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China and the Competition for Oil and Gas in Asia

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While its economic dynamism stimulates continued growth in Asia, China's increasing demand for energy is creating intense competition, particularly with Japan, over international sources of supply. Domestic fields have generally been disappointing, as have efforts to pipe gas from Central Asia and Russia to the east coast. Consequently, China is not only paying greater attention to potential petroleum resources in the East and South China Seas, but also considering the vulnerability of its sea-lanes to the Middle East and beyond. Its need to diversify has promoted closer relations with Central Asia, the Middle East, and the oil producing countries of Africa and Latin America, but the jury is out on whether China's concerns for secure energy supply will lead to international cooperation against terrorism or fuel the already heated competition for oil and gas. As China continues to assure its future energy security in Asia and many areas of the world, sustained bilateral and multilateral diplomacy to reconcile disputes and avoid conflict will become more important than ever.

It is no secret that East Asia has become the manufacturing center of the world, and that the increasing industrialization of China generates demand for goods and services from Japan, South Korea, and elsewhere that stimulate those economies and reduce consumer costs in them. Less well advertised is the fact that the concentration of industrial might in Asia portends intense competition for energy resources to power its electrical, manufacturing, and transportation sectors. That competition, in turn, has security implications that are likely to be a major focus of international dialogue for the next generation.

China's position compared to historic demand in East Asia

Led by Japan, and buttressed by subsequent development in South Korea, Taiwan, Hong Kong, and Singapore, now joined by China, East Asia has been increasing

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Table 1 East Table 1: Historic East Asian energy consumption

Area	1990–1996 average annual % increase (Btu/oil)	1997 energy consumption (quadrillion Btu)	1997 petroleum consumption (1,000 bbl/day)	1997 petroleum net imports (1,000 bbl/day)	1997 natural gas consumption (billion cu. ft.)	1997 natural gas net imports (billion cu. ft.)
East Asia	5.5/5.6	79.6	14,587	9,111	6,075	533
China	5.4/7.5	36.64	3,638	663	749	0
Japan	2.8/2.2	21.28	5,390	5,312	2,340	2,220
South Korea	11.7/13.2	7.46	1,798	1,786	525	536

its share of global energy use for over 50 years. As shown in Table 1, from 1990–1996, prior to the Asian financial crisis, East Asian energy demand rose 5.5 percent annually, compared with 0.5 percent for the rest of the world.[1] By 1997 East Asian energy consumption was 79.6 quadrillion Btu—21 percent of world total.[2] During the Asian financial crisis, total oil demand remained constant at 15.4 million bbl/d.[3]

Recent and projected Chinese demand

Since 1997 East Asian thirst for oil and gas has accelerated. At current growth rates, oil consumption in developing Asia is expected to rise from 14.6 to 29.8 million bbl/d by 2025, largely as a result of Chinese industrial growth.[4] Chinese GDP has grown at an average rate of 8 percent over the past several years, and the current Chinese Five Year Plan sets a 7 percent average annual growth.[5] China became a net importer of oil in 1994, and in 2003 passed Japan as the second largest importer of oil in the world. It is today also the second largest energy consumer in the world. Chinese demand for petroleum products in 2003 stood at 6.0 million bbl/d, and is projected to reach 10.9 million bbl/d by 2025, with net imports of 7.5 million bbl/d.[6] Two-thirds of that growth is forecast for transportation. The number of Chinese passenger cars increased tenfold during from 1990 to 2000.[7] In 2002 China produced 3.7 million vehicles, and the number is growing exponentially. The portion of China's petroleum consumption due to transportation is still well below the world average of 48 percent, but is rising sharply.[8] Meanwhile, Chinese electricity demand is likely to triple over the next 20 years.[9]

The supply for this growing demand cannot be found domestically. Proven Chinese oil reserves are in decline, and constitute only 2.1 percent of global

reserves. Gas reserves are in even shorter supply, constituting only 1.0 percent of global reserves. Chinese oil exploration, both on land and offshore, has been a disappointment. Production increases since 1997 have averaged a fraction of one percent, while oil demand mushroomed.[10] Although the Daqing field accounts for nearly 1.0 million bbl/d, both it and the China's second largest field, Shengli, have been in operation for 40 years and are in decline. Efforts are being made to increase production by pumping boiler flu gas into the third largest field, Liaohe, but here also production is in decline.[11] China expects production in Xinjiang to reach 1.0 million bbl/d by 2008, but this is not certain. In addition, China has several offshore projects underway in the East China Sea. To date, these as well as Chinese offshore fields in the Bohai and the Pearl River basin have proven relatively small, further prompting Beijing to seek additional international energy sources.[12]

Natural gas is an alternative. Gas is expected to grow to 4 percent of total East Asian energy consumption, with Japan and South Korea leading the way (they imported 71 percent of East Asian LNG in 1997).[13] Natural gas accounts for only 3 percent of Chinese consumption, but China plans to increase that amount substantially—to as much as 8 percent by 2010 according to a May 2004 report of the Abu Dhabi International Petroleum Conference. US estimates point to somewhat reduced growth, a doubling of consumption by 2010, but it is clear that China, due to both enormous industrial pollution and reduced supply of oil in domestic and nearby Asian fields, will need to increase its gas supply, as domestic gas production cannot keep pace with consumption.[14] Thus China is constructing a west-east gas pipeline from Xinjiang to Shanghai via the Ordos Basin, with the eastern segment scheduled to begin operation by the end of 2004, and the Xinjiang segment in 2005.[15] It is also exploring actively in the Pearl River basin and the northern end of the Gulf of Tonkin. Several East China Sea projects are contemplated, such as the Chunxiao gas field and the Xihu trough, about 250 miles east of Shanghai.[16] However, as with oil, the vast majority of increased consumption must come from abroad.

Chinese competition for external sources of supply

Energy demand for transportation has been about the same in China and Japan in recent years—just over four quadrillion Btu annually. However, the U.S. Department of Energy projects Chinese demand to reach 14 quadrillion Btu by 2025, compared to some 5 quadrillion Btu for Japan.[17] Chinese energy demand in the transportation industry is sparked by its rapidly growing automotive, rail, and air industries, sectors in which Japanese industry is already mature. As a result, China will need to import oil and gas from many of the same sources as Japanese imports. As Chinese oil imports rise from the present 2.0 million bbl/d to some 8.6

million bbl/d in 2025, the share oil imports from the Persian Gulf will increase to twothirds of its total oil imports.[18] In an attempt to diversify, China is already investing heavily in major projects in oil producing countries worldwide. A recent Cabinet meeting chaired by Premier Wen Jiabao set forth a development program to 2020 in which China should actively exploit energy resources throughout the world.[19] The drive for energy supply will thus become more intense, with a likelihood of increased competition between the industrial economies of Asia.

One focus of that competition is already evident in the apparent demise of the 2,300 km pipeline from Eastern Siberia, which Beijing had negotiated with the Russian energy giant Yukos. The proposed plan to import 600,000 bbl/d from Angarsk to the Daqing network appeared possible after Yukos Oil and the China National Petroleum Corporation (CNPC) signed a memorandum of understanding in 2003. However, not only did Yukos fall victim to President Vladmir Putin's demands for back taxes and the arrest of its chairman, but in 2003 Japan presented what appears to be a far more attractive proposal for Russia—a 4,200 km pipeline from Taishnet all the way to Nakhodka. The Japanese plan has significant advantage for Russia, including funding, proven technology, a diversified market that includes Japan, South Korea, China, and the Russian Far East, as well as Japanese financing of projects in Eastern Siberia.[20] In July 2004 Transneft, the Russian national oilpipeline monopoly, came out in favor of the Japanese proposal.[21]

Frustrated by the apparent loss of the Angarsk pipeline, China is seeking to convince Russia to commit to a 3,700 km pipeline between the Kovykta gas fields north of Irkutsk to the Chinese port of Lianyunggang. It is also importing increasing quantities of oil from Russia by rail and seeking a large share of the Sakhalin-1 gas project, on which Japan has not yet bid.[22]

To the west, Beijing hopes to revive languishing hopes for a pipeline from Kazakhstan, where CNPC has acquired a 60 percent share in Aktobemunaigaz, to its "Gold Coast." A significant issue is whether there are sufficient reserves in Kazakhstan for pipeline construction to eastern China. In May 2004 President Nursultan Nazarbayev visited Beijing to sign an agreement to construct a 1,000 km pipeline from Atasu in Kazakhstan to Dushanzi in Xinjiang. To connect with the coast, however, requires completion of a 4,000 km west-east pipeline, as well as gas field development in Xinjiang, that PetroChina's joint venture partners recently decided are not economically justified.[23] In a demonstration of resolve, China has completed most of the pipeline and has also sought to reach supply agreements in Uzbekstan.

Another point of friction between Beijing and Tokyo is Chinese exploration of the Chunxiao natural gas field in a disputed area near the Senkaku islands in the East China Sea. The move has evoked strong criticism in Japan, and Beijing's insistence that the field is within Chinese waters raises questions as to the limits

of Chinese maritime claims.[24] The dispute also highlights the ongoing Chinese search for oil and gas wherever it can be found—this despite the fact that East China Sea exploration has thus far failed to produce a large new energy supply.

China likewise faces competition further south in the South China Sea. The problem for Beijing is that nearly all the significant oil and gas found to date in the South China Sea is off the continental shelves of the riparian nations, whose claims extend well into the excessive and infamous Chinese "tongue." The "tongue," of course, is the shape of the nine dotted lines on a map first published by the Chinese Nationalist government in 1947. Although claiming all ocean resources within that line, Beijing has not protested specifically against exploitation by Exxon-Pertimina of a field near Natuna Island, or the Philippine Malampaya and Camago natural gas fields, both within the extremities of the Chinese claim line.[25] The Natuna field has an estimated 42 trillion cubic feet (Tcf) of gas, and after stalling in 1998, resumed operations and now supplies half of Singapore's energy needs.[26]

Further north in the South China Sea, China has been tapping Yacheng, its largest offshore gas field, which came on line in 1996, with undersea pipelines to Hainan Island and Hong Kong. The success of this field appears to have resulted in a flurry of exploratory drilling in the nearby Gulf of Tonkin, and is likely to have played a role in the hard-line Chinese negotiation with Vietnam in demarcating that Gulf in China's favor.[27] Although some small gas fields have been discovered, the results of this activity to date appear relatively meager. China may have belatedly recognized the unpromising potential of deep-water areas off the continental shelf, such as in the Spratly Islands, and has indicated its openness to joint exploration. In addition, China and the ASEAN countries in 2002 signed a Joint Declaration on the Conduct of the Parties, to "undertake to resolve their territorial and jurisdictional disputes by peaceful means."[28]

China has found a more promising source for gas off the coast of Australia where, in late 2003, the China National Offshore Oil Corporation (CNOOC) signed two contracts. The first was a 5.56 percent share of production in the Northwest Shelf Project for delivery of gas to Guangdong beginning in 2006.[29] The second was a 12.5 percent share in the Gorgon gas field off the Australian western coast, with options for further development.[30]

China is also seeking a greater share of Indonesian production. While many Western countries have been disinvesting in Indonesia, China has (a) for $585 million, acquired the Repson-YPF assets in Indonesia, (b) purchased Devon Energy assets in country, (c) at $8.4 billion, contracted for the supply of LNG supply from the planned Tangguh LNG fields to Fujian province, (d) contracted for delivery of 2.6 tons per annum (tpa) from BP's Tangguh gas project in Papua to Jiangsu, beginning in 2007, with negotiations to double that amount, and (e) signed an memorandum of understanding for a stake in gas from North Sumatra.[31]

Thus the intense Chinese quest for energy in Asia, with the exception of Australia's northwest shelf, has yielded only modest results to date. Oil and gas from Central Asia may become available in future years, but face difficulties of extraction and delivery to the eastern coastal region at a reasonable cost. While Chinese oil demand has risen from 4.80 mmb/d in 2000 to 6.25 mmb/d in 2004, a 30 percent rise, and its oil imports are expected to quadruple by 2025, there is no indication of a commensurate increase in petroleum supply from Asia.[32] By 2025, East Asian sources of Chinese petroleum will have dwindled even further. Moreover, domestic oil and gas production are increasing at but a small fraction of Chinese needs.

Given its condition, China has, of course, been actively seeking to diversity its sources of supply outside the Asian region. It has bought a major share in the Greater Nile Petroleum Operating Company in the Sudan, where it is constructing a refinery at Khartoum and a 750 km pipeline from the Kordofan oilfield to the coast.[33] It has begun to accept delivery of oil from Nigeria where it has over thirty solely owned companies or joint ventures.[34] Finally, China invested $360 million in a Venezuelan petroleum project during the late 1990s, and in July 2004 proposed to build a pipeline from Venezuela to Columbia's Pacific coast, from which oil would be shipped to China. This project is risky, however, as an existing pipeline from Venezuela to the Columbian coast has been punctured so many times by leftist rebels that the local people call it a "flute."[35]

More important than local problems in Africa and Latin America is the fact that the volume of their deliveries to China is relatively small, and likely to remain so. China therefore, is coming to rely increasingly on the same source that supplies most of the rest of the industrialized world—the Middle East. It is estimated that by 2025 fully two-thirds of China's petroleum imports, which by that time will have more than quadrupled, will be imported from the Middle East.[36] Some ten percent will also come from Africa, so that over three fourths of all petroleum imports to feed this industrial giant will come by sea, through the Indian Ocean and most likely the Strait of Malacca.

Security implications

In assessing the vulnerability of their country to any interruption of its oil and gas supply, Chinese leaders naturally see the need for a national petroleum strategic reserve. Whether necessary for economic or military reasons is a mute point, as Beijing has already embarked upon a plan to build such a reserve.[37] Although one could speculate that this move is intended to signal Taiwan and the United States that in-kind retaliation for a blockade of Taiwan could not succeed, it is more likely that any Chinese move to take Taiwan by force would come suddenly, to create a fait accomplish before the United States could react, and that a lengthy blockade of Taiwan would accomplish nothing but invite US forces to the region and

threaten regional economic stability. It is far more likely that the main purpose of the reserve is to prevent disruption of the giant industrial base that China is building by any interruption of petroleum supply. Such a disruption would have devastating consequences, not only for the Chinese economy but also for its political system.

The second security implication of China's energy dilemma is enhanced security cooperation with Russia and the nations of Central Asia. Thus the People's Liberation Army (PLA), for the first time ever, has begun conducting combined military exercises outside China. The first was a small counter-terrorism exercise in Kyrgyzstan in August 2002. A year later the PLA conducted a larger such exercise, this time with all the members of the Shanghai Cooperation Organization (SCO), less Uzbekstan, in both Kazahkstan and China.[38] In 2004 the Chinese Defense Minister stated that China plans to enlarge its military cooperation with the SCO, and conduct enhanced counter-terrorism exercises in the future.[39]

