

Beijing's Energy Security Strategy: The Significance of a Chinese State-Owned Tanker Fleet

by Andrew Erickson and Gabe Collins

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***Abstract:** Chinese shipping firms are aggressively expanding their oil tanker fleets. Although China's state energy firms support national energy security goals in their rhetoric, and China's state shipbuilders are striving to lead global production, commercial forces will almost certainly determine how these ships are employed. However, energy security considerations may have some influence in determining China's naval force structure. The majority of new tankers being built for Chinese shipping firms will fly China's flag, which helps set a legal basis for militarily protecting these vessels. As Chinese naval power and oil import dependency rise, security-minded factions in China's leadership may use the country's resource needs to justify further pursuit of blue water naval capabilities.*

The global oil shipping system transports oil from some of the world's most unstable areas. It has functioned through wars, hurricanes, embargoes, and canal closures. While commercial tanker operators engage in apolitical pursuit of profit, the U.S. Navy's maintenance of the freedom of navigation makes their operations possible. Now the People's Republic of China (PRC)'s rise as a commercial and military power over the past three decades is drawing renewed attention to a vital supply system that governments and private consumers around the world have long taken for granted.

Tanker Guide	
Panamax	50,000-80,000 deadweight tons of capacity (1 ton=7.33 barrels of oil)
Aframax	80,000-120,000 DWT
Suezmax	120,000-180,000 DWT
Very Large Crude Carrier (VLCC)	200,000-300,000 DWT
Ultra-large Crude Carrier (ULCC)	300,000-550,000 DWT

China's Oil Imports and Tanker Buildup

Maritime oil transport will be increasingly important to China in coming decades. China became a net oil importer in 1993, and a decade later was the second-largest-consuming and third-largest-importing nation. In 2006, China imported 40 percent of its oil, or 2.9 million barrels per day (bbl/day). The International Energy Agency estimates that by 2020, China could import around 7 million barrels/day of crude oil, or double today's imports. (The United States currently imports between 10 and 12 million barrels a day of oil and other products.) Over the next 15 years, China's share of world oil consumption will more than double, with imports possibly rising to 80 percent by 2025.¹ Most of the new demand will be met by seaborne oil shipments. Driven by growing concerns about oil insecurity, interested Chinese parties advocate the construction of a state-flagged and domestically constructed fleet of oil tankers capable of hauling up to three-quarters of Chinese oil imports by 2020.² Currently, PRC-owned tankers can transport less than 20 percent of China's oil imports. By comparison, Japanese tankers can haul over 90 percent of the energy consumed by that nation.

China's explosive post-1993 oil import growth surprised analysts and officials. Indeed, Beijing disbanded its Energy Ministry in 1993 because the leadership expected China to remain energy self-sufficient.³ By 2003, the combination of the Iraq War, exploding domestic oil demand, and a leadership increasingly wary of reliance on the U.S.-led international economic system made oil security a central concern in China's energy debate.

Under President Hu Jintao, China is taking multiple steps to secure its oil supply. It is continuing to support the "go abroad" policy, in which Chinese national oil companies aggressively seek overseas oil fields. Beijing is also encouraging state oil companies to build joint venture refineries in China that will be fed with earmarked oil supplies from Saudi Arabia and Kuwait, thus providing guaranteed crude streams because oil exporters would not likely cut off oil to their own refineries. China is also enhancing "downstream" security by building a strategic petroleum reserve (SPR), expanding its internal and external pipeline networks, and boosting its refining capacity and ability to handle a wider range of crude oil grades.

Chinese shipping companies and shipyards are constructing a tanker fleet capable of hauling a substantial portion of Chinese oil imports. While efforts to ensure "upstream" security by defending oil fields overseas are precluded by China's inability to project power overseas, a larger tanker fleet

¹ Office of the Secretary of Defense, *Military Power of the People's Republic of China 2007*, Annual Report to Congress, p. 8.

² Qiao Enyan, "Petroleum Enterprises and Their Use in National Oil Security Strategy," *Modern Chemical Industry*, July 2005, pp. 9-12.

³ Erica Downs, *Brookings Foreign Policy Studies Energy Security Series: China*, December 2006, p. 6.

will help develop what China regards as a critical, strategic industry and may help enhance the security of seaborne oil imports.

A large, state-flagged tanker fleet may help ensure the security of China's oil imports because it could deter a future adversary from interdicting China-bound tankers to pressure China's leadership. This would be particularly true in crisis situations short of a shooting war. The possibility also exists, however, that Chinese tanker operators may, in effect, be manipulating Beijing's oil insecurity for commercial gain. The key variable is the relationship between China's government and its national oil companies, which, if left to their own devices, typically put profits before politics.

Some observers characterize China's tanker buildup as a "centrally driven plan." This remains a point of contention. The authors' interviews with Chinese scholars familiar with the central government's current energy policies suggest that Beijing has no coherent plan at present for the creation of a national tanker fleet. However, articles from state-controlled Xinhua News Agency and China Daily have called for at least 60 percent of oil imports to be carried by Chinese shipping companies, which are now rapidly expanding their tanker fleets. Peng Cuihong, a senior official at the Ministry of Communications' Water Transport Department, has stated that China will build additional oil tankers to reduce reliance on foreign tankers.⁴ Perhaps most significantly, a China Daily editorial states:

... as the world's second largest oil importer, our overseas supplies are vulnerable. Inadequate ocean shipping capacity is a weakness that could prove fatal. We have cause for worry with around 85 percent of our entire oil imports transported by foreign-flag vessels. This is acceptable when business is just business. But we are not in a perfect world. The best way to minimize our vulnerability is to increase our preparedness for less than normal times. It is well within our reach to have more than 60 percent of our oil imports carried by Chinese-flag tankers, if that is what we need for oil security. The government should not economize on this strategic national interest. It has the financial resources to make it happen. The subsequent shipbuilding orders will in turn be a major boost to home shipyards. The authorities' idea to encourage more domestic shipping companies to enter the ocean-faring business is a good one. . . . We can also handle the technology. Several domestic shipyards have been building large crude oil carriers for years. We applaud the Ministry of Communications' determination to upgrade our self-reliance in ocean shipping. It is an insightful decision that will help guarantee a more comfortable position in the kind of special times we hope will never come.⁵

Despite its increasing economic influence and growing presence in energy-rich areas around the world, China's lack of an energy ministry, and hence a centralized policy process, makes it difficult for outsiders to understand the formation and content of its energy policies. This is particularly true

⁴"China Must Carry 60% of Seaborne Oil Imports on Local Shippers," *Xinhua Financial Network News*, June 14, 2007, "More Oil Tankers Talking to the Sea," *China Daily*, June 14, 2007.

