

10 Energy security in China's capitalist transition

Import dependence, oil diplomacy, and security imperatives

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The People's Republic of China (PRC) had been a net energy exporter since the 1960s. In 1993, however, China became a net oil importer. Largely as a result of China's capitalist transition, China's thirst for energy resources has continued to grow massively in recent years. This is deepening the country's energy import dependence, which in turn is changing many aspects of China's energy markets and accelerating China's integration with the rest of the world. However, with higher dependence on energy imports, particularly imports of oil, energy security has emerged as a top issue for the Chinese leadership. Indeed, the exigencies of energy security have come to influence the conduct of China's foreign relations.

There are in general four dimensions of energy security. The first is the economic dimension. Energy security means smoothly securing adequate supplies of energy efficiently and at the lowest cost. This requires governments to have an energy policy that is transparent and reduces barriers to the efficient operation of markets. The second is the geopolitical dimension. Promoting energy security means that oil or energy diplomacy plays a key role in a country's foreign policies. The third is the national security and military dimension. Energy security can be an important component in formulating a country's national security and defense policies. The final is the environmental dimension. To manage energy consumption while simultaneously protecting the environment and avoiding ecological degradation, any country, particularly a large and fast growing developing country like China, faces huge challenges.

The purpose of this chapter is twofold. First, we will analyze the nature and seriousness of China's energy vulnerabilities, especially rising dependence on energy imports. Second, we will examine the economic, geopolitical, and, to a lesser extent, military dimensions of the dilemmas shaping China's energy security. Unfortunately, a detailed analysis of the environmental issues associated with energy security is beyond the scope of this chapter, though these issues will be touched on.

Increasing energy needs and resulting vulnerabilities

China is a large energy producer and more importantly, a giant energy consumer. From the global perspective, China ranks second, after the United States, in total

energy consumption. On a per capita basis, however, China's primary energy consumption was nearly 30 percent below the world average in 2005.

Coal plays a dominant role. China is the world's largest coal producer and consumer. In 2005, coal accounted for 70 percent of China's primary commercial energy consumption.¹ China is also the second largest oil consumer after the United States, though oil accounts for just under 21 percent of China's total primary energy consumption.

Currently, the share of natural gas in China's primary energy consumption remains low at under 3 percent. Its importance, however, is growing. Similarly, China's nuclear power program only gained traction at the end of the 1990s, but the country now plans to increase nuclear power generation capacity by a factor of 4 to 5 over the next 15 years. The aim is to reduce China's dependence on coal, which generates greenhouse-gas emissions. Finally, the Chinese government is exploring ways to improve energy efficiency and to increase the use of renewable energy sources such as solar, wind, biomass, and hydroelectric power.

China's energy vulnerabilities

At present, China's energy system remains vulnerable in six major areas. First and foremost, the Chinese economy has been growing at spectacular rates for nearly three decades and is expected to enjoy high growth rates for at least the next 15 years. China will therefore have enormous energy requirements over the long-term. This rising energy use is causing a major vulnerability: a structural mismatch between energy resource availability and energy consumption.

While increasing energy requirements are themselves challenging, an equally great challenge is determining the right energy mix. China needs clean, high-quality energy to support continued economic growth, but, despite the relative abundance of coal and other energy resources, China currently lacks high-quality premium fuels. For instance, the shares of natural gas and nuclear power are still very low in China's energy production.

In addition, there are structural problems within individual energy sectors. In coal, for instance, upstream mining is well developed but investment is lacking in coal washing, shaping, transportation, distribution, and coal-water slurry. Similarly, in the power sector, power generation, transmission, and distribution are not well coordinated, leading to bottlenecks in many markets (Yan and Zhao 2003).

Closely associated with the deep structural mismatch between energy needs and energy production is China's second energy vulnerability. It centers on the fact that China's per capita energy consumption is below the world average and far below the levels of developed countries. For instance, China's per capita primary energy consumption was only 15 percent of that in the United States during 2005. Low per capita energy consumption implies that as the Chinese economy develops, an increase in per capita energy consumption is inevitable.

As a result, the promotion of energy efficiency has taken on enormous importance in China. Already, China has applied various energy conservation technologies and achieved impressive results. The task, however, is becoming increasingly difficult (Xuan 2004). As a priority, China intends to establish a market-oriented policy framework and invest substantially in new energy technologies to further promote energy conservation. If China fails to effectively implement these conservation strategies, energy demand may rise to levels that are impossible to meet in the future.

The third area of vulnerability is China's growing oil demand and the lack of domestic supply. In terms of energy security, oil supply security is the most important issue for China. While natural gas imports may add to the security problem, they may also be viewed as a way to mitigate the growing dependence on oil through energy diversification.

The fourth energy vulnerability is the conflict between energy use and environmental protection. China is currently the world's largest sulfur dioxide polluter and the second largest carbon dioxide emitter. In November 2006, the International Energy Agency predicted that the PRC would surpass the United States in 2009 as the biggest emitter of carbon dioxide (Quek 2006). Moreover, at the beginning of this decade about two-fifths of China's land territory was affected by acid rain, with the Lower Yangtze region the most heavily disturbed (Zhang 2002).

