how gas is delivered from CIS countries to Europe 35. Map 1 shows the political/institutional geography before the break-up of the Soviet Union. Map 2 shows the position post-2007 when 3 former Soviet republics and seven former socialist countries had become European Union members and therefore subject to the EU acquis; it also shows proposed gas pipelines from CIS countries to Europe 35. By 2011, Ukraine and Moldova had signed and ratified the European Energy Community Treaty which brought these countries under the EU energy acquis.

GEOPOLITICAL CONFLICTS IN EUROPE-CIS GAS RELATIONS: THE FOUR “SPACES”

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231 Europe 35 includes 27 EU member states, plus non-Member states in the Balkan region, Norway, Switzerland and Turkey.
232 The CIS region for the purposes of this paper includes all of the former Soviet republics aside from the Baltic countries. Georgia withdrew from formal membership of the CIS in the late 2000s.
This paper adopts a conceptual approach taken from Yafimava’s work on “spaces” in the Eurasian gas network. These are:

- the space of places – conflicts in political relations between governments of nation states which impact gas flows;
- the space of flows – interruption of the physical flows of gas across states arising from accidents or deliberate actions;
- the legal/regulatory space: conflicts arising from the operation or introduction of a legal/regulatory regime - in respect of gas supply, transportation or investment - which may interfere with existing ownership or contractual arrangements;
- the commercial/contractual space: conflicts over the terms of legally binding contractual agreements signed by companies (and in some cases governments), in respect of gas supplies and transportation/transit services.

The post-Soviet period has demonstrated that a conflict or breakdown in any one of these spaces can, and almost certainly will, lead to similar problems in other spaces and, crucially for security of supply and security of demand, the space of flows.

**Sources of Europe-Russia Geopolitical Gas Conflict**

**Russia-western CIS-Europe: the interruption of Russian gas flows to Europe**

Russia is the largest single supplier of gas to Europe. Gazprom supplies around one quarter of European gas demand and 40% of its gas imports; but most former countries of the Soviet Union and the Comecon organisation, are wholly or overwhelmingly dependent on Russian gas. For Russia, Europe dominates its gas exports outside CIS countries and continues to provide around 50% of Gazprom’s revenues, and 15% of total Russian export earnings. In the post-Soviet era, the vast majority of Gazprom’s deliveries to its European customers have needed to transit Ukraine, Belarus and Moldova. In addition to their role as transit countries, Russia has been their only source of imported gas which for Belarus and Moldova means all, and for Ukraine roughly half, of their supplies. This is why gas issues have an extremely important place in the geopolitical relationships between Europe and Russia, Russia and Western CIS countries, and Europe and Western CIS countries.

In relation to Europe-Russian gas trade, bilateral gas supply and transit problems between Russia and western CIS countries dominated the 1990s and particularly the 2000s. For this reason, political and commercial gas problems between Russia and Ukraine, and Russia and Belarus, have been crucial to the geopolitics of the Europe-Russia gas relationship. The geo-economic leverage of these transit states – i.e. their ability to impose substantial economic penalties on both Russia and Europe by withholding transit services - created new risks, and involved new commercial calculations, for importers and exporters of gas. On two occasions, January 2006 and 2009, these problems caused European countries to lose a significant volume of gas for a significant period of time; in January 2009 all Russian gas in transit across Ukraine was halted for two weeks.

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233 Yafimava 2011.

234 These figures are rough estimates of EU and Europe 35 dependence on Russian gas which has fallen since 2008 and varies from year to year.

235 In earlier years, Ukrainian companies contracted directly for Central Asian gas but these deliveries have tended to involve Gazprom or Gazprom joint ventures in either gas purchase or transportation or both.

236 For a complete review of these problems in the 2000s see Yafimava 2011, Chapter 4.
The failure of the Energy Charter Treaty (ECT) and its transit protocol – an international legal regime specifically designed to prevent interruption of energy in transit - to prevent these events, had significant consequences for Europe-Russia gas relations. Immediate responses in Europe were new storage, pipeline interconnections, LNG receiving terminals, and a new Regulation on Security of Gas Supply. Russian reaction to transit problems, which began long before the 2006 and 2009 events – combined with a decreasing lack of confidence in the ECT as an enforceable legal instrument – led to the building of transit avoidance pipelines. The first of these – the Yamal pipeline through Belarus – diversified transit routes for Russian gas to Europe away from Ukraine. The second – the Blue Stream pipeline across the Black Sea to Turkey – bypassed CIS (Ukraine and Moldova) and south east European (Romania and Bulgaria) countries.