⁵"Oil Security at Sea," *China Daily*, June 14, 2007.

when dealing with maritime energy transport security, which includes both economic and military concerns. Some Chinese scholars state that Beijing's energy policy is largely determined and articulated by National Development and Reform Commission, a branch of China's State Council. Premier Wen Jiabao reportedly devotes substantial time to energy issues as head of the State Council's Energy Leading Group, which solicits NDRC's inputs.⁶ NDRC documents tend to focus on general aspects of national energy consumption and conservation, however; not maritime or military issues. A variety of institutions in China's People's Liberation Army Navy (PLAN)⁷ apparently focus on the security aspects of Chinese energy and likely influence PLAN energy strategy, but are not easily accessible to foreign scholars.⁸

Analyzing China's energy transport industry will elucidate the larger and sometimes competing considerations that inform Beijing's quest for reliable energy supplies. China's oil tanker buildup appears to be driven primarily by commercial factors. The geopolitical implications of China's growing maritime trade and oil demand, however, necessitate careful examination of the factors behind China's desire to increase its presence in the world tanker market.⁹

Beyond Taiwan

China's future tanker-fleet will have significant geopolitical effects if China makes protecting oil and other resource shipments a major priority. China needs secure seaborne oil imports to sustain economic development, and at least some Chinese officials fear that the United States might seek to interrupt Chinese oil imports in a future conflict. Speaking at a Communist Party meeting on December 27, 2006, President Hu Jintao bluntly stated that China needs a "powerful" "blue water" navy prepared to uphold national interests "at any time."¹⁰ This may entail creating a long-distance sea line of communication (SLOC) protection capacity.

Not surprisingly, China's 2006 Defense White Paper reiterates President Hu's assertions. This official appraisal of China's strategic environment and the proper responses thereto states that, "The impact of economic globalization is spreading into the political, security, and social fields . . . security issues related to energy, resources, finance, information, and international shipping routes are mounting."¹¹ Many Chinese naval analysts'

⁶ Interviews in Beijing, December 2006; NDRC website, at www.eri.org.cn.

⁷ These include the Naval Research Institute in Beijing, the Command and State college in Nanjing, and the Naval Submarine Academy in Qingdao.

⁸ Interviews with Chinese scholars, 2007.

⁹ Japan and Vietnam also appear highly interested in creating state flagged tanker fleets to protect oil shipments.

¹⁰ "World Briefing/Asia; China: Hu Calls For Strong Navy," *New York Times*, December 29, 2006.

¹¹ *China's National Defense in 2006*.

writings echo the need to protect Chinese commerce far from Chinese shores.¹² Yet to date, China's naval modernization efforts have been oriented exclusively to defense of China's maritime periphery, and to solving the "Taiwan problem." Protecting maritime resource supply lines will be a key driver of PLAN development for contingencies "beyond Taiwan."

Some Chinese analysts advocate strengthening the PLAN so that it can intervene in trouble spots such as the Strait of Malacca.¹³ Wu Lei, a prominent Chinese energy scholar from Yunnan University, explains that "fear that the U.S might cut [energy shipments] off as a result of the deterioration of Sino-U.S. relations over the Taiwan issue drives much of Beijing's modernization of its navy and air forces."¹⁴

Why an Expanded Tanker Fleet?

Despite future increases in oil imported overland, China will have to continue to rely on maritime transport for the majority of its increasing oil imports. This is partly for reasons of geography: 76 percent of Chinese oil imports in 2006 came from the Middle East and Africa. Over 85 percent of oil entering China came by sea.

Driven by fear that major naval powers could sever China's maritime oil supply lines, a growing contingent of Chinese analysts and policy-makers advocates major tanker fleet development. In August 2003, the Chinese government reportedly established a "Tanker Working Group."¹⁵ By 2010, Beijing intends to transport 40-50 percent of its oil imports in PRC-flagged tankers. By 2020, it hopes to carry 60-70 percent. Chinese analysts predict that their country will need more than forty very large crude carriers (VLCCs) by 2010, each of which will be able to carry upwards of 1.5 million barrels of oil, in order to meet these goals.¹⁶

China's government considers shipbuilding to be a strategic sector.¹⁷ Although security concerns are, to some extent, driving the tanker fleet

¹² Zhang Wenmu, "Sea Power and China's Strategic Choices," *China Security*, Summer 2006, pp. 17-31; Xu Qi, "Maritime Geostrategy and the Development of the Chinese Navy in the Early 21st Century," *China Military Science*, November 4, 2004, pp. 75-81.

¹³ Li Jie, "China's Oil Demand and Sea Lane Security," *Naval & Merchant Ships*, September 2004, pp. 10-13.

¹⁴ Wu Lei and Shen Qinyu, "Will China Go to War over Oil?" *Far Eastern Economic Review*, April 2006, p. 38.

¹⁵ Yang Mingjie, ed., *Sea Lane Security and International Cooperation* (Beijing: Current Affairs Publishing House), 2005, p. 123. This assertion that has been disputed by a prominent Chinese scholar in an interview with one of the authors in Beijing, June 2007.

