

CRS Report for Congress

Rising Energy Competition and Energy Security in Northeast Asia: Issues for U.S. Policy

Updated May 13, 2008

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**Prepared for Members and
Committees of Congress**

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 13 MAY 2008		2. REPORT TYPE		3. DATES COVERED 00-00-2008 to 00-00-2008	
4. TITLE AND SUBTITLE Rising Energy Competition and Energy Security in Northeast Asia: Issues for U.S. Policy				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Congressional Research Service, The Library of Congress, 101 Independence Ave, SE, Washington, DC, 20540-7500				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 27	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

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Summary

Asia has become a principal driver in world energy markets, largely due to China's remarkable growth in demand. As the gap between consumption and production levels in Asia expands, the region's economic powers appear to be increasingly anxious about their energy security, concerned that tight supplies and consequent high prices may constrain economic growth. Rising energy competition in East Asia promises to affect U.S. policy in many ways, from contributing to price spikes because of China's rapidly increasing demand to altering the geostrategic landscape in the years to come as regional powers struggle to secure access to energy supplies. This report analyzes how China, Japan, and South Korea's pursuits to bolster their energy security impacts U.S. interests. It also examines decisions being made by Asian states now that will significantly shape global affairs in the future, how these decisions might play out, and how Congress and the executive branch might play a role in those decisions.

China, Japan, and South Korea have been moving aggressively to shore up partnerships with existing suppliers and pursue new energy investments overseas, often downplaying doubts about the technical feasibility and economic profitability of new development. Their outreach to suppliers includes the development of close ties with Iran, a key concern to U.S. policymakers given skepticism about Tehran's nuclear program. This report outlines the energy portfolios and strategies of the three countries, including their pursuit of alternatives to petroleum.

The Russian Far East, with vast energy reserves and relative geographical proximity to northeast Asian markets, is already an arena for competition among the Asian powers. The current struggle between China and Japan over access to Russian oil via a pipeline from Siberia may be indicative of more conflicts ahead. If Russia continues to attract commercial and political overtures to gain access to its resources, Moscow stands to gain considerably more power in international affairs.

The possible implications of the surge in energy competition are wide-ranging, from provoking military conflict to spurring unprecedented regional cooperation. Depending on how events unfold, the U.S. alliances with Japan and South Korea, as well as relationships with Russia and China, could be challenged to adapt to changing conditions. Central Asia, with its considerable energy supplies and key strategic location, has re-emerged as an arena for geopolitical contests among major powers.

Many analysts concur that it is in the interest of the United States for the governments of China, Japan, and South Korea to approach energy policy from a market perspective. They believe that if Beijing, Tokyo, and Seoul instead link energy supply with overall security, the potential for conflict and instability is heightened. The report concludes with a number of options, including those that U.S. policymakers might pursue to encourage a trend towards cooperation and the depoliticization of energy policy.

This report will be updated periodically.

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Rising Energy Competition and Energy Security in Northeast Asia: Issues for U.S. Policy

Introduction

Rising competition for energy in China, Japan, and South Korea are of interest to U.S. policymakers for three primary reasons. First, the surge in China's energy needs has emerged as a major factor in influencing world oil prices. Second, the tightening global oil market could increase the bargaining power of oil exporting countries, possibly driving a wedge between the United States and our Asian allies over important foreign policy issues. Third, competition in Asia over access to energy supplies could significantly alter the geopolitics of the region, with important ramifications for U.S. foreign policy. Analysts alarmed at the developing trends are quick to mention that energy insecurity is often cited as the proximate cause of the Japanese attack on Pearl Harbor in 1941.

The Role of Congress

Congress plays an important role in developing U.S. foreign policy and energy policy. In addition to its ongoing oversight and legislative responsibilities, in 1975, through the passage of the Energy Policy and Conservation Act (P.L. 94-163), Congress authorized U.S. participation in the International Energy Agency (IEA), the creation of a strategic petroleum reserve (SPR), and support for efforts to enhance energy efficiency and alternatives to petroleum. These measures are among those proposed by many analysts to address current concerns about how China's demand will impact the global oil markets and national security. Congress also established the United States-China Economic and Security Review Commission in 2000 to review the national security implications of trade and economic ties between the United States and the People's Republic of China, including an assessment of China's energy needs and strategies.

When the China National Offshore Oil Corporation (CNOOC) attempted to acquire the U.S. energy company Unocal for \$18.5 billion in cash in June 2005, Congressional opposition to the takeover played a key role in the eventual CNOOC withdrawal of its bid in August 2005. Congressional activity included hearings, statements, studies, letters to the Secretary of Treasury, and legislation aimed at the Committee on Foreign Investment in the United States (CFIUS).¹

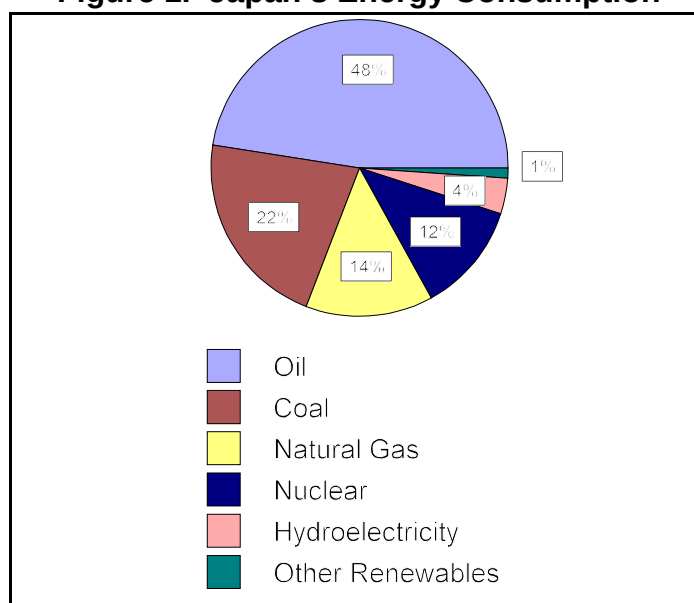
¹ For more information, see CRS Report RL33093, *China and the CNOOC Bid for Unocal: Issues for Congress*, by Dick K. Nanto, James K. Jackson, and Wayne M. Morrison.

Profiles of Country Energy Sectors

Japan's Energy Sector

As the world's fourth-largest consumer of energy, Japan, with few indigenous natural supplies, has long depended on external sources to keep its economy running. Economic slowdown and efficiency measures have helped keep Japan's consumption of oil steady since 1980,² but Japan's government has consistently demonstrated concern with energy security, particularly its dependence on the volatile Middle East for oil supplies. Since the 1970s, Japan has embarked on a focused campaign of diversification of suppliers and forms of energy, conservation, the establishment of strategic oil reserves, and research devoted to alternative energy sources. Japan's stockpiles are among the highest in the world. Japan also subsidizes its oil companies working overseas,³ a strategy that has cost millions and, by many accounts, met with only limited success. Observers point out that Japanese policymakers have linked energy policy and security policy, citing threats to the Persian Gulf or to the sea lanes that bring oil to Japan. Japan is a member of the International Energy Agency (IEA).

Figure 1. Japan's Energy Consumption



Source: Energy Information Administration *Japan Country Analysis Brief*, 2004 estimates.

National Energy Strategy. Japan has invested heavily in diversification, successfully reducing its share of petroleum as its primary energy sources from over 70% in 1970 to under 50% in 2004. Since the 1973 Arab oil embargo, Japan has

² "The Big Thirst: Burning Through Oil," *New York Times*, April 20, 2008.