Nord Stream, the third transit avoidance pipeline, the first string of which started operating in late 2011, directly connects Russia with Germany across the Baltic Sea, bypassing all CIS and central European countries. Nord Stream has been construed by countries such as Poland and the Baltic states as a geopolitical threat to their gas supplies. Their argument is that the pipeline allows Gazprom to deliver gas directly to west European markets which, in their view, will increase Polish and Baltic vulnerability to hostile Russian commercial or political acts. The completion of two Nord Stream pipelines will substantially reduce dependence on Ukraine and Belarus for Russian gas deliveries to Europe.

The final transit avoidance pipeline being planned is South Stream which (similar to Blue Stream) will allow Gazprom to deliver gas directly to south and central European countries across the Black Sea, avoiding all transit through CIS countries. Many in Europe have construed South Stream as a geopolitical “gas bluff”, suggesting that there is no real intention to build the pipeline and that it is principally aimed at preventing the import of Caspian/Central Asian gas via a Southern Corridor (see below). By the end of 2011, the development of South Stream, including intergovernmental agreements, apparent commitments of European investors and an extensive staff and organisation, cast doubt on this interpretation. A definitive cost estimate for the offshore section of the pipeline remains the principal obstacle to its future progress.

If the Nord Stream and South Stream pipelines described above are built as planned (and assuming Gazprom’s exports to European countries do not increase substantially from current contractual commitments) then by 2020, sufficient capacity will exist for Russian contracted gas to be delivered to European markets without significant reliance on transit through CIS countries. Thus the geopolitical factor principally responsible for the interruption of Russia-Europe gas flows during the 2000s will be substantially removed during the 2010s. This means that a Transit Protocol (under the auspices of the Energy Charter Treaty) and the potential alternative of an Energy Convention (proposed by Russian president Medvedev), while still desirable, seem unlikely to make progress due to the complexity and diversity of investments currently under consideration. However, while transit in relation

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237 Russian ceased to apply the Energy Charter Treaty provisionally in October 2009. In April 2009, President Medvedev unveiled a document proposing a new approach to these issues (see Medvedev).
238 For a description of these pipelines see Honoré 2010, pp. 137-146
239 Liuhto.
240 South Stream will be laid through the Turkish sector of the Black Sea, avoiding the Ukrainian sector.
to Russian gas will be less important in the future, in creating the Southern Corridor, Europe could be introducing new transit risks, particularly in relation to the role of Turkey. This could have implications for future conflicts in the commercial/contractual space.

**Europe-Russia Gas Relations and the EU Acquis – conflicts in the legal/regulatory space**

As the EU gas acquis has unfolded over the past two decades, its intrusiveness into existing Europe-Russian (and to a lesser, but more recent, extent Europe-CIS) contractual gas relations has become increasingly problematic. Problems in the 2000s were mainly caused by liberalisation, competition and investment issues. In addition, the increasing importance attributed to the EU’s sustainability (carbon reduction) initiatives, expressed as an “energy roadmap” to 2050, raises significant questions about the longer term future of the Europe-CIS gas relationship.

i) The energy liberalisation, competition and security acquis: an increasing source of friction

The start of the energy (including gas) liberalisation and competition acquis in the 1980s was largely met with indifference by the USSR and during the 1990s, the post-Soviet states had more pressing energy problems to attend to. However, during the 2000s, this situation changed due to the increasing determination – reflected in new legislation and regulation – of the European Union to “complete the internal market” with the introduction of competition and liberalisation into energy and gas markets. This process led to increasing friction in relation to long term gas contracts between Gazprom and European companies. Partly in anticipation of such problems, the EU-Russia Energy Dialogue was established in 2000. One of the Dialogue’s first concrete tasks was to act as a forum for discussion on the removal of “destination clauses” from long term contracts to which the Russian side raised serious objections.

The 2nd Gas Directive abolished the concept of “transit” within the EU which appeared to leave transit contracts, essential for the delivery of Russian gas under long term supply contracts to European customers, in a kind of legal limbo. However, from a Russian perspective it is the 3rd package which has raised much more fundamental issues of disagreement including: the definition of long term supply and transportation, “mismatch” of supply and transportation contracts, bankability of investment projects and future pricing issues. It was not helpful that the 3rd Gas Directive also appeared to specifically discriminate against Gazprom investment in a provision which allows an EU Regulatory Authority to refuse certification to a transmission system owner or operator, “if it has not been demonstrated that...granting certification will not put at risk the security of supply of the Member State and the Community”.