¹⁶ Luo Ping, "National Oil, Nationally Hauled: China's Energy Security Insurance Line" (*Guoyou Guoyun: Zhongguo Nengyuan de Anquan Baozhang Xian*), *Maritime China*, February 2005, pp. 38-40.

¹⁷ "Shanghai Shipbuilding Reaches for New Heights," *China Daily*, September 6, 2003.

buildup, its biggest short-term effects will probably be commercial. Japan and South Korea, in particular, face major competition from Chinese tanker builders. According to China State Shipbuilding Corporation's plan, by 2015 China will overtake Japan and South Korea to become the world's largest shipbuilder.¹⁸ With nearly 30 percent of global tanker orders, China has already displaced Japan as the world's second largest builder of long-haul tankers.

The Malacca Dilemma

More than 85 percent of Chinese oil and oil-product imports pass through the Strait of Malacca. Chinese analysts fear that Malacca, and other bottlenecks such as the Strait of Hormuz, could easily be closed by terrorism, piracy, or the navies of the United States or regional powers in the event of a conflict over Taiwan or some other serious Sino-American crisis. They write that whoever controls Malacca also controls China's oil security, and that China's inability to secure Malacca would be "disastrous" for national security.¹⁹

To some Chinese analysts, the U.S. Navy is not the only threat to China's maritime energy supply lines. They worry that the rapidly modernizing Indian Navy could use its superiority vis-à-vis China's PLAN in the Indian Ocean to gain strategic leverage.²⁰ Beijing also distrusts Tokyo and worries about the capabilities of the Japanese Maritime Self-Defense Force (JMSDF), due to historical enmity; because Japan competes with China for energy resources in Russia and the East China Sea; and because the Japan is a major ally of the U.S. and cooperates closely on many strategic issues with India.

Despite its geographical funneling and the limited risks posed by terrorists and pirates, Malacca will remain a primary oil shipping route simply because of the cost (in additional time, fuel, and ships) of using alternative maritime routes such as the Lombok Strait, or even circumnavigating Australia. China will have to somehow accommodate these realities.

Commercial Factors

Beijing's relationship with tanker operators is best characterized as "the government builds the stage and the companies play." The government sets certain ground rules, but the companies enjoy substantial freedom to pursue their own commercial objectives within understood limits. This relationship and understanding probably extends to building national oil transport capability as well.

¹⁸ "China's Shipbuilding Industry Booms," Xinhua Economic News Service, June 13, 2006.

¹⁹ Li Shaojun, "Mahan's Sea Power and Its Influence on China's Oil Security Strategy," *International Forum*, July 2004, pp. 16-20.

²⁰ Chen Angang, "Malacca: America's Coveted Strategic Outpost," *Modern Ships*, December 2004, pp. 11-14.

Managers of shipping companies appear generally content to let the central government promote the shipbuilding/shipping industry at the broad policy level. In fact, a Chinese energy expert has told one of the authors, the idea of a Chinese national oil tanker fleet, while widely discussed in various fora, is a “rhetorical device for China’s shipbuilding industry to justify more central government interest.”²¹ Yet, like state oil companies, shipping companies may resist government meddling in their daily operations. If chartering their tankers to foreign and private oil operators on an individual basis is more profitable than serving Chinese national oil companies in accordance with central policy directives, shippers will favor the more profitable approach. Similarly, if national oil companies find it more cost-effective to have foreign tanker operators haul their oil, they will oppose a forced marriage with Chinese shipping firms. Observers will be able to learn more about these relationships once Chinese state-owned shipping firms such as COSCO start taking large-scale VLCC deliveries, perhaps as early as 2008.

At present, an estimated 90 percent of China’s oil shipping capacity serves foreign clients.²² Reassigning these vessels to domestic firms would not help China’s long-distance oil transport situation. According to *Lloyd’s Sea Web*, only 18 of these ships are VLCCs suitable for economically transporting crude from the Middle East, Africa, and other distant suppliers. The bulk of China’s current fleet consists of smaller vessels designed for short-haul oil trading. China will need more than 40 VLCCs to meet its goal of carrying 50 percent of imports on Chinese tankers by 2010.

Attempting to control maritime oil transport will likely cost more than outsourcing oil transport to private shippers. When the major Western oil companies (“Seven Sisters”) dominated the global oil market in the 1960s, they ran large maritime divisions with tankers dedicated to hauling their production, which for most roughly equaled their refinery throughputs. Oil companies trimmed their tanker fleets after OPEC countries nationalized the majors’ Middle East production. Hiring private tankers to carry oil imports may be more cost effective than acquiring and maintaining a large tanker fleet. Like other modern oil companies, China’s national oil companies rely primarily on independent tanker operators to haul their oil.

If Beijing hopes to foster long-term strategic cooperation between domestic oil shippers and the national oil companies (some of which are among the world’s leading VLCC charterers), it may have to offer tax breaks and other financial incentives. Otherwise, the shipping firms will likely utilize their ships based almost exclusively on “nationality-blind” commercial criteria.

²¹ Interview, Beijing, June 2007.

²² “China Urged to Beef Up Ocean Oil Shipping,” *Asia Pulse*, March 15, 2006.

Shipping Sector Parallels with Oil Company-Central Government Relations

The relationships between China's national energy companies and central government may foreshadow how those between tanker operators and the central government will unfold. China's main oil producing and importing companies are China National Petroleum Corporation (CNPC), China National Offshore Oil Corporation (CNOOC), Sinopec, and Sinochem. Between 2000 and 2002, CNPC, Sinopec, and CNOOC all sold minority stakes to outside investors. CNPC and CNOOC made the publicly held portions of their firms into subsidiaries, PetroChina and CNOOC Limited. These share sales (typically around 20%) allowed the companies to raise operating cash and boost their international profile, while retaining clear state control.