³ The official state-run oil company, the Japan National Oil Company (JNOC), was dismantled after Prime Minister Junichiro Koizumi called for its abolishment in November 2001. Its successor, the Japan Oil, Gas, and Metals National Corporation (JOGMEC), provides support to Japanese energy companies.

increasingly relied on nuclear power generation to reduce its dependence on oil and curb carbon emissions. Safety concerns have at times shaken the public's confidence in the industry and led to temporary declines in power generation when plants are shut down following accidents. Despite occasional setbacks, however, Japan remains the third-largest user of nuclear energy in the world and depends on nuclear reactors for over one third of its electricity. Japan has 55 light-water nuclear power reactors and has plans to build up to 13 more over the next decade.

Japan relies on natural gas for about 14% of its energy consumption, importing primarily from Southeast Asia (40% from Indonesia, 20% from Malaysia) in the form of liquified natural gas (LNG).⁴ Japanese firms have embarked on a major project to develop the natural gas and oil on the Russian island of Sakhalin, located just 160 km from Japan's northern border. Japanese electric and gas companies have secured contracts to receive gas in the form of LNG from Sakhalin; beginning in 2009, Sakhalin should provide about 8.5% of Japan's LNG.⁵ Earlier plans to build a gas pipeline to Japan have stalled because of lowered expectations for demand from the Japanese market.

Japan has been a world leader in creating a more energy-efficient economy. Its per capita energy consumption is one of the lowest in the developed world at 175.6 million Btu, versus the U.S. value of 340 million Btu.⁶ It has invested in energy conservation programs and national energy savings plans to reduce per capita consumption to lower levels. Japan has also committed funds to developing solar, hydro, and other carbon-free, environmentally friendly renewable energy sources. Japanese automakers are leaders in producing hybrid cars which over time are expected to reduce dependency on petroleum. Japan has a dual interest in improving efficiency: to enhance its energy security and to meet its own environmental goals, particularly emissions targets set under the Kyoto Protocol.

The announcement of a "New National Energy Strategy" in Japan in 2006 sets ambitious goals for increasing conservation, lowering oil dependence, developing more nuclear energy, and increasing the amount of equity oil overseas. Analysts say the strategy may reflect a shift toward a more state-directed, interventionist approach.

Foreign Suppliers. Japanese oil firms have actively sought foreign supplies of energy on several continents for decades to reduce its dependence on the Middle East. The companies have been active in the oil-rich Caspian region, specifically in Azerbaijan and Kazakhstan. The Russian Far East has also been identified as an attractive alternative supplier (see later section). Although Japan earlier worked to diversify its supply elsewhere in East Asia, imports from China and Vietnam reportedly dried up after 2000 as those countries become net importers themselves.⁷ In an indication of both increased political rivalry and the quest for assured supply

⁴ "Japan Risk: Infrastructure Risk," *Economist Intelligence Unit*. September 7, 2005.

⁵ Sakhalin project information from Energy Information Agency factsheet and various press reports.

⁶ 2003 estimate from the Energy Information Agency.

⁷ "Japan Moves to Widen its Options," *New York Times*. November 4, 2003.

to resources, Beijing and Tokyo have had diplomatic confrontations over the territorial rights of parts the East China Sea, an area with at least some oil and gas reserves. In 2006, Japan imported 2% of its crude oil from Sudan.

Japan's Engagement with the Middle East. Despite attempts at diversification, Japan still imports close to 90% of its oil from the Middle East.⁸ This dependence has driven Tokyo's Middle East policy, which at times has been at odds with American policy in the region. Japan has actively sought supplies in the region for four decades and has maintained diplomatic relations with OPEC (Organization of Petroleum Exporting Countries) nations to serve its energy needs. After the 1973 oil crisis, the Japanese government undertook a new policy toward the Middle East, emphasizing its support for the Palestinians and developing relationships with regional powers independent of the United States.⁹ In relations with Iran in the 1990s, Tokyo adopted the European "critical dialogue" approach, which emphasized engagement through trade and investment to moderate Tehran's hardliners. Japan has distributed millions in Official Development Assistance (ODA) to the region to further economic development. Japan's major trading companies reportedly are heavily involved in investment in the Middle East and receive substantial government support for their activities.¹⁰ As part of the effort to strengthen dialogue with Arab nations, Japan has engaged in the Israel-Palestinian peace process by hosting conferences and facilitating governmental and business exchanges.

Tension with U.S. Over Iran. The conflict between Japan's energy diplomacy and U.S. security interests is particularly evident in the case of Iran, which is the world's fourth largest producer of oil, and is accused by the United States of pursuing a nuclear weapons program and supporting international terrorism. The loss of drilling rights in the Khafji concession in Saudi Arabia in 2000¹¹ compelled Japanese policymakers to turn their attention to cultivating a nearly \$3 billion deal with Tehran in the large Azadegan oilfield in southwestern Iran. The field was reportedly expected to produce up to 300,000 barrels a day, nearly 10% of Japan's crude imports, once operational.¹² The Bush Administration voiced its concerns to Japanese officials about investment in Iran based on its suspected nuclear weapons development program. Though such pressure reportedly stalled negotiations in 2003, the deal was salvaged and signed in 2004. However, as Iran became increasingly

⁸ Peter Evans, *The Brookings Foreign Policy Studies Energy Security Series: Japan*. December 2006.

⁹ Sakai, Keiko. "Japan-Iraq Relations: The Perception Gap and its Influence on Diplomatic Policies," *Arab Studies Quarterly*. Fall 2001.

¹⁰ "Special Report: Japan-Trade," *Meed Weekly Special Report*. November 29, 2002.

¹¹ Saudi Arabia rejected an extension of Japan's rights in negotiations because Japan was unwilling to invest in development projects in Saudi Arabia.

¹² Estimates vary widely on the extent of oil held in Azadegan. Some sources report confirmed, recoverable reserves as low as 6 billion barrels (*Upstream*, "Iran and Japan Clinch \$2 billion deal to develop Azadegan field. February 20, 2004 and Energy Information Administration, *Japan Country Analysis Brief*), while other sources give estimates from 25 to 70 billion barrels of crude (*Asia Pulse*, "Iran, Japan Close to Sign Deal on Azadegan Oil Field." July 16, 2003 and Energy Information Administration, *Iran Country Analysis Brief*).

defiant of International Atomic Energy Agency (IAEA) demands to open up its facilities for inspection and the United Nations Security Council imposed sanctions on Iran, Japan adjusted its position. In October 2006, Japan's Inpex firm (about 30% of the company is held by the Japanese government) reduced its stake in the project from 75% to 10% and transferred operational authority to a national Iranian oil company. The consortium of firms working on Azadegan was reportedly nervous that it will lose its rights to the deal, possibly to China.¹³ Press reports indicate that since Japan's reduced involvement, China and India have stepped up their activities in energy deals with Iran.¹⁴

Korea's Energy Sector

The Republic of Korea has a similar energy portfolio to Japan, but its production and consumption of energy is slightly less efficient and less environmentally-advanced. South Korea is the world's fourth largest oil importer and second largest LNG and coal importer (after Japan). It depends on oil for about half of its energy consumption. Korea's consumption of energy has remained flat since 2000, and, like Japan, all its energy imports must arrive by boat because of the division of the Korean peninsula. Energy consumption per capita is 181 million Btu.¹⁵ The government has built up a strategic oil reserve, managed by the state-owned Korea National Oil Corporation. Like Japan's trading houses, the Korean *chaebol* are active in the Middle East energy sector. Korea is a member of the International Energy Agency.

