Energy partnership: China and the Gulf States

Gawdat Bahgat

Abstract

One of the most significant developments in the global energy market in the last several years has been China's skyrocketing demand for energy. In 1993, China became a net oil importer for the first time in its history and in 2003 replaced Japan as the world's second-largest oil importer (after the United States). The country needs more energy to maintain its spectacular economic performance.

This study examines China's attempts to satisfy its growing needs for oil and natural gas by increasing imports from Russia and Central Asia/Caspian Sea region. The analysis suggests that despite growing cooperation between the two sides, the Gulf region is likely to satisfy most of China's hydrocarbons needs. Energy partnership between China and the Gulf has already started and is likely to be consolidated over the next few decades. The study also argues that this growing partnership between China and the Gulf should not be seen as a threat to any third party. The global energy market is well-integrated. Energy policy should not be seen in zero-sum terms. A China-Gulf partnership will benefit both sides and contribute to the stability of global energy markets.

The author is Director, Centre for Middle Eastern Studies, in the Department of Political Science, Indiana University of Pennsylvania, United States.

THE PEOPLE'S REPUBLIC of China is the world's second-largest energy consumer (after the United States). Two factors have contributed to this rise in energy consumption. With more than 1.2 billion people, China is the most populous county in the world. In late 1978, the Chinese leadership began moving the economy from a sluggish, inefficient, Soviet-style centrally planned economy, to a more market-oriented system. The result has been a quadrupling of gross domestic product (GDP) since 1978. Measured on a purchasing power parity basis,[1] China, since 2003, has stood as the second-largest economy in the world, although in per capita terms the country is still poor.

In order to maintain its impressive economic performance and satisfy its fast-growing demand for energy, China has pursued a variety of strategies. The core of these strategies is to diversify both the energy mix and energy sources. Traditionally, coal has been the primary source of energy. China is both the largest consumer and producer of coal in the world. Recognising the economic and environmental costs of relying heavily on coal, China has shown interest and invested in coal liquefaction technology. When conventional petroleum-derived fuel products are unavailable, or are too expensive, it is technically feasible to turn to coal liquefaction as an alternative. The process produces transportation fuels such as gas oil, gasoline and kerosene. These coal liquefaction products have been used as an alternative to conventional petroleum for over 50 years since Germany began making them during World War II via the Fischer-Tropsch process.[2] China's first coal-to-oil project, currently under construction in the inner Mongolia Autonomous Region, will use coal liquefaction technology from Shell to produce one million tons of oil products upon operation in 2007.[3]

This technology, however, cannot fill China's large and widening energy deficit. The country's consumption of natural gas and oil is projected to grow faster than its consumption of coal. The average annual change of China's consumption of natural gas, oil and coal from 2001 to 2025 are: 6.9 per cent, four per cent and 2.9 per cent, respectively.[4] This projection is in line with the rest of the world. Natural gas is the fastest-growing primary source of energy in the world. The amount of natural gas traded across international borders continues to grow and much of the incremental trade will be in the form of liquefied natural gas (LNG).

Historically, natural gas has not been a major fuel in China. It was used largely as a feedstock for fertilizer plants, with little use for electricity generation. In 2004, it accounted for only about three per cent of total energy consumption.[5] However, the need to reduce the country's heavy dependence on coal — and for environmental benefits — China has taken aggressive steps to develop indigenous natural gas production, transportation and import capacity. Three LNG import facilities are either under construction, or have been approved. They are led by the China National Offshore Oil Corporation and are located in Guangdong, Fujian and Zheijiang provinces, along the south and southeast coastline.[6]

Certainly, the most dramatic change in China's energy outlook is its skyrocketing oil demand and consumption. In the first four years of this decade, China has increased its imports of oil by 400 per cent.[7] Throughout the 1970s and 1980s,

China had the luxury of neutrality towards dramatic events in world oil markets. Internal supplies were fairly evenly matched with domestic requirements.[8] This self-sufficiency status came to a dramatic end in the early 1990s as the country's oil demand soared and its production declined. Since 1993, China has become a net oil importer and since 2003 it replaced Japan as the world's second-largest oil importer (after the US). In other words, in one decade, China has become a major player in the global oil market.