A third security implication is that China can be expected to continue its assertive presence along and within the EEZs of neighboring countries in the East and South China Seas, according to the formula, "what is mine is mine and what is yours is negotiable." In both areas China has, during the past ten years, initiated exploratory activity within the claimed waters of its neighbors. The seismic survey in Chunxiao patterns equally assertive claims in the form of drilling rigs in Vietnamese claimed waters in the Con Son basin in the mid-1990s, and the Gulf of Tonkin in the late 1990s.[40] The difference between China's disputes with Japan near the Senkakus, and those with Vietnam, Malaysia, Indonesia, and the Philippines in the South China Sea, is that the latter have protested Chinese claims as part of ASEAN, while Japan confronts Chinese claims with US support for peaceful resolution, but without the support of other aggrieved parties, as was the case in the South China Sea. In both cases, however, Chinese behavior appears constrained by a desire to maintain the benefits of good relations, which in the case of Japan includes not only still large Official Development Assistance, but more importantly a very high volume of trade and investment.

The fourth Chinese concern is that the vast majority of its external oil and gas flows will have to transit the narrow chokepoint of the Strait of Malacca. Nearly two-thirds of tonnage via Malacca is crude. This includes 80 percent of the imports of Japan, South Korea, and Taiwan, and over 45 percent of those of China itself.[41] During the Communist Party Congress in December 2003, President Hu Jintao reportedly commented that the "Malacca dilemma is a key consideration for China's long-term energy security. Certain powers have all along encroached on and tried to control navigation through the strait."[42] The reference to "certain powers" obviously pertains to the United States, which has been seeking to support a multilateral effort among the three littoral states of the Strait of Malacca to deal with maritime crime, including potential terrorism.[43] China has stepped up the tempo of its diplomacy with the littoral states,

highlighted by the May 2004 meeting between Malaysian Prime Minister Abdullah Ahmad Badawi and Chinese Premier Wen Jiabao, at which the leaders pledged to expand relations and cooperation on regional security issues.[44]

Since over three-fourths of Chinese oil imports are expected to come via the Strait of Malacca by 2025, China has been seeking alternatives. The Sunda Strait does not have great depth, and ships over 100,000 DWT do not use the strait.[45] The Lombok Strait via the Makassar Strait is a possibility, but adds $2 per barrel to China's already higher than average import costs.[46] Thus China is actively seeking to help construct a pipeline across the Kra Isthmus that would have the opposite effect, saving between $0.50 to $2.00 per barrel and providing an additional route for secure delivery of its precious crude. The plan for a joint venture between Sinopec and PTT of Thailand depends upon a feasibility study now underway. It envisions transferring oil from ships in the Andaman Sea across a 250 km pipeline to the Gulf of Thailand, with storage facilities and oil terminals on each side.[47] Although the viability of the project is uncertain, the fact that the Sumed pipeline in Egypt, which is ten times the length of the projected Kra Isthmus pipeline, carries more oil from the Suez Canal to the Mediterranean Sea than does the Suez Canal itself, argues in favor of the project's viability.

A minor enhancement of Chinese energy security through Southeast Asia could eventuate in connection with planned Singapore-Kunming Rail Link, which will consist of a section through Burma. A modest spur from the planned route would link with warm water ports on Burma's coast, allowing possible transshipment of limited amounts of fuel to western China.

Moving further west, China faces the fact that its crude carriers must navigate waters largely dominated by the Indian Navy. This fact alone might make Beijing nervous, but as with Taiwan, the scenario of interference with Chinese shipping is unlikely due to other circumstances—in this a wide range of bilateral ties, as well as the alternative pressures China could place on India, such as military activity across their disputed frontiers. In addition, Chinese engineers are helping build the deep water port at Gwadar, Pakistan, that not only could provide forward anchorage for PLA Navy ships, but sits astride sea lanes just outside the Strait of Hormuz. In a less interdependent world, conflict scenarios surrounding Chinese naval presence in the north Arabian Sea might abound, but with a strong sense of 19th century balance of power politics still remaining in Chinese military thinking, it should be expected that PLA Navy vessels will, during this decade, occasionally deploy a task force to "protect vital sea lanes" in the Indian Ocean.

