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

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Rising Energy Competition and Energy Security in Northeast Asia

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 concern 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 de-politicization of energy policy.

This report will be updated periodically.

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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, which accounts for 40% of the growth in world oil demand since 2000, 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]

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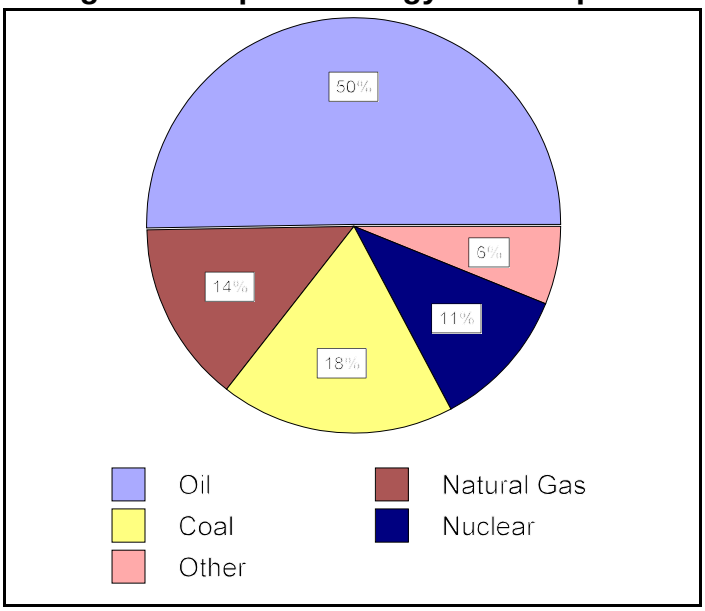
[1] For more information, see CRS Report RL33093, *China and the CNOOC Bid for Unocal: Issues for Congress*, by Dick K. Nanto, James K. Jackson, and Wayne M. Morrison

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. A decade of economic slowdown from the early 1990s to 2002 stagnated demand, 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. Oil stockpiles equivalent to a 176-day supply represent one of the highest levels in the world. Japan has also heavily subsidized its oil companies working overseas,[2] a strategy that has cost millions and, by many accounts, met with only limited success. Observers point out that Japanese policymakers are increasingly linking energy policy and security policy, citing threats to the Persian Gulf or to the sea lanes that bring oil to Japan.

Figure 1. Japan's Energy Consumption



Source: Energy Information Administration *Japan Country Analysis Brief*, 2003 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 just over 50% in 2001. Since the 1973 Arab oil embargo, Japan has increasingly relied on nuclear power generation to reduce its dependence on oil. Nuclear reactors provide about one third of Japan's electricity, but a spate of safety

[2] The official state-run oil company, the Japan National Oil Company (JNOC), is still in the process of being dismantled after Prime Minister Junichiro Koizumi called for its abolishment in November 2001.

concerns has unnerved the Japanese public's confidence in the industry. A series of accidents and the discovery of improper maintenance practices led to the shutdown of all 17 of Tokyo Electric Power (TEPCO) plants in 2002. All service was restored by August 2004, however, and Japan has pressed ahead with its goal of adding up to 12 more nuclear power plants to expand its nuclear generation by 30% by 2011.

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).[3] Cooperation with Russia has proceeded on a major project to develop the natural gas and oil on the Russian island of Sakhalin, located just 160 km north of Japan. Japanese electric and gas companies have secured contracts to receive gas in the form of LNG, with deliveries expected to begin in 2007. 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.[4] 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 been active in the oil-rich Caspian region, specifically in Azerbaijan and Kazakhstan, to diversify its oil suppliers. 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 have dried up in recent years as those countries become net importers themselves.[5] In an indication of both increased political rivalry and the quest for assured supply to resources, Beijing and Tokyo have faced a series of confrontations over the territorial rights of parts the East China Sea, an area potentially rich in oil and gas reserves.

Japan's Engagement with the Middle East. Despite attempts at diversification, Japan still imports 75-80% of its oil from the Middle East; its top suppliers are the United Arab Emirates, Saudi Arabia, Kuwait, Qatar, and Iran.[6] This dependence has driven Tokyo's Middle East policy, which at times is