National Energy Strategy. President Lee Myung-bak, elected in late 2007, has indicated that he would like to focus on energy diplomacy during his term. Ongoing restructuring of the energy industry, including the deregulation and privatization of the Korea Gas Corporation (Kogas) has progressed slowly because of labor union and other interest group opposition. South Korea has increased its nuclear power generation, although has struggled to find appropriate sites for new plants due to limited land availability. After ratifying the Kyoto Protocol on greenhouse gas emissions (though it is not an Annex I party, so is not under the same obligations to reduce emissions), the government made plans to introduce up to twelve new nuclear plants before 2015. Relatively little attention has been given to the development of renewable energy resources.

Because most of the imported petroleum comes from the Middle East (Saudi Arabia alone provides about one third of its imports), South Korea has taken measures to diversify its sources by seeking equity stakes in energy exploration worldwide, including South America, the Middle East, and Asia.¹⁶ Russia's

¹³ "China To Swoop on Iran Oil Field if Tokyo Pulls Support: Firms," *The Japan Times*, August 18, 2005.

¹⁴ "China, Russia, India Make The Running In Iran," *Petroleum Intelligence Weekly*, March 31, 2008.

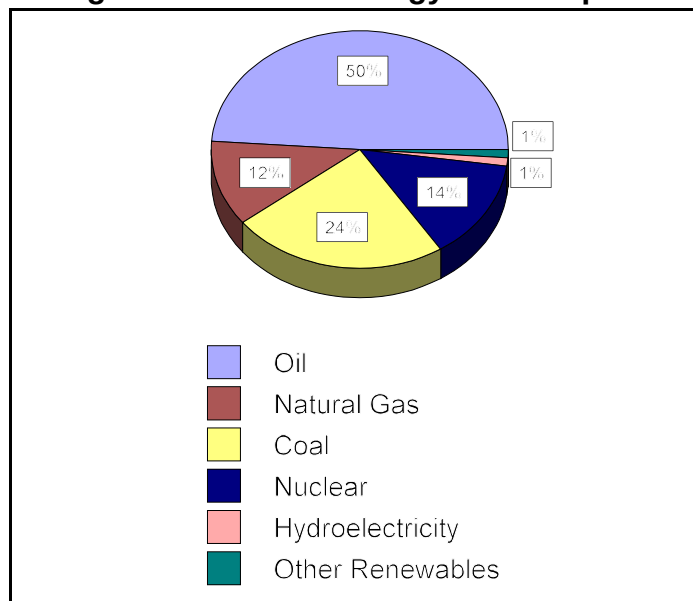
¹⁵ 2002 estimate, provided by the Energy Information Agency, U.S. Department of Energy.

¹⁶ Statistics from *South Korea Country Analysis Brief*, May 2006, Energy Information Administration, U.S. Department of Energy.

geographic proximity makes it an attractive supplier for Korea, and it increased its imports of both oil and gas from Russia in 2007.¹⁷

Emphasis on Natural Gas. Korea has turned increasingly to natural gas for its power needs, importing considerably more LNG in recent years. Energy specialists assert that Korea's domestic configuration and infrastructure lend itself well to increasing natural gas usage, and the government has promoted demand through tax incentives and other measures.¹⁸ Natural gas in the form of LNG makes up about 10% of South Korea's consumption, and is mostly imported from Qatar, Indonesia, Malaysia, and Oman. Increasing the use of natural gas has taken on added importance as South Korea has found coal prices from China, a major supplier, spiking due to increased domestic demand in China. Kogas has signed a long-term deal to import LNG from the Sakhalin-2 project. Kogas also hopes to eventually import gas by pipeline from Siberia, but has expressed frustration with the slow pace of progress on several proposed pipeline projects from Russia.

Figure 2. Korea's Energy Consumption



Source: Energy Information Administration, 2004 data.

North Korea Factor. For South Korea, the uncertainty of the future of the Korean peninsula makes it difficult to consider long-term strategies for energy security. In the event of a collapse of the regime in Pyongyang and reunification with the South, Korea would certainly face rising demand for energy, as North Korea has a critical energy deficit already. North Korea has very little operational infrastructure,

¹⁷ "Korea's Crude Imports from Russia Soar in 2007," *Yonhap English News*, February 11, 2008.

¹⁸ Kent E. Calder, *Korea's Energy Insecurities*. Korea Economic Institute, 2005.

its electrical grid is in poor condition, and transportation systems are weak or failing. North Korea relies on coal for about 85% of its energy consumption.¹⁹

Energy has played a central and controversial role in the ongoing Six-Party Talks among the United States, China, North Korea, South Korea, Japan, and Russia to deal with North Korea's nuclear weapons programs. Under the 1994 Agreed Framework, North Korea was to be provided with two light water reactors (LWRs) to compensate for shutting down its Yongbyon nuclear reactors. Under the February 2007 agreement, Russia, South Korea, China, and the United States are providing heavy fuel oil to North Korea in exchange for disablement of key nuclear facilities.

Proponents of engagement with North Korea may support the construction of gas pipelines or other energy infrastructure through North Korea to link the peninsula and other Asian markets with resources from the Russian Far East. Such arrangements would provide Pyongyang with foreign exchange in the form of transit payments, and could provide energy without relying on its nuclear program. Some who support the expansion of the Six-Party Talks to a broader regional security forum have pointed to energy as a potential platform for region-wide cooperation.

China's Energy Sector

China's energy demand has changed dramatically in line with its rapid economic growth as its GDP continues to grow at a double-digit clip annually. Between 2000 and 2007, China's energy consumption doubled. Previously almost entirely dependent on coal, China has turned increasingly to oil to satisfy its soaring energy demands. Although coal still provides nearly 70% of energy consumption, China surpassed Japan in 2003 to become the world's second largest oil consuming country after the United States. The source of nearly 30% of world oil demand growth since 2000, China is projected to demand over 16 million barrels per day by 2030.²⁰ Electricity and coal consumption have grown by 60% since 2000.²¹ By nearly every conceivable metric, China has become a primary driver in world energy markets. According to the IEA, China is on course to overtake the United States as the world's largest consumer of energy by 2010.

Government Activism. Beijing has become increasingly concerned about its growing energy needs. Experts say that the electricity crisis of 2003-2004, during which areas of China suffered from shortages and blackouts, surprised Beijing and drove a new approach to managing China's energy security.²² The formation of the Energy Leading Group, headed by Premier Wen Jiabao, and the State Energy Office in 2005, to coordinate all agencies' efforts, reflected the leaders' dissatisfaction with

¹⁹ Statistics from *North Korea Country Analysis Brief*, January 2004, Energy Information Administration, U.S. Department of Energy.

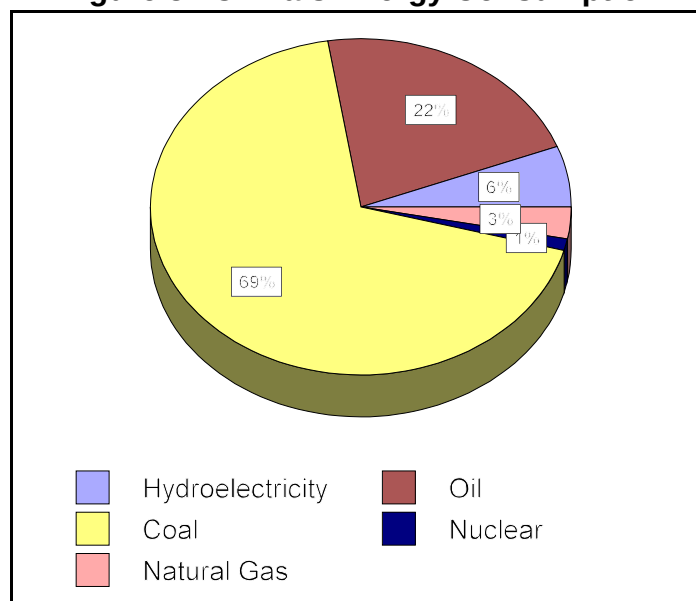
²⁰ Statistics from IEA's *World Energy Outlook 2007*.