Equally problematic in terms of relations between the two sides have been the “dawn raids” by EU Competition Authorities, said to involve 20 companies in 10 central and east European countries which are said to chiefly concern Gazprom’s contracts with those

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241 This was achieved during the period 2001-05 and applied to all European long term gas contracts. These clauses prohibited resale of gas by buyers and had therefore been deemed anti-competitive by the EU Competition Authorities. Talus, pp. 159-164.

242 See Konoplyanik 2011 for a review of these issues from a Russian perspective.

companies. While, the EU view is that these are “routine” competition authority investigations which are taken frequently against EU companies and do not necessarily imply wrongdoing from a Russian perspective they can be interpreted as further evidence of hostile, discriminatory action against non-EU gas suppliers, and Russia in particular. From this perspective the uncertainty of the liberalisation process poses very substantial problems, with third party access, entry/exit tariff methodology, regulated return on new investments, unbundling of monopolies, and access to spare capacity, adding additional levels of uncertainty which create great difficulties for long term investment decisions in production and transportation infrastructure. In this view, the development of a competitive market place runs directly counter to security of supply for importing countries, and security of demand for exporters.

ii) The EU Energy Roadmap and Targets for CO2 Reduction: a “game-ender” for gas?

A “Roadmap” to reduce carbon emissions from EU energy balances by 80-95% by 2050 compared to 1990 levels, was published in 2010. According to the Roadmap, the power, residential and industrial sectors would be 83-99% decarbonised by mid-century, suggesting that fossil fuel use would have been almost completely phased out. Significant decarbonisation is planned by 2030: power sector up to 60%; residential and services up to 53% and industry up to 40%. These changes would suggest that EU gas requirements should be substantially reduced over the next 20 years, and almost completely phased out over the next 40 years. For gas suppliers such as Russia and other CIS countries the clear conclusion from this EU political and legal/regulatory message is that they should make no additional long term investment in either production or pipelines to deliver gas to Europe, because after (and even possibly before) 2030, Europe’s need for fossil fuels will rapidly decrease.

This is a clear threat to the long term security of demand of Russia (and all other gas suppliers). But, if the decarbonisation roadmap fails to achieve these reductions by the target dates, it could also be a threat to European security of supply if Russia (and other suppliers) has not made the required investments to deliver the volumes of gas that Europe continues to need.

There are many questions about the realism of these decarbonisation targets with European industry stakeholders believing that gas can play a significant role as a “transition” or even a “destination” fuel in a low carbon economy. However, there have been suggestions that the EU has deliberately chosen a non-gas route to decarbonisation because of perceived geopolitical threats arising from increased imports of the fuel. Whether, over time, these concerns can be overcome remains to be seen, but the unwillingness of exporters to price gas flexibly, and in particular to retain the link with oil prices, will make is much easier for low carbon energy sources and technologies – particularly renewable and carbon capture and storage – to achieve commercial viability. The particular danger for gas is that unless it can “win the low carbon battle” with coal, possibly as a partner with intermittent renewables, its future in Europe will be bleak. While this may seem to be

245 Unless large scale carbon capture and storage (CCS) can be developed during this period. EU Energy Roadmap 2011.
246 In theory, the 2030 reductions could be achieved in the power sector by phasing out coal-fired stations leaving gas demand relatively unaffected in the power sector. Carbon reduction in the residential and industrial sectors would inevitably have a direct effect on gas demand.
simply an economic or commercial issue, it will require political understanding and agreement at the highest level in exporting countries to agree the required commercial adjustments.

**Europe-Russia commercial/contractual conflicts**

Problems in the commercial/contractual space have been an on-going problem in Russia-western CIS gas relations in the post-Soviet period, but post-2008 they also became a significant problem in Europe-Russia relations. As noted in section 2.1, the origins of the transit problems which caused major disruptions of flows of Russian gas to Europe could be found in commercial/contractual disagreements between Russia and western CIS countries, principally Ukraine. While these problems seem less likely to be part of the future given the development of transit avoidance pipelines for Russian gas (see above), the development of the Southern Corridor may create significant new commercial transit problems, particularly in relation to Turkey. The centrality of Turkey in any non-Russian route for Caspian/Central Asian/Middle East gas pipeline route to Europe means that transit tariffs and conditions imposed by that country will have a very significant impact on commercial viability. Given the uneasy relationship between Turkey and the European Union over accession negotiations; and the contrastingly closer Russian-Turkish relationship over the past several years, this could create further geopolitical tensions.

