

China's Energy Security: Domestic and International Issues

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Runaway growth in energy consumption poses a real threat to China's energy security. The era of Chinese energy independence is gone, along with the ideology of self-reliance as a viable guide for energy policymaking. In particular, China's thirst for oil forces Beijing to aggressively pursue international sources of supply, driving up international oil prices. High oil prices not only directly affect the Chinese economy but also increase international tensions. China is paying a growing price for being the central party in a vicious cycle that has the potential to cause turbulence in the international order.

A raging thirst

China emerged from its civil war in 1949 with ambitions of rapid industrialisation and modernisation, but a very low base of oil production. In 1959 China's crude oil production stood at 3.73 million tonnes, and it was only in 1963 that it ended a century of dependence on imported oil and oil products. In that year, the Daqing oil field in northeast China produced 4.3m tonnes of crude, making up the bulk of the 6.48m tonnes of nationally produced oil.

From the 1950s to the early 1970s, China was self-sufficient in energy, but its relations with other states prevented that self-sufficiency from serving the goal of economic and social development. Soviet-supplied oil and technological assistance for developing the Chinese oil industry were critical for achieving self-sufficiency. With the termination of the Soviet aid programme in July 1960, Beijing found itself devoting much of its energy resources to preparing for war with a major power. In addition, a US-led embargo lasted from 1950 to the Sino-American rapprochement in 1971. For two decades China thus had energy self-sufficiency under strained international circumstances. By the mid-1970s,

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the economy was on the verge of collapse. China had energy self-sufficiency but not energy security.

Improvements in China's international relations in the early 1970s led to an expansion of the Chinese economy. China lost self-sufficiency in energy but gained improvement in energy security. Energy, particularly oil and coal, became a primary export commodity, in exchange for industrial plant and technology from developed countries. Indeed, oil and coal served a valuable strategic purpose for Beijing, helping renew links with the world's industrialised economies. China also took advantage of the first international oil crisis in 1973 by exporting crude oil to Thailand, the Philippines and other Asian countries to help cultivate a favourable regional environment for modernisation.¹ From 1973 to 2004, China exported crude oil to Japan, according to negotiated annual quotas, earning the hard currency needed to import the necessary equipment and technology to develop an export-oriented economy, which in turn proved critical for developing Chinese society.

In 1985 China's crude oil exports peaked, reaching 30m tonnes, before slower growth in domestic production and growing domestic demand led to a decline. China began to import crude oil from Oman in 1983, originally as a temporary measure for dealing with problems in transporting crude from northern China to refineries along the upper stretches of the Yangtze River. In 1988, due to increased demand, Chinese imports of crude and processed fuels began to rise rapidly. In 1993 China became a net importer of oil products, and in 1996 it became a net importer of crude.

Chinese concern about oil supply security increased in 2000, when oil import figures almost doubled from 36.6m to 70.2m tonnes. The dramatic rise had several causes. Domestic crude production was insufficient for consumption. China's refining capacity had significantly improved, making it possible to import more types of oil for refining. In June 2000 China began to reform its pricing system for processed fuel by pegging the domestic sale price to the Singapore commodity-futures market, leading to four separate increases in domestic oil prices within six months, and encouraging Chinese refineries to increase imports amidst concerns about supply interruptions worldwide. Finally, official statistics more accurately reflected the true volume of imports, thanks to a campaign between 1998 and 2001 against oil smuggling into the country.²

Chinese oil companies began 'going abroad', acquiring concession rights in foreign oil fields, in 1993, when a subsidiary of China National Petroleum Corporation (CNPC) bought the Talara Block in Peru for \$25m. Since then, Chinese oil companies, principally CNPC, have entered into an array of overseas oil investments. However, as a RAND study concludes,

CNPC's foreign oil exploration and development projects are moving slowly and probably will not produce enough oil to offset China's projected growth in oil imports over the next 20 years. Furthermore, transportation and logistical costs may well prevent most of the oil produced in China's overseas oil fields from entering China. This oil will most likely be sold on the international market or swapped for other oil that would enter the Chinese market.³