Although Chinese energy companies are state-controlled, their corporate interests frequently influence high-level energy policy decisions.²³ It is widely believed, for instance, that much of the initial impetus behind China's "go abroad" oilfield acquisition push actually came from CNPC.²⁴ Over the past decade, Chinese national oil companies have adhered to a business model unlike that of Western firms. They are often criticized for subverting the market by offering "package deals" backed by state banks' soft loans and other sweeteners. Chinese state-owned companies are willing to 'overpay' for deals and often accept lower rates of return than private oil companies. These tendencies stem from a combination of relative inexperience in international energy deal-making, access to subsidized financing from Chinese state banks, low accountability to shareholders, and non-business incentives created by top executives' dual company and Party roles.

That said, Chinese oil companies appear to be placing increased emphasis on profitability. For example, PetroChina oil marketers have stated that transporting oil produced in distant fields back to China is too expensive.²⁵ In accordance with good business principles, they favor selling local production locally and acquiring crude for Chinese use closer to home. Had CNOOC successfully acquired American producer UNOCAL in summer 2005, it would probably have continued selling UNOCAL's Gulf of Mexico production on the U.S. market because it made greater economic sense to do so. Likewise, CNPC often sells a substantial portion of its Sudanese production on the world market rather than shipping it back to China.²⁶

²³ Downs, "The Chinese Energy Security Debate," *China Quarterly*, March 2004, pp. 21-41.

²⁴ Downs, *Brookings*, pp. 38-39.

²⁵ Ren Xiaoyu, "Analysis and Opinions on How PetroChina Markets Its Equity Oil," *China Oil and Gas*, 2002, pp. 50-52.

²⁶ Downs, *Brookings*, p. 44.

The shipping industry's incentives for expansion appear similar to those of Chinese oil producers. The "national oil, nationally carried" oil transport concept parallels the "go abroad" oil acquisition policy. Both approaches involve commercial interests pursuing profits under the banner of enhancing national energy security.

Aggressively seeking deals overseas allows Chinese oil companies to expand production while casting themselves as "servants of the Chinese nation" by generating tax revenue and increasing the import share of Chinese-produced oil. State energy companies generate more than 20 percent of all tax revenue produced by SOEs.²⁷ Such contributions please the Communist Party, which can influence oil executives' future prospects. Many top executives have held, and in some cases continue to hold, high level political positions in conjunction with their business roles. For example, CNPC President Jiang Jiemin has served as governor of Qinghai Province, while Sinochem Vice President Zhang Zhiyin is a delegate to the 10th National People's Congress. In addition, there exists an informal "revolving door" by which good performance at the helm of an oil company can greatly advance an official's career. Wei Liucheng successfully managed CNOOC's initial public offering in 2001 and was rewarded with governorship of Hainan upon leaving CNOOC in 2003.²⁸

Some shipping industry executives also have political careers. Dr. Qin Xiao, Chairman of China Merchants Group, is a member of the 10th Chinese People's Political Consultative Conference and served as a deputy to the 9th National People's Congress.²⁹ Successful shipping executives do not yet seem to enjoy as many plum positions as their oil industry counterparts. Nonetheless, China's shipping industry is acquiring the aggregate financial clout to justify an important political role. As it continues to grow, its location along China's populous, politically influential East coast, growing ranks of workers, and contribution to national and local coffers may give it added political influence. Thus, if China's shipping industry generates larger profits and tax revenue, political rewards for shipping managers will likely resemble those currently enjoyed by successful oil executives.

On the whole, China's state shipyards and shipping companies appear to be broadly following the model of the state oil and gas companies. In peacetime, state-controlled oil carriers will attempt to influence government policies in ways beneficial to their business, but, when the government wants something in return, will ultimately put profit before politics. In a crisis

²⁷ Steven Lewis, Baker Institute for Public Policy, Rice University, "Reform in Chinese Energy Policy: The NOCs at Home and Abroad," presentation at U.S. Naval War College, February 12, 2007.

²⁸ Joseph Kahn, "Profit or Politics? Chief of CNOOC Faces a Delicate Balancing Act," *New York Times*, July 7, 2005.

²⁹ China Merchants Group website at <http://cmbk.com/en/management/default.htm>.

scenario, by contrast, Chinese analysts write, state-owned vessels would stand ready to be pressed into service.³⁰ Having a state tanker fleet is not an oil security panacea, however. Potential flaws in China's emerging approach will be discussed shortly.

China's Shipbuilding Industry

Beijing has powerful economic incentives to bolster its shipbuilding sector. Shipbuilding boosts the entire industrial chain, including the steel industry, as well as the metallurgical and machine-tool sectors, among others. VLCCs recently built in Chinese yards have required approximately 884,000 man-hours to complete.³¹ Chinese sources calculate that, in general, every 10,000 DWT built can create 100,000-200,000 man-hours of employment for Chinese workers. Thus, direct shipyard labor accounts for only about 15-20 percent of the entire amount of employment generated by building a ship. At present, China's shipbuilding industry directly employs more than 275,000 workers. Thus, on the basis of job creation alone, China's government has good reason to support its shipbuilders.

While China's VLCC fleet is smaller than those of more oil-reliant nations, this is changing rapidly as a combination of government policies, domestic commercial interests, and sizeable commercial advantages in building tankers drive increasing tanker construction in Chinese yards. Tankers form a major portion of Chinese yards' output and will continue to do so. It should be noted that the majority of Chinese yards' long haul tanker orders are actually being built for foreign buyers.

According to *Lloyd's Sea Web*, of the 21 million DWT of Suezmaxes and VLCCs currently on order or under construction in Chinese yards, roughly 13 million DWT are being built for foreign operators. Although China lags Japan and Korea in technology and yard management practices, the large number of foreign tanker orders seems to endorse the Chinese shipbuilding industry's increasing quality at unbeatable prices. Western ship owners interviewed by the authors indicate that Chinese yards' low prices, as well as a desire to establish relationships with rapidly growing Chinese shipbuilders, drive their current orders.³² Chinese ship quality, which recently was suspect, is rapidly improving, even if it is not yet at the high level of South Korean- and Japanese-built vessels. Reflecting this increase in quality, foreign buyers are considering ordering chemical tankers and other more complex ships, in addition to the tankers and bulk carriers that have thus far dominated their orders.