A more recent phenomenon has been disagreements about the pricing of gas in European long term contracts with Gazprom which, in some cases, have led to arbitration proceedings between the parties. This has raised fundamental questions about the viability of long term contracts with a term of up to a further 25 years. It has been argued from the Russian side that Europe has to make up its mind whether it wishes to retain this long term contract model, or move to a market model which may jeopardise gas security on both sides. While commercial/contractual disagreements are economic rather than political issues, if they remain unresolved they have the potential – as we have seen in intra-CIS disputes – to create significant problems in other spaces.

**Central Asian/Caspian Gas Relations with Europe**

The possibility of exporting Caspian/Central Asian gas to Europe through routes other than via Russia or other CIS countries is part of a larger geopolitical initiative known within the EU as the “Southern Corridor”. Starting in 2007, Azerbaijan began to export up to 6 Bcm/year of gas to Turkey, of which small volumes are delivered to Greece. Strictly speaking therefore, it can be said that Caspian gas has already reached Europe. But in the 2000s, individual European countries and the European Union encouraged the development of a major gas supply corridor from the huge reserves located in Central Asia, the Caspian and Middle East/Gulf region. This initiative crystallised around the selection of the Nabucco pipeline – planned to transport 30 Bcm/year through Turkey to south eastern and central Europe to Austria - as the favoured EU project. Subsequently two pipeline projects – the Italy-Turkey-Greece interconnector (ITGI) and the Trans-Adriatic Pipeline (TAP) have also been proposed to transport smaller volumes of Southern Corridor gas to southern Europe.

The main sources of gas for the Southern Corridor are: Azeri gas, initially from the Shah Deniz Phase 2 development, Iranian gas from the very substantial resource base in that country; Iraqi gas from the Kurdistan fields in the north of the country; Turkmen (and possibly other Central Asian) gas via a pipeline across the Caspian Sea through Azerbaijan and Georgia. The EU decision to negotiate an inter-governmental agreement with

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247 Stern and Rogers 2011.
Azerbaijan and Turkmenistan for a Trans-Caspian pipeline appeared to assume the resolution of the legal status of the Caspian Sea. There is a continuing debate as to the treatment of the Caspian under international law with Russia taking the view that a pipeline such as the Trans-Caspian will require the agreement of all the littoral states, and that a successful conclusion of the 5-party talks on a new legal regime is essential prior to any pipeline construction. The environmental challenges of pipeline construction in the Caspian Sea also remain to be resolved.

All these proposed sources of gas, and pipelines will need to be transported through Turkey en route to Europe. The role of Turkey as a gas market and transit route for Southern Corridor gas is therefore crucial, and extremely geopolitically sensitive, given that country’s relationship with Russia as both a major importer of gas and participant in the transit avoidance pipelines – Blue Stream and South Stream – described above. Turkey’s role as a current importer of Azeri and Iranian gas; and its previous interest in importing Turkmen gas via a trans-Caspian pipeline (including a signed contract dating from the late 1990s), mean the country has already established commercial and political relations with all the major geostrategic gas players in the region.

Having surveyed the potential supplies, and lead times necessary for the development of production and transportation networks, this author has concluded that it is unrealistic to expect that Southern Corridor gas supplies significantly in excess of 10 Bcm/year will be available in Europe prior to 2020, and that virtually all of this volume will be from Azeri Shah Deniz Phase 2 production. Thus while geopolitics may influence whether Southern Corridor pipelines will be built during the 2010s, there will be no significant supplies of gas through such pipelines to Europe until the 2020s.

THE IMPACT OF GAS TRADE BETWEEN RUSSIA, CENTRAL ASIA AND CHINA ON EUROPE-CIS GAS GEOPOLITICS

Although this paper focuses on gas relationships between Europe and Russia/CIS countries, over the past decade, and particularly during the 2010s, gas trading relationships between Russia, Central Asian Countries and China (and to a lesser extent Korea) will increasingly, impact on Europe-CIS gas geopolitics.