Much of these problems can be traced back to China's reliance on coal to meet the bulk of its energy needs. The massive use of coal is causing serious problems with the environment and public health. At present, nearly 80 percent of coal is burned raw, either as a fuel or for power generation. Although the Chinese government has made great efforts to promote the use of clean and premium fuels, it is inevitable that coal will remain the primary source of energy. In fact, it will take decades before China is able to reduce coal to under 50 percent of total energy consumption and apply basic clean coal technologies.

The fifth vulnerability is that for all energy sectors a well-functioning management and regulatory framework either does not exist or is incomplete. The Chinese government has tried for decades to address this problem. Reform of the coal, oil, and gas industries, for example, started as early as the mid-1980s. However, the coal sector remains beset with low efficiency, heavy pollution, railway congestion, and production safety issues, while in oil and gas, competitive markets are far from fully established. Power sector reform, on the other hand, is relatively new, but also faces a major uphill battle in ending decades of monopoly. As of today, there is still a long way to go toward establishing regulatory frameworks that allocate energy according to market-based systems.

The last vulnerability is the inefficient supply of energy to China's vast rural areas. China currently has over 20 million people in rural areas who have no access to electricity. The massive use, often in primitive ways, of non-commercial biomass (mainly stalks and firewood) is ecologically destructive and economically inefficient. As a result, rural energy development has long been one of the foci of China's energy policy. The government has tried for decades to promote the commercialization of biomass use and extend the

electric power grid to remote areas. But the government continues to face enormous challenges. Even now 61 percent of China's total population, or over 780 million people, live outside of urban cities and towns.

Among these vulnerabilities, the structural mismatch between energy production and consumption, as well as rising oil imports and their impact on energy security, are considered the most challenging. While China's total energy needs during the coming decades are problematic, the country's lack of clean, premium, and high-quality fuels is an even bigger predicament. Indeed, adequate supplies of clean and high quality energy could support the Chinese government's goals of fostering rapid economic growth while improving China's environmental and ecological conditions. However, to obtain sufficient clean, premium, and high-quality energy products, China not only has to substantially increase its investment in oil, gas, hydroelectricity, nuclear power, and clean coal technologies but also import more oil and gas. This will, in turn, increase the importance of energy security.

Put differently, energy security will soon become the biggest energy vulnerability facing the PRC. If China feels that its energy security is jeopardized, many of the other policy goals such as the use of clean and high-quality fuels, environmental protection, and improving the efficiency of the energy sector through reform will be negatively affected.

Deepening energy import dependence

As represented in Figure 10.1, China became a net oil importer in 1993 following nearly 15 years of rapid economic growth. Currently, China is a net energy importer on an overall basis, mainly due to rising oil imports and shrinking coal

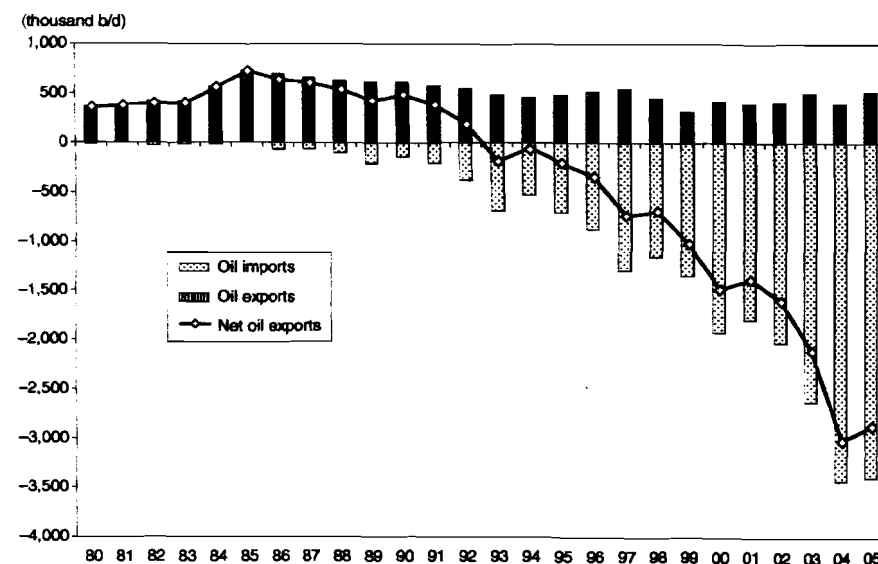


Figure 10.1 China's oil (crude and products) exports and imports, 1980–2005.

exports. Moreover, China's coal exports are likely to decline further during the coming decades, while natural gas and oil imports will continue to grow.

As the world's largest coal producer, China has long exported coal to Asia. However, the rapid rise of domestic coal demand since 2003 has threatened China's position as a large coal exporter. Coal imports have been on the rise, and, within the next five to ten years, China is likely to become a net coal importer.

To diversify its sources of energy, China has rapidly developed its natural gas industry since the late 1990s. The pace of development has been particularly fast in recent years, as China's overall energy supply tightened. Spurred by high demand for energy, especially electric power, domestic natural gas pipelines have been built at a rapid pace. At the same time, one liquefied natural gas (LNG) terminal for imports is up and running, another is under construction, and several more have been approved.

China's current natural gas consumption is supplied almost entirely from domestic production, but future natural gas supplies are expected to come from three sources: higher domestic gas production; current and future LNG imports from Australia, Indonesia, Malaysia, and the Middle East; and emerging imports of pipelined gas from neighboring countries to start at the earliest between 2010 and 2015 (Wu and Fesharaki 2005a).

Finally, China's petroleum sector and oil markets are expected to change continuously over the next ten years and beyond. Crude production growth from within China is expected to be flat, yet demand for petroleum products is likely to grow strongly. As Figure 10.2 elucidates, this situation

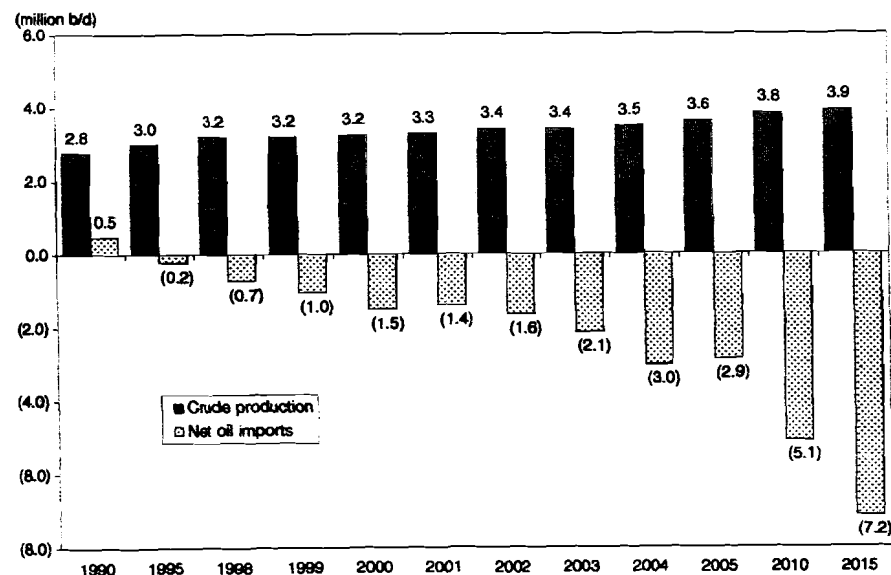


Figure 10.2 China's crude production and net oil import requirements, 1990–2015.

will require continuously rising imports of oil over the long term. Most troubling is that over 70 percent of China's net imports are likely to come from the geopolitically unstable Middle East.

Strategic policy proposals

China's growing importance of energy security is therefore first and foremost a consequence of rising oil imports. In the future, the decline of coal exports and stagnant domestic oil production will add to this problem (Wu and Fesharaki 2005b). Evidently, oil supply security in particular and energy supply security in general has become one of the top concerns for the Chinese government since the beginning of the new millennium.

This is reflected in recent government policy proposals. For the first time, two energy security items were incorporated in China's 10th Five-Year Plan (2001–2005) (Wu 2001). At the strategic level, the government set the goal to optimize the mix of energy while ensuring the country's overall energy security. Specifically for oil and gas, the plan contained the establishment of a strategic petroleum stockpile. This stockpile aims to ensure petroleum supply security and enhance the government's capacity to stabilize the market.

Concern with energy security took a step further when in November 2004 China's State Council approved the country's first "Mid- and Long-Term Energy Conservation Plan" (Hai 2005). In addition, the 11th Five-Year Program (2006–2010), where the term "plan" was replaced by "program," has made improving energy efficiency and conservation a top priority. The policy goals of the 10th Five-Year plan were expanded upon in this program, which mentions ensuring energy supply and managing energy demand, especially energy conservation, as enduring policy goals. Nonetheless, China still has a long way to go to before it can reach the ambitious targets contained in these policy documents.

Overall, the past years have seen the formulation of a plethora of additional policy proposals by the Chinese government (Chen 2003; Qin 2004; Xu and Yang 2004). One central thrust is to adjust energy consumption and production structures so as to reduce China's dependence on oil. Encouraging coal gasification, liquefaction, and the development of nuclear power are the most common proposals in this respect.

Another set of proposals is found in the realm of international relations, which will be discussed in detail in the next sections. A final set of proposals reflects clearly how China's energy production and distribution system remains dominated by state firms. Although subsidiaries of China's state oil giants have been listed on stock markets abroad and their corporate governance reformed, the process of reforming the state energy production and distribution systems remains ongoing. For example, there are calls to establish an oil futures market and to enhance the government's energy information gathering and research capabilities. There are also plans to

form a centralized government agency for energy management and to draft a coherent national energy policy.

State oil companies are also seen as tools for the government to secure energy resources. These companies, for instance, should seek to strengthen overseas investments, particularly in the Middle East, Asia Pacific, Russia, Central Asia, Africa, and Latin America. There are also calls for China's state oil corporations to strategically cooperate with state shipping firms and to enhance government support for these shipping companies. The aim is to make ocean transportation of energy resources an important element of China's energy security.

Despite this wealth of policy proposals, progress on many fronts remains difficult, especially deeper reforms of China's internal energy production and distribution markets. China thus continues to search for ways to form a comprehensive and effective energy security strategy on the economic front.

Energy security, foreign policy, and national security

Energy security is as much a political issue as an economic one, and therefore has important consequences for a country's foreign and defense policies. In China's case, the political ramifications of energy security are profound. Since at least the early 1990s, the Chinese Communist Party's (CCP) continued legitimacy has depended in large part on its ability to improve the economic welfare of the Chinese people, something it has been able to do with considerable success. Yet, energy security is a prerequisite for sustained economic growth and is therefore viewed by the ruling elite as critical to its long-term survival.

The future of China's energy security has clearly become a source of some concern for China's political leaders. According to one Chinese analyst, the success or failure of China's modernization drive rests on the Chinese government's ability to achieve energy security (Friedberg 2006: 24). Indeed, the highest levels of the Chinese leadership have drawn attention to the country's energy security situation, resulting in the formation of the State Energy Leading Group, chaired by Prime Minister Wen Jiabao (Liu 2006: 4). And as a study by the policy research division of the CCP concluded: "The question of importing oil is not a pure economic issue, but more an issue involving international politics" (Tang 2006: 28).

As analyzed in previous sections, one of the outcomes of China's capitalist transition has been the country's growing dependence on energy imports. This dependence can be mitigated in part through domestic initiatives such as enhancing energy self-sufficiency and harnessing renewable energy sources. However, such programs will take decades to bear fruit, and in any case it is virtually impossible for a country like China to become totally self-sufficient in energy resources. As a result, China's dependence on imported energy is set to become a permanent reality with important consequences for the conduct of Chinese foreign and defense policies.

In this sense, the PRC is simply following in the footsteps of other capitalist developers, and is becoming a more normal country. During the 20th century, access to energy resources became a prime concern for major capitalist powers such as Britain, the United States, and Japan, exerting a strong influence on those countries' foreign and defense policies. In the early 20th century the Middle East assumed a new importance in Britain's foreign policy as the Royal Navy switched from coal to oil. Post-World War Two, the need to secure access to overseas oil fields became one of the central drivers of US foreign policy, particularly in the Middle East.

More recently, the Bush administration's decision to invade Iraq in 2003 may publicly have been justified by the need to destroy Saddam Hussein's alleged weapons of mass destruction program and also a desire to spread democracy in the Middle East. However, oil was certainly a major factor in these calculations. Access to oil has also been a critical component for resource-poor Japan's foreign and defense policies. Tokyo has thus pursued different means to obtain that end: from military expansionism in 1941 to diplomacy post-1945.

The following sections are divided into three parts. The first examines the influence of energy security on China's foreign policy, in particular on Beijing's increased interaction with resource-rich regions of the world. The second part focuses on how energy security is reshaping the parameters of the PRC's national security and defense policies, specifically the perceived need to reduce the country's strategic vulnerabilities. The final part then considers whether China's search for energy security will become a force for cooperation, competition, or possibly even confrontation with other powers such as America, Japan, India, and Russia.

Energy security and Chinese foreign policy

China's foreign policy may be said to consist of three interlinked core elements: great power diplomacy (*daguo waijiao*), good neighbor or peripheral diplomacy (*zhoubian waijiao*), and energy or resource diplomacy (*nengyuan waijiao*) (Tang 2006: 12). The first element centers primarily on the PRC's relations with the United States, followed by other major powers such as Japan, India, Russia, and the European Union. The aim of China's great power diplomacy has been to foster a stable international environment by avoiding confrontation.

The second element is based on China's desire to foster close and cooperative relations with its neighbors, particularly those it shares borders with in Northeast, Southeast, and Central Asia. The resolution of border disputes and the development of transport linkages to bolster increased trade relations have been the main thrusts of this second element.

The third element, energy diplomacy, is the newest of the three elements, and is aimed at securing energy and other natural resources to fuel China's modernization program. Since the dawn of the 21st century, energy

diplomacy has acquired an even greater prominence. The travel itineraries of PRC leaders increasingly include energy producing countries, and the bilateral agreements secured invariably involve commitments by China to purchase energy resources or invest in these countries' energy production.

The most important geographical area for China's energy needs is the Middle East, which supplies nearly half of the country's crude oil imports. The two most important countries for China in this region are Saudi Arabia and Iran. Over the past several years Sino-Saudi relations have grown closer, as Riyadh seeks to reduce its dependence on the United States, and Beijing's thirst for oil has increased. Today, Saudi Arabia provides China with about 17.5 percent of its crude oil imports, a figure that is set to rise over the coming decades (*BBC News* 2006).