This fast expansion of China's oil and natural gas needs reflects the country's impressive economic performance and its lack of domestic proven reserves. China holds only about 2.1 per cent and one per cent of the world's proven reserves of oil and natural gas, respectively.[9] Not surprisingly, Chinese oil companies are seen almost everywhere in the world negotiating oil and natural gas deals, competing with their Western and Russian counterparts. The China National Petroleum Corporation (CNPC) has been involved in exploration and production operations in Africa, particularly in Angola and Sudan.[10] In late 2004, it was reported that delegations of senior executives from China's largest oil companies had been in talks with Canadian oil executives on ventures that would send oil extracted from the oil sands in the northern reaches of the energy-rich province of Alberta to new ports in western Canada and onwards by tanker to China.[11]

This study examines China's attempts to satisfy its growing needs for oil and natural gas by increasing imports from close-by producers — Russia and the Central Asia/Caspian Sea region. The analysis suggests that, despite growing cooperation between the two sides, the Gulf region is likely to satisfy most of China's hydrocarbons needs. Energy partnership between China and the Gulf has already started and is likely to be consolidated over the next few decades. The study also argues that this growing energy partnership between China and the Gulf should not be seen as a threat to any third party. The global energy market is well-integrated. Energy policy should not be seen in zero-sum terms. A China-Gulf energy partnership will benefit both sides and contribute to the stability of global energy markets.

1. China and Russia: energy cooperation

Both China and Russia have ancient civilisations that go back for thousands of years. Centuries-old relations between the two nations have witnessed different phases — both cooperation and rivalry. Ironically, when both adopted communism as an ideology (Russia in 1917 and China in 1949), their relations were characterised by mutual suspicion and antagonism. The last Soviet President, Mikhail Gorbachev, put an end to Sino-Soviet hostilities in 1989, shortly before the collapse of the Soviet Union in December 1991. Despite unresolved border issues, the newly born Russian Republic and China established diplomatic relations and sought to improve cooperation in different areas, such as regional security and economic development. They are united by what they perceive as a unipolar American domination of the international order.

Within this strategic context, the newly-established Sino-Russian friendship is built on cooperation in energy issues. China's needs for oil and natural gas are skyrocketing and Russia is the world's second-largest oil exporter (after Saudi Arabia)

and the largest exporter of natural gas. Despite these obvious mutual interests, three hurdles have complicated energy cooperation between Moscow and Beijing — the prospects of Russia's oil production; the future of reform in the Russian energy sector; and the construction of pipelines to carry oil and gas to China.

Prospects of Russia's oil production: In 1988, oil production in the former Soviet Union (FSU) reached a peak of 12.5 million barrels per day, most of which came from Russia.[12] Following the collapse of the Soviet Union, production fell, reflecting the political and economic upheaval that accompanied the creation of the Russian Federation. A turnaround in the country's oil output began in the late 1990s. Several factors contributed to the steady surge in production, including high oil prices, the devaluation of the ruble (Russia's currency) and the privatisation of a big proportion of the energy sector. This impressive rise in production and exports, however, is unsustainable.

Several characteristics of Russia's oil deposits need to be underscored. First, Russia's rate of oil production is exceeding its rate of discovery of new reserves by a significant margin. Put differently, the depletion of existing oilfields in Western Siberia has raised fears that Russia's current oil boom might be followed by a sharp decline in the near future. Future resource development will need to include new, geographically remote and geopolitically challenging areas, such as the Timon-Pichora, Eastern Siberia, the north Caspian Sea and the Russian Far East.[13] Development of these distant resources faces technical, economic and bureaucratic barriers. Second, the country has a limited pool of proven crude reserves, particularly in comparison with oil producers in the Gulf region. In 2004, Russia's proven reserves were estimated at 69.1 billion barrels, about six per cent of total world reserves, according to British Petroleum (BP). The reserve-to-production ratio (RP), how long reserves would last at current levels of production, was estimated at 22.2 years.[14] The Rome-based Ente Nazionale Idrocarburi (ENI) gives slightly lower figures. It estimates Russia's proven reserves at 60 bn b, about 5.5 per cent of total world reserves, and a RP of 19 years.[15]

Third, production costs vary from one region to another, but overall it costs more to produce oil in Russia than in most other countries. This means that Russian firms cannot survive a prolonged period of weak oil prices. Fourth, given the structure of Russia's oil industry, the country does not have any spare capacity. In other words, Russian private oil companies, like any private entities, seek to maximise their profits by producing and exporting as much as they can, with little concern about strategic objectives (i.e. maintaining part of their capacity idle to mitigate potential crises).