The geographical location of Central Asian countries – Turkmenistan, Uzbekistan and Kazakhstan between Russia (in the north), China (in the east) and Iran, Afghanistan and Pakistan (in the south) already creates substantial geopolitical complexities for those states quite aside from considerations of natural gas. But the economics and politics of Central Asian gas relations with their powerful geostrategic neighbours adds an important dimension to this picture and, in the 2010s, are in the process of radical change.

248 EU starts negotiations on Caspian pipeline to bring gas to Europe, European Commission Press Release, IP/11/1023, 12 September 2011.

249 For analysis of the likely timing of Caspian/Central Asian and Middle East production and export potential see Pirani 2009, Chapter 12; Fattouh and Stern 2011, Chapter 15.

250 Similar general remarks could be made about Kirghizstan and Tajikistan but these are not important countries in a natural gas context.
Central Asia–Russia/CIS: The pipeline networks which brought Turkmen gas through Uzbekistan and Kazakhstan to Russia, Caucasus countries (Azerbaijan, Georgia and Armenia) and Ukraine were an important legacy of the Soviet era. For the period up to 2010, Central Asian gas either remained in the region or was exported north to other CIS countries. There were significant changes in countries to which the gas was sold, and whether it was sold directly to companies in those countries or through joint ventures and other intermediaries. However, the general trend was that Central Asian exports to CIS countries fell from around 100 Bcm/year in 1989 to roughly one third of that level in the 1990s; increased to around 70 Bcm around 2007-08, and then fell to less than 40 Bcm at the end of the decade. Reasons for the fall post-2008 have been a mixture of increasing price and reduced demand in Russian and CIS markets, but the main change during that period has been that alternative markets for Central Asian gas have opened up.

Central Asia – Iran (South Asia): in 1997, Turkmenistan began to export gas to Iran. For much of the period up to 2010, volumes were around 5-6 Bcm/year, but the creation of additional export capacity will make it possible for Iran to import up to 14 (and perhaps as much as 20) Bcm/year. Also during the 1990s, a pipeline was proposed from Turkmenistan through Afghanistan to Pakistan and India (the TAPI pipeline) which would have carried 30 Bcm/year of gas to those countries. Due to the security situation in Afghanistan and Pakistan, and between Pakistan and India, TAPI has made no progress, but if political problems can be resolved the option would be commercially viable.

Central Asia – China: perhaps the most significant change in the post-Soviet period has been the opening up of a major market in China for Central Asian gas. At the end of 2009, the first gas was exported through the Turkmenistan-Uzbekistan-Kazakhstan pipeline and volumes will continue to grow until they reach 30 Bcm in 2012, with 40 Bcm/year and up to 60 Bcm/year having been agreed thereafter. China has loaned around $20bn to Central Asian countries (three quarters of this sum to Turkmenistan) for the development of gas fields and export pipelines. Chinese companies have taken equity in, and signed production sharing agreements for, the development of individual gas fields especially the super-giant Southern Yolatan-Osman, Minara and Yashlar fields (with reserve estimates of up to 26 Tcm). Thus during the 2010s, China will become the largest market for Central Asian (and particularly Turkmen) gas. Whether Turkmenistan-China gas trade will expand beyond the currently foreseen 40 Bcm/year – which Turkmen resources and Chinese market potential indicate would certainly be possible - may depend on the success of Russia-China gas relations, the geopolitics of which are also extremely complex.

4.4 Russia-China: since the mid 1990s there have been expectations of very substantial Russian pipeline gas exports to China. In 2006, Gazprom and CNPC (overseen by the Russian and Chinese presidents) signed documents which anticipated a total of 68 Bcm/year of exports through two pipelines: one from western Siberia (the Altai pipeline) and another from eastern Siberia (from the Chayandinskaya, Sakhalin or Kovykta fields). Subsequent negotiations made progress but in 2011 had stalled on the issue of price. The geopolitics of Russian versus Central Asian and LNG supplies has become very complex. The Altai pipeline from western Siberia would connect to China’s west-east pipeline corridor which brings domestic and Central Asian gas to markets in the west of the country, bringing gas from these sources into competition with each other. East Siberian pipeline gas would compete with LNG supplies landed at an expanding number of terminals on the east coast of China. How the Chinese leadership will wish to prioritise future sources of domestic and

251 Small quantities of Turkmen gas were also exported to Iran as noted below.
imported gas, and the speed with which the Chinese market will become large enough to absorb all sources of supply, is currently unclear.