Iran is also a major producer of oil and gas, and the PRC is keen to increase imports of both. In March 2004 Beijing signed an agreement with Tehran to import 110 million tons of LNG for the next 25 years worth US\$25 billion (*Wall Street Journal* 2004). This price tag can easily double if an actual contract is signed today. The PRC has also made a major investment in Iran's Yadavaran oil field (*Washington Post* 2004).

While China may have no choice but to increase energy imports from the Middle East, it also seeks ways to manage if not reduce its overall dependence on this region for two reasons: first, this region is politically unstable, which could lead to supply disruptions; and second, Beijing is concerned about the strategic vulnerabilities associated with the transit of energy resources from the Middle East through geographical choke points such as the Strait of Hormuz and the Strait of Malacca. The issue of strategic vulnerabilities will be explored in more detail later. What follows is a brief examination of China's attempts to reduce its dependence on the Middle East by securing energy resources in other parts of the world.

Since the collapse of the Soviet Union in 1991, Beijing has looked to neighboring Kazakhstan in Central Asia and Russia as important sources of energy supplies. Both countries share a land border with China and oil imports can be received via oil pipelines or by rail. In the late 1990s, China entered into negotiations with Kazakhstan to construct an oil pipeline. However, it was not until 2004 that construction of the pipeline actually began. Completed in late 2005, the US\$700 million, 960-kilometer pipeline from Atasu in central Kazakhstan to Xinjiang Province in China is capable of delivering 10 million tons of oil every year, rising to 15 million tons by 2010, and up to 50 million tons over the long term (*Asia Times* 2005a; *People's Daily* 2004a).

China has also worked hard to cultivate close relations with other Central Asian Republics and has been the driving force behind the Shanghai Cooperation Organization (SCO). This organization links Central Asian Republics to China and Russia. For China, one of its main agenda items has been to secure Chinese access to regional energy resources.

One of China's top priorities in its relations with Russia has been tapping into that country's vast energy resources. Russia is the world's largest producer of crude oil, and is already an important supplier to China. Over the past decade Beijing has been trying to gain access to Russia's massive oil reserves located in eastern Siberia, an effort that has brought it into direct competition with Japan. Tokyo imports 80 percent of its oil from the Middle East, and, like China, is trying to lessen its dependence on that part of the world. Japan and China have competed with each other to build rival pipelines to transport the Siberian oil. Japan prodded Moscow to accept a route from Angarsk in eastern Siberia to the Pacific port of Nakhodka; the oil would then be transported to Japan by sea. As a sweetener to the deal, Tokyo offered to finance construction of the proposed pipeline, estimated at US\$13–15 billion.

In opposition, China lobbied Russia to build a pipeline from Angarsk to the northeastern Chinese city of Daqing (*Economist* 2003). In order to extract maximum concessions, Moscow skillfully played the two sides off each other. In late 2004 Japan seemed confident that it had won the race. However, in April 2005 Moscow announced that the first stage of the oil pipeline would begin in Taishet, not Angarsk, and terminate mid-way at Skovorodino where oil would be shipped to China by rail (*Moscow Times* 2005). Although Moscow has indicated that the pipeline would eventually terminate at Nakhodka on Russia's Pacific coast, Tokyo was piqued by comments from Russian officials that China had priority over Japan, and threatened to withdraw its offer to finance the project (*Japan Times* 2005). It seems likely, therefore, that Japan has lost out and that China will purchase the bulk of Russia's Siberian oil.

China is also looking much further afield in its search for energy resources, including Africa and South America. Beijing has had interests in Africa since the establishment of the PRC in 1949. From the 1950s until the late 1970s these were primarily ideological: at the time, Beijing portrayed itself as the leader of the Third World and sponsored a number of revolutionary movements on the continent. During the 1980s and 1990s, China's interest in Africa waned as the country focused on economic development and relations with its Asian neighbors. Over the past few years, however, Africa has again become an area of intense interest for China, and oil has helped rekindle that interest. China has signed oil exploration or production agreements with the Sudan, Niger, Ethiopia, Egypt, Gabon, and Algeria, and is pursuing negotiations with Chad, Angola, and Congo over similar deals.

African countries now supply approximately 25 percent of China's oil imports (Hill 2004). However, it is important to note that China is expanding its presence in Africa for reasons other than energy resources. Africa represents a potentially large market for Chinese manufactured goods and constitutes a community of 53 countries able to extend diplomatic support to China at the United Nations and other multilateral forums, thus denying

Taiwan international space (Thompson 2004). China's sponsorship of the China-Africa Summit in Beijing in November 2006, attended by heads of state from 48 African countries, highlighted Africa's growing importance in Chinese foreign policy.