³⁰ Yang, p. 123.

³¹ Zheng Changxing, "2005 China Shipbuilding Industry Development Characteristics," *Mechanical & Electrical Equipment*, 2006, pp. 33-34.

³² Interview with representatives of Western ship owners currently building tankers in Chinese yards, March 2007.

While two of China's large state-run shipyards (Shanghai Waigaoqiao and Dalian No. 2) are considered to be among the world's top 10, other yards still experience regular delays and quality control problems. China's entire ship subcomponents industry remains weak, creating a situation in which Chinese yards are excellent at hull fabrication but must import many key internal parts. Indeed, South Korean builders have even begun to construct hull blocks in China and barge them back to South Korea for final assembly. To boost the subcomponents industry, Chinese yards often force ship buyers to source engines and other subcomponents in China when they order vessels. Otherwise, ship buyers interviewed by the authors indicate, they would favor Korean and Japanese made engines and other internal parts. In sum, China's low labor costs and large land areas for yard expansion give it a distinct edge in building bulk carriers, tankers, and other less complex "commodity" ships.

Benefits for Oil Import Infrastructure

In 2005, only three ports—Qingdao, Zhoushan, and Shuidong—could directly berth tankers displacing 200,000 DWT or more, such as the VLCCs that deliver crude from Africa and the Middle East. Consequently, China is rapidly preparing specialized facilities at Ningbo, Quanzhou, and Maoming on China's southeast coast to handle 200,000-250,000 DWT oil tankers.

Connecting oil ports with users throughout the country has become a major priority. Chinese analysts recommend rapidly upgrading China's oil transport system (e.g., pipelines, harbors, ships, shipyards, and oil transport lines), along with governing laws and regulations. In particular, improving China's domestic oil pipeline network would enhance energy security. Robust capacity to shift oil supplies rapidly between major demand and import areas would introduce a degree of redundancy in case an incident closed one or more major VLCC-capable ports.

Can a Larger Tanker Fleet Ensure Oil Security?

Chinese analysts fear that the U.S. Navy, and even allied navies, might blockade energy shipments to China in a showdown over Taiwan or some other crisis. Chinese "hawks" such as Zhang Wenmu believe China's Navy must modernize because its ability to secure SLOCs and ensure the safety of China-bound shipments seriously lags behind China's growing import demand.³³ In their view, a national tanker fleet would bolster the security of the nation's oil supply only if PLAN units had the capability to escort Chinese tankers in a crisis.

³³ Zhang Wenmu, "China's Energy Security and Policy Choices," [Need source.] pp. 11–6.

China may also be concerned that an outside power could exert financial and diplomatic pressure on the home countries of major tanker operators (e.g., Greece or the Bahamas) in order to force them to cease carrying oil to China. The United States, in particular, has demonstrated a strong capacity to bring comprehensive financial, military, and diplomatic pressure to bear on foes. Having the capacity to haul a majority of Chinese oil imports on vessels owned by Chinese state and private shipping companies will ensure that an opponent could not use such a tactic to pressure China in a situation short of war.

Some Chinese analysts claim that using Chinese-flagged and operated tankers would help secure oil shipments from unstable areas such as Africa and the Middle East. To be sure, a national tanker fleet cannot protect oil importers from the internal security problems endemic to many oil-exporting countries. Civil war, terrorism, and many other factors could prevent supplies from ever reaching Chinese tankers. Yet while the internal instability of supplier countries may be unavoidable, an importer with its own tanker fleet and a blue water navy enjoys greater ability to ensure energy security once the oil leaves the exporting country. Protecting tankers and “downstream” infrastructure (refineries and distribution networks) is usually simpler than trying to protect oilfields in distant countries jealous of their sovereignty. Protecting an “upstream” oil or gas field thousands of miles away would entail a large, rapid joint military deployment that is beyond the capability of nearly all oil importers other than the United States. And, even if an importer boasted substantial force projection ability, its response would likely come too late to prevent a supply cutoff. It is unclear to what extent China’s more hawkish and mercantilist analysts have considered these realities.

Tanker Protection Options

Tankers can be protected with escorts and by convoying. Shippers resist convoy operations because it hinders their flexibility and adds costs. Naval officers likewise tend to dislike escort missions, which cede the initiative almost entirely to the enemy. Convoying is also highly asset-intensive, particularly when facing aerial, surface, and subsurface threats. Assuming that two VLCCs per day would be needed to meet Chinese oil demand, the logistics of implementing such a convoy system would overwhelm today’s PLAN. A weekly group of 14 VLCCs would require roundtrip steaming time of thirty-three days from the Persian Gulf to China, plus a two-day turnaround period to take on supplies and cargo. This thirty-five-day cycle, repeated weekly, would likely correspond to a need for more than 25 escorting surface warships and support vessels. Logistics ships would be necessary to refuel the escorts on both the inbound and outbound legs of the voyage (since the Chinese VLCCs would be vulnerable to attack when

transiting the Indian Ocean after offloading in China). Additional ships would likely be required to perform maintenance and repair on the escorts.³⁴

This rough calculation gives a basic idea of the tremendous assets required. Even if China's navy acquired sufficient surface combatants in the coming years to perform sustained convoy operations, China's leadership would still be forced to choose between escorting tankers and keeping sufficient forces in the main theater of conflict to win the fight that triggered the blockade. Recognizing this reality, a number of Chinese analysts write that it will be some time before China can realistically defend distant energy supply lanes.³⁵

The second strategy for protecting shipping entails taking the fight to the enemy, attacking his bases, and driving him from the area. A Chinese doctrinal textbook notes that in order to avoid continually fighting at a time and place of the enemy's choosing, protective forces would have to work aggressively and "attack the enemy force immediately after locating it." The authors also emphasize that "covering forces should attack the enemy first in an effort to destroy the attacking enemy before it unfolds or uses weapons."³⁶ To accomplish these objectives, however, Chinese forces would need to achieve sea and air control at a specific time and place (i.e., where the ships being escorted are at any particular moment), a capability that China has yet to demonstrate far from its shores.