The expert consensus is that, no matter how Beijing plans and carries out its energy policies, dependence on imported oil will continue, and domestic oil production will stagnate.⁴

The security threat

Over the past two decades, China's access to imported oil has never been interrupted for political reasons, and there is no clear threat of a transportation embargo in the future. Although the risk of military conflict in the Taiwan Strait involving the United States has existed for decades, the worst-case scenario is that, in the event of Beijing attacking Taiwan, the United States might organise China's maritime Asian neighbours in a comprehensive blockade. But as China becomes more deeply integrated into the regional economy, the costs associated with such a blockade are increasing. Economic interdependence serves as the single most powerful deterrent against an embargo or blockade by China's neighbours. China must now view energy security in terms of economic threats and market solutions rather than military threats and diplomatic responses.⁵

China relies heavily on the Middle East for its supplies, but it has diversified its sources, and the potential for a politically motivated embargo by a Middle Eastern exporting country remains low. Beijing has pursued a balanced foreign policy vis-à-vis the Arab–Israeli conflict, reducing the risk of Arab oil exporters joining hands in an embargo against China. By opening talks with the Gulf Cooperation Council member countries toward establishing a free trade area, Beijing has also moved from a pure focus on oil supplies to enlarging the scope of economic exchanges with key oil-exporting countries. This deepening of economic ties implies that Middle Eastern countries will have to consider the impact on their own economies of punitive actions against Beijing in the area of oil supply. In short, growing interdependence between China and the Middle East serves as useful insurance against an embargo.

So long as Beijing does not initiate a military conflict with Taiwan or its neighbours, particularly its maritime neighbours, the primary actor in maintaining the stability-based security China has enjoyed for the past three decades is

China itself. China's dependence on overseas consumer and technology markets means it has no choice but to learn how to live in a world of interdependence.⁶

International response

China's reliance on imported energy is forcing it to spread its economic and diplomatic presence to wherever there is spare supply, raising the question of how China and the major industrialised nations can co-exist in the field of energy diplomacy. International reaction to China's pursuit of supply security through

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offshore energy sources, particularly oil and gas, has put Beijing on the defensive. In some ways this is a repetition of the Japanese experience in the 1970s and 1980s, when there were serious debates about the impact on the world's economic and political structures of Tokyo's pursuit of high economic growth. Unlike Japan, however, China is not regarded by the Western powers as a 'like-minded'

country. For example, China has only just begun to participate in the G-8's dialogue mechanisms for developing countries, whereas Japan was, from the start, a participant in the process of consultation among the most developed countries.

The search for overseas oil supplies has led Beijing to pursue close diplomatic ties with Iran, Sudan, Uzbekistan and Venezuela – all countries that pursue questionable domestic policies and, in many cases, foreign policies contrary to American and European interests or preferences. This raises concerns about the strategic intent behind China's energy diplomacy: why is China seemingly working to challenge the interests of industrialised countries in North America, Europe and Northeast Asia, while logic tells us oil should instead serve as a linchpin of closer relations?⁷

It is hard to tell whether a particular overseas oil or gas venture is the result of the Chinese government directing its state-owned energy company or the domestic energy industry seeking diplomatic assistance from the government, since for over a decade China has lacked a central ministerial agency overseeing the industry. Chinese energy companies, too, have only a short history of managing the political risks of venturing into an overseas market. Nor has the international energy market been welcoming to newcomers. For example, in 2003 both the China National Offshore Oil Corporation (CNOOC) and the China National Petroleum Corporation (Sinopec) were blocked from participating in the development of an oil field in the Caspian Sea after the existing partners decided to increase their own stakes.⁸ The strategic question for Beijing is where Chinese oil companies can go to avoid either political or business obstacles, or both, put in place by the international community. Meanwhile, the question

the international community poses is how China can match its commercial power with responsibility. The challenge is for China and other leading energy-consuming countries to cooperate in defining and addressing the political and social challenges that arise in many of the oil states of the world.