Finally, China's energy diplomacy extends to South America. Over the past few years Beijing has stepped up relations with Venezuela, Brazil, Ecuador, Argentina, Peru, and Cuba. In particular, China has courted Venezuela, one of the world's leading oil producers. Although Venezuela provides the United States with 1.5 million barrels of oil per day, Hugo Chavez has pursued an anti-American agenda since becoming president in 1998 (*BBC News* 2005). As US-Venezuela ties have chilled, Sino-Venezuelan relations have warmed. The backbone of this new relationship is oil: Chavez wants to reduce dependence on oil exports to the United States, while China wants to increase energy imports from Venezuela. However, like Africa, oil is only one factor in China's South America policy. Beijing sees South America as an important market for Chinese goods, as well as another significant diplomatic community of 14 countries.

Energy security and China's national security

China's growing dependence on energy imports has aroused strategic anxieties within the government and among the country's security analysts. The focus of this anxiety is the perceived vulnerability of seaborne energy imports. At present, China's navy is incapable of protecting the country's sea lines of communication (SLOC), the maritime arteries which enable ships to bring resources into the country and carry them out into the global market. Since the end of World War Two, the United States Navy has ensured freedom of navigation and kept the SLOCs open for international trade.

America's global naval preponderance is a double-edged sword for China. On the one hand, it enables China to thrive as a maritime trading power. On the other hand, Chinese security analysts fear that in the event of heightened tensions with America, say over Taiwan, the US Navy would be able to blockade Chinese ports and interdict vessels heading for China on the high seas with impunity. The disruption of seaborne energy supplies to the PRC would have two effects: first, it would severely hinder China's ability to prosecute a war; and second, the country's economic growth would be negatively impacted, if not derailed.

Emblematic of China's concern is the Strait of Malacca (SOM). Located in Southeast Asia, the SOM is a narrow and congested waterway separating Indonesia and Malaysia, with Singapore located at its southern entrance. As the shortest route between the Indian and Pacific Oceans, the SOM is one of the world's most important waterways: 65,000 vessels transit through it each year, carrying over one-third of global commerce and half of global energy supplies. As the Chinese economy continues to boom, the SOM's strategic significance for China increases each year.

As noted earlier, half of China's crude oil imports originate in the Middle East, with this figure expected to rise to 65 percent by 2015. Energy resources from the Middle East, plus those from Africa, are shipped to Chinese ports via the SOM, or the Lombok-Makassar Strait further to the east in Indonesia. The Chinese government increasingly views the country's reliance on these maritime choke points, especially the SOM, as a strategic vulnerability.

In late 2003 President Hu Jintao expressed concern at China's energy security situation, noting that "certain major powers" (a codeword for the United States) were trying to control the strait (*Wen Wei Po* 2004). China's state-run media soon dubbed the issue China's "Malacca dilemma." As one commentary put it, "It is no exaggeration to say that whoever controls the Strait of Malacca will also have a stranglehold on the energy route of China" (*Zhongguo Qingnian Bao* 2004). In fact, Chinese analysts have accused the United States, Japan, and India of using transnational threats (especially piracy) in the area as a pretext to bolster their regional naval forces. According to Lu Guoxue, Washington's intention is to curtail China's rising power by restricting its access to energy supplies through the SOM (*Zhongguo Qingnian Bao* 2004).

China's first line of defense to protect its SLOCs and ensure uninterrupted supplies of energy is the People's Liberation Army Navy (PLAN). Over the past decade, the operational capabilities of the PLAN have improved significantly due to a combination of acquisitions of high-technology naval platforms from abroad (mainly Russia) and an active indigenous construction program. These have equipped the PLAN with new and sophisticated destroyers, frigates, amphibious landing ships, and submarines (Goldstein and Murray 2004).

The primary driver for China's naval modernization has been potential contingencies in the Taiwan Strait, particularly the need to conduct amphibious landings and deter the US Navy from intervening in the dispute (Cole 2006). The surface vessels and submarines now in the PLAN's inventory also enable China to exert limited control over its SLOCs, particularly those close to the Chinese coast. However, while China has made some progress toward establishing a blue-water navy, that is, an ocean-going navy, it is still several decades away from realizing that goal.

As a blue-water navy might not be achieved for a generation, Chinese security planners have begun considering other ways to reduce the country's "Malacca dilemma." One suggested strategy is to establish a Chinese naval presence, either temporarily in times of crisis or permanently as the PLAN expands, at ports in countries friendly to the PRC. This would obviate the need for Chinese navy vessels to operate far from home. This "string of pearls" strategy includes ports in Cambodia, Burma, Bangladesh, and Pakistan (*Washington Times* 2005). Such a strategy would be dependent on China maintaining close relations with those countries, and might run the risk of fueling regional suspicions of China's intentions.