Implications of Further Chinese Naval Development

The pattern of Chinese naval acquisitions in recent years suggests that Beijing is not seeking to directly escort tankers, at least for now. China does, indeed, have a growing modern submarine force (including roughly 58 attack submarines), new land-attack cruise missiles (LACMs), long-range strike aircraft, and formidable ballistic-missile force with which it could attack the bases of any country that imposed a blockade or lent its support to the blockading power. China's navy also has approximately 72 major surface combatants, 50 medium and heavy amphibious lift vessels, and 41 coastal missile patrol craft. At present, China is simultaneously building two classes of attack submarine (*Yuan* and Type 093) and purchasing one (the *Kilo*) from Russia. These submarines could eventually launch LACMs, such as Russia's 300 km range *Klub* or China's *Dong Hai*-10, designed to strike targets 1500 km away. These

³⁴This paragraph draws upon William Murray and Gabriel Collins, "China's Counterblockade Options," in *Maritime Implications of China's Energy Strategy* (Annapolis, MD: Naval Institute Press, Forthcoming 2008).

³⁵Yang, p. 119.

³⁶Wang Houqing and Zhang Zingye, eds., *The Science of Campaigns*, (Beijing: National Defense University Press, 2000), p. 304.

missiles might have a maritime strike mission. Finally, the PLA's 2nd Artillery commands a force of more than 900 short- and medium-range ballistic missiles.

Most of the naval platforms that China is currently developing seem to have been acquired with a clear focus on a Taiwan contingency, rather than escorting oil tankers over long ranges. Some of China's more modern ships and aircraft do have the necessary endurance and weapons to project combat power slightly further, into the South China Sea and into parts of the Western Pacific. The PLAN's limited number of oilers, tenders, and other replenishment vessels severely constrain China's long-distance operational capability, however. China's burgeoning shipbuilding industry has the capability to produce large numbers of these, but shipbuilders have so far focused on commercial vessels. Nevertheless, China's rapidly increasing defense budget (officially \$45 billion in 2007 and estimated by the U.S. Defense Intelligence Agency to be as high as \$85 billion to \$125 billion) may allow for an ambitious building program.

In the 15-20 year timeframe, China could acquire the capability to execute long distance SLOC protection missions. Already, for instance, China's new J-10, SU 27, J-11, and SU-30 aircraft, and the weapons they can carry, represent a major improvement over their predecessors. Yet Chinese forces still must master aerial refueling in order to make these aircraft relevant in a distant SLOC defense campaign. In their studies of Operation El Dorado Canyon (the U.S. attack on Libya in 1986) and other U.S. aerial campaigns, Chinese analysts note that aerial refueling can give tactical aircraft (such as the SU-30 or J-10) strategic strike range.³⁷

China is also developing significant cruise missile capabilities that would be useful in a SLOC protection campaign. China's formidable SS-N-22 Sunburn supersonic missile can be fired from its four Russian-made *Sovremennyy* class cruisers. Every surface warship launched by China in the past decade (with the possible exception of the new LPD) carries sophisticated, long-range YJ-series anti-ship cruise missiles (ASCMs), which compare well with foreign systems. It is important to recall that a single Chinese-made C-802, which is likely less capable than China's newer ASCMs, nearly sank an Israeli *Haanit*-class frigate during the summer 2006 war between Israel and Hezbollah.³⁸ China is also thought to be in the process of developing anti-ship homing warheads for its ballistic missiles, which would be extraordinarily difficult to defend against.³⁹

Surface vessels operating far from their home ports would also require strong organic air defense capabilities. Rapid improvements in air defense

³⁷ Ling Chao, "The IL-78 Comes to China," *Ordnance Industry Science & Technology*, 2005, pp. 19–23.

³⁸ See Matt Hilburn, "Hezbollah's Missile Surprise," *Seapower*, September 2006, pp. 10–2.

³⁹ Rear Admiral Eric A. McVadon, U.S. Navy (Retired), "China's Maturing Navy," *Naval War College Review*, Spring 2006.

and surface warfare are already evident in the PLAN's most recent classes of surface combatants, which mount sophisticated air search and missile guidance radars, and long-ranged vertically launched surface to air missiles (SAMs). These measures will enhance China's power projection options. "The long-range SAM systems [that the *Luzhou* and *Luyang II* destroyers] possess will provide Chinese surface combatants with an area air defense capability as they operate farther from shore and outside of the protection of land-based air defense assets," states Scott Bray, deputy senior intelligence officer for China in the U.S. Navy's Office of Naval Intelligence. "Under the protection afforded by these advanced area air defense destroyers, which are also equipped with long-range ASCMs, the Chinese Navy can operate combatants such as two recently acquired *Sovremennyi II* [destroyers]. These long-range engagement and air defense capabilities now being fielded by the PLA(N) give China a significantly improved capacity for operations beyond the littoral in support of SLOC protection."⁴⁰

Improved destroyers and air defenses will not alone afford China SLOC defense capabilities, however. China's navy presently lacks a robust anti-submarine warfare (ASW) capability. As such, PLAN ships engaged in distant SLOC protection would be highly vulnerable to an adversary's attack submarines and mines.⁴¹ Although the PLAN's newer large surface combatants can carry ASW helicopters, most appear to lack modern hull-mounted or towed sonars. There is also little evidence that China is in the process of acquiring truly long-range maritime patrol aircraft, which are essential for ASW missions.

China's growing retaliatory capacity would help to insulate it from coercive pressure short of war. In the event of hostilities, China might be able to deny outside forces access to its maritime periphery, or launch retaliatory attacks against enemy forces in portions of SLOCs nearest to China. But while China has made substantial qualitative improvements in its navy over the past decade, thereby avoiding block obsolescence of several platforms, it does not yet possess the overall force structure to support multiple missions to defend contested SLOCs. "At present," the U.S. Department of Defense judges, "China can neither protect its foreign energy supplies nor the routes on which they travel, including the Straits of Malacca"⁴²

Should China develop significant SLOC defense capabilities in coming years, several indicators will be apparent to foreign analysts. First, China would have to purchase or produce a substantial contingent of oilers, tenders, and other replenishment vessels. Second, China would have to

⁴⁰ Scott Bray, "Seapower Questions on the Chinese Submarine Force," U.S. Navy, Office of Naval Intelligence, 20 December 2006, <http://www.fas.org/nuke/guide/china/ONI2006.pdf>.

⁴¹ Andrew Erickson, Lyle Goldstein and William Murray, "China's 'Undersea Sentries' Sea Mines Constitute Lead Element of PLA Navy's ASW," *Undersea Warfare*, Winter 2007, pp. 10–5.

⁴² Office of the Secretary of Defense, *Military Power of the People's Republic of China 2007*, Annual Report to Congress, p. 8.

acquire reliable overseas bases (e.g., in the Indian Ocean). This would represent a significant departure from Chinese foreign policy post-1949, a central tenet of which has been commitment to forego the permanent basing of military forces in other nations. Third, in order to achieve viable, lethal ASW capabilities, a substantial force of PLAN nuclear attack submarines would need to go on frequent extended deployments. Such a force has proved enormously difficult and expensive for the USSR, and even the United States., to acquire. Finally, in order to achieve high levels of presence and readiness, China's navy would have to deploy a substantial portion of its forces at all times. This would require the maturation of advanced levels of doctrine, training, and human capacity, none of which are currently obviously present in China's navy, but all of which are well within the capability of China to develop.⁴³

Calling an Opponent's Bluff

Unless China's navy can attain outright naval and air superiority in a given sea zone, carrying oil in Chinese-flagged tankers during wartime might render Beijing *more* vulnerable to interdiction of its energy supply because—at least in theory—foreign navies could easily determine which tankers were bound for China. It might seem, then, that absent a substantial blue-water naval capability—which may be decades away—China is making itself a target by constructing a state-controlled, Chinese-flagged tanker fleet.

If so, Beijing's best option might be to rely on private third-party tanker operators, whose deliveries could be effectively stopped only by a close blockade of Chinese ports—in turn exposing the blockading state's naval forces to a wide range of military threats and almost certainly sparking a larger conflict whose repercussions could exceed any likely political gains for that state. Alternatively, reflagging Chinese-owned tankers to Liberia, Panama, or another flag-of-convenience state would force an interdicting navy to go to much greater lengths to identify a tanker's ownership and ultimate destination.

Nonetheless, because of international legal norms, having a Chinese-flagged tanker fleet import oil for the government might indeed help to ensure China's energy security during crises short of war. Under international law, a PRC-flagged tanker in government service would enjoy the substantial protection of China's flag. If an outside power interdicted such a vessel, China would have grounds to claim that its sovereignty had been breached sufficiently to threaten its national well-being, thereby justifying a serious armed response. The escalatory barrier created by putting state-flagged vessels into government service would thus deter adversaries from interdicting PRC oil shipments

⁴³The authors thank William Murray for his assistance with this paragraph.

unless hostilities were either imminent or already underway. It is difficult to imagine a scenario short of major war in which an adversary would risk triggering escalatory behavior by Beijing.

During a crisis, moreover, oil carried on Chinese-flagged tankers not already being shipped on behalf of PRC state-owned oil companies could rapidly be resold at sea to any number of PRC government entities, thus creating the necessary legal conditions to assert sovereign immune status for the tanker.⁴⁴ Based on *Lloyd's Sea Web* data, thirty one of the 42 VLCCs currently on order in Chinese yards for Chinese shipping companies are slated to fly the PRC flag (of the other 11, 5 will be Panamanian-flagged and 6 will fly Hong Kong S.A.R.'s flag). These VLCCs would be the primary vessels hauling oil through the Indian Ocean and other potentially vulnerable SLOCs.

Interdicting private tankers at sea would be difficult in practice, moreover, because at any given time the ship's bill of lading might not accurately reflect the true end destination of an oil cargo. In normal commerce, cargoes may be bought and sold dozens of times while still on the high seas. Bills of lading can also easily be falsified, a technique regularly used by smugglers. Finally, unless the blockading power were willing to risk environmental disaster by disabling or sinking uncooperative tankers, it would likely lack sufficient military assets to board and take control of such ships, as fifty-two oil tankers/day pass through the Malacca Strait alone.⁴⁵

Seeking lower insurance rates is another possible rationale for a state tanker fleet. Under normal operating conditions, hull insurance for a tanker is between 2.5 and 3.75 percent of ship value on an annualized basis. Thus, the operator of a \$130 million VLCC can expect to pay \$8,900-13,300/day in insurance costs. However, if insurance firms declare an area a War Risk Exclusion Zone (e.g., in the Persian Gulf), rates can climb to 7.5 to 10% of ship value on a *daily* basis, meaning that the same VLCC operator would now have to pay between \$8.9 and \$13.3 million/day to insure his ship while it was in the danger zone. Assuming three days in the Gulf each time the vessel loaded oil, the operator would have to pay from \$26.7 to \$39.9 million per trip. Even in the best of markets, VLCCs rarely command more than \$100,000/day. Yet to pay off the projected war risk insurance costs, a VLCC making the 33-day trip from the Gulf to East Asia would have to earn more than \$1 million/day.

⁴⁴ See High Seas Convention (1958), Article 8; United Nations Convention on the Law of the Sea (1982), Articles 32, 58(2), 95 and 236; A. Ralph Thomas and James C. Duncan, "Annotated Supplement to the *Commander's Handbook on the Law of Naval Operations*," *U.S. Naval War College International Law Studies* (1999), pp. 110, 221, 259, 390; Chairman of the Joint Chief of Staff Instruction 3121.01B (January 2005); Joel Doolin, "The Proliferation Security Initiative: Cornerstone of a New International Norm," *Naval War College Review*, Spring 2006.

⁴⁵ Yue Laiqun, "Unavoided Malacca Strait," *China Petroleum Enterprise*, September 2005, p. 6.

Commercial ship owners would only operate under such conditions if an outside power either paid them such rates, or offered insurance and a guaranteed profit payment as part of an oil transport deal. State-owned ships could conceivably self-insure and forego paying insurance premiums in order to maintain continued oil delivery service to the home country. For all these reasons, a domestically flagged tanker fleet makes some strategic sense, at least from Beijing's security-focused perspective.

Security Implications

Not all contingencies threatening Chinese energy security involve an armed conflict. A terrorist attack on a Saudi export terminal that suddenly tightened world oil markets, for example, might be sufficient to trigger a government "call" on state-run tankers. It might prove difficult for Beijing to press PRC-flagged tankers into state service during a crisis, however. Assuming that PRC tanker operators followed normal peacetime operating principles, their VLCCs could be chartered out to shippers in places as far afield as Nigeria, Venezuela, or northwest Europe. Given the distances involved, it might take thirty days or more for these vessels to reach Chinese ports, even if they immediately broke contracts and headed for China.

If it had advance warning, China's central government might notify tanker operators ahead of time, pay contract termination penalties, and reposition state-owned tankers for crisis oil deliveries. However, numerous commercial observers carefully track tanker movements, meaning that even covert Chinese preparations would be noticed quickly. Other major powers would rapidly realize that China was marshalling assets, and might interpret such actions as a sign that Beijing anticipated hostilities. Rather than helping to ensure national security, therefore, a decision to call on PRC-flagged tankers during times of major tension could well cause other actors to assume the worst—thereby precipitating a more serious crisis.

The security of China's maritime oil transport lies in the inherent difficulties facing any force trying to disrupt it. It would be very difficult to interdict private tankers bound for Chinese ports. The global oil market is highly fungible; ship destinations are unclear, since cargoes are often resold at sea; and oil can be transshipped to China through third ports in the region. In addition, the number of tankers transiting key chokepoints would likely far exceed any potential blockading navy's physical ability to take control of uncooperative ships, unless it were willing to accept the diplomatic, environmental, and military consequences of using disabling fire. These factors, in addition to the legal considerations mentioned above, explain both Chinese preoccupation with acquiring state-flagged tankers and why during peacetime Beijing can allow Chinese shipping companies to operate them under normal commercial principles.

Conclusion

Anxiety over the security of maritime oil supply is one factor shaping decision-making as interested actors promote the development of a large Chinese tanker fleet and Beijing contemplates the construction of a blue water navy. For the foreseeable future, particularly during peacetime, Chinese tanker operators will work almost exclusively within the framework of the existing global tanker market. Circumventing this system by forcing Chinese shippers to serve Chinese oil producers at any cost would be economically unsound. Energy subsidies are a parallel case in point. China already pays its state oil companies billions of dollars in subsidies annually to compensate them for losses they incur by purchasing oil at market prices and selling products made from that oil at government-capped rates within China.

Tanker operations driven by economic opportunity are more profitable than those driven by state directives. Moreover, commercial deals with foreign tanker operators will tend to further integrate Chinese shipping and shipbuilding firms into the global oil shipping sector. The precedent set by China's national energy companies in emphasizing profit over politics whenever possible (e.g., in equity oil sales to the international market rather than China) also favors the adoption of a largely commercial approach to tanker fleet operation. Although China has spent billions of dollars on overseas equity oil acquisitions, the flagship state firm CNPC sells a sizeable portion of its equity oil on the international market.⁴⁶

Given the Chinese leadership's current bias toward state-led oil security policies, Beijing likely hopes that Chinese shippers will come to haul a large percentage of China's oil imports. However, the final outcome will likely depend much more heavily on shipping economics than it does on politics. China's central government faces an uphill fight in coordinating energy policy in general, let alone oil transportation policy. Indeed, in recent discussions, a well-placed Chinese energy policy expert indicated that the process of establishing an Energy Ministry has been rocky and that the plan could fail.⁴⁷

In sum, Chinese state and private companies seek to profit from shipbuilding and tanker operation during peacetime while the government likely believes that it is hedging its bets against future threats to oil shipments by supporting a large tanker buildup. Security concerns are probably shaping Beijing's desire and efforts to have Chinese tankers haul Chinese crude imports. Over the longer term, as China develops greater international interests, increasing comprehensive national power and confidence vis-à-vis Taiwan's status may finally allow China's navy to cast its strategic sights on

⁴⁶ Gary Dirks, "Energy Security: China and the World," speech at "International Symposium on Energy Security: China and the World," Beijing, China, May 24, 2006.

⁴⁷ Interview with author, April 2007.

blue waters and develop power projection capabilities sufficient to protect Chinese tankers progressively further afield.

As the next Five Year Plan takes shape, China's leaders will make crucial decisions concerning the extent to which China's navy should expand its power projection ability, a factor closely related to China's energy strategy. These decisions, in turn, will shape strategic perceptions, doctrine, and force structures for the next 10-20 years. Identifying and analyzing the strategic rationale behind China's apparent intent to create a state-led tanker fleet expansion can help inform U.S. strategy and policies concerning China, particularly as the U.S. Navy formulates its own new maritime strategy.

Washington should use this window of opportunity to make the case to Beijing that, for the time being, the world oil market is a far better guarantor of energy security than a state tanker fleet protected by a blue-water navy. While these are clearly sensitive topics in which both sides have great strategic stakes, judicious use of U.S.-China navy-to-navy exchanges and bilateral consultations may help the world's two largest energy consumers achieve sustainable, if competitive, coexistence.