Given these characteristics, the International Energy Agency describes the prospects for Russian oil production as very uncertain. Production is projected to continue its increase, though more slowly than in recent years. In the short to medium term, most of the extra production will be exported. But the share of Russian exports in world trade will fall after 2010 as Russian production stabilises, domestic demand expands and output picks up in the Gulf region.[16] The Energy Information

Administration (EIA), the statistical arm of the United States Department of Energy (US/DOE), makes a similar prediction. It estimates that Russia's oil production will surge from 7.3 mb/d in 2001 to 10 mb/d in 2010 and then stabilise around this level for the following decade.[17]

To sum up, developing Russia's oil resources, modernising existing infrastructure, improving efficiency and adding new reserves will call for enormous investments. Over the next three decades, the oil sector is expected to require total investment of $328 billion, while the gas sector will need an estimated $330 bn, or approximately $22 bn a year for both sectors.[18] A stable and predictable business regime, market reforms and political transparency are urgently required if these investments are to be made.

Future of reform in Russia: Shortly after the collapse of the Soviet Union, the new leaders in Moscow sought to accelerate the process of reforming the economic system, particularly the oil sector. The Russian government, under the then President Boris Yeltsin, sold off state resources and enterprises at extremely low prices. This is how Mikhail Khodorkovsky got a 78 per cent share of ownership in Yukos, worth about $5 bn, for a mere $310 million.[19] It became very disturbing for the Russian public to learn how these one-time state properties were acquired by Khodorkovsky and a few other entrepreneurs, known as oligarchs, while the Russian economy was disintegrating. Put another way, the rush to privatisation in the early 1990s created a small group of very rich millionaires and left the majority of the population poor.

In October 2003, Khodorkovsky was arrested. The government charges that Yukos owes $28 bn in back taxes. In order to recover this money, or at least part of it, Yuganskneftegas, the main production unit of Yukos, was sold in late December 2004. Rosneft, Russia's state-owned oil company, announced that it bought the asset of Yuganskneftegas from the Baikal Finance Group — a mysterious bidder that won the auction for Yuganskneftegas by offering to pay $9.35 bn. This step represented the first significant re-nationalisation of a private company since the fall of the Soviet Union.[20] President Vladimir Putin defended the effective re-nationalisation of the core assets of Yukos, arguing that the state had every right to make amends for the flawed privatisations of the early 1990s.[21] Yuganskneftegas produces about 11 per cent of Russia's oil, or about one per cent of world output.[22] Its sale was the most disputed corporate auction in Russia's history and it created a great deal of uncertainty regarding the future of the company and indeed the entire Russian oil sector.

Most oil-producing countries have tax stability clauses in their legislation. By contrast, in Russia, the constantly changing tax regime reflects the changing state's policy on the oil industry. In an address to the Russian Chamber of Commerce in December 2003, President Putin said oil companies were making "super-profits" due to high oil prices. He added that oil taxation needs to be improved through "differentiation" of oil taxes according to the field quality, well yield, water cut, etc.[23] In April 2004, the state Duma (parliament) passed new oil taxes that raise revenues when crude prices are high. The new export duties, which took effect in August, work on a sliding scale that hands the state the lion's share of any gains in the oil price over

$25 per barrel. These changes indicate the state's willingness to take aggressive steps to increase its share of oil profits at the expense of oil companies and to expand its control over the oil sector.

This rise in taxes and the uncertain relations between the business community and the state have convinced a large number of investors to take their money out of the country. Since 2003, this flight of capital has been accelerated, apparently confirming concerns that the level of confidence in the government's commitment to economic reform has been shaken. The very long reign of a centrally-planned economic system under the Soviet Union was followed in the 1990s by a rush to economic liberalisation that resulted in a chaotic legal and administrative system. Since late 2003, there have been unmistakable signs of a retreat from liberalisation and a return to some level of state control.