Other proposals call for China to bypass the SOM altogether. All of these proposals involve significant financial outlays, technical difficulties, and

security concerns. One of the most fanciful proposals has been for China to finance construction of a canal across the Kra Isthmus in southern Thailand. The idea of an "Asian Panama Canal" has been around since the late 17th century, and was most recently revisited in 2001 by Thailand's Deputy Prime Minister Chavalit Yongchaiyudh. Initially, the project aroused some interest in China, but Beijing balked at the US\$25 billion price tag. In 2003 Thai Prime Minister Thaksin Shinawatra effectively killed the project in favor of a cheaper oil pipeline across the south of the country. Again China expressed an interest, but its enthusiasm waned due to cost concerns and escalating political violence in Thailand's southern provinces (*Nation* 2005). Moreover, neither the Kra Canal nor the energy pipeline would lessen China's sense of vulnerability. Tankers would still have set sail to and from Thailand, only shifting the geographical focus of the problem slightly (Storey 2006).

Two other proposals involve the construction of energy pipelines to the PRC, much like the Kazakh-China pipeline outlined earlier. The first is a US\$2 billion 750-mile pipeline from Sittwe in Burma to Kunming in China's Yunnan Province. This project is appealing to China because oil tankers carrying energy supplies from the Middle East and Africa would be able to sail directly to Sittwe, bypassing the SOM (Cheong 2004). The two countries reportedly began talks on the financing and construction of this pipeline in 2004 (Beng 2004).

The second proposal is to build a pipeline from the Pakistani port of Gwadar to Xinjiang Province. Pakistan is a close ally of the PRC and Gwadar, partly financed by China, is very close to the Persian Gulf. Ships carrying energy supplies to China would be able to bypass all maritime choke points except the Strait of Hormuz. However, the China-Pakistan Energy Corridor, as the project has been dubbed, would be an expensive proposition given the long distances involved and the rugged terrain. The pipeline would also have to run through Baluchistan Province, which is prone to separatist violence.

Increasingly those who frame China's national security and defense policies have to consider strategies to reduce the country's energy import dependence. These strategies include achieving blue-water status for the PLAN and constructing pipelines that bypass the SOM and other maritime choke points. However, all strategic options are expensive, time-consuming, and politically problematic. In the meantime, China will have to contend with the dilemmas and insecurities posed by its dependence on the maritime security and control over international waters exerted by the US Navy.

Energy security and great power relations

As China's energy dependence deepens and Beijing looks to secure access to energy resources across the globe, security analysts and scholars of international relations have begun to consider the possible effects on

China's relations with other major powers, particularly the United States, Japan, and India. One such scholar, Aaron Friedberg (2006), has posited three possible scenarios. First, that energy security concerns will act as a catalyst for great power cooperation, especially in US-China relations. Second, that resource scarcity could lead China to adopt a more aggressive foreign policy, in which military force is used to secure energy resources. The final scenario lies somewhere in between: that "concern over access to resources will continue to act as a constraint on China's external behavior and an inducement for avoiding conflict with the United States" (Friedberg 2006: 32–34).

Based on current trends, it seems likely that for the foreseeable future China's efforts to achieve energy security will engender both cooperation and competition with other major powers. While the second scenario cannot be dismissed, it would be counterproductive to the PRC at this stage of its development.

There is no doubt that China's search for energy security has created some friction with other global powers. Tensions have arisen between China and Japan, for instance, over access to energy resources in the East China Sea. Since 2003, Chinese rigs have been drilling for natural gas near the median line between the PRC and Japan in the East China Sea. Japan has called on China to desist because it believes Chinese rigs are exploiting gas on the Japanese side of the median line (*Asia Times* 2005b). Talks between the two countries have thus far failed to resolve the dispute, and both sides have stationed warships in the area. The potential for a naval clash has aroused concern in both countries, as well as in the United States. China's *People's Daily* (2004b) has described the competition for Russia's Siberian oil and the East China Sea dispute as "only a prelude of the game between China and Japan in the arena of international energy."

However, it should be noted that competition for energy resources is one of a number of factors that have created strains in Sino-Japanese relations. Visits to the Yasukuni Shrine by Japanese politicians, the tightening of the US-Japan alliance and the implications for conflict over Taiwan, and the PRC's military modernization have also put strains on the relationship. Indeed, competition for energy resources is unlikely to spark a Sino-Japanese conflict, with both sides keen to protect annual bilateral trade of US\$200 billion.

China's expanding overseas energy interests have also brought it into contention with the United States. Voices in Washington have been critical of China's relations with countries such as the Sudan, Iran, Burma, and Venezuela, either because of those countries' poor human rights records or because they have adopted policies or positions perceived as inimical to US interests. In all of these countries China has important and growing energy interests. In the Sudan, for example, China's state-run oil companies have been investing heavily in oil production and refining facilities since

the late 1990s, and today China buys 50 percent of the country's output (Hill 2004). US oil companies have been prevented from investing in the Sudan since 1997 because of Khartoum's poor human rights record. Human rights groups have accused China of providing diplomatic support for Sudan at the United Nations in order to protect oil interests.

China's ties to Iran have also raised America's ire. As noted earlier, Iran has become an important energy supplier to China. The United States has discouraged other countries (including Japan) from investing in Iran's energy industry, and instead called on the international community to impose punitive sanctions on Tehran because of its alleged development of nuclear weapons. China has opposed a sanctions regime against Iran, preferring diplomacy. However, China has avoided rupturing relations with America over Iran by agreeing to discuss the issue at the United Nations. China's actions underscore the fact that in the hierarchy of foreign policy priorities, "great power diplomacy" trumps "energy diplomacy."

Energy security concerns have also led to other problems between China and the US. China's growing presence in South America has created some anxiety in the US that Beijing is attempting to challenge America's preeminent position in its own backyard (Thompson 2005). In terms of competition for energy resources, a troubling precursor of things to come might be the failed bid to purchase the US oil company Unocal Corp by state-owned China National Offshore Oil Corporation (CNOOC) in August 2005. After several months in the media spotlight, CNOOC dropped its bid in the face of sustained opposition from US lawmakers who objected to the sale on national security grounds.

China's bid for energy security has also engendered cooperation between the PRC and other countries. While Indian companies have lost out to their Chinese rivals in securing access to energy resources in countries such as Nigeria and Kazakhstan, energy companies from the two countries have actually joined forces in the Sudan and Syria. There is a growing realization in both Beijing and New Delhi that cooperation is more desirable than competition. As India's former Oil Minister Mani Shankar Aiyar stated in January 2006: "We must set the stage for India and China to cooperate where possible and compete where necessary, without any of this having any political, diplomatic, or military implications" (*Financial Express* 2006). In the same month, India and China signed a series of agreements designed to increase cooperation between their respective state-owned energy corporations (*International Herald Tribune* 2006).

Perhaps the most encouraging example to date is the March 2005 Joint Marine Seismic Undertaking (JMSU), signed between China, the Philippines, and Vietnam to explore for oil and gas in the disputed waters of the South China Sea.² One of the primary drivers of the JMSU was rising global oil prices, and the agreement suggests that energy security concerns have created the political will to shelve the sovereignty dispute and engage in joint exploitation. However, whether the JMSU is set to

become a model for energy security cooperation in the Asia-Pacific region remains to be seen.

In sum, while energy security concerns have influenced China's foreign, defense, and national security policies, they have not transformed them. The PRC's number one priority will continue to be stability in the international system, a prerequisite for China's continued economic growth.

Conclusion

China's capitalist transition has resulted in the PRC's transformation from an energy exporting nation to a major energy consumer and importer. As a consequence, energy security issues have risen to the top of the Chinese government's agenda. The survival of the CCP depends in large part on its ability to sustain economic growth, which in turn rests on continued access to energy resources, both at home and abroad.

Domestically, the Chinese government has continued to promote reform of the country's energy markets and state energy firms. To manage China's growing dependence on imported oil, the government is actively pursuing alternative sources of energy generation, including nuclear power, hydroelectricity, and renewable energy resources. China is also looking to increase energy efficiency and conservation, two areas in which it lags behind the rest of the world. China's continued dependence on coal, though, will continue to pose major challenges for the country's environment, as well as the global community at large.

The impacts of energy security on China's international relations are multiple. China's energy import dependence has the potential to engender either greater cooperation or competition with other powers. For now, energy security has become one of the three core elements of Chinese foreign policy. Chinese leaders currently emphasize access to foreign energy resources, along with expanded trade and investment ties. As a result, China's interests are becoming increasingly global, albeit across a narrow range of concerns.

Energy security has also become an important factor in the PRC's national security and defense policies. Although Taiwan drives China's military modernization program, anxiety over the vulnerability of seaborne energy imports is focusing attention on the need to increase China's naval power, since a blue-water navy would enable China to secure its maritime trade routes. However, this will be a long-term process, and in the meantime China is studying means to reduce its vulnerabilities by trying to bypass maritime choke points.

It is important to bear in mind that energy security has not fundamentally altered China's foreign and defense policies. The central aim of Chinese foreign policy continues to be the maintenance of a stable international system. China may be competing for energy resources with other countries, but this competition is unlikely to lead to direct confrontation. Similarly,

energy security concerns have not led the PRC to drastically increase its defense expenditure.

In the end, economic factors triggered by China's capitalist transition will continue to deepen China's energy import dependence, increasing the prominence of energy security in Chinese policy-making. Successfully assuring energy security, in turn, will depend in large part on whether China can manage its geopolitical environment and avoid confrontation over energy resources. It will also hinge on whether China's energy production and distribution system can be reformed to avoid ecological degradation and disasters.

While not all signs are clear, Chinese leaders' emphasis on energy security seems to be prodding some cooperative and even multilateral initiatives. One thing is for sure, China's rapidly deepening energy import dependence will integrate China further with the rest of the world. The process of assuring energy security will thus constitute a key force shaping the international ramifications of China's capitalist transition.

Notes

- 1 Primary commercial energy is defined as including coal, oil, natural gas, hydroelectricity, and nuclear power only.
- 2 For more details on the JMSU see Schofield and Storey (2005).

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