²¹ Statistics from *China Country Analysis Brief*, August 2006, Energy Information Administration, U.S. Department of Energy.

²² Erica Downs. *The Brookings Foreign Policy Studies Energy Security Series: China*. December 2006.

the existing energy policymaking apparatus. However, critics say that China's overall energy strategy is still hindered by inter-agency conflict and tension between the government and the national oil companies (NOCs).²³ The creation of coordinating bodies is unlikely to eradicate the problems of competing interests, manpower and funding shortages, and the larger firms' influence.

Figure 3. China's Energy Consumption



Source: Energy Information Administration *China Country Analysis Brief*, 2004 estimates.

Beijing's 11th Five-Year Plan for 2006-2010 indicates the pursuit of comprehensive energy strategies, including a targeted 20% reduction in energy intensity (consumption per unit of GDP) by 2020. This indicates a shift to emphasizing demand moderation instead of only focusing on expanding the supply of energy. China has also imposed fuel economy standards and a tax on large cars. Under the Tenth Fiscal Five-Year Plan for 2001-2005, the government began creating a strategic petroleum reserve for its energy sector, although filling the stockpile has been slow because of the high price of crude oil. The government has agreed to finance the construction of an SPR, and has set the final target at 90 days, the IEA requirement, although doubts remain about how quickly that can be accomplished.

There appear to be cleavages within the leadership on whether to embrace market forces to meet China's energy needs or to continue to pursue equity oil, and differences on the broader question of whether to engage China in global and regional initiatives designed to facilitate cooperation among oil importers. Among those who argue against multilateral engagement, distrust of the United States

²³ The petroleum industry has undergone massive changes in the past decade: the major state-owned energy companies — the China National Petroleum Corporation (CNPC), the China Petroleum and Chemical Corporation (Sinopec), and the China National Offshore Oil Corporation (CNOOC) — have been restructured, brought under the regulatory oversight control of the State Energy Administration (SEA), and carried out initial public offerings (IPOs), after which the government still held majority stakes.

appears to be strong. Some in China see “economic nationalism” as a threat to their energy security, citing the scuttled 2005 Unocal deal and a similar defeat of a bid for Russian oil producer Slavneft in 2002.

Pursuit of Alternatives to Oil. Beijing has worked to diversify its supplies aside from oil by aggressively pursuing several other forms of energy, but all face limitations. Energy specialists say that despite interest in increasing the percentage of nuclear power, hydropower, renewables, and natural gas, these alternatives to oil are likely to remain a small portion of the mix. Major initiatives include expanding the national gas infrastructure and developing gas-fired power plants that will use liquefied natural gas instead of oil. Natural gas is an attractive long-term alternative for China in that it is plentiful outside the Middle East and relatively environmentally friendly. Development of both domestic reserves and overseas gas exploration are ongoing. In the short term, however, the cost of gas infrastructure and of gas itself, as well as the availability of inexpensive coal as a substitute, likely will preclude extensive use of natural gas.

China has pursued a nuclear power program with the help of European manufacturers, and plans to add up to 30 reactors to its existing 11 reactors by 2020.²⁴ Despite misgivings about providing nuclear equipment to China, the United States and Japan reportedly have loosened restrictions on supplying parts to Chinese plants in the interest of safe operations.²⁵

After suffering from widespread electricity shortages for several years, China has approved scores of new electricity generating projects and limited the number of rolling blackouts and manufacturing disruptions.²⁶ The largest hydropower project by far is the Three Gorges Dam; upon completion, expected in 2011, the project will have the world’s largest electric generation capacity (18.2GW). Beijing has cautiously begun to restructure electric power production and distribution, but many bureaucratic hurdles and inefficiencies remain. As demand increased, Beijing began allowing foreign companies to invest in the Chinese energy sector and has made efforts to shift away from the state-owned model. Although very modest progress has been made in developing competition among the many power generating plants, critics point out that the absence of a true national electric grid leaves some areas with surplus power despite the national shortage of generating capacity.

Coal’s Bounty and Detriment. China became a net importer of coal for the first time in 2007.²⁷ China is currently the world’s number one producer and consumer of coal; although coal is expected to decline as a percentage of China’s energy consumption, overall use of coal is likely to rise in absolute terms in the coming years.²⁸ Some experts predict that China could double or even triple its use

²⁴ “China Poised to Become Nuclear Kingpin,” *Bloomberg News*. November 30, 2007.

²⁵ “Energy Security in Asia and Japanese Policy,” *Asia-Pacific Review*, May 2003.

²⁶ “China Beats the Power Crunch,” *Reuters*. September 21, 2005.

²⁷ “Raw Materials: China Feeds its Need,” *China Economic Review*. May 1, 2008.

²⁸ *China Country Analysis Brief*, August 2006, Energy Information Administration, U.S. Department of Energy.

of coal by 2020. The destructive environmental impact of coal use has led to severe air pollution in many Chinese cities and spurred international pressure to reduce emissions. In addition, despite attempts to impose stricter safety standards on China's 24,000 coal mines, thousands of miners die each year from accidents.²⁹

Severe winter weather in China in late 2007 demonstrated China's strained and fragile rail capacity, a further challenge for coal. After blizzards halted trains, coal was not able to reach power stations, causing widespread blackouts. Although rail expansion continues, the capacity cannot keep up with the demand for transit of coal and other commodities. Switching to travel by road is a far less efficient option.

Seeking Energy and Partnerships Overseas. China currently depends on the Middle East for roughly half of its oil imports with Saudi Arabia providing the largest amount. Beijing has aggressively sought to buy into foreign oilfields in over 30 countries, many of them outside the Middle East. In general, Beijing has taken a bilateral approach to ensuring its oil supply. Not a member of the International Energy Agency, China does not participate in broad multilateral energy coordination fora. Chinese companies have acquired oil concessions in Central Asia, East Asia, the Middle East, Latin America, North America, and Africa. Africa and Russia have provided the largest growth opportunities, as supplies from East Asia have declined in percentage of China's total imports.

China's political leaders have actively encouraged new cooperation, and energy deals are often packaged with other financial assistance incentives and high-level dialogue. For example, a China-Africa summit conference in Beijing in November 2006 brought together nearly 50 African heads of state and ministers to explore investment and aid agreements, and President Hu toured eight African countries in February 2007 to seek further cooperation. However, energy analysts point out that the Chinese national oil companies (NOCs) pursue deals on a profit-driven basis, and hold increasing clout over other elements of the national energy policymaking process.³⁰ Analysts also argue that the NOCs competitiveness stems mostly from their willingness to accept higher risk and lower returns on investment rather than direct government support.³¹

²⁹ "Mine Safety Drive Fails in China," *BBC News Online*, September 23, 2005.

³⁰ Erica Downs, "China's Quest for Overseas Oil," *Far Eastern Economic Review*, September 2007.

³¹ Trevor Houser, "The Roots of Chinese Oil Investment Abroad," *Asia Policy*, No. 5, January 2008.

Figure 4.
Chinese Oil Imports 1995

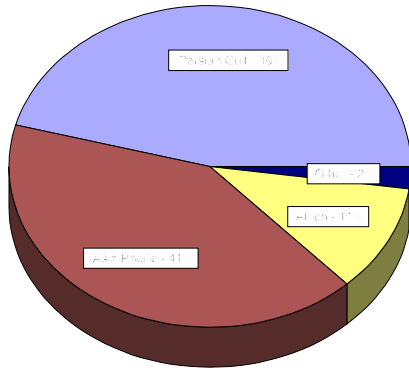
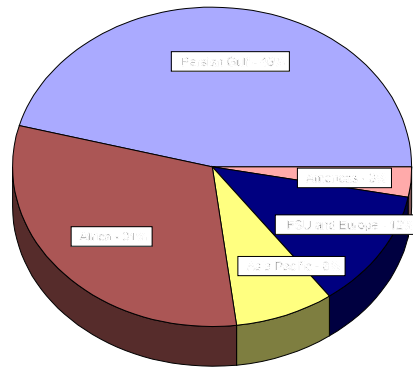


Figure 5.
Chinese Oil Imports 2005



Sources: International Petroleum Economics and Reuters, as cited in *Brookings Foreign Policy Studies Energy Security Series: China*, by Erica Downs.

Particular inroads have been made in the Caspian region, most prominently a landmark accord between China and Kazakhstan that gives CNPC a 60% stake in the Kazakh state firm Aktobemunaigaz. An oil pipeline carrying Kazakh oil to China was completed in late 2005, and crude delivery began in July 2006. U.S. oil majors had also tried unsuccessfully to secure access to Kazakhstan's oil, estimated at about 35 billion barrels of discovered reserves. In addition to Kazakh deals, strategic acquisitions in Azerbaijan and preferential rights to develop natural gas in Turkmenistan have also heightened Beijing's presence in Central Asia. As these deals have progressed, China has strengthened the Shanghai Cooperation Organization (SCO), a regional security organization that includes China, Russia, Kazakhstan, Uzbekistan, Tajikistan, and Kyrgyzstan. The SCO flexed its political muscle when it called for timetables for the withdrawal of "appropriate participants in the antiterrorist coalition" from the region at its June 2005 meeting; shortly after, the Uzbek president ordered U.S. forces to leave their bases by the end of the year.

China's energy relationship with Sudan has raised concern among some U.S. officials because of the ongoing atrocities in Darfur. CNPC has invested at least \$8 billion in Sudan's oil sector,³² and received 5% of its oil imports from Sudan in 2005.³³ Some analysts say that increased international pressure to cease dealings with Sudan is making some in Beijing question whether the investment in Sudan is worth a loss of Chinese "soft power" on the global stage.³⁴

Despite working to reduce dependence on the Middle East, China reportedly considers its relationship with Iran crucial to maintaining energy security. The

³² *China Country Analysis Brief*, August 2006, Energy Information Administration, U.S. Department of Energy.

³³ Erica Downs. *The Brookings Foreign Policy Studies Energy Security Series: China*. December 2006.

³⁴ Daniel Rosen and Trevor Houser, "China Energy: A Guide for the Perplexed." *China Balance Sheet*, May 2007.

number of energy-related deals has reportedly risen substantially between Beijing and Tehran, as have overall trade and commercial ties.³⁵ Beginning in the 1980s, Beijing provided Tehran with military equipment, including technology that some assert could be used for creating weapons of mass destruction and assisting with missile programs.³⁶ China reportedly agreed to cease sending Iran dual use technology in 1997 and, according to some analysts, its arms sales to the region have dwindled.³⁷ Others claim that the flow of arms continues.³⁸ Under the Iran Sanctions Act (H.R. 6198, P.L. 109-293), which made WMD and advanced conventional weapons exports to Iran sanctionable, the United States has imposed sanctions on Chinese companies at least seven occasions.³⁹

U.S.-China Bilateral Energy Cooperation. Energy issues are among those included in the Strategic Economic Dialogue, an effort begun by former Deputy Secretary of State Robert Zoellick in 2005 and continued under Secretary of Treasury Henry Paulson. The twice annual talks mark the first regular exchange between senior officials in the U.S.-China bilateral relationship. According to Department of Energy officials, bureaucrats are more engaged on cooperative energy agreements as a result of the SED. These efforts have included protocols on fossil energy, renewables, and energy efficiency; a Memorandum of Understanding in which the United States agrees to export technology for four AP1000 nuclear reactors if purchased from Westinghouse; and the Oil and Gas Industry Forum, which brings together U.S. and Chinese private sector companies. The Bush Administration has also touted the Asia-Pacific Partnership (APP) for Clean Development and Climate to develop clean energy technologies with private sector partners; the forum includes the United States, Japan, South Korea, India, China, and Australia. The APP is mostly focused on the “deployment” of new technologies, as opposed to research and development.

Rising Competition Over Access to Oil and Gas in the Russian Far East

As China and Japan scramble to meet their energy needs while reducing dependence on the Middle East, the largely undeveloped resources of neighboring Siberia have become a prize. Although the Russian Far East’s promise is significant, many strategists have cast doubt on the commercial viability of tapping the Far East’s reserves. This has not discouraged China and Japan from engaging in a bidding war

³⁵ “China To Swoop on Iran Oil Field if Tokyo Pulls Support: Firms,” *The Japan Times*, August 18, 2005.

³⁶ Felix K. Chang. “Chinese Energy and Asian Security,” *Orbis*, Vol 45, #2. Spring 2001.

³⁷ Robert A. Manning, “The Asian Energy Predicament,” *Survival*, Vol. 42, Issue 3. Fall 2000.

³⁸ Engdahl, William. “China Lays Down the Gauntlet in Energy War: The Geopolitics of Oil, Central Asia, and the United States,” *Asia Times*. December 19, 2005.

³⁹ For details, please see CRS Report RL32048, *Iran: U.S. Concerns and Policy Responses* by Kenneth Katzman.

over Russian projects to bolster their energy security. Boasting huge reserves of natural gas (1,680 trillion cubic feet of proven reserves, nearly twice that of Iran) and potentially rich oil fields, Moscow has played Tokyo and Beijing off one another to maximize concessions for itself. Although China and Japan have expressed frustration with Russia's opaque policymaking, the proximity of Siberian energy supplies remains attractive.

Diplomatic and Economic Rivalry over Angarsk/Taishet Pipeline.

The largest and most contentious project thus far has centered on the destination of a pipeline originating in an eastern Siberian oilfield in the Lake Baikal region. An agreement between Russia and China, endorsed by presidents Putin and Hu in May 2003, cleared the way for the pipeline to go from the city of Angarsk to Daqing, China's flagship oilfield with refining facilities in the industrial northeast. The arrangement stalled, however, after the arrest of Russian oil tycoon Mikhail Khodorkovsky, chairman of Yukos, the company that brokered the deal and planned to construct the pipeline. In 2005, Moscow reversed course and designated the route preferred by Japan: from the nearby city of Taishet to the Russian port of Nakhodka, near Vladivostok on the Sea of Japan and a short tanker trip away from Japan. Presently, the Kremlin's position appears to try to satisfy both demands by postponing the decision on the ultimate destination to a later date. Most energy analysts caution that the decision is far from finalized and that significant obstacles remain to realizing any arrangement.