Russia-Korea: Despite substantial keenness from Korea to import Russian pipeline gas, geopolitical complexities have so far prevented progress. There is a major political problem that any pipeline would either need to cross China or North Korea. Alternatively a pipeline would incur a huge additional economic cost of avoiding North Korea via a sea route. The other alternative would be to supply Korea with LNG but this would still involve significant pipeline connections between the gas fields and a coastal LNG terminal. The signing by Gazprom and Kogas of a Russia-Korea pipeline “roadmap” in August 2011 showed that progress had indeed been made in terms of planning, but with the Korean side claiming that Russia would need to take responsibility for ensuring security of supply through North Korea.  

The geopolitical relevance of Russian and Central Asian gas trade with China for Europe-CIS relations lies in the potential for gas exporters to exert “geo-economic arbitrage” between Chinese, Russian and European markets in the commercial/contractual space. In Central Asia, China has negotiated and built a major pipeline connection within 10 years of the start of discussions. This contrasts with nearly 20 years of discussions about a gas pipeline from Turkmenistan to Europe. Indeed while Europe has been discussing a Southern Corridor, the Chinese government – with its ability to use its national energy companies to make rapid commercial decisions followed by rapid construction – has created an “Eastern Corridor” from Central Asia.

Russian statements, which seem to suggest that the Altai pipeline could allow Moscow to swing west Siberian gas between Europe and China depending on economics (and potentially also politics), while seeming far-fetched – at least to this author – have aroused concerns in both Europe and China. There is also a concern in Europe that a Trans-Caspian pipeline bringing Turkmen gas to Europe is hostage to Russian decisions on the (still to be settled) legal status of the Caspian Sea. More generally, Europeans are concerned that while Russia has accepted (or could not prevent) substantial exports of Central Asian gas to China, it is exerting geopolitical pressure on Caspian/Central Asian countries to prevent a similar volume of trade with Europe.

**SHALE GAS: A POSSIBLE GAME-CHANGER?**

The development of shale gas in North America, and the promise of similar developments elsewhere (including in Europe) have been widely hailed as a “game-changer” for gas markets. But the major questions for Europe-CIS gas trade are: what game might this change and in what time frame?

The most obvious and immediate change brought about by the surge of, relatively low cost, shale gas production in the United States is that it has largely removed that country’s need...
to import LNG. Despite up to 200 Bcm/year of regasification capacity either operating or under construction, conventional wisdom in 2011 suggests that for the next two decades US imports of LNG will be marginal, and Henry Hub prices will not rise above $6/MMbtu.\textsuperscript{253} This price projection suggests that it will be commercially unattractive for any exporter to deliver LNG to the US. Other major markets – principally (but by no means exclusively) in Europe and the Pacific – therefore no longer regard the US as a competitor for LNG, and this is a substantial “change in the game” compared to what was anticipated in the mid-2000s. However, looking forward, there are other potential major changes which could take place. The most immediate change, which is being projected in 2011, is that the US and Canada, not only will not be importing, but could be exporting, as much as 50-60 Bcm/year of LNG as early as the end of the 2010s assuming that new export projects receive regulatory approval and financing.

But perhaps the bigger potential game-changer would be large scale unconventional gas development in major gas markets in Europe, Asia and elsewhere in the world, with the potential to displace, and ultimately eliminate, the need for imported natural gas. At present, with the exception of Australia, unconventional gas outside North America is a very early stage of development and is very unlikely to have any substantial effect on the overall European gas picture before 2020.\textsuperscript{254} However, developments in individual countries could have an impact by the latter part of this decade, particularly in markets which, for historical reasons, are highly dependent on Russian gas.

Little is known about the prospects for unconventional gas in China, but this could, and arguably already is, impacting on Chinese gas import decision making. The timing for large scale production may be faster than in Europe, but it is hard to see it changing the country’s gas outlook fundamentally prior to 2020. Furthermore, the cost structure of unconventional gas production is likely to be significantly higher outside North America. In Europe, estimates of unconventional gas production costs are above current production and import levels but for political reasons governments, especially in countries which are heavily dependent on Russian gas, are likely to provide appropriate incentives for development thereby defining a future ceiling price for gas from any source.\textsuperscript{255} Should unconventional gas production turn out to be a large scale commercially viable resource in Europe (and especially in China), this would be an important geo-economic and geopolitical factor for gas in the future Europe-Russia gas relationship, but one which will not have a substantial impact during the 2010s.

\textbf{SUMMARY AND CONCLUSIONS}

\textit{Europe-CIS gas relations in the 2010s}

\textbf{For Europe:}

There remains a question of over-dependence on Russian gas supplies and the potential economic and political risks which may result from interruptions of those supplies, irrespective of the motivations and causes of such interruptions. The development of transit avoidance pipelines will largely resolve the main gas security problem of the 2000s.

\textsuperscript{253} EIA 2011, p.78. The reference case shows Henry Hub prices exceeding $6.00/mmbtu only after 2030.

\textsuperscript{254} Gény 2010.

\textsuperscript{255} Ibid.
However it has not, in the minds of many Europeans, resolved the problem of what they perceive as the geopolitical threat of Russian gas supplies, which is very much a continuation of Cold War perceptions of the Soviet threat. Part of this threat perception may have been caused by talk of Russia wishing to project itself as an “Energy Superpower”, a term which (at least to this author) is impossible to define, but – with its Cold War connotations – conjures up visions of the Kremlin using energy supplies to achieve political and strategic (including military) ambitions.

Elsewhere in the CIS, Europe has suggested enthusiasm for increasing supplies of gas from both Azerbaijan and Central Asia (principally Turkmenistan) via a southern pipeline corridor, in order to achieve diversification of supplies. Given the slow progress which these proposals made in the 2000s, and likely lead times for developing production and/or transportation networks, this paper has suggested that large scale gas supplies will not be available until the early 2020s, partly due to the priority of the Chinese market for Turkmen gas. It has also suggested that shale gas development will not have a significant overall impact on European gas markets in this time frame.

**For Russia:**
The 2010s may be a difficult decade in gas relations with Europe due to commercial (principally price) problems in long term contracts, as well as complex and – in the view of many Russians – unsound and discriminatory regulation introduced by the 3rd Package. This might not be such a problem were it not for the fact that Russian aspirations to become a “global” gas player suffered significant setbacks in the late 2000s due to:

- On current expectations, the shale gas revolution in North America appears to have eliminated the possibility – perhaps for two decades – of any large scale export of LNG to the United States. This raises questions about Russia’s future as an LNG exporter outside of the Pacific Basin. If North American markets will not need external gas, there must be doubts as to whether it is worth developing an Atlantic Basin LNG capability solely for European markets, the vast majority of which can already be reached by pipeline.
- The lack of commercial agreement on large scale pipeline gas exports to China and the regional political problems of pipeline exports to Korea. Should pipeline gas negotiations fail, Russia still has the prospect of large scale LNG exports to Asian countries (including China) from its east coast, with the Fukushima nuclear accident giving a major boost to negotiations with Japan. However, it would eliminate any opportunity for “geopolitical pipeline gas supply arbitrage” between Europe and China, which some Russian statements have appeared to suggest is a long term aim of export strategy, and which raises concerns for both European and Chinese importers.

**For Western CIS Countries:**
Western CIS countries – and particularly Ukraine – have enjoyed a unique place in Europe-Russia gas trade by virtue of their near-monopoly of transit of Russian gas to Europe. However, with the completion of Nord Stream in the early 2010s – and the possible construction of South Stream - they seem set to lose much of the geopolitical power they have enjoyed. While refurbishment of the Ukrainian pipeline network is still discussed between that country, Russia and Europe, transit avoidance pipelines have removed any
incentive to make such investments, in addition to the perceived geopolitical risks of continuing large scale gas transit via this route.

For Central Asian/Caspian countries:
Given their unenviable geopolitical location, Central Asian/Caspian countries may have no option but to balance the geopolitical pressures placed upon them by sharing available gas exports between buyers, rather than seeming to favour one particular market at the expense of others. Starting at the end of the 2000s, large scale exports to China removed the near-monopoly of Central Asian gas which Russia (and other CIS markets) had enjoyed since the break-up of the Soviet Union. The Chinese market option has been realised far ahead of other long-discussed possibilities such as the TAPI (Turkmenistan-Afghanistan-Pakistan-India) pipeline and a Trans-Caspian pipeline connecting to European markets. Given the size and geographical location of Turkmen gas reserves, it would be possible for that country to further diversify its gas markets over the next several decades. However the geopolitical and legal problem involved in both these options will take time to resolve.
The geopolitical role of Azerbaijan as the principal CIS gas resource-holder in the Caspian region, and already a small exporter of gas, has become increasingly complicated as it is courted by increasing numbers gas buyers and pipeline promoters. Azerbaijan is well aware that its gas is crucial to European hopes of a Southern Corridor being established, but Gazprom and also Syria have shown significant interest in purchasing Shah Deniz Phase 2 gas.

Thus the 2010s is likely to see, and arguably is already seeing, the focus of Europe-CIS geopolitical gas conflict moving from western CIS transit (principally in the space of places and the commercial/contractual space between those countries and Russia) to the legal/regulatory and commercial/contractual spaces between Europe and Russia. Resolution of obstacles to Europe-Central Asia/Caspian gas trade in the 2010s require problems to be resolved in three spaces: places, legal/regulatory and commercial/contractual with the latter potentially being the most important.

EUROPE-CIS GAS RELATIONS BEYOND THE 2010S
Several factors promise to make Europe-CIS gas relations less important beyond the 2010s. From a European perspective, commitments to decarbonise and the development of domestic shale gas would both reduce the need for imported gas from CIS (and other) countries. The “Energy Roadmap to 2050” has clearly set out European aspirations to reduce greenhouse gas emissions from fossil fuels by 2050 by 2050. This would mean a significant reduction by 2030 – and perhaps virtual elimination by 2050 - of all imported natural gas into Europe, and with it any geopolitical dimensions of gas trade with CIS (or any other) countries. The European low carbon roadmap raises serious questions of security of demand for gas suppliers and, should the roadmap turn out to be unrealistic and natural gas supplies continue to be needed well into the 21st Century, security of supply for Europe.
Should that be the case, European needs to be concerned whether the liberalised and competitive market framework which has been created by successive EU “packages” will in future allow the development of “mega-projects” i.e. projects requiring investments of tens of billions of Euros. The last such project was the Norwegian Troll field development and associated pipeline infrastructure launched in 1986. But this was under the old monopoly utility/buyers’ consortium model which not only no longer exists, but is against European competition law. As a consequence, the attempt to create something similar for purchases of
Southern Corridor gas – the Caspian Development Corporation – appears to have collapsed. This may have significant consequences for European ability to compete with other regions, and notably Asia, where China has shown its ability to sponsor new large scale pipelines (in both Central Asia and Myanmar), and Pacific Basin importers continue to sign long term contracts for LNG projects requiring capital investments of $20-40bn.

From a Russian perspective, if the 2010s have indeed proved to be a difficult decade in gas relations with Europe, the lack of long term demand security may have persuaded Moscow of the need for a different market focus. In addition, the desire to substantially increase the volume and geographical reach of Russian exports – principally towards Asia – can be expected to be achieved through LNG, if pipeline exports prove unsuccessful, and ideally from a Russian perspective via both transport modes.

As far as Caspian/Central Asian countries are concerned, for Azerbaijan, the 2010s will determine the extent to which large scale exports (30-50 Bcm/year) to Europe are realistic. For Turkmenistan, the 2010s will show whether substantial gas exports to Europe are attractive given other market opportunities, particularly in China; whether Europeans are willing to make the necessary commercial commitment to such supplies, and whether Russia will seek to block them. The outcome of all these developments will determine whether a Southern Corridor – as opposed to a single gas pipeline – will become a reality in the 2020s.

If this appears a rather pessimistic conclusion, there is an optimistic aspect to consider. If the many geopolitical problems reviewed in this paper can be resolved, it is clear that ample transportation capacity exists and/or, is in the process of being created, to allow very substantially greater volumes of gas to flow from CIS countries to Europe. Reserves which have already been established in Russia, and Caspian/Central Asian countries, would allow utilisation of this capacity, irrespective of the size of alternative markets in Asia and elsewhere. It remains to be seen whether geopolitical problems set out in this paper will allow progress towards realising this potential.

Finally, it is worth asking whether, in a European context, gas is (or has become) more subject to (geo-) politics than other fuels. The evidence of the past decade suggests an affirmative answer, particularly in relation to multi-country pipeline projects where long term interdependence will inevitably engage government sensitivities. During the 2010s, Russian and Southern Corridor pipeline projects have engaged in what might be considered “geopolitical warfare” which has at times become divorced from the issue of gas supplies. It is possible that in future, the greater influence of LNG in European gas trade may, at least to some extent, reduce the importance of pipelines and hence the geopolitical aspect of gas in Europe.
Map 1. The Europe-CIS Institutional and Political Space in 1991

Map 2. The Europe-CIS Institutional and Political Space in 2011

Note: gas pipelines in both maps are schematic
REFERENCES:


