

# China's overseas investments in oil and gas production

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## I. Overview – China’s “Go Out” policy for energy security

China considers its energy supplies, particularly oil and natural gas, to be increasingly insecure. While prior to 1993 it was a net oil exporter, China now has the largest annual increases in oil consumption in the world, forecast to run at a rate of around 500,000 barrels per day (bpd) in 2006 and 2007 by the US Department of Energy. This is being driven by economic growth of about 10% per year. Despite efforts to slow this runaway growth rate, China will still be the largest single driver of growth in oil consumption during the next decade. Meanwhile, its domestic oil production, while substantial at 3.8 million bpd, is forecast to remain relatively flat or decline slightly, so all incremental increases in demand will have to be satisfied by imports.

China is also developing its natural gas sector, which has historically not been a major part of its fuel mix – it currently constitutes about 3%. In June 2006, however, China became a natural gas importer for the first time with the opening of the Guangdong liquefied natural gas (LNG) import terminal, which is supplied mainly from Australia. In the future, natural gas imports are likely to grow, with additional LNG import terminals and pipelines under consideration that would link demand centers in China to supplies in Russia and Central Asia.

The Chinese leadership wants to pursue policies that will secure supplies of oil and natural gas and cement a strengthened role for the major Chinese oil and gas companies. While the governments of many Western countries, including the United States, usually take a relatively hands off approach to intervening in oil companies’ investment and purchasing decisions, there is a consensus in China that the state must use policy tools to secure ownership of foreign upstream production assets by Chinese companies. China’s strategy of investing in equity stakes to obtain control of overseas energy assets began in the early 1990s, around the time the country became a net importer of oil. It intensified as imports grew, and rose to the top of China’s foreign policy priorities following the 11 September 2001 terrorist attacks in the United States, which contributed to a perception of a less stable world and greater risks to energy production, particularly in the Middle East.

The increased reliance on imports has also given China greater impetus for improving its power-projection capabilities, including the acquisition of basing rights and port-call arrangements along key oil shipping routes in the Indian Ocean. It has also led to the use of other foreign policy tools, such as arms sales and foreign aid, to promote the competitive interests of the major Chinese oil companies in the acquisition of production assets.

Chinese policy aims to diversify the country’s suppliers of crude oil, but as is the case for most major importers, their ability to achieve such policy goals is limited. Historically, Chinese imports have been skewed toward countries capable of producing very light, low-sulfur grades of crude oil, such as Oman and some of the West African countries. This is due to the scarcity of refining capacity in China for processing heavy and high-sulfur grades. As new refineries are built, this constraint will lessen. Over time China will likely be able to diversify supplies to some degree due to its equity investments in upstream production projects. Nonetheless, the Persian Gulf has the world’s greatest oil reserves, and its share of world production capacity will continue to grow in the future. That will make it difficult for China, the world’s fastest-growing importer, to find adequate supplies elsewhere. While diversification away from the Persian Gulf remains a goal, some of the larger projects that the major Chinese oil companies are currently contemplating involve production assets in Per-

sian Gulf OPEC member states. Sinopec's interest in the development of the Yadavaran oil and LNG project in Iran is a prime example.

Thus far, the results of the Chinese drive to obtain equity oil – oil that Chinese firms have a right to take or market as a result equity ownership in development projects – has been quite modest. Some of the projects with Chinese ownership stakes must sell to local markets due to obstacles preventing transportation of the oil to China. It is difficult to know precisely how much equity oil produced by Chinese firms abroad actually goes to China, since the data on imports published by the Chinese Customs Bureau specify only countries of origin rather than specific export streams from specific development projects. By examining the large volume of press reporting on these projects, however, including in the Chinese-language business press, it is possible to piece together the general picture. Overall, based on the analysis in this study, it appears that the amount of equity oil flowing into China in 2006 is only about 320,000 bpd, out of total imports of 3.6 million bpd and total Chinese consumption of 7.4 million bpd.

Due to the modest volumes involved, China's equity investments have relatively little influence on the world oil market. Chinese demand is one of the main drivers for oil prices, as the country currently has the largest absolute growth in demand anywhere, but more than 90% of its imports do not originate with equity oil projects in which Chinese firms have invested. There are some serious challenges for US policy, however, related to the Chinese drive to control more of its oil supplies. Some stem from the development of Chinese military power projection capabilities as a response to perceived vulnerability of oil imports. Others relate to China's sources of competitive advantage.

Chinese oil companies enjoy several major advantages over Western firms under some circumstances, some of which involve China's adoption of energy-driven policies in other spheres that can be detrimental to US interests. Chinese firms can enter countries where international sanctions restrict activities by US or European firms, and have access to financing from state-owned banks, which are willing to back projects whose risk-versus-return tradeoffs would seldom appeal to ordinary investors. China's existing projects in Sudan, as well as the preliminary agreement by Sinopec to develop the Yadavaran oilfield in Iran, illustrate these effects. The Chinese government can also make side deals involving foreign aid and arms sales to promote its interest in acquiring oil production assets. Finally, in some cases lack of transparency may constitute another source of competitive advantage. This is inherently difficult to document, but Western firms have reporting requirements that do not apply to Chinese firms and are often under pressure from their home country governments and investors to keep their transactions with foreign governments transparent. For US firms, the Foreign Corrupt Practices Act prohibits some types of side payments that Chinese firms could easily make.

## II. General trends in investment

Chinese state-owned oil companies started investing in production assets outside of China in 1993, around the time the country became a net oil importer. The first acquisition of a production asset outside of Chinese territory was the March 1993 purchase of operating rights for the Banyu block in Thailand. Acquisitions of exploration acreage in Canada and Peru followed the same year. These were all minor assets, though, of very limited significance. The China National Offshore Oil Company (CNOOC) made an investment in its first offshore production assets in Indonesia in 1993. For the first few years, though, the amount of equity oil generated by these projects was relatively insignificant.

There are only two Chinese-invested oil development projects that currently generate more than 100,000 bpd in equity oil for the Chinese oil companies. Both of these were acquired in 1997. The first acquisition of significant existing oil production assets was of a 60.3% stake in Aktobemunai-gas in Kazakhstan, which took place in October 1997. It gave China National Petroleum Corporation (CNPC) control of existing production assets in Kazakhstan. The company now owns a 92% stake, with current production of about 116,000 bpd, yielding equity oil of about 107,000 bpd.

The other large project is CNPC's stake in the Greater Nile Petroleum Operating Company (GNPOC) in Sudan. CNPC acquired a 40% stake in the GNPOC consortium in March 1997. Canadian independent Talisman Energy was the operator from the time it acquired Arakis Energy's 25% stake in 1998, until it sold the stake to India's Oil and Natural Gas Corporation (ONGC) in March 2003 under pressure from human rights groups and a divestment campaign targeting the company's stock. After March 2003, CNPC took over as operator of the project. Exact financial figures are not available, but CNPC's overall investment is believed to be over \$4bn.

In 1998, China reorganized its oil and gas industry to create three major oil companies – two of them vertically integrated, CNPC and Sinopec, and one that specialized primarily in offshore oil production, CNOOC. Prior to the reorganization, CNPC had managed state-owned upstream assets, production of oil and natural gas. Sinopec had managed downstream assets, refining and retail distribution. Among the goals of the reorganization was to create vertically-integrated Chinese major oil companies that would eventually compete with the global majors. Freed from prior limitations on refining and distribution, Sinopec began investing in overseas exploration and production assets shortly thereafter.

Since then, the pace of Chinese acquisitions of exploration acreage has accelerated greatly, but no other projects that currently produce more than 100,000 bpd in equity oil have been developed yet. Among the largest projects currently under development is the Greater Plutonio project offshore from Angola, which will eventually produce roughly 200,000 bpd, with Sinopec's 50% equity stake getting it half that amount. BP is the operator, and the project is scheduled to come on line before the end of 2007. Sinopec has also signed a preliminary memorandum of understanding with Iran's National Iranian Oil Company (NIOC) for the development of the Yadavaran oilfield, which will eventually produce around 300,000 bpd, roughly half of which would go to Sinopec, depending on the terms the two companies ultimately agree to. Strictly speaking this would probably not be "equity oil" due to Iran's use of buyback contracts rather than production sharing agreements (PSAs), but the agreement would give Sinopec effective control over the distribution of that oil.