The Nakhodka option is far more expensive and ambitious: the pipeline would cover over 2,580 miles and cost up to \$18 billion, according to some estimates, compared to the 1,400 mile, estimated \$2.5 billion that the Daqing route would cost.⁴⁰ But the Japanese proposal also offered nearly full financing for the construction and oil exploration, largely through the government owned Japan Bank for International Cooperation (JBIC), and Russia would own and control the entire length of the pipeline. Japan is anxious to diversify its suppliers, and analysts estimate that if Japan imported a million barrels a day from Russia, its dependence on the volatile Middle East would fall by 10-15%.⁴¹

Moscow Equivocates. Russia, flush with oil revenues because of the high price of oil worldwide, has resisted making a firm commitment to either project, and instead claims it will try to satisfy both Japan and China's appetite for relatively nearby energy supplies. In September 2005, Putin announced that the pipeline would be built first from Taishet to Skovorodino, near the Chinese border, and then on to Daqing. Later, the pipeline would be extended to Nakhodka and the Asia-Pacific market, in order to diversify its exports, Putin continued.⁴² Although estimates vary widely, the initial phase, to be completed in 2009, is estimated at a capacity of 300,000 barrels per day; some figures cite the final pipeline capacity at 1.6 million

⁴⁰ Lyne, Jack. "Priciest Pipeline Ever," *The Site Selection*. January 17, 2005. Accessed at [http://www.conway.com/ssinsider/snapshot/sf050117.htm].

⁴¹ "Japan to Return to Discussion of Angarsk-Nakhodka Oil Pipeline Project," *WPS: Russian Oil and Gas Report*. March 5, 2004.

⁴² "The Great Game is Revived by Pipeline Politics," *The Times*. September 17, 2005.

barrels per day. Before the pipeline is extended to Nakhodka, about one third of the deposits would be transported to the Pacific — presumably for Japan, and possibly South Korea — by rail.⁴³ Construction on the first stage began in April 2006. As construction costs have continued to climb, oil analysts are casting more doubt on whether the volume of reserves could satisfy the pipeline projections.

Figure 6. Proposed Oil Pipeline Routes: Angarsk/Taishet-Nakhodka and Angarsk/Taishet-Daqing



Source: Adapted by CRS. Based on a map from The Economist.

In addition to the obvious benefits of extracting the most lucrative deal, Moscow has its own strategic calculations to consider as well. The downside of constructing a pipeline to Daqing is the sole dependence on the Chinese market, while the Pacific option would open up other Asian markets and possibly the United States. Despite their past rivalry, Beijing and Moscow have stepped up relations, including holding regular bilateral military exercises. Russia is the top supplier of arms to China, and both countries are wary of the U.S. military presence in Central Asia. Russia has promised to increase the supply of oil by rail to China. Through the Shanghai Cooperation Organization, Russia and China successfully called for a withdrawal of American forces from Uzbekistan in summer 2005. Building a pipeline into China would solidify the growing partnership. Yet expanding economic ties with Japan is also attractive for Russia; restricting the pipeline to only China risks alienating a potentially valuable source of capital and technical expertise.

Natural Gas Competition Ahead? As the world's largest exporter of natural gas and with abundant reserves, Russia is poised to be a natural gas superpower. Projects under development now in Sakhalin and for the massive Kovykta gas field in the eastern Siberian region of Irkutsk indicate that China and Japan, along with South Korea, are major potential markets. As a result, East Asian governments have been actively engaged in negotiations with Gazprom, the state-

⁴³ "Russia: Pipeline to Skovorodino Keeps Japan in Play," *Oxford Analytica*. May 6, 2005.

owned agency responsible for coordinating all gas exports to Asia. Natural gas is an attractive alternative to oil because of its relative proximity in a less volatile region than the Middle East and its milder environmental impact.

Gas pipeline politics could develop similarly to the competition over the Angarsk/Taishet oil pipeline. So far Beijing's and Tokyo's projects have been mostly divided geographically: China is pursuing gas supplies from the Kovykta field while Japan is mostly focused on securing gas from neighboring Sakhalin. However, the uncertainty of the development schemes, particularly whether the gas will be shipped by pipeline or in the form of liquified natural gas (LNG), indicates that competition will continue. Gazprom is reportedly considering a variety of options for exporting gas: Rusia Petroleum (a subsidiary of TNK-BP), the China National Petroleum Corp, and Korea Gas Corp signed an agreement for a pipeline to extend from East Siberia to China and South Korea, but Gazprom also is assessing the possibility of developing a giant pipeline system to connect to the Japanese market as well.⁴⁴

Sakhalin Resources Under Development. With natural gas reserves estimated at 96 trillion cubic feet and oil reserves at about 14 billion barrels, the Russian island of Sakhalin, north of Japan, is primed to become a major gas supplier to the region as well as an important oil producer.⁴⁵ Revenue from ongoing projects has spurred rapid development of the island's infrastructure. Sakhalin I, led by ExxonMobil with Russian, Indian, and Japanese consortium partners, has begun providing oil to Asian markets and natural gas to the Russian market. Consortium members are divided on whether future natural gas exports will be shipped by pipeline or as LNG. Sakhalin II, under the Gazprom/Shell/Mitsubishi/Mitsui consortium, is the largest single foreign investment in Russia and expects to become Russia's first LNG facility in 2008. Sakhalin II will supply natural gas to the United States, Japan, and South Korea. Chinese and Indian firms are among those competing for a stake in the Sakhalin III development (oil and gas), and several other Sakhalin projects are in preliminary stages.

The question of whether to transport gas by pipeline or through liquefaction is linked to broader issues of national energy security. Japan, as the primary market, prefers the pipeline option because it ensures an exclusive supply and helps to diversify its energy sources away from the Middle East. Sakhalin I reportedly may be hoping for additional incentives from the Japanese government to pursue the technically difficult pipeline proposal.⁴⁶ LNG producers, on the other hand, are eyeing other potential markets, including South Korea, China, and the United States.

The Sakhalin energy projects, particularly Sakhalin II, are seen as a major test of the feasibility of foreign direct investment and frontier development in Russia. In

⁴⁴ "Kovykta Gas Supplies to China, South Korea Seen Delayed to 2010-2012," *Platts Commodity News*. October 25, 2005.

⁴⁵ Sakhalin Island, Energy Information Agency Country Analysis Briefs, accessed at [<http://www.eia.doe.gov>] on 11/8/2005.

⁴⁶ "Breaking the Ice," *Petroleum Economist*. January 1, 2004.

late 2006, Sakhalin II's consortium agreed to cede a majority stake to Gazprom, Russia's national natural gas monopoly. The project had been held up because of a revoked approval that cited environmental concerns, although energy analysts say that the environmental issues were used as a ploy to pressure the foreign investors into accepting Russian state control. Most international observers agree that the episode indicates that Moscow wishes to expand its control over energy projects and assert its policy of "resource nationalism."

Assessing the U.S. Strategic Interest. U.S. interests in Asian energy issues are manifold and complicated by sometimes competing economic and security priorities. U.S. international economic policy emphasizes free trade and open markets. As the world's largest consumer of energy, the United States has an interest in getting as many energy resources to market as possible in order to keep supply high. However, concern about China's rising economic and political power and security commitments in the region prevent U.S. policymakers from approaching the issue from a strictly economic standpoint.

U.S. officials have resisted getting directly involved in the competition between China and Japan over pipeline routes from Russia. Policy analysts are divided on which of the pipeline routes better serves the U.S. national interest. Reducing China's dependence on the Middle East could enhance its sense of energy security, therefore lessening the likelihood of potentially destabilizing partnerships between Beijing and OPEC members. If China feels threatened, the chances of conflict likely increase. On the other hand, pipelines between China and Russia could lead to much closer economic and political ties between the two giants, and potentially a large regional bloc that could exclude the United States. Some foreign policy analysts see a strong partnership between Moscow and Beijing as unfavorable to Washington.

Implications

The long-term potential consequences of rising energy competition in East Asia range from dire predictions of military conflict to scenarios for unprecedented regional cooperation. This section will explore different arguments about outcomes, as well as consider the possible impact on U.S. foreign relations.

Bilateral Relationships with Asian Allies. Energy security is an essential concern for the governments of Japan and South Korea, both key American partners in Asia. A fundamental basis for the U.S. alliances has been the maintenance of stability to promote open trade and investment in the region. This arrangement has allowed Seoul and Tokyo to secure access to distant energy sources, particularly in the Middle East. As competition intensifies because of China's demand, the U.S. alliances might face new strains. Japan's and South Korea's energy dependence, and any threat to existing supplies, may affect their willingness to support U.S. policies, particularly in the Middle East. The tension between Tokyo and Washington over the Azadegan deal in Iran may foreshadow more diplomatic difficulties ahead.

On the other hand, concerns about access to energy resources could also strengthen alliance cooperation. Japanese leaders have indicated their view that

energy and security are interlinked. Japanese leaders have asserted that stability in the Middle East is in Japan's national interest because of its dependence on the region's oil. If Japan continues to move slowly toward becoming a more "normal" nation by developing military capabilities beyond its own self-defense, it may be more willing to move beyond its "free rider" approach to the Middle East. Japan's unprecedented deployment of Self Defense Forces to Iraq, as well as its active encouragement of Southeast Asian nations to join the U.S.-led Proliferation Security Initiative, may be indications of this trend. Resolving the issue of North Korea's nuclear weapons programs is crucial to maintaining the U.S.-South Korean alliance; a diplomatic solution through the Six-Party Talks will likely require careful attention to the considerable energy needs of the peninsula.

Enhanced Regional Cooperation. Some analysts point out the potential for unprecedented cooperation among Asian countries, with the shared goal of enhancing energy security for the region. Various regional groupings, including ASEAN Plus Three (Southeast Asian nations plus Japan, South Korea, and China), APEC (the Asia Pacific Economic Cooperation forum), and the East Asia Summit, have introduced programs for enhancing energy cooperation as high oil prices have continued. At the 2007 East Asia Summit, leaders pushed for concerted effort to explore nuclear, hydropower, and biofuel alternatives. If institutions devoted to shared infrastructure and information are developed, East Asia may find the mechanisms helpful for other political, economic, and security-related issues. Although such a development may lessen dependence on the United States for stability, which could threaten U.S. influence in the region, stronger regional dialogue might also allow for a drawdown of the U.S. military presence in the region.

Heightened Sensitivity of Sea Routes. The strategic importance of the transit routes of the South China Sea, particularly the narrow Strait of Malacca, is likely to become more pronounced as Asian dependence on oil from the Middle East grows. More than half of China's and 70% of Japan's oil supplies from the Middle East pass by ship through the Strait, a pass that faces organized piracy and could easily be blocked militarily. In the event of a confrontation between the United States and China, the Strait of Malacca is one of the most likely flashpoints for military conflict. China does not have the naval might to prevent an economic blockade by a power like the United States, a fact that drives its desire to invest in closer energy sources. As China's military modernizes, one of its key objectives is likely to be the protection of its sea lanes to the Middle East.⁴⁷

⁴⁷ See *Global Trends 2020 - East Asia*. National Intelligence Council. Fall 2003. Accessed at [http://www.dni.gov/nic/NIC_2020_project.html].

Figure 7. Strait of Malacca



Source: Adapted by CRS. Based on a map from The Economist print edition, June 10, 2004.

Increased Russian Stature. Particularly if Asian consumers turn more to natural gas to satisfy their energy needs, Russia stands to gain considerable leverage in the Asia-Pacific. Some energy analysts have dubbed Russia “the gas superpower” based on its massive proven reserves. If foreign investment and infrastructure in Russia improve, presumably so too will Russia’s potential strategic economic power. In the oil markets as well, Russia’s untapped reserves and its status as a major non-OPEC producer are already increasing its regional influence, evidenced in the Chinese and Japanese bids for early inroads. Moscow may find that the energy sector provides a way to reassert itself in East Asia, where Russia’s power has been greatly diminished since the fall of the Soviet Union.

Renewed ‘Great Game’ Rivalries in Central Asia. China’s thirst for oil has led to new partnerships with Central Asian states, an area of traditional rivalry between great powers. Russia, China, and the United States will likely remain attentive to the sensitive issue of pipeline construction in the region. Russia retains considerable influence over the Caspian region because the existing pipeline network crosses through Russian territory. Moscow is also wary of expanding Chinese

presence in the Russian Far East, fearing that Beijing's influence will grow in a region already populated with hundreds of thousands of ethnic Chinese.⁴⁸

Although Moscow may be challenged by Beijing's inroads with members of the former Soviet empire, the two powers appear to have moved toward cooperation to counter U.S. presence in the region. In addition to holding large-scale bilateral military exercises, Moscow and Beijing have beefed up the influence of the Shanghai Cooperation Organization. According to some analysts, the development of China-Central Asia-Russia energy cooperation lessens U.S. strategic leverage considerably.⁴⁹ As U.S. foreign policy has emphasized democracy and human rights, some analysts see the leadership of Central Asian republics drawn toward a more sympathetic Beijing and Moscow. As economic and political partnerships between China and the republics grow, observers suggest that Beijing's increasing presence might have a negative effect on the struggling democratic and market reforms in Central Asian states.

Casus Belli for Major Conflict? Some energy experts suggest that China's quest for energy security will inevitably lead it to aggressively seek new sources of supply in the Middle East. Given that U.S. alliance partners Japan and South Korea have been willing to engage countries like Iran to secure energy contracts, some fear that a rising China would be even more assertive in cultivating relationships with U.S. adversaries. Some scholars have posited that Asian nations' competition for energy supplies with the West could lead to an eventual Middle East-Asia nexus, in which Asian governments become closer politically with the Gulf states in order to secure long-term access, thereby marginalizing U.S. power.⁵⁰ Other observers have envisioned dire scenarios that could emerge from a protracted U.S.-China struggle over oil, including an increasingly close China-Saudi Arabia relationship that could lay the groundwork for a world war-level conflict.⁵¹

Other analysts, however, point to the reported decrease in China's weapons trade with Iran and the fact that China did not side with Iraq in the U.S.-led invasion in 2003. The current leadership in China places economic development as a high priority, and many assert that China will not initiate military action based solely on energy resources unless it is seriously threatened.⁵² In addition, Beijing would likely be reluctant to challenge the United States for access to energy supplies because of its need for American investment and U.S. markets.

⁴⁸ The ethnic Russian population of the Russian Far East is only 7 million people, while estimates of the number of ethnic Chinese in the region vary from 200,000 up to nearly 2 million.

⁴⁹ Engdahl, William. "China Lays Down the Gauntlet in Energy War: The Geopolitics of Oil, Central Asia, and the United States," *Asia Times*. December 19, 2005.

⁵⁰ See Kent Calder, *Asia's Deadly Triangle*. Nicholas Brealey: London, 1997.

⁵¹ Gal Luft, "U.S., China Are on Collision Course Over Oil," *L.A. Times* opinion piece. February 2, 2004.

⁵² See Felix K. Chang. "Chinese Energy and Asian Security," *Orbis*, Vol 45, #2. Spring 2001.

Options for Congress and Executive Branch Policymakers

Taking a More Aggressive Approach to Securing Exclusive U.S. Access to Energy Supplies

As the world's sole superpower, the United States has pursued an energy policy that, while protecting the American interest in securing energy suppliers, also generally assures access for other energy consuming states. Some analysts suggest that with China and other economies developing voracious appetites of their own, a policy of explicitly attempting to lock up energy resources for the United States alone is warranted. Such a policy, which might include more diversification from the Middle East, may deny the "free-rider" option to other nations, including U.S. allies.

Bilateral Measures with U.S. Allies

Increased transparency and energy sector reform could alleviate many of the strains placed on the energy industry that threaten to spur conflict in East Asia. Transparent pricing allows oil to be traded efficiently and visibly. In general, the region's refining sector has moved toward deregulation, but many barriers remain to outside competition.⁵³ Similar obstacles to open market competition exist in the power sectors in Japan and South Korea. The United States could seek to reduce these barriers by encouraging its allies to create independent regulatory bodies. Some specialists suggest that U.S. officials could also work with the Japanese and South Korean governments in restoring public confidence in nuclear energy by sharing technology and expertise, as available, to assure safer operation of nuclear reactors.

Some say that collaboration on energy research might also be beneficial in fostering a cooperative, market-based approach to energy security, in addition to offering the promise of technological breakthroughs that eventually reduce global dependency on oil. The Department of Energy has taken modest steps to enhance energy efficiency cooperation with Asian nations, including efforts to develop fuel cell technology research and development with the Japanese government; to cooperate with Chinese officials in pursuing cleaner air, with a particular focus on the 2008 Olympic Games to be held in Beijing; and to promote the use of cleaner-burning fuels and reform in the energy sector in the Philippines.⁵⁴

Greater Bilateral Efforts with China

Energy competition and security are among the many issues included in the debate over how the United States should deal with a rising China. Some policymakers and experts resist the idea of aiding China's increasing prosperity,

⁵³ Jeffrey Brown and Kang Wu. "Asian Oil Market Outlook: Role of the Key Players," *Asia Pacific Issues*, No. 7. East-West Center. October 2003.

⁵⁴ "Energy Secretary Abraham, Beijing Energy Minister Sign Green Olympic Protocol," and "Energy Secretary Abraham Travels to Asia and the Pacific," Department of Energy website press releases. January 12, 2004 and January 5, 2004.

viewing Chinese growth as a serious security risk for the United States. Others see the potential for mutually-beneficial Sino-American cooperation because of the shared interest in stability in oil-producing regions. Today China is labeled by many as a “free-rider,” in that it reaps the rewards of the security that American power brings to the Middle East and Asia. Allowing China to continue to be a “free rider” could lessen the risk of conflict. Assertions of military strength or regional tension over access to oil supplies could cause price spikes in the global market, which would be harmful to U.S. interests as well. Positive bilateral relationships and overall regional stability might enhance the perception of oil as a global commodity.

As the consumption giant in the region, China likely could benefit from U.S. assistance in developing alternatives to oil, such as bio-fuels or coal-based fuels, hydrogen and natural gas. Japan could also be helpful to China in developing energy conservation strategies; encouraging Japan to include energy efficiency programs as part of its development assistance to China could also serve the U.S. interest.⁵⁵ In addition, some analysts suggest the United States or its allies could consider providing technical assistance to China in expanding its strategic stockpile of oil. According to this view, the “cushion” of a strategic reserve would allow China to cope better with a short-term disruption to global oil supply without causing shocks to the market.

The campaign to pressure Beijing to become a “responsible stakeholder” in the world encompasses energy cooperation with the United States and the international energy community. Enhanced funding and attention to energy cooperation programs (see U.S.-China Bilateral Energy Cooperation section above) under the overall engagement of the Strategic Economic Dialogue could support this approach.

U.S. Leadership in Developing Multilateral Cooperation

If, as many analysts believe, further globalization of the energy market will reduce the potential for major power conflict and instability, strong leadership is essential to coordinate cooperation between actors. Many feel the United States should take the role of rule-setter and enforcer through economic organizations, military cooperation (for safe transit of energy resources), technical expertise, approval of international development assistance, and the promotion of common standards and shared infrastructure. In their view, expanded American engagement can help lead energy security to a more open, regulated mode instead of actors resorting to old-style “resource diplomacy.”⁵⁶

Some energy specialists have suggested that inviting China to join the International Energy Agency (IEA) could alleviate many of the concerns of managing China’s surging demand. The Paris-based agency, made up of the 27 industrialized countries that comprise the Organization for Economic Cooperation and

⁵⁵ Suggested by Kent E. Calder in hearing before the U.S.-China Economic and Security Review Commission. October 30, 2003.

⁵⁶ See Martha Caldwell Harris, “Globalization of Energy Markets” in Ellen Frost and Richard Kugler, eds. *The Global Century: Globalization and National Security* (Washington, D.C.: National Defense University, 2001).

Development (OECD), including Korea and Japan, is committed to ensuring energy security through cooperative solutions and safeguards, such as national strategic stockpiles. Proponents assert that engaging China in the IEA mechanism could help to maintain the stability of world oil prices as well as lessen Beijing's sense of strategic vulnerability that could ultimately lead to military rivalry. Providing a multilateral safety net could discourage China from taking measures such as hoarding oil (some observers claim that China hoarded up to 30 million barrels ahead of the invasion of Iraq in 2003) that put pressure on the world market.⁵⁷

However, opponents may argue against admitting China into the agency because the current members are defined as being industrialized democracies, a category which does not include China because of its Communist political system. Others have suggested that the IEA could create a mechanism specifically for emerging markets that does not demand full membership in the agency but still provides a mechanism to mitigate the effects of supply disruptions, as well as inclusion in coordinating the release of reserves. Another approach might be for the IEA to sponsor oil stockpiles in regions of concern.⁵⁸

Another multilateral alternative for the U.S. could be one of forming a regional energy coordination body. Some analysts advocate the creation of an Asian version of the IEA in order to share information, transfer conservation technology, and coordinate regional strategic stockpiles to reduce the effects of supply disruptions. A multinational framework could spur concerted efforts to make projects like gas pipelines feasible and beneficial for the region as a whole. A possible coordinating institution is the Asian Pacific Economic Cooperation (APEC) forum, which has called for cooperation in developing measures to ensure energy security for the region. As energy cooperation between northeast Asian countries improves, strategies to develop the Russian Far East might energize regional trade and spur economic growth.⁵⁹ A regional approach likely would require considerable U.S. and international leadership, such as the assistance of international financial institutions to develop shared infrastructure and consultation on establishing shared guidelines and enforcement mechanisms.

Iran Sanctions Act Enforcement

Under the Iran Sanctions Act (P.L. 104-172, originally known as the Iran-Libya Sanctions Act), non-U.S. companies that invest over \$20 million annually in Iran or Libya are subject to sanctions. However, ILSA has never been invoked to punish companies, and only one official waiver has been granted (to Russian, Malaysian, and French companies to develop gas reserves in southern Iran by President Clinton in 1998). Meanwhile, since the passage of the legislation, billions reportedly have been invested in Iran's oil and gas sector without being sanctioned, mostly by European

⁵⁷ Testimony of Edward L. Morse in hearing before the U.S.-China Economic and Security Review Commission. October 30, 2003.

⁵⁸ *Ibid.*

⁵⁹ From "Russia's Oil Development and its Implication for Japan" report by the Institute of Energy Economics, Japan. September 18, 2003.

companies.⁶⁰ Under ILSA, the United States has the option to impose sanctions on companies involved in such ongoing deals with Iran, but most observers say that the Bush Administration is unlikely to take this step.⁶¹

⁶⁰ “Is the Iran-Libya Sanctions Act Dead?” *World Markets Research Center Daily Analysis*. April 26, 2004.

⁶¹ For a discussion of ISA enforcement, see CRS Report RS20871, *The Iran Sanctions Act (ISA)*, by Kenneth Katzman.