The Middle East has been, and will likely continue to be, China's largest source of energy. The oil-refining industry in China must cope with expanding crude oil imports, increasing processing volume for Middle East high-sulphur crude (sulphur content of 1% or more) and improving the quality of oil products.⁹ A lesson that China has not yet learned, in sharp contrast to Japan after the oil crises of the 1970s, is the need to increase massively its capacity to process heavy oil from the Middle East. This means that China will, for some time to come, have to rely on selective brands of Middle Eastern oil, leading to a tight global supply market in the lighter types of crude. The Chinese market can also consume a larger portion of high-sulphur oil from the Middle East. In either case, Chinese dependence on Middle Eastern oil will grow.

Since the 1980s, China's pursuit of relations with the Middle East has been contentious. Beijing is routinely accused by the United States of selling weapons in exchange for oil, thus undermining the global campaign against proliferation. China's behaviour during the two Iraq wars in 1991 and 2003 shows Beijing does share interests with the United States and other powers in supporting stability in the Persian Gulf, to keep Middle Eastern oil flowing to the rest of the world, even if it means a heavy US military presence in the region.¹⁰ More recently, China has become more active in Middle Eastern affairs. Securing energy supply is a primary objective.¹¹

China and the United States seem to be on a political collision course over China's pursuit of oil supplies from Iran. In 2004 Sinopec, which accounts for over 80% of Chinese oil imports and is the single largest refiner in China, bid for development rights for 16 Iranian oil fields despite attempts by the United States to persuade it to withdraw. This ongoing situation underscores the seriousness of Sino-American differences. In 2005, the Bush administration responded to the perceived Chinese challenge to American efforts to contain Iran by supporting India's pursuit of nuclear energy while maintaining sanctions against Chinese acquisition of the same nuclear technology.¹² Such policies may produce unintended consequences by giving weight to voices in China that see politically motivated diplomacy as the ultimate instrument for securing China's oil supplies.

China shoulders much of the blame, as it has been poor at making its energy transactions with countries such as Iran and Sudan transparent. Lack of transparency fuels speculation that China has a well-coordinated project for countering

US influence, particularly when it comes to dealing with what the United States labels 'rogue states'.¹³ For example, little public information is available about CNPC's Sudan operation, other than how it started as a four-way joint venture involving Canadian, Malaysian and Sudanese oil companies.¹⁴

At the same time, international energy companies have tried to enter the Chinese onshore market but have met with frequent changes to the ground rules. Cooperation between Chinese and international energy companies in exploring China's offshore oil and gas reserves has been much smoother, and this can be attributed to China's heavier reliance on foreign technological and financial input in offshore exploration and development. Frustration led to the belief that China is doing all it can, *and doing it alone*, to protect and expand its oil acquisitions worldwide. Lack of mutual confidence, or a low level of mutual comfort level, in business cooperation between Chinese and international oil corporations has led to high-profile competition for access to international oil fields. The clash of business interests between Chinese and international oil majors becomes political when an international oil major seeks political assistance from its home government. CNOOC's competition with Chevron-Texaco for Unocal is the latest case that may have long-term geopolitical ramifications for Sino-American relations.¹⁵ CNOOC had to give up its bidding, while Chevron-Texaco was able to acquire Unocal on business terms inferior to CNOOC's offer. The result is widely interpreted in China as representing an America that bends over backwards to deny Chinese access to energy resources, which may serve as justification for ignoring United States attempts at dissuading China from engaging 'rogue states' for energy.

In Central Asia, the perception of a new 'great game' is emerging due to China's thirst for oil and gas. At present, the only country in Central Asia from which China imports oil is Kazakhstan, and the amounts are small. An oil pipeline linking Kazakhstan and China, currently under construction, may have geopolitical ramifications, since it binds the interests of the two countries in seeking autonomy from Russian dominance of the regional oil supply. Additionally, experience running the pipeline is a prerequisite for the realisation of an eventual Eurasian pipeline network to China, which would put Beijing in the strategic position of deciding whether or not Eurasian oil and gas could pass through China to reach Japanese and South Korean markets.

However, China cannot expect Central Asia to be a significant contributor to its own energy supplies, at least in the short term. Transporting Central Asian oil and gas to China's eastern and southern regions, where chronic energy shortages exist, would defy economic logic, as demonstrated by inefficiencies of China's domestic West-East pipeline. When gas from Xinjiang reaches

Shanghai, it cannot compete in price terms with imported liquefied natural gas from Australia and Indonesia. Increased use of oil and gas from Central Asia could, however, be helpful in altering the energy mix of China's northwestern provinces. This in turn is conducive to improving the environmental and atmospheric conditions in these localities, thereby providing an important public good for the rest of China and the entire Northeast Asia region.

China has in the past few years worked hard to improve its ties with Africa,¹⁶ with frequent visits by top Chinese leaders, increasing the Chinese profile in UN peacekeeping operations, launching a cooperation forum, and offering debt reduction to African states. China's differences with the United States in the United Nations over how to deal with the atrocities in Darfur led to media speculation that Beijing was 'staking a claim' to Africa, especially the countries around the oil-rich Gulf of Guinea basin, before America gained a stronger foothold in the region.¹⁷ More broadly, though, the contention reflects long-running Sino-American differences over the use of economic sanctions as a diplomatic instrument. China does need to face the challenge of addressing domestic policies in Sudan.

As a consumer country, China does not really have much of a choice in its sources of supply. With Chinese oil companies on a learning curve as they interact with international oil majors in the Middle East, Central Asia and Africa, contention between Beijing and the United States (and its allies) over China's pursuit of energy supplies can be expected to last for some time.

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Ministries and mechanisms

Beijing's key energy security challenge, more important than securing foreign supplies, is managing domestic demand. Since 2000, China's total energy consumption growth rate has exceeded its GDP growth rate by as much as five percentage points. China's energy efficiency is one-sixth of Japan's. China accounted for nearly 40% of the increase in global oil demand in 2004. In 2005, the government launched a comprehensive campaign for curbing consumption, with improved energy efficiency the centrepiece. It required government agencies to reduce their consumption of energy by 8% of the 2004 level. Although authoritative statistics are not yet available, China's conservation efforts seemed to have had a positive effect. By the end of 2005, the total amount of China's imported crude oil increased by 4% of the country's 2004 level. Higher crude prices drove small and inefficient Chinese refiners out of the market. The Chinese government helped the situation by lowering the level of tax rebates for exporting processed oil. Toward the end of the year, China set the target

of a 20% reduction (based on the 2005 level) in per capita commercial energy consumption by 2010.

China has had great difficulty finding an appropriate mechanism for governing its energy industry; a case in point is the frequent re-formation of its energy ministries since the founding of the People's Republic. The Ministry of Fuel Industries was abolished in 1955, when separate ministries for coal, electricity and oil were established. In 1970, a new Ministry of Fuel and Chemical Industries combined the functions of those three ministries, but it had to be dissolved five years later. In 1988, a Ministry of Energy was launched to oversee coal, oil, nuclear and hydroelectric development, but it was again dissolved in 1993. Since 1993, the country has lived without a ministerial-level agency devoted to the country's energy-development policies; its absence greatly reduces the value of strategic plans the central government wishes to implement. Frequent changes to and confusion in the lines of authority in energy-development policy also create great difficulties for foreign participation in the Chinese energy market.¹⁸

Only in 2002 did Chinese industry experts begin to call for the strengthening of the macro-management of China's energy system.¹⁹ Widespread public discussion about the wisdom of decentralised energy management only emerged later that year, when concerns about US military action in Iraq and its impact on Middle Eastern oil exports became widespread.

China still lacks a ministerial-level agency to oversee the country's energy development. Such an agency would not, of course, magically transform China's energy industry. Yet the fact remains that, as Jonathan Sinton and colleagues have argued, in 'a quasi-market economy, energy issues must reach the top of the policy agenda to meet China's ambitious goals. This emphasis on government leadership reflects both China's tradition as a planned economy and current interests of major economic players.'²⁰ In other words, the Chinese government must learn how to guide its various vested interests in the domestic energy market for its announced policy goals to be successful. It is fair to say that the threat from ineffective energy industry governance is probably as great as that from the international energy market.²¹

Reform of energy industry governance in areas other than oil is critical for the future evolution of China's energy sector. For example, nuclear-generated electricity accounts for a miserable 1.4% of China's total power supply, compared to an average of 16% for developed countries. Only in 2004 did China decide to step up the pace of nuclear power plant construction.²² Development of nuclear power could have a profound effect on China's energy consumption and by extension the pressure China exerts on the world energy market. The coastal cities are the main driving force of industrial activity and are therefore

also the major consumers of energy. There will be significant dividends when these areas – which are naturally suited for nuclear energy generation – begin to use nuclear power for a significant proportion of their needs. Nuclear power development requires strong and consistent national-level leadership and resource commitment. It is naive to expect provincial government leadership, which survives by producing instant high GDP growth figures, or corporate actors to foot the bill for providing an essential public good.

The coal industry also requires serious improvement in governance. Coal is China's primary source of energy and central to a national strategy.²³ China is not just the world's largest coal producer and consumer but also has the largest number of deaths in mine accidents, in addition to heavy environmental costs. The government must intervene in the interest of the coal miners and those affected by mining. For China to address its environmental challenges and be a responsible actor in combating global warming, it must deal with the challenge of energy governance head on.²⁴

The Chinese government has proved itself inefficient in making decisions on policies aimed at encouraging energy conservation. For example, in 1996 the government-controlled media endorsed calls for a fuel tax.²⁵ After nearly a decade of academic and public discussion, including debates in the National People's Congress, Beijing is still waiting for the 'opportune' time to establish such a tax.

In short, runaway growth in energy consumption is posing a real threat to China's energy security. To address inefficiency, there have to be changes to China's policy instruments and the mechanisms of the Chinese energy industry. Without significant improvement in Chinese energy governance, China cannot hope to get out of the vicious cycle in the world energy market.

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Dependence on foreign sources of energy supply is not in itself a threat to China's energy security; the key threat is ever-growing consumption without significant improvement in energy efficiency. China's energy security, meanwhile, is increasingly an international concern. Chinese consumption has become an important determinant of change in the global economic scene, and the international community increasingly demands China behave in politically acceptable and responsible ways in its pursuit of energy supplies. China must enhance its transparency in those government-business interactions associated with its pursuit of energy interests overseas, so as to increase the level of confidence the international community can have in China's geopolitical intentions.

Improving China's efficiency in energy consumption should be a priority area for international collaboration. Focusing on energy efficiency in China is probably the single most effective way to prevent the nightmarish scenario of China crowding out the global energy market, at the expense of both industrialised and industrialising countries. This focus should include working with Beijing to improve its mechanisms for energy governance. By giving priority to improving Chinese energy efficiency, the entire world can benefit from a managed rise in Chinese demand for overseas oil and gas. Such an orientation is conducive to deepening interdependence between China and the rest of the world, thereby reducing the risk of more diplomatic clashes between China and the major industrialised countries.

Notes

- 1 A. Doak Barnett, *China's Economy in Global Perspective* (Washington DC: The Brookings Institution, 1981), p. 461.
- 2 Tian Chunrong, 'Analysis of Oil Import and Export in 2000', *International Petroleum Economics*, March 2001, p. 6 (original in Chinese).
- 3 Erika Downs, *China's Quest for Energy Security* (Santa Monica, CA: Rand, 2000), pp. 22–3.
- 4 Development Research Center of the State Council, *China's National Energy Strategy and Policy 2000–2020*, 2003, available at http://www.efchina.org/documents/Draft_Natl_E_Plan0311.pdf.
- 5 For this distinction, see Dennis O'Brien, 'Mightier than the Sword', *Harvard International Review*, vol. 19, no. 1, Summer 1997, pp. 8–13.
- 6 Zha Daojiong, 'Interdependence and China's Energy Supply Security', *World Economics and Politics*, no. 298, June 2005, pp. 15–21 (in Chinese).
- 7 See for example Amy Myers Jaffe and Steven W. Lewis, 'Beijing's Oil Diplomacy', *Survival*, vol. 44, no. 1, Spring 2002, pp. 115–33.
- 8 'China Oil Giant Dealt a Setback', *New York Times*, 13 May 2003, p. C9.
- 9 Guo Sizhi, *Oil Refining Business in China*, Japan Energy Economics Institute, May 2005, available at <http://enen.iej.or.jp/en/data/pdf/285.pdf>.
- 10 Toshi Yoshihara and Richard Sokolsky, 'The United States and China in the Persian Gulf: Challenges and Opportunities', *The Fletcher Forum of World Affairs*, Winter/Spring 2002, pp. 69–75.
- 11 Jin Liangxiang, 'Energy First: China and the Middle East', *Middle East Quarterly*, vol. 12, no. 2, Spring 2005, available at <http://www.meforum.org/article/694>.
- 12 Steven R. Weisman, 'U.S. to Broaden India's Access To Nuclear-Power Technology', *New York Times*, 19 July 2005, p. A1.
- 13 Borzou Daragahi, 'China Goes Beyond Oil in Forging Ties to Persian Gulf', *New York Times*, 13 January 2005, p. C8; Howard W. French, 'China in Africa: All Trade, With No Political Baggage', *New York Times*, 8 August 2004, p. 1.
- 14 Off-the-record interviews reveal that only a small fraction of CNPC's Sudanese oil production gets transported back to China, due to its high sulphur level. The bulk is sold in the

- international market. Author interview with a CNPC researcher, Beijing, 10 July 2005.
- ¹⁵ Bernard Wysocki, Jr and Jacob M. Schlesinger, 'For U.S., China Is a Replay of Japan; Washington Sees Parallels To '80s Battles With Tokyo, But Oil Changes the Stakes', *Wall Street Journal*, 27 June 2005, p. A2.
- ¹⁶ See Chris Alden, 'China in Africa', *Survival*, vol. 47, no. 3, Autumn 2005, pp. 147–64.
- ¹⁷ Karby Leggett, 'Staking a Claim: China Flexes Economic Muscle Throughout Burgeoning Africa; Beijing Forges Deep Alliances With War-Torn Nations, Countering U.S. Influence; A Dam Gets Built on the Nile', *Wall Street Journal*, 29 March 2005, p. A1.
- ¹⁸ Such difficulties are partially discussed in Zha Daojiong, 'Changes in China's Electricity Industry Governance: Implications for Energy Cooperation in Northeast Asia', *ERINA Report*, no. 42, October 2001, pp. 31–7.
- ¹⁹ Pan Wei'er, 'A Discussion about Our Country's Energy Management System', *China Energy*, September 2002, pp. 9–12. (in Chinese)
- ²⁰ Jonathan E. Sinton, *et al.*, Evaluation of China's Energy Strategy Options, May, 2005, p. 4, available at <http://china.lbl.gov/publications/nesp.pdf>.
- ²¹ Philip Andrews-Speed, *Energy Policy and Regulation in the People's Republic of China* (The Hague: Kluwer Law International, 2004).
- ²² 'China's Nuclear Electricity to Hit 36 mln kw in 2020', *People's Daily*, available at http://english.people.com.cn/200409/01/eng20040901_155568.html.
- ²³ See International Energy Agency (IEA), *Coal in the Energy Supply of China* (Paris: IEA, 1999).
- ²⁴ For an overview of China's environmental challenge, see The World Bank, *Clear Water, Blue Skies: China's Environment in the New Century* (Washington DC: The World Bank, 1997).
- ²⁵ Liu Aihong, 'How about Levying Fuel Tax instead of Road Tax?', *Liaowang*, no. 37, September 1996, pp. 22–3 (original in Chinese).

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