China's Ministry of Commerce has published financial data on outbound foreign direct investment (FDI) only since 2003. In 2005, according to the 2005 Statistical Bulletin of China's Outward Foreign Direct Investment, \$1.68bn out of a total of \$12.3bn invested overseas was in "mining and extraction," which includes oil and gas development projects. The publication states that "the bulk" of this sum went to development of "oil and gas production and black metals," though it does not break these out as a separate statistical category. For 2004, the corresponding figure was \$1.8bn out of a total of \$5.5bn. For 2003, it was \$1.38bn out of \$2.85bn.

Neither the Chinese government nor the oil companies publish detailed figures that specify exactly how much equity oil comes from each overseas project and whether it is transported to China. The section of this study on key countries and holdings will attempt to address this on a country-by-country and project-by-project basis, and to provide an estimate of total equity oil and how much of it is transported to China, based on publicly available information.

### III. Decision-making process for Chinese state-owned companies

#### Key policymaking authorities

China lacks a supra-ministerial government agency with broad policymaking authority, which means that energy policymaking has resembled the “fragmented authoritarianism” that characterizes the country’s post-Mao government more broadly. Competing interests in a wide array of government bureaucracies and the industry vie to influence the 25 or so top leaders with decision-making authority, many of whom have direct ties to particular energy interests. The result has been a policymaking process that is driven primarily by relationship-building and influence-peddling. In 2005 the government created the Energy Leading Group (ELG) and State Energy Office (SEO) to enhance the state’s ability to formulate and implement national energy policy. Bureaucratic inertia remains strong, however, raising questions about the leading group’s efficacy.

#### Traditional policymaking protocol

While China has a long tradition of central government decision-making structures for energy, in recent years China’s energy policy has suffered from schisms among the leadership and competition between various parts of the bureaucracy for power. Since the dismantlement of the Energy Ministry in 2003, the closest China has had to a centralized energy policymaking agency is the National Development and Reform Committee’s (NDRC) Energy Bureau (EB). The EB traditionally served as the main government regulator for all aspects of energy sector development and planning. Within this broad protocol, the jockeying of various bureaucratic interests has had an influence on policy. China’s three major state oil firms, which the government has sought to nurture, giving them pride of place among the country’s state-owned enterprises, have also acquired considerable influence over energy policy.

#### New energy regulatory structure

The creation of the supra-ministerial ELG and SEO in 2005 underscores the rising importance of energy security to China’s top leaders and their growing concerns about policy coordination and implementation. But with all the current actors still in place, the new groups’ ability to reconcile competing interests remains in question.

The ELG and SEO are the first senior leadership bodies devoted to energy policy since reforms began in the late 1970s. Premier Wen Jiabao and two vice premiers, Huang Ju and Zeng Peiyan, will head the ELG, which is hierarchically under the State Council but holds more power than any single government ministry. The remaining nine members of the ELG will be taken from various ministries involved in energy policy issues. The main function of the ELG will be to study prominent issues pertaining to energy policy development, formulate specific policies and oversee their execution. The ELG will supervise the SEO, which will assist it in researching energy policy issues and executing policy decisions. NDRC Director Ma Kai will lead the 24-member office, and former CNPC President Ma Fucai, along with EB head Xu Dinming, will be the SEO’s vice directors.

While recent reforms to China’s energy regulation structure will undoubtedly change the dynamics of bureaucratic decision-making, the main policy players in the energy sector appear fixed. However, top-level attention to energy issues has not helped the government to overcome turf wars

between different ministries, and China's domestic energy reform, such as liberalizing pricing, remains bogged down by political sensitivities.

### Relationship webs remain strong

Despite recent moves to centralize energy policy, the web of relationships between government agencies and the oil sector continues to strengthen, which may undermine regulators' efforts. For example, China's state-owned oil firms have recently begun to sign exclusive deals with provincial governments, contravening central planners' desire to implement a nationwide energy policy. Such centrifugal forces are likely to increase with the recent appointments of former oil executives to high-level government posts. The 2003 appointment of former CNOOC CEO Wei Liucheng as the governor of Hainan province led to CNOOC's announcement that it will invest more than \$1bn in three different projects that will make Hainan one of China's leading petrochemical bases. The deal between CNOOC and the Hainan government also included the acquisition of state-owned assets in Yangpu Electricity and CNOOC's agreed injection of capital into local energy firms.

Other former oil executives have been tapped for the government bureaucracy: Li Yizhong (previously of Sinopec) is now the director of the State Administration of Work Safety; and Ma Fucai (CNPC) is the vice director of the SEO. There have also been suggestions that current oil executives such as Chen Tonghai (Sinopec) will take posts in provincial and municipal government. While the appointment of industry executives to government posts is not inherently problematic, the example of Wei Liucheng suggests that making former industry executives regional officials will be an obstacle to centralizing energy policy.

## IV. Physical security measures

Because China's increasing dependence on imported oil has created new security concerns, the country has begun to pursue several measures to try to enhance the physical security of its supplies and transportation routes. These include acquisition of naval port-call rights along the sea lanes of the Indian Ocean and Arabian Sea, arms sales to countries with which Chinese oil companies have contracts, in-country stationing of Chinese security personnel and a strategy to strengthen security cooperation with the states of Central Asia through the Shanghai Cooperation Organization (SCO), whose members offer China opportunities for acquiring oil and gas via pipelines. In particular, China believes that it is vulnerable to disruptions of sea lines of communication (SLOCs) due to US naval dominance, and to potential security problems in the Straits of Malacca. China is also in the process of developing a Strategic Petroleum Reserve (SPR).

The naval element of the strategy centers on ties to several countries along the northern edge of the Indian Ocean, and development of forward basing and naval access arrangements known as the "string of pearls." The countries in question include Myanmar, Bangladesh and Pakistan. Pakistan is developing a major port at Gwadar on the Arabian Sea with Chinese financial and technical assistance, which is 400 km from the entrance to the Strait of Hormuz. Myanmar is also developing a deepwater port at Sittwe with Chinese financing. Historically, China's navy has been primarily a coastal force. Increasing vulnerability to disruption of energy imports, however, may over the longer term push China to expand its naval power projection capabilities.

Arms sales have also sometimes been used as a side payment to help secure oil development contracts and provide for the security of those assets. Sudan is a prime example, as Chinese state-owned arms manufacturers have sold T-59 tanks and Shenyang F-7 combat aircraft in the wake of Chinese development of oil resources there. China has assisted Sudan in developing factories producing small arms. Chinese arms manufacturers also have longstanding ties to Iran. While these sales go back to the 1980-88 war between Iran and Iraq, predating Chinese interest in overseas oil exploration, there is a potential that China could use arms sales here to sweeten commercial transactions for energy assets.

In at least one case, Chinese nationals are providing security for energy infrastructure directly. Though their exact numbers are unclear, armed Chinese security personnel are routinely present at key oil facilities in Sudan.

China is actively moving to strengthen its security relationship with the entire Central Asian region as part of its campaign to secure natural resources there. To this end, China acts through the SCO, which comprises China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan.

China and Tajikistan held a joint anti-terrorist drill on 22-23 September in one of several joint military exercises under the SCO framework. Kyrgyzstan held the first joint military exercise in October 2002, and all the SCO members except Uzbekistan carried out their first-ever joint anti-terror exercise in August 2003. In August 2005, China and Russia launched a high-profile eight-day military exercise in Vladivostok, Russia. In addition to military drills, China has offered extensive military and economic assistance to Central Asian republics. In 2005 alone, China agreed to provide Tajikistan and Uzbekistan with roughly \$60mn in grants and loans.

China has security interests in Central Asia beyond its pursuit of energy resources. An area of particular concern is Xinjiang Province, the center of separatist activity by the country's Uighur



Muslim minority. To make sure that Central Asian states do not support Xinjiang separatists, China has signed agreements with these states on combating separatism and terrorism, launching military and security cooperation in the border regions and beyond.

China's security cooperation with Kazakhstan has been less obvious, primarily because of Kazakhstan's multi-vectored foreign and security policy. While cooperating with and taking part in the SCO, Kazakhstan also cooperates with NATO on Caspian security among other issues, and with Russia on a bilateral basis. This approach will continue to mean that any security cooperation with China will be offset by cooperation with other partners and alliances.

Finally, like many other major oil importers, China is in the process of developing a strategic reserve. The first phase, to be completed in 2008, will hold about 75 million barrels, which will be slightly less than ten days of Chinese oil consumption. Chinese officials announced on 9 October 2006 that filling the reserve will begin in the fourth quarter of 2006, having been delayed due to high crude oil prices. Two additional development phases are planned, each of which would have a capacity of about 176 million barrels. The completion dates for these later phases have not been set. China's stated policy goal is to eventually have strategic stockpiles equal to 90 days consumption.

## V. Key countries

### MIDDLE EAST

#### Iran

##### *Peculiarities of investing in Iran: buyback*

Strictly speaking, there are no equity investments in the Iranian oil and gas sector. Instead, upstream activity is carried out under so-called “buyback” contracts. Iran developed buyback in the 1990s to circumvent the constitutional prohibition on foreign ownership of hydrocarbons resources. Under buyback, foreign companies develop a field to the point where it is ready to begin production and hand it over to NIOC, which then runs it. The foreign oil company receives a guaranteed rate of return, paid in oil. International oil companies list the limitations of buyback as a leading deterrent to investment in Iran. Buyback can be adequate for smaller, low-risk projects but is unsuitable for larger fields, which are longer term and higher risk. Foreign companies gain no reward if a field produces above expectation; indeed, they face penalties if the field fails to meet contracted goals. Since they are sidelined during production, international oil companies are unable to safeguard their investments.

##### *Yadavaran/LNG*

Potentially China’s most important investment in Iran is an agreement linking the right to develop the Yadavaran oilfield with a commitment to purchase LNG from Iran. The two sides signed a memorandum of understanding in October 2004 under which Sinopec would take a guaranteed 50% of the output from Yadavaran, amounting to an expected 150,000 bpd, in return for a commitment to buy 10 million tons of LNG per year for 25 years. At the same time, Iran and China signed a memorandum of understanding for the construction of a \$1.5bn gas condensate refinery at Bandar Abbas on the Persian Gulf with capacity of around 300,000-350,000 bpd.

It appears that Yadavaran would still be developed under a buyback contract in partnership with an international oil company. The move marks a strategy by Iran to leverage its oil reserves to market natural gas, for which it is having difficulty tying down firm purchase commitments. But the exact status of Yadavaran remains unclear. Iran has also signed a memorandum of understanding with India to take a 20% stake in Yadavaran and has received bids from a range of European oil companies as well, at least some of which appear to have been for the whole field rather than the remaining 30%. Two years after the initial memorandum of understanding, no final contract has been signed. Contractual arrangements are said to be the source of the delay.

##### *Azadegan*

There has been speculation that China may step now that the Japanese contract to develop the south Azadegan oilfield falls through. Japan and Iran had signed the long-delayed \$2bn contract in February 2004. Field capacity was due to build to 260,000 bpd within eight years. Iran announced on 9 October 2006 that it would reduce the Japanese firm Inpex’s share in the project to a maximum of 10%, reflecting the long delays resulting from concerns over Iran’s nuclear program. It has also said recently that if Japan failed to advance the project it would be handed to local companies rather

than to China. However, it seems doubtful that Iran could develop the project on its own, given the geologically complex nature of the field.

### *Other small projects*

China has a range of other small projects in Iran: Sinopec has an exploration and development contract to develop the onshore Garmsar block and a contract to explore the Zavareh Kashan block. Sinopec also signed a contract in June to develop a concession in Semnan province. CNPC was selected to be the operator of Kuhdasht area under an exploration and development contract. CNPC is also working to raise output at the Masjed-e Suleiman field (which peaked at 130,000 bpd in the 1930s but has fallen to little over 4,000 bpd). Current Chinese “equity oil” production in Iran is minimal, but the Yadavaran project has the potential to provide a major stream of Chinese imports in the future.

### **Iraq**

Chinese state-owned firms had signed a number of contracts for oil development projects with Saddam Hussein’s Baathist regime in Iraq prior to March 2003. The status of those contracts has been under review by the new Iraqi government, and their implementation is effectively frozen.

The main Chinese award dating from the Baathist period was for the development of the al-Adhab field in southern Iraq, which is located near existing pipeline infrastructure and would have an output of around 90,000 bpd when developed. In the early months following the start of the war, CNPC took a relatively hard line with regard to defending the status of its contract. Recent public statements from CNPC executives in 2006 have been more pragmatic and conciliatory. While there is no indication of renewed support in the Iraqi government for reviving the old contracts, the Iraqi Petroleum Ministry has announced that the minister, Hussein al-Shahristani, will visit China soon to discuss the status of the old contracts and possible future investment opportunities.

### **Oman**

Oman has long been a major oil supplier to China, as the light and low-sulfur grades it exports are compatible with China’s older refineries. In July 2002 CNPC was awarded a block in Oman formerly owned by Japex and was able to turn a well that was producing 2,000 bpd into one producing 12,000 bpd. This volume is mixed in with Oman’s export streams and makes up a small percentage of the oil exported to China.

On 23 August 2004, the government of Oman and Sinopec signed a new oil-concession agreement at the Ministry of Oil and Gas. The agreement provides for oil and gas exploration and production in blocks 36 and 38 in the southern part of the country. Provisions of the agreement commit Sinopec to carry out geological and geo-physical assessment, conduct a seismic survey and drill an exploratory well in the first three-year exploratory period. The company will spend \$22mn to finance the exploratory program and may extend exploration for an additional period to carry out a 3D seismic survey and drill three exploratory wells. In this case the company will spend more than \$29mn. While it is generally expected that this agreement will bring only modest yields, rising Chinese influence in the Omani market is widely through to carry far greater ramifications.

In addition to investment in the oil sector, the company plans to expand cooperation with the Sultanate to include petrochemicals, training and exchange of expertise. Its investment is expected to reach \$500mn in the coming years. Total Chinese investment in Oman’s energy industry, meanwhile, is expected to reach \$600 mn.

## Yemen

During President Ali Abdullah Saleh's visit to China in March 2004, officials signed seven documents to establish cooperation in economic, educational and energy relations. The energy agreements called for mutual exploration of Yemeni oilfields by CNPC and the Yemeni National Oil Company, as well as increased cooperation for technological exchange between the two companies. In June of the same year, Yemen awarded Sinopec rights to explore blocks 69 in Shabwah and 71 in Hadramout. On 12 January 2005 the Ministry of Petroleum & Minerals and Sinopec signed two new contracts of partnership for producing petroleum in the two blocks. The first and second stages of each block required an investment of \$36mn. Despite the exploration contracts, there is no substantial equity oil output by Chinese firms in Yemen.

## Syria

Like China's relations with Iran and Saudi Arabia, its diplomatic relationship with Syria is the result of a confluence of political and economic factors, including China's goal of increased influence in the Middle East and North Africa. The relationship has been gathering steam in recent years and culminated in President Bashar al Assad's historic trip to Beijing in June 2004. The trip netted concrete deals, including the July 2004 creation of a joint oil venture, the Sino-Syrian Kawkab Oil Company, founded to develop the old Kubeibah oil field in northeast Syria, nearly 600 km from Damascus. China has also invested in Syria in conjunction with other companies from the developing world. In December of 2005, in a joint venture with India's ONGC, CNPS also announced its purchase of PetroCanada's Syria assets in a deal valued at \$578mn. The joint venture gives CNPS control of a 37% stake in Syria's Furat Petroleum Company, equivalent to 58,000 bpd. Chinese data on oil imports does not show any volumes in recent years from Syria, and it appears that this volume is being sold elsewhere rather than being transported to China.

## **NORTH AFRICA**

### Algeria

Chinese assets in Algeria are limited to exploration acreage, with no current equity oil production. CNPC holds licenses for blocks 350 and 438b in the Oued Mya Basin, several blocks in Adra/Sbaa Basin, and a 75.1% stake in blocks 102a and 112 in Cheliff Basin. Sinopec holds licenses for blocks 418, 419, 438 in the Amguid Massaoud Basin; blocks 416a and 417 in Oued Mya Basin; and the Zarzaitine license in Illizi Basin. China has not made major arms sales to Algeria since its companies began acquiring oil assets abroad.

### Libya

CNPC holds licenses for the exploration of block 17-4 and block 2 (45% production share in the latter), which were awarded under the most recent licensing round in October 2005. There is no current production of oil or gas in these areas. Libya is, however, a small oil supplier to China. Arms sales have been prohibited by UN Security Council sanctions during much of the period in which Chinese companies have been acquiring oil assets, and there is no indication of major recent arms sales that could have influenced these awards.

## **RUSSIA AND EURASIA**

## Russia

Overall, China's political relationship with Russia has improved markedly over recent years, and as the relationship develops one of its major aspects is bound to be energy. Currently, only modest volumes of oil and no natural gas reach China from Russia, which is a source of growing frustration for Chinese officials.

Russia has been dissatisfied by its energy dialogue with Western countries and the EU. President Vladimir Putin and his associates frequently remark on Russia's key significance in the global energy sector. Many among the Russian elite believe that the concept of "energy security" should imply all countries agreeing to common rules in the sector covering production, transport and consumption. Thus, Russia views "security of demand" – in particular acquisition of downstream assets – as necessary to shield itself from loss of market share should countries break long-term gas contracts; it considers this to be at least as important as Western preoccupations with "security of supply."

In part due to growing disagreements with the West and in part due to the desire to diversify its markets, Russia has been increasingly reorienting itself toward China and Asia more broadly in its long-term energy planning, at least according to statements from senior officials. Most recently, on 9 September, Putin said in a meeting with Western analysts and academics in Moscow that Russia will increasingly focus energy policy on Asia. Putin also stated that much economic activity was shifting from "the Atlantic" to "the Pacific," that never in history had relations with China been so strong and that he expected relations to expand further. It should be noted, however, that Russia's policymakers have historically looked at China with suspicion – in particular, as a potential threat to Russia's security and even territorial integrity – and such concerns are likely to persist in many people's minds.

In the 9 September meeting, Putin stated that the Russian supply of energy to Asia would grow from the current 3% of oil and gas exports to 30% over the next ten to 15 years, and that Russia was committed to building two large gas lines to China. Regarding the trans-Siberian oil pipeline, Putin said the first 250 km has already been built, and that Phase I would serve China. He also spoke of Phase II to Nakhodka on the Sea of Japan but observed that it needed more economic justification – namely, that exploration in East Siberia had to find volumes to fill the line. Putin declined to provide dates for the gas lines to China or for either phase of the trans-Siberian line.

For its part, China is also actively trying to penetrate the Russian upstream market. In a significant move announced on 20 June, Sinopec bought Udmurtneft, a subsidiary of TNK-BP. This gave China a long-awaited position in the Russian oil sector and helped to ease Chinese officials' frustration with the lack of progress in energy cooperation with Russia. A day after Sinopec was named the winner in a tender, Rosneft, the Russian state-controlled oil major with close ties to the Kremlin, announced that it planned to purchase 51% of Udmurtneft under an agreement signed with Sinopec in May. Sinopec would finance the Rosneft purchase, which Rosneft would then reimburse through money made by Udmurtneft. Sinopec likely would not have been able to complete the Udmurtneft purchase without Rosneft's participation.

Even with Rosneft's takeover of a majority stake, the acquisition of 49% of the company, a blocking stake, is the first tangible breakthrough the Chinese state-controlled firms have had in purchasing assets in the Russian oil industry. Rosneft's 51% position will actually prove useful for Sinopec if it wants to have a hand in acquiring additional strategic oil and gas deposits, using Rosneft as a well-connected partner. The licenses for strategic projects will be limited to majority Russian-controlled firms under the new subsoil usage law being prepared by the Russian cabinet.

Udmurtneft currently produces around 120,000 bpd of crude oil and has proven reserves of 922 million barrels. This implies slightly less than 60,000 bpd in equity oil for Sinopec. Given that the acquisition was so recent, it is difficult to document any possible changes in the physical transportation of the oil from this company, but the fall in overall Chinese imports from Russia from about 456,000 bpd in June 2006 to 288,000 bpd in August 2006 does not indicate that this equity oil is being transported to China in any significant volumes.

Allowing Sinopec into the domestic industry should help to ease concerns in Beijing that Russia is discriminating against Chinese firms. CNPC has tried and failed twice to acquire all or part of significant Russian assets: Slavneft in 2002 and Yuganskneftegaz in 2004. This purchase could be a harbinger of additional Chinese asset acquisition.

Still, there are limits to the amount of access Russia is willing to give any new foreign players in the domestic industry. Chinese firms are likely to enter into projects as minority partners to Rosneft or Gazprom Neft (the former Sibneft). Chinese concerns also go beyond asset acquisition, as officials are looking for progress in the construction of significant infrastructure that would ensure increased oil and natural gas imports. The lack of movement on this front has prompted negative comments from Chinese officials. Beijing will continue to scrutinize Russian efforts on oil and gas pipeline projects to ensure that the oil Sinopec is producing through Udmurtneft, or equivalent volumes, makes its way to the Chinese market.

Another particular sign of China's desire to strike a positive note in its dealings with Moscow was the purchase by CNPC of a major strategic stake in Rosneft during the company's initial public offering (IPO). The international success of the IPO was seen as a major strategic goal of Putin's Kremlin. The IPO ended up raising some \$10.4bn, valuing Rosneft at around \$80bn.

Finally, Putin's meetings with Chinese leadership on 21-22 March in Beijing and on 15 June during the SCO summit in Shanghai were positive and seen as signs of growing cooperation between two countries, including on energy. During Putin's visit to Beijing in particular, Russian officials announced plans to supply China with large amounts of gas. Agreements were also reached making it likely that oil from the planned trans-Siberian pipeline will flow to China.

Russian and Chinese officials made two important announcements during the March visit. First, Gazprom and CNPC signed a memorandum of understanding stating that Russia will supply China with 60-80 billion cubic meters (bcm) of gas within in the next decade; deliveries are to begin in 2011. Two new pipelines are planned, at a total cost of \$10bn. One would flow from West Siberian fields to western China, and would be the first to come on line. The second gas line would flow from Sakhalin through to China, and possibly draw from the large and as yet undeveloped Kovykta field in East Siberia. Gas prices will be pegged to oil and oil products, not coal, as China would prefer.

Making a spur to China from the planned trans-Siberian oil pipeline a priority is another key development. On 21 March, Transneft chief Semyon Vainshtok stated in the Russian press that CNPC will provide a \$400mn grant to finance a feasibility study and construction of a 70 km spur from the Russian town of Skovorodino to the border with China. On 22 March, Putin said the line will "ensure a dramatic increase in crude supplies from Russia to China." Foreign Minister Sergei Lavrov commented favorably on the spur, and the head of Rosneft explained how his company would help provide volumes through the spur to China.

## Kazakhstan

### *China's long-term goals in Kazakhstan*

China and CNPC have spent a significant amount of time and money in recent years acquiring upstream oil assets in Kazakhstan, as well as investing in the construction of the Kazakh-China oil pipeline. The pipeline's current capacity is 200,000 bpd, but it could be expanded to 400,000 bpd through the addition of new pumping stations.

China appears to be playing a long-term game in Kazakhstan. Given booming Kazakhstani oil production and exports, China's stated ambition to import 200,000 bpd – or even a future 400,000 bpd – from Kazakhstan appears modest. However in the longer term, beyond 2010, there is no doubt that China would like to establish Kazakhstan as a major source of oil for its domestic market.

China's chief motivation is security of oil supply rather than political leverage. Yet it is certainly well understood by the Chinese leadership that a gradual strengthening of the Kazakhstan-China energy relationship will increase its geopolitical position in Kazakhstan and in Central Asia more broadly. Similarly, China clearly understands that security cooperation and displays of political support for the Kazakhstani leadership will help to facilitate future oil acquisitions.

### *CNPC owns two significant upstream assets*

CNPC owns 92% of CNPC-Aktobemunaigas, which is the license holder for two active fields in Kazakhstan – Zhanazhol and Kenkiyak. These fields have reserves of 900 million barrels and produced 116,000 bpd in 2005, and the company hopes to increase this to 133,000 bpd by 2009. In late 2005 CNPC acquired the formerly Canadian-owned PetroKazakhstan (PKZ), which operates the Kumkol fields in the Turgai Basin (south-central Kazakhstan). CNPC controls the South Kumkol field, while the North Kumkol field is operated through a 50-50 joint venture with Russia's Lukoil, which is called Turgai Petroleum. Through the PKZ acquisition, CNPC also gained a 50% stake in the Kazgermunai field (the other 50% is owned by state-owned Kamunaigas). Kazgermunai produced 40,000 bpd of oil in 2005. Petrokazakhstan's combined assets in the Turgai Basin produce around 150,000 bpd of crude.

CNPC also owns smaller production assets. It owns the Northern Buzachi field on a parity basis with Russia's Lukoil. Northern Buzachi currently produces around 10,000 bpd of heavy crude, but the company aims to increase production to 40,000 bpd by 2009. CNPC has agreed to invest some \$4bn over a 20-year period in the area.

CNPC also made two small acquisitions in February 2004 in south-central Kazakhstan, buying Aidan Munai, a Kazakh-owned company producing 4,500 bpd of high quality crude from the Arys-skoye field, and part of the Kuatamlonmunai (KAM) joint venture in Kzyl-Orda, which currently produces around 8,000 bpd of high quality crude from the Bektas-Konys field.

### *Kazakh-China pipeline volumes in question*

CNPC has also financed the construction of the Kazakh-China pipeline, a joint venture with state-owned Kazmunaigas. The pipeline links Kazakhstan to China from its starting point at the Atasu terminal, which can accept crude oil delivered from the west as well as oil delivered by pipeline from the north (Russian sources in West Siberia) or from the south (Kazakhstan's Turgai basin). The pipeline was completed in December 2005. From the Chinese perspective, the purpose of the pipeline is to provide a long-term, strategically secure source of oil rather than to meet urgent demand requirements, and the country seems comfortable with a gradual increase in volumes delivered through the pipeline.

So far, oil that has flowed via the pipeline has come primarily from CNPC's production assets in the Turgai basin (primarily South Kumkol), while a small amount has come from Aktobe. The majority of oil from Aktobe is still sent through Russia, as is the heavy crude from the Northern Buzachi field, which is blended with lighter Azeri crude and sent into Russian pipeline monopoly Transneft's system.

### *Most convenient oil poses technical challenges*

The most logical source of crude oil for the pipeline is the Turgai Basin, and for seven or eight months out of the year this will pose no obstacles. But during the long winter this Kumkol crude must be blended with larger volumes of other crude oils to avoid freezing. Two other sources of crude oil are potentially available for now: West Siberian crude from Russia, and CNPC's own production from the Aktobe region.

The main uncertainty in the operation of the Atasu-Alashankou pipeline in the next four years concerns the possible delivery of Russian crude oil into the pipeline via the Omsk-Pavlodar-Atasu pipeline link. Transneft strongly opposes Russian crude flowing to China via Kazakhstan, but Russian producers in West Siberia – including the state-owned Rosneft – have expressed their desire to gain access to this route. If Russian crude is limited to 30,000 bpd, which Transneft unconvincingly claims as the maximum capacity of the Omsk Pavlodar pipeline, then the Atasu-Alashankou pipeline would face operational problems every winter unless sufficient volumes of other Kazakhstani crude oil can be found.

More crude could be sent from CNPC's operations in the western Aktobe region. In this scenario the Kenkiyak-Atyran pipeline would be reversed and the new Kenkiyak-Kumkol link would be built to connect Kazakhstan's western Aktobe region to the existing Kazakh-China oil pipeline. However, this is not ideal because Aktobe crude is a light crude oil and is a crucial blending component for the Atyrau-Samara pipeline, as well as for the blends exported from Kazakhstan's western port of Aktau. If Aktobe volumes are rerouted to Atasu, then it may be difficult for traders at the port of Aktau to meet the necessary crude-quality requirements for deliveries to Samara, Makhachkala and Neka.

These fields also produce small amount of associated gas, which is processed locally, re-injected or flared. There are no export routes for natural gas to China.

## **Turkmenistan**

Chinese companies have not made any upstream investments in Turkmenistan. Turkmenistan is, however, interested in constructing a natural gas pipeline to China, although it does not own any equity in upstream gas projects in the country.

China's energy officials at the National Development and Reform Commission (NDRC) reportedly approved in September the construction of a natural gas pipeline from Xinjiang to Guangzhou to transport natural gas from Turkmenistan. This news seems to suggest China's eagerness to solidify an April agreement that Turkmenistan will supply China with 30 bcm of natural gas annually starting in 2009.

On the other hand, supply uncertainty in Turkmenistan complicates the project. The Turkmen leadership is notoriously unpredictable and appears to have seriously over-committed the country's future gas exports. Turkmenistan is already committed to sending 80 to 100 bcm a year to Russia by 2010 and 14 bcm a year to Iran in 2007. Adding exports of 30 bcm a year to China would likely far exceed the amount of gas available for export. Given the lack of transparency in the local



political environment and the energy sector in particular, there is no information to confirm that the government has invested adequately in the domestic gas sector to ramp up production to the required levels. Rather, Turkmenistan's interest in proposed pipeline projects is in part a pressure tactic in price negotiations with Russia's Gazprom, which has agreed to pay \$100 per tcm, up from \$65 per tcm at the beginning of 2006, following China-Turkmenistan talks.

Moreover, the plan is fraught with demand uncertainty and regulatory risks, which throws into doubt China's ability and willingness to move quickly on the pipeline. China's natural gas consumption is heavily dominated by residential use, which is a much less reliable source of demand than power generation and industrial use. With the NDRC already cracking down on additional power generation capacity after coal-fired power plants proliferated in recent years, the potential of creating additional stable demand for natural gas is limited.

Beijing has also yet to develop a consistent, nationwide regulatory framework. Policies tend to be ad hoc and driven by the short-term price and supply forecasts of various energy sources, resulting in ill-coordinated and potentially competing projects that build up redundant infrastructure before securing end-user agreement. While increasing natural gas consumption will remain a key objective for Chinese energy planners in order to cut pollution and reduce dependence on oil imports, a project of this magnitude has to have a guarantee of volume and stable demand, neither of which is assured in the current environment.

## **SOUTHEAST ASIA/AUSTRALIA**

### **Indonesia**

Two Chinese companies, CNOOC and Petrochina, are respectively the fifth and tenth largest oil producers in Indonesia, with CNOOC being the country's largest offshore producer. CNOOC acquired its capacity through the 2002 purchase of the Indonesian assets of Spanish oil company Repsol-YPF for \$585mn. The assets acquired through this purchase were: a 65.34% operating stake in the South-East Sumatra (SES) production sharing contract (PSC); a 36.72% stake in the North-West Java PSC, located offshore; a 50% stake in the Poleng PSC; a 25% stake in the West Madura PSC; and a 16.7% stake in the Blora PSC. In 2004, the company produced 81,500 bpd of oil from Sumatra field and 18 billion cubic feet of gas. Of its output, CNOOC gets approximately 47,000 bpd. The gas from SES is sold to the Indonesian electricity company PLN. In 2004, Indonesia exported a total of about 70,000 bpd of oil to China, most of which is the CNOOC equity oil.

PetroChina International has interests in seven blocks in Indonesia: a) Bangko, b) Jabung, c) Selat Panjang, d) South Jambi B, (Sumatra), e) Kepala Burung (Salawati Basin), f) Salawati Kepala Burung (Salawati Island) and g) Irian Jaya and Tuban in Java. In 2004, the total output from the producing fields – Jabung Jambi (30% Petrochina stake), Irian Jaya (17%), Tuban (25% Petrochina stake) and Salawati (14.5% Petrochina share) – was approximately 36,000 bpd. Petrochina says it can produce more, but the limited reserves from these relatively mature oil fields make the company's claims rather optimistic.

CNOOC entered the LNG export business when it bought a 12.5% stake in the \$3bn Tangguh LNG project in late 2002. According reports in mid-September, China and Indonesia had reached agreement for Tangguh, which is being operated by British oil firm BP Plc, to supply 2.6 million

tons of LNG annually for 25 years to the Fujian terminal starting from 2009. The value of the deal was not disclosed.

## Thailand

CNPC reports on its website that it acquired a minor oilfield in Thailand in the Banya block in March 1993, its first acquisition of an oil producing asset outside of China. There has been almost no coverage of this field in the trade press in recent years, and it is unclear whether the field is still in operation, but it clearly represented a very small amount of oil production.

Overall, while Thailand is a net importer of oil, it does export a small amount of crude oil to China, around 35,000 bpd. If any of this volume is equity oil, it would be from the small field acquired in 1993. Potentially of more significance is the May 2003 acquisition of onshore exploration acreage by CNPC in the country's most recent licensing round. To date, though, CNPC has reported no new oil finds in Thailand.

Another issue of potential significance to Chinese energy security is the possibility of pipelines through Thailand that bypass sea routes such as the Straits of Malacca. The possibility of building a pipeline across the Isthmus of Kra to bypass the Straits has been under discussion, but most observers believe that such a pipeline is unlikely to be constructed. Another idea under discussion is a refinery near Bangkok that would export petroleum products into south-central China.

CNOOC's unsuccessful attempt to acquire Unocal in 2005 was driven in part by Unocal's extensive presence in the Thai oil and gas sectors, particularly its ownership of large stakes in several of Thailand's largest offshore fields.

## AMERICAS

### Venezuela

Chinese state oil companies currently have a small equity ownership in Venezuela which they have pledged to develop over the next few years in cooperation with Venezuela's state-owned Petroleos de Venezuela SA (PDVSA). Under accords signed in January 2005 and August 2006, CNPC and PDVSA agreed to establish a joint venture to develop 14 declining oil fields in Zumano, in the eastern region of Anzoategui. Reserves are estimated at 400 million barrels of crude and 3 trillion cubic feet of natural gas. CNPC is also aggressively moving into the heavy crude Orinoco Belt, where it has gained the rights to certify and quantify reserves in the Junin-4 block, including an integrated regional seismic study and 20 wells that will be tendered in 2008. Future reserves in this block alone have been preliminarily estimated at around 20-30 billion barrels, and are earmarked to produce around 200,000 bpd. PDVSA has said it expects early production in 2009 and commercial production by 2011.

CNPC's high-sulfur heavy crude production will be upgraded to lighter synthetic crude and refined and exported outside of Venezuela. While Venezuela hopes to ramp up exports to China from the current 70,000 bpd to 200,000 bpd in the medium term, China's limited capacity for processing sour crude and the long distance between markets, along with the associated high freight costs, will limit China's ability to accommodate significantly greater volumes of Venezuelan crude. Although China is building additional sour crude refining capacity, much of it is earmarked to process domestic offshore heavy crude or has been designed to run heavier grades from the Persian Gulf with a

lower sulfur content. China is likely to hold off on any costly investments to retune its refining capabilities or build new refineries capable of processing Venezuela's high-sulfur crude that could lead to a redirection of Venezuelan exports from the US to China. Chinese government officials in Caracas, led by Ambassador Ju Yigie, have repeatedly asserted that it is neither in China's nor Venezuela's interest to replace the US as Venezuela's primary market.

## Ecuador

Chinese-led consortium Andes Petroleum, which includes CNPC and Sinopec, moved aggressively into the Ecuadorian market in September 2005 when it bought Canada-based Encana's oil and pipeline assets in Ecuador for \$1.42bn. Andes Petroleum currently produces approximately 60,000 bpd, all of which is exported to the US, and owns a 36% stake in the OCP pipeline that transports approximately 200,000 bpd to Ecuador's Pacific coast.

Andes Petroleum has, however, expressed some serious reservations over its future outlook in Ecuador following the government's seizure of Occidental's assets in May and the passage of a new law that obliges private producers to transfer to the state 50% of profits yielded when the price of Ecuadorian crude exceeds the contracted price. Tighter terms, the absence of judicial guarantees, and frequent protests and production stoppages may well cause Andes Petroleum and other private investors in Ecuador to reevaluate their investments.

## Peru

China and CNPC have been very active in Peru's hydrocarbons sector for several years. CNPC's first acquisitions were block 8 and block 1AB from Argentine Pluspetrol in January 2004 for an estimated \$200mn, making the company the second largest oil producer in Peru. Both blocks produce an estimated 60,000 bpd. This is used mostly for domestic consumption, but some cargoes are transported to China – an average of about 20,000 bpd in the first half of 2006. CNPC most recently entered into concession agreements with the Peruvian government to explore, develop and produce crude oil and natural gas in two zones in the southeastern region of Madre de Dios, covering a total area of 27,500 square km.

## Colombia

China's Sinopec entered the Colombian oil market in August of this year when it teamed up with India's ONGC to acquire 50% of Omimex de Colombia, a subsidiary of US Omimex Resources. Omimex has equity production of over 9,000 bpd from a 50% interest in three fields about 200 km northwest of Bogota and owns a pipeline linking the fields to the 230,000 bpd Barrancabermeja refinery for later export to the US. This joint operation is the largest yet since China and India decided earlier this year to partner up in the hunt for energy resources worldwide and avoid competing bids that will drive asset prices upward.

## Bolivia

In 2004 Shengli International Petroleum Development opened an office in the natural gas-rich eastern region of Bolivia and announced plans to invest up to \$1.5bn. Shengli's participation is very much up in the air, however, following the passage of a new hydrocarbons law on April 2005 that levies a non-deductible tax of 32% on top of existing royalties of 18% on production, and the government's push in May of this year to secure a majority stake in projects across the hydrocarbons sector.

## Canada

The Canadian oil sands mega-development in northern Alberta has received little direct investment by Chinese firms in terms of acquiring reserves. The most significant direct investment by China here has been the SinoCanadian Petroleum joint venture. SinoCanadian Petroleum is a subsidiary of Sinopec, created to win a 40% stake in the Northern Lights project with the Canadian firm Synenco Energy. Northern Lights is expected to produce 114,000 bpd by 2011. CNOOC has also made its presence known in the oil sands with the acquisition of a 16.67% stake in MEG Energy. MEG Energy is focusing on developing a 22,000 bpd project at Christina Lake that is expected to come online in 2007.

More noteworthy is the proposed Chinese acquisition of a 50% stake in the Gateway Pipeline. The pipeline will be operated by Enbridge and is expected to deliver 400,000 bpd to Kitimat on the British Columbian coast for export. The project is controversial in Washington but is viewed in Ottawa as an important tool for diversifying away from the US market, by far the largest market for Canadian exports of oil and most other commodities.

Currently, the Chinese investment in the Gateway Pipeline is under negotiation. A memorandum of understanding between Enbridge and PetroChina was signed in 2005, and a final agreement is expected by the end of 2006. Finalization of the deal will depend on the negotiation of treaty rights with native groups in northern British Columbia. PetroChina is expected to take 200,000 bpd of production, with the balance being exported to refiners in California. However, there are proposals to expand the pipeline to 800,000 bpd, which would let China acquire a larger stake.

As noted above, Enbridge would be the primary operator, and it would negotiate supply arrangements with oil sands producers. There is no indication yet that oil from the China-linked Northern Lights or Christina Lake projects would be specifically targeted for export via the Gateway pipeline project.

Beyond the Northern Lights project, China has reportedly come close with unsuccessful bids on a variety of concessions, most notably its rumored interest in the 100,000 bpd Deer Creek Energy project that eventually went to France's Total.

There is also Husky Energy, a mid-sized Canadian oil and gas producer that was acquired in 1987 by Hong Kong billionaire Li Ka-shing, chairman of the Hutchison Whampoa conglomerate. Husky Energy recently launched a major oil sands project known as Tucker Lakes near Cold Lake, Alberta. The project will produce oil and refined products for US and Canadian markets. Husky Energy has been rumored to be an acquisition target for a Chinese state-owned oil firm, but so far nothing has materialized.

## SUB-SAHARAN AFRICA

### Sudan

China has major economic interests in Sudan, driven by the oil relationship. Since the late 1990s, when Sudanese oil came online, the economic and diplomatic relationship has blossomed. China has supplied billions of dollars in investment, oil revenue, infrastructure development and weapon sales, while providing diplomatic protection to Khartoum. According to some estimates, CNPC has invested an estimated \$10bn in Sudan since the 1990s, with about \$4bn in active investment now. Furthermore, Sudan hosts between 5,000 and 10,000 Chinese workers, some of them decommissioned People's Liberation Army soldiers charged with protecting China's investments.

Oil from Sudan makes up 5% of China's imported oil, down from 7% a few years ago. (The decline reflects Beijing's aggressive strategy of diversifying its supplies.) Just over 50% of Sudanese oil exports are destined for China, although other Asian powers such as India and Malaysia have increased their share of imports in recent years. Until recently, China was the export market for about 70% of Sudanese crude. China imports about 200,000 bpd, and that number is likely to grow to 300,000 bpd in coming years as Sudanese production continues to ramp up. Sudan's oil production is on a sharp upswing, jumping from about 350,000 bpd to 500,000 bpd in the last two years, and is on track to reach 600,000 bpd by the end of 2007. Over the last several years, Sudan has been among the top oil exporters to China, after Saudi Arabia, Iran, Angola and Oman; it remains in the top tier even as China diversifies its sources. From a broader perspective, China has recently displaced Japan as the second-largest importer of African oil, and its diplomatic influence in the region has increased in tandem.

CNPC owns the largest single share (40%) of the Greater Nile Petroleum Operating Company (GNPOC), a consortium that dominates Sudan's oil fields in partnership with the national energy company and firms from Malaysia and India. CNPC bought into the consortium in 1996. It built the country's largest refinery in collaboration with Sudan's Energy Ministry and in 2004 invested in a \$300mn expansion that nearly doubled production. The consortium's Heglig and Unity oil fields now produce over 350,000 bpd, of which roughly 140,000 bpd is equity oil controlled by CNPC.

Until the end of 2005, published data from the Chinese Customs Bureau showed all of that volume entering China. In 2006, quite abruptly, the Chinese data drops off to about one-quarter of that volume. This is one instance where Chinese data may be unreliable. An extensive search of the trade press did not turn up any mentions of additional volume of the Nile Blend export grade being available for spot sales or a contract for another destination, and the volume in question would almost certainly have been reported if it had suddenly come onto the market rather than being shipped to China. In addition, the relatively light and low-sulfur oil is well suited to China's refining capabilities, which favor this type of crude oil. There would be little incentive for CNPC to divert this volume elsewhere only to have to replace it with purchased oil. For these reasons, this study includes this equity oil as part of the volume going to China. If it were being sold elsewhere, however, that would only decrease the already small overall volume of equity oil going to China.

Separately, CNPC owns most of a field in southern Darfur, which began trial production last year. This could become increasingly controversial as violence in Darfur continues to attract so much media attention. It also owns 41% of a field in the Melut Basin, which started production in August 2006 and could produce over 200,000 bpd by 2007. Exports of Dar Blend grade from this project began in September 2006. Unlike Nile Blend, the European trading firm Vitol is handling

marketing, which implies that the CNPC equity volume is probably not earmarked for China. While it is light and low-sulfur, its high acid content may make it unsuitable for the Chinese refineries that process Nile Blend, which would explain the decision to market it elsewhere.

The GNPOC consortium is ramping up exploration and production in new fields, such as block 4 and the Thar Jath and Mala fields on block 5A. Sinopec has built a pipeline from that field to Port Sudan on the Red Sea, where China's Petroleum Engineering Construction Group is building a \$215mn export tanker terminal. China is every bit as involved in the downstream sector as the upstream, in some cases because the work is profitable and in other cases because it helps Khartoum achieve its own goals.

At the same time, China has been generous in its loans and aid packages to Sudan as part of a strategy to build goodwill, sweeten bids and increase its leverage over the government. CNPC and the government of Sudan are collaborating on an estimated \$1bn in infrastructure development projects. Chinese companies generally take the lead on major infrastructure projects that may not be especially profitable but nonetheless conform with Khartoum's objectives. For example, the Harbin Power Company, with funding from China's central bank, is building enough hydropower capacity in the country to triple electrification and irrigation levels in coming years. The company is also building a 1,700 km power transmission line. Such investments help Khartoum by delivering basic services to its people. Beijing also offers loans to help finance Khartoum's goals, such as a \$60mn loan to upgrade the Khartoum refinery. In this case, as in others, payment is typically made in crude oil exports. Crude also serves as collateral in cases of nonpayment.

China's strategy of importing nearly all workers instead of using local labor galvanized negative opinion in Sudan about its participation in the energy sector. Dating back to its longstanding arms sales to Khartoum during the country's north-south civil war (which ended in 2004), China has had poor relations with the Sudanese People's Liberation Army (SPLA), now full partners in the national government and leaders in the oil-rich south. While the comprehensive peace agreement between the SPLA and Khartoum includes a clause that honors existing oil contracts, some SPLA commanders may seek to punish China for its role in the conflict. To date, however, this has not presented a major problem for the Chinese oil companies operating in the south, as the SPLA has opted for a pragmatic coexistence with the Chinese now that it has a 50% share in southern-based oil revenues.

Sudan's chronic instability is worrying for China. No sooner had the historic north-south comprehensive peace agreement been finalized in 2005 than a new crisis emerged in the western province of Darfur, presenting a new set of security and diplomatic challenges. A state-led campaign in the US is forcing pension funds to divest from any oil holdings in Sudan, including CNPC subsidiary PetroChina and Sinopec, while placing renewed scrutiny on China's oil ties in Sudan. This will not deter Chinese investment, of course, but it does raise reputational drawbacks for image-conscious Chinese leaders. On the other hand, Western sanctions and the threat of divestment do deter most Western and all US companies, creating an easier competitive landscape for Chinese firms, which already enjoy the benefits of state support.

China has been directly and indirectly involved in the security of its south-central oil investments. Decommissioned Chinese soldiers reportedly help guard vulnerable oil installations in the south, often in concert with Sudanese troops. The Chinese Foreign Ministry has periodically urged Khartoum to send troops to areas where Chinese companies operate. More broadly, China is a major supplier of arms to Sudan, including ammunition, helicopters, fighter aircraft, T-59 tanks, 37 mm anti-aircraft

guns and 122 mm towed howitzers. In August 2005, Beijing supplied 220 military trucks, with payment in oil, according to Amnesty International. China has also established three arms factories in Sudan. Lastly, it sold Khartoum Shenyang fighter planes and 12 supersonic F-7 jets.

China faces diplomatic risk in shielding Khartoum from UN Security Council resolutions. To date, China's strategy has been to abstain from these resolutions rather than vetoing them outright. It also dilutes language about possible sanctions or other punitive steps favored by some Western nations, notably the US. This strategy has worked reasonably well from China's perspective, though it has hurt the country's efforts to improve its image as a responsible global power – a decidedly secondary concern but a concern nonetheless.

## Angola

Angola's Sonangol and China's Sinopec signed agreements in early 2005 to prospect for oil in an offshore area known as block 3 (Greater Plutonio offshore). China's CNPC also has a 50% stake in offshore block 18 and will receive 50% of the block's 200,000 bpd output. Initially India's ONGC had bid for block 18, but Sonangol gave it to the Chinese after promises of a \$2bn soft loan. Since 2004, China has increased its credit lines to Angola and is now believed to have over \$5bn invested in the country. Since the beginning of 2006, Sonangol has exported almost half of the country's 1.4 million bpd of production to China, surpassing even Saudi Arabia. Angola's oil production is expected to reach about 2 million bpd by the end of 2007. While Angola is currently the largest single foreign supplier of crude oil to China, there will not be any equity oil produced by Chinese companies until the Greater Plutonio project begins production.

Risks in Angola mostly emanate from the ruins of a two-decade civil war following independence in 1975. The long civil war effectively ended with the death of rebel leader Jonas Savimbi, president of National Union for Total Independence of Angola (UNITA), in 2002. The almost 27-year intermittent civil war drew in Cuba, Namibia, China and Zimbabwe on the side of the ruling leftist Popular Movement for the Liberation of Angola and South Africa, the US, Zaire and Cote d'Ivoire to the side of UNITA.

## Nigeria

In 2004, China and Nigeria signed an agreement to develop two oil mining leases, 64 and 66, located in the deep waters of the oil-rich Niger Delta. Production has not yet begun in these areas. It is very likely, however, that like in Angola, Sinopec would want to take the crude oil and export it to China rather than sell it on the world markets. Chinese President Hu Jintao and his Nigerian counterpart Olusegun Obasanjo announced on 26 April 2006 an infrastructure and energy agreement. At nearly \$5bn, the deal includes the finalization of the terms of a 45% stake in the Akpo field that CNOOC purchased in January 2006. That field is believed to contain about 620 million barrels of liquids and 2.5 trillion cubic feet of natural gas.

In addition, China is buying a majority stake in the 110,000 bpd Kaduna refinery, which has operated at less than 40% capacity over the past few years because of maintenance problems. Hu has also promised that China will commit over \$1bn to rehabilitate Nigeria's dilapidated railway system. Meanwhile, some Chinese firms plan to enter Nigeria's now deregulated downstream power generation and oil distribution sectors. In return, Nigeria will give China a "right of first refusal" on four lucrative blocks in its next licensing round. Nigeria has also promised to adhere to the "One China" policy and not recognize Taiwan. However, threats by Niger Delta militias against the Chi-

nese during 2006 mean that Chinese firms' operations are unlikely to be spared the mayhem that plagues the area.

While the two countries have not seen much high-level interaction, Hu's 2006 visit to Nigeria indicated that while in the past Chinese energy policy had avoided Western-dominated energy producers like Nigeria, that policy might now be changing. Geological Engineering Company, China Harbor Engineering Company and China Civil Engineering Construction Corporation, and more than 30 other Chinese companies, are currently operating in Nigeria. China had previously tried to avoid involvement in Nigeria's oil sector because of the predominance of Western multinationals with deeper pockets, such as Shell, Elf, ExxonMobil and Chevron-Texaco.

### **Congo (Republic of)**

In March 2005, the Congolese government signed two offshore agreements with Sinopec for the Marine XII and High Sea C blocks. There is no current equity oil produced from these blocks.

After peaking in 2000 at 280,000 bpd, oil production in the Republic of Congo has been on a steady decline. Maturing fields and delays in bringing new production online will likely continue to dog the industry for some time. There have recently been increased efforts by France's Total, the country's leading oil producer and foreign investor, to double its current production of approximately 91,000 bpd. Total expects new fields such as Moho and Bilondo, which are on track to come online in 2008, to add about 90,000 bpd to help replace the production lost at maturing fields.

During March 2006 discussions in Brazzaville with African Union Chairman and Congolese President Denis Sassou Nguesso, Chinese Premier Wen Jiabao promised \$3.7mn to assist the Congolese health sector and another \$3.5mn to support African Union troop deployments to Darfur in the Sudan. Wen highlighted the strong 42-year relationship between Congo and China and commended the country both for following the "One China" policy and for sending dozens of doctors and engineers to China for training.

### **Gabon**

Despite attempts by China to increase its energy investments in Gabon, its presence is still minimal. China imports crude oil from Gabon but does not have any equity oil production.

Gabon's production is falling as its fields are maturing, and therefore the government is more likely to be aggressive with the Western majors if they prove timid in exploring new fields. Gabon's production has fallen from a high of almost 400,000 bpd in 1996. Maturing onshore fields such as Cap Lopez, Oguendjo, Gamba and Rabi Kounga, and newer offshore fields like Lucina and M'Bya, are likely to continue to constrain Gabon's production.

Sinopec received exploration acreage in Gabon in a series of contracts signed during President Hu Jintao's visit in February 2004. The company has been drilling test wells in some of the onshore areas but has not reported any actual oil finds to date.

### **Madagascar**

Madagascar joined the list of Chinese energy interests in Africa when press reports in 2005 detailed discussions between the privately-held Madagascar Oil and CNPC. In June 2006, CNPC announced it was abandoning its interest in Madagascar because Madagascar Oil was "over-valuing" the asset. Madagascar Oil responded to the CNPC statement with a press release of its own, noting



that CNPC was no longer among the companies it was negotiating with to develop its fields in the Morondava Basin. Moreover, the firm said it had not negotiated with CNPC since January 2005.

CNPC may maintain an interest in Madagascar through a partnership with Madagascar Petroleum International (MPIL) to explore the Mahajanga basin. MPIL is a partnership between Sino Union Petroleum and Chemical International (Sunpec), a Hong Kong-listed independent petrochemical firm, and the government of Madagascar.

There are other possible links to China. The chairman of Sunpec, Dr. Hui Chi-Ming, reportedly owns a large stake in yet another Malagasy oil venture, Madagascar Energy International Limited (MEIL). MEIL is prospecting and developing block 3113. MPIL further acquired Chinese sponsorship in February 2006 when a 10% share was acquired by Credit Card DNA, a Hong Kong-based security firm. MPIL subsequently announced plans to partner with CNPC to pursue development of onshore block 2104.

This information in itself does not resolve whether Madagascar is the next target for high-level Chinese petro-diplomacy or simply a staging ground for a dubious scheme by murky Hong Kong business interests. US Embassy sources believe that CNPC is indeed involved in block 2104 and is likely to become more involved in the Malagasy oil sector over time. If that report is correct, then Madagascar could receive a generous aid package from Beijing linked to oil production rights.

## VI. Conclusion

The current volume of equity oil produced by Chinese firms abroad is still relatively modest. It is growing, but with Chinese oil demand growing annually at around 500,000 bpd in the next several years, it clearly will fall as a percentage share of overall Chinese imports.

Despite the relatively small volumes of oil involved, China's drive to acquire control over upstream assets is having very significant effects in terms of driving Chinese foreign policy, including decisions on foreign aid, arms sales and expansion of its long-range naval power projection capabilities. It is also having a major impact by providing revenue streams to countries with issues that tend to drive away the major Western oil companies, such as sanctions, or governments that prefer very non-transparent financial arrangements.

While China's major oil companies do not publish data that specifies where Chinese equity oil is sold, and data from the Customs Bureau show imports only by country of origin rather than on a project-specific basis, it is possible based on research in published sources to ascertain with reasonable clarity where the bulk of these volumes go. The main exception is in the case of small projects in places like Iran and Thailand, for which little information is available in industry publications due to the lack of significant volumes of oil.

Country of Origin for Current Chinese Equity Oil Production	Equity Oil Volume Exported to Chinese Market	Notes
Iran	Minor volumes	
Syria	None	CNPC owns a stake in al Furat Petroleum, but Syria is not a supplier of imports to China, according to published data
Oman	12,000 bpd	Exact mechanism is unclear, but the equity oil is mixed in with the general Omani Light export stream, roughly one-third of which is purchased by Chinese firms
Russia	None or minor volumes	No increase in published data for Russian exports to China after June 2006 acquisition of Udmertneft
Kazakhstan	~100,000 bpd	Much of the equity oil produced in Kazakhstan is sold locally or flows into Russia
Indonesia	47,000 bpd	From CNOOC offshore assets
Colombia	None	
Ecuador	None	
Peru	~20,000 bpd	
Canada	None	Oil sands projects have no transportation capability to Chinese market at present
Sudan	~140,000 bpd	This does not count the new 'Dar Blend' export stream, which appears not to be going to China

\*\* This table shows equity oil from Chinese ownership stakes in overseas projects, not the total for all imports to China.

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