Unlike the economic teams in force under his predecessor, Boris Yeltsin, President Putin seems to believe that relying on global market forces will not serve Russia's economic and social interests. Instead, a mixed system, under which the state and the private sector share ownership of assets, particularly in the hydrocarbons sector, is what is best for Russia. This sea of change from within the Kremlin is likely to affect the business environment in which oil companies operate, as well as the entire oil sector and production.

Construction of pipelines: Russia's energy strategy forecasts that Asia-Pacific markets could absorb as much as 30 per cent of the country's oil exports by 2020, compared with just three per cent in 2003. Similarly, natural gas exports to the region could surge from zero to 15 per cent of total Russian gas exports over the same period.[24] In line with these goals, Yukos concluded a long-term supply contract with the Chinese that foresees the gradual expansion of oil exports.[25] Russia agreed to boost oil exports to China by 200,000 barrels per day in 2005 and by 600,000 b/d in 2006.[26] Since such volumes cannot be reached without a pipeline, Yukos expressed an interest in building a pipeline to Daqing in northeast China. Currently, rail is the main way to export Russia's oil to China. On some routes, rail tariffs on oil are more than twice pipeline tariffs. Furthermore, since the beginning of this decade, rail tariffs have grown by up to 400 per cent on some products, including crude oil.[27]

Shortly after the arrest of Mikhail Khodorkovsky in October 2003, the Russian court ordered the freezing of many of Yukos' accounts and blocked access to most of its revenue streams. As a result, Yukos was unable to meet its commitments to China. In September 2004, Yukos notified its Chinese partners that it would suspend a portion of its exports to China. Shortly after this announcement, Lukoil, Russia's largest oil producer, and Rosneft decided to replace Yukos as the main supplier of oil to China.

These hurdles regarding oil exports to China underscore Russia's determination to set up a pipeline route to the Asian market. Currently, most of Russia's oil comes from Western Siberia, but Moscow has ambitious plans to explore and develop oil deposits in Eastern Siberia and the Far East.[28] This region can become a major oil provider to the Asia-Pacific market, particularly China, Japan and South Korea. For the

last several years, Russian officials have debated two options. The two proposed pipelines will start at the Russian city of Angarsk and reach either the Chinese city of Daqing, or the Japanese port of Nakhodka.

The Angarsk-Daqing option would extend for about 1,500 miles and is estimated to cost approximately $2.5 bn. The pipeline could be built in about two years. The project has been backed by Yukos and was planned to carry 400,000 b/d, beginning in 2005, with the possibility for 600,000 b/d by 2010. When President Putin visited China in October 2004 his Chinese counterpart, Hu Jintao, expected some reciprocity for officially backing Moscow's bid to join the World Trade Organization, promising to invest nearly $1 billion per year into Russia's economy through 2020, and ending a border dispute that had lingered for nearly half a century.[29] Despite these Chinese "goodwill gestures", Moscow has yet to make a firm commitment.

The Angarsk-Nakhodka option would extend roughly 2,500 miles and is estimated to cost more than $6 bn, with a capacity of 1 mb/d. Although this option is significantly more expensive, as it covers a greater distance and involves more investment, the Angarsk-Nakhodka route would open up a new Pacific port from which Russian oil exports could be shipped by tanker to other Asian markets and possibly even to North America.[30] Transneft has argued that Nakhodka will better protect the security of Russian oil trade by accessing a far wider range of buyers on the Pacific than a line that comes to a dead end in China. Shippers would be highly vulnerable if Chinese buyers chose to refuse supplies, or to negotiate down prices. Russia's Gazprom has already suffered a similar blow in its Blue Stream project to Turkey where slumping demand has left the line greatly underutilised.[31]

Another proposed pipeline project would link the Russian natural gas grid in Siberia to China and possibly South Korea. The cost of this project has been estimated at around $12 bn. In November 2003, the South Korea Gas Company, Kogas, and CNPC signed letters of intent for the project. The gas pipeline has been delayed repeatedly, however, due to opposition by Gazprom, which is concerned that it will bring an end to its favourable monopolistic position.[32]

Several factors will influence any decision on any of these pipeline projects, most notably the availability of sufficient oil and gas deposits to make such huge investment cost-effective. Environmental considerations are also likely to be taken into account in choosing one route or the other.