Finally, there are security issues deriving from Chinese dependence on external oil supplies that indirectly relate to an assured oil supply. The first has already been demonstrated—arms and technology transfers to Iran, that caused the United States in May 2003 to impose sanctions on the North China Industries Corporation (NORINCO) and prohibited US companies from launching satellites on Chinese

rockets.[48] The second is a more pro-Arab tilt in Chinese foreign policy vis-à-vis the Palestinian question. Although dependent upon Israel for certain arms and military technology, Beijing appears to have increased its anti-Israeli rhetoric by charging that Israeli behavior and US support for it stimulates Arab terrorism, and leads to hatred of the United States.[49] China also sharply criticizes the US role in Iraq, charging US unilateralist tendencies and interference in the affairs of Arab states upsets regional stability and further stimulates terrorist activity.

Four security-related challenges

Besides these specific political-military concerns, Chinese leadership appears to face four general challenges. The first is how to handle the threat of global terrorism as it pertains to China's energy supply. There is no national threat to the flow of oil or gas by pipeline from western China or Central Asia to the Chinese coast. Certainly no nation in Asia or the Middle East has any interest in impeding petroleum flow through the Straits of Malacca. A national attack upon China's port terminals or refineries is also highly unlikely. But in all three of these cases a terrorist attack is possible. Although it may consider itself less of a target than the United States and its allies, China must deal with the threat of global terrorism and the potential for terrorist disruption of its energy supply. In this regard it shares with industrialized world a common interest.

A second challenge for the leadership in Beijing is to balance the benefits of diversification with the risk of unrestrained exploitation of petroleum reserves, wherever they may be found. Diversification raises the probability of assured supply, increasing the prospect that China will continue to serve as an engine of growth for its own people and those of its economic partners. However, the thirst for oil and gas risks confrontation with other claimants, creates intense global competition for resources, and raises the chances of long-term global shortages. Thus, while industrialized countries currently benefit from Chinese growth, the fuel for that growth will create intense economic competition, raise the cost of their own energy supply, and necessitate additional multilateral dialogue.

Third, Beijing must decide whether it is necessary and advantageous to patrol the sea-lanes upon which its oil and gas supply will increasingly depend. PLA Navy vessels in the Indian Ocean might heighten tension with India, and their presence in the straits of Southeast Asia might make neighboring and other trading nations nervous. While there is no current or anticipated threat to Chinese shipping, nationalists like to think that great powers have great navies, and Chinese proponents of military modernization can further justify naval programs by outofarea deployments. Thus, Beijing might feel that it is necessary to deploy a naval task force to the region from time to time, if for no other reason than to demonstrate the ability to do so.

Finally, China must decide the extent to which it will go to please the oil producing states of the Middle East. Political alignment with Arab positions in the United Nations and in public and private diplomacy has already occurred. Economic incentives to invest in and help construct railroads, ports, and other major projects in oil-rich countries are also apparent. What remains to be decided is how China will react to increasing terrorism in the Middle East and around the world. Will it seek to avoid offending the terrorist agenda in its worldwide quest for oil and gas? Will it seek to curry favor by resuming exports related to weapons of mass destruction and their delivery means? Will it use its influence to prevent states from harboring known terrorists? Except for difficulties with its Uighur population in Xinjiang, China has thus far been able to avoid confrontation over Muslim extremism, but as it increases its presence in the Middle East and elsewhere, it may face choices for or against terrorism that could affect its energy supply. It is in this area that close and continuous dialogue with China may be most necessary, but as China continues to assure its future energy security in Asia and many areas of the world, sustained bilateral and multilateral diplomacy to reconcile disputes and avoid conflict will become more important than ever across a wide area of endeavor.

Dr. Kenny directs studies at the CNA Corporation in Alexandria, Virginia. The views expressed herein are personal ones, and do not necessarily reflect those of the CNA Corporation or any other organization.

Notes

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