This discussion of Russia's oil and gas production suggests that prospects for energy cooperation between Moscow and Beijing face serious challenges and have to overcome several hurdles. Despite growing strategic cooperation between the two nations, some Russian officials see China more as a rival and less as a partner. They are concerned about China consolidating its economic power and expanding its influence, particularly in the Central Asia/Caspian Sea region.

2. China and the Caspian Sea: energy cooperation

The Caspian Sea region is important to world energy markets because of its hydrocarbons potential. The region is thought to hold the world's third-largest oil and natural gas reserves behind the Gulf and Russia. Since the collapse of the Soviet

Union and the emergence of Azerbaijan, Kazakhstan and Turkmenistan as independent states, the region has become a major focus for international oil companies looking for new lucrative deals and for oil and gas-consuming governments seeking to enhance their energy security. The prospects of massive oil and natural gas supplies from the region, however, have yet to be realised. Indeed, many analysts and policymakers believe that the high expectations of the early 1990s were too optimistic and a more realistic assessment of the region's hydrocarbons resources is slowly emerging.

Several factors complicate the full utilisation of the Caspian Sea's resources. Proven reserves are at a much smaller scale than those of other major producing regions, such as the Gulf and Russia. The littoral states examined in this study (Azerbaijan, Kazakhstan and Turkmenistan) lack the necessary technical, legal and administrative infrastructure. These three states share the Caspian Sea with Russia and the Islamic Republic of Iran. More than a decade after the break-up of the Soviet Union, the five nations have not reached agreement on the legal status of the basin, or how to divide it. Finally, Azerbaijan, Kazakhstan and Turkmenistan are landlocked with no direct access to the open sea. These hurdles have substantially slowed down oil and gas production from the region.

The DOI/EIA, BP and ENI agree in their assessment of the Caspian Sea's oil and gas resources. According to these three sources, Azerbaijan, Kazakhstan, and Turkmenistan hold 7 bn, 9 bn and 0.5 bn b of proven reserves, respectively. The corresponding figures in IR Iran, Iraq, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates (UAE) are 130.7 bn, 115 bn, 96.5 bn, 15.2 bn, 262.7 bn and 97.8 bn b, respectively. The three Caspian Sea states' share of the world's proven reserves is 1.6 per cent, while that of the six Gulf producers is about 63 per cent. The estimates for natural gas are slightly different. Natural gas proven reserves in Azerbaijan, Kazakhstan and Turkmenistan are 1.3 trillion cubic metres, 1.9 tcm and 2.9 tcm, while those of IR Iran, Iraq, Kuwait, Qatar, Saudi Arabia and the UAE are 26.7 tcm, 3.1 tcm, 1.6 tcm, 25.8 tcm, 6.7 tcm and 6 tcm. The Caspian Sea states' share of the world's total natural gas proven reserves is 3.5 per cent, while that of the Gulf is about 40 per cent.[33]

The utilisation of the Caspian Sea's oil and gas reserves has been further complicated by a lack of consensus on a legal regime to govern the basin. Prior to 1991, the FSU and IR Iran signed two treaties (The Friendship Treaty of 1921 and the Treaty of Commerce and Navigation of 1940) to divide the Caspian Sea between them. Since the break-up of the Soviet Union, the five littoral states have negotiated a variety of arrangements, but could not reach a consensus. Since the late 1990s, Russia has signed bilateral agreements with both Azerbaijan and Kazakhstan on sub-surface boundaries and the collective administration of the Caspian's waters. In May 2003, the three nations divided the northern 64 per cent of the Caspian Sea into three unequal parts, using a median line principle that gave Kazakhstan 27 per cent, Russia 19 per cent and Azerbaijan 18 per cent.[34] Turkmenistan and IR Iran do not recognise these bilateral and trilateral treaties. Tehran's position is that the Caspian Sea should be divided equally among the five littoral states. Turkmenistan's position is closer to IR Iran than to the other three states. This lack of consensus on how to divide the Caspian Sea has slowed production in the region.[35]

China has special interest in Kazakhstan's hydrocarbons resources. The two countries share long borders and Kazakhstan has the Caspian Sea's largest recoverable oil reserves, while its production is more than double that of Azerbaijan and Turkmenistan together. Furthermore, with substantial assistance from international oil companies, Kazakh President Nursultan Nazarbaev has ambitious plans to increase his country's oil production by several fold. This crucial role of foreign investment, however, cannot be taken for granted. The Kazakh government's stand on the role of international oil companies in exploration and development operations is uncertain. Earlier this decade, the government introduced new restrictions on new oil deals with foreign investors. In January 2004, a new tax structure was introduced that included a so-called "rent tax" on exports — a progressive tax that increases as oil prices grow.[36] The new amendment to Kazakhstan's tax law has raised the government's share of oil income to a range of 65–85 per cent and it has removed a clause guaranteeing investors a static tax rate throughout the duration of the contract.[37]

Despite this uncertain business environment, China has sought to increase its oil imports from Kazakhstan. Chinese policy reflects both Beijing's fast-growing needs for foreign oil supplies and its dissatisfaction with Russia's lack of commitment on a pipeline to ship Russia's oil to China. Thus, on 17 May, 2004, during a state visit to Beijing, President Nazarbayev signed a joint declaration with the Chinese President on the construction, by CNPC, of what was termed the "second section" of the two countries' long-planned Kazakhstan-China oil pipeline project. The underlying rationale for this project is obvious. Kazakhstan intends to increase its oil production and ship it through multiple routes (i.e. not only via Russia's pipeline system). Meanwhile, China needs to import large volume of oil to maintain its impressive economic performance. Construction of this 613-mile pipeline began in late September 2004 and is expected to be completed in December 2005. Initially, it will have a capacity of around 200,000 b/d, which will eventually be expanded to 400,000 b/d.

This growing cooperation between China and Kazakhstan is certain to meet part of Beijing's demand for oil and help diversify its oil supplies. The significance of this energy cooperation, however, should not be overestimated. First, Kazakhstan's proven oil reserves are not huge and its ability to meet China's oil needs is limited. Second, despite Kazakhstan's natural gas reserves, the country is still dependent on gas imports from neighbouring countries. Kazakhstan has a long way to go before it can export natural gas. Third, although China and Kazakhstan are neighbours, Kazakhstan's biggest resources are in the extreme west of the country, while China's biggest consuming markets are in the extreme east — at opposite ends of a continent.[38] In short, despite the Caspian Sea's potential, the region cannot and will not meet China's skyrocketing demand for oil and gas.

3. China and the Gulf States: energy partnership

Unlike other global powers, such as the US, Russia/Soviet Union and Europe, China's interest and involvement in the Gulf states started late. These interests, particularly since the 1990s, have been largely driven by economic and financial profits with little, if any, attention given to promoting any political orientation. In other words,

Beijing has adopted a "business-like approach" to the Gulf region, based on trade and economic benefits.[39] Cooperation in energy is at the heart of the growing relationship between China and the Gulf. The two sides need each other. On the one hand, China needs to secure reliable oil and natural gas suppliers and, on the other, Gulf producers need to secure an expanding market for their hydrocarbons resources.

The Gulf region is the oil market's global centre of gravity. It is widely known that the region contains the largest oilfields, the lowest costs of production and approximately two-thirds of the world's proven reserves. Another significant advantage Gulf producers have is their excess capacity, which can be, and indeed has been, used to mitigate global markets in times of crisis. In late 2004, excess world oil production capacity was only 0.5–1.0 mb/d, all of which was located in Saudi Arabia.[40] Given the characteristics of the Gulf's oil sector, China has already established itself as a major market for the region's oil producers. China, along with other Asia-Pacific nations, is the biggest consumer of Gulf crude, followed by Europe and the US.[41] Saudi Arabia and IR Iran are the first and second largest suppliers of oil to China.

This trend is likely to continue in the foreseeable future. China's oil consumption is projected to rise from 5 mb/d in 2001 to 12.8 mb/d in 2025. At the same time, the Gulf region's oil production capacity will soar from 22.4 mb/d in 2001 to 45 mb/d. Based on these projections, China's imports of oil from the Gulf are forecast to jump from 0.9 mb/d in 2001 to 5.7 mb/d by 2025.[42] Hence, China will grow increasingly dependent on oil supplies from the Gulf region.

The Gulf region is also likely to meet China's growing needs for natural gas. After Russia, IR Iran, Qatar, Saudi Arabia and the UAE are the second, third, fourth and fifth largest natural gas producers in the world. One of the most significant developments in the Gulf region's energy sector is the growing attention to, and interest in, developing natural gas deposits. The main characteristics of the Gulf's natural gas resources are:

1. The region's massive proven reserves are largely under-developed.

2. The Middle East has the lowest exploration and development costs for gas of any region in the world.

3. The interest in developing natural gas reserves is aimed at meeting growing domestic needs, particularly in generating electricity and producing petrochemical products (this will release more oil for export) and to export gas either by pipeline, or as LNG.

4. International companies are considered partners to national companies in the exploration and development of natural gas. In other words, Gulf governments have been more forthcoming in opening the door for foreign investment in their gas sectors than in their oil operations. Given these characteristics, the future of natural gas in the Gulf region seems very promising, both for domestic consumption and export. For the last

several years, both China and the Gulf states, particularly Saudi Arabia and IR Iran, have sought to further consolidate their partnerships in the oil and natural gas industries.

Saudi Arabia established diplomatic relations with China in 1990. This was followed by exchanges of visits at different levels and culminated in President Jiang Zemin visiting the Kingdom in September 1999, when he announced the creation of a "strategic oil partnership" between the two nations. China provides a growing market for Saudi Arabian oil and the Kingdom represents a reliable source for Beijing's rising demand. In December 2004, Ali I. Naimi, Saudi Arabian Minister of Petroleum and Mineral Resources, announced that the Kingdom plans to increase its production capacity from the current level of 11 mb/d to 12.5 mb/d in the next few years.[43] This Saudi commitment to increasing its production capability will contribute to global and Chinese oil security.

For the last several decades, most of the attention has been focused on the Kingdom's massive oil production, with little interest in its abundant natural gas reserves. Indeed, until the early 1980s, gas was flared. In the last few decades, this policy of minimal utilisation of the country's gas resources has substantially changed. The creation of the Master Gas System in the early 1980s signalled growing official interest in utilising this largely untapped hydrocarbon potential. During the last two decades, Saudi Aramco's efforts in furthering gas exploration and development operations have been successful. The Kingdom's proven reserves of natural gas have almost doubled. At the end of 1983, these were estimated at 3.54 tcm. Twenty years later, they had risen to 6.68 tcm.[44] This expanding capacity was matched by rapid domestic gas consumption. During the same period, (1983–2003) Saudi Arabia's gas consumption rose at a remarkable rate of 7.2 per cent annually and is projected to grow, on average, by 3.7 per cent per year during 2004–25, according to Saudi Aramco officials.[45]

Given this projected rising demand, since the late 1990s the Saudi Government has engaged in intense negotiations with several international oil and gas companies to develop its gas resources. A round of negotiations with several companies failed and Naimi officially terminated the negotiations in June 2003. However, a few months later, the Saudi Government reached an agreement, which was officially signed in November 2003, with Royal Dutch/Shell and Total of France, to invest approximately $2 bn to develop non-associated gas resources in the Empty Quarter region.[46] This agreement was followed in early 2004 with another accord, comprising Russia's Lukoil, China's International Petroleum Exploration and Production Corporation, Sinopec, and a consortium of Italy's ENI and Spain's Repsol YPF. According to the award, the companies would explore for non-associated natural gas in the Empty Quarter. Each contract recipient would also form an exploration and production company jointly with Saudi Aramco, with the latter holding a 20 per cent share of each.[47]

In addition to this growing cooperation with Saudi Arabia, China is taking similar steps to establish itself as a major energy partner to IR Iran. The Iranian government is aggressively seeking to develop its massive hydrocarbons resources. The

National Iranian Oil Company (NIOC) is leading these efforts, in cooperation with international oil companies, particularly from Europe and Asia. With sufficient investment, it is widely believed that IR Iran could increase its crude oil production capacity significantly. Similarly, IR Iran has ambitious plans to develop its largely underutilised natural gas reserves.

Since the mid-1990s, the NIOC has made several sizeable oil discoveries, notably Azadegan, a giant onshore field believed to contain proven crude oil reserves of 26 bn b.[48] Another significant new gas discovery is the offshore gas reservoir located around Lavan Island in the Gulf.[49] Although this discovery does not match the super giant South Pars, it will add substantially to IR Iran's gas reserves and production. Development of South Pars is IR Iran's largest energy project, already having attracted around $15 billion in investment. South Pars gas is intended for domestic consumption and for export by pipeline and in the form of LNG. Sales from South Pars could earn IR Iran as much as $11 bn/y over 30 years.[50]

One option to export South Pars gas is to build an LNG plant. In February 2004, IR Iran awarded a 1.6 bn euro contract to a group comprising Total SA, Malaysia's national oil company, Petronas and the NIOC to build the plant and export facility.[51] Another important contract was signed in September 2004 with Repsol YPF and Shell. The NIOC will be party to the contract, under which the three parties will set up two platforms in the Gulf with the capacity to produce 18 million cubic meters of natural gas a year.[52] The most impressive deal was signed in late October 2004 with China. The two sides signed a memorandum of understanding committing Sinopec to buy 250 million tons of LNG from IR Iran over 30 years. IR Iran will also export 150,000 b/d of crude oil to China after Sinopec has developed the Yadavaran field. Yadavaran's oil reserves have been estimated at 17 bn b. The field is estimated to yield an average of 300,000–400,000 b/d. The deal is valued at $70 bn.[53]

These recent huge Chinese investments in the hydrocarbons sectors of Saudi Arabia and IR Iran substantially consolidate the energy partnership between the sides involved. Gulf producers are committing themselves to meet China's growing oil and gas needs. This slowly emerging alliance, however, should not be seen as a threat, or a challenge, to other producers or consumers.

4. Conclusion

The analysis in this study suggests that China's growing dependence on oil and natural gas supplies from the Gulf region is a must. This conclusion is based on the fact that China is the world's fastest-growing energy consumer and the Gulf region holds the world's largest hydrocarbons reserves, with massive oil production and increasingly-utilised natural gas resources. Production from Russia, the Caspian Sea, West Africa, Latin America, Canada and other regions will contribute to global — and Chinese — energy security, but will not replace the Gulf. Indeed, it is the wrong proposition to suggest that one producing region can substitute or replace another. The global energy market is well-integrated. The source of oil and gas matters less than the availability of the resources required. Gulf producers are working closely with other producers and consumers to ensure stability in supplies and prices.

The emerging energy partnership between China and the Gulf has prompted some analysts to suggest that a potential rivalry between the US (the world's largest energy consumer) and China (the world's second-largest energy consumer) over access to energy-rich regions might develop. The argument in this study strongly rejects this notion. Energy policy should not be seen in zero-sum terms. China's gains should not be seen as America's losses. Similarly, the expanding production in the Gulf region will not be at the expense of producers in Russia and the Caspian Sea. All parties (producers, consumers and oil companies) are working together to ensure steady and uninterrupted supplies at reasonable prices. This win-win approach is contributing to stability in the global energy markets and is helping to promote economic prosperity and development.

In line with this thinking, Washington and Beijing launched the US-China Energy Policy Dialogue in May 2004. The goal of this forum is to share information and continue discussion and cooperation between the two nations regarding energy security. Furthermore, American oil companies are involved in huge oil and gas projects in China. Cooperation, not rivalry, is the core of energy policy today and in the foreseeable future.

Footnotes

1. *Purchasing power parities are cirremcu conversion rates that both convert to a common currency and equalise the purchasing power of different currencies. In other words, they eliminate the difference in price levels between countries in the process of conversion.*

2. *Fischer-Tropsch process is a method for the synthesis of hydrocarbons and other aliphatic compounds. Synthesis gas, a mixture of hydrogen and carbon monoxide, is reached in the presence of an iron or cobalt catalyst and such products as methane, synthetic gasoline and waxes and alcohols are made. An important source of the hydrogen-carbon monoxide gas mixture is the gasification of coal. The process is named after F. Fischer and H. Tropsch, the German coal researchers who discovered it in 1923. For more details see the Columbia Electronic Encyclopedia at www.infoplease.com/ce6/sci/A0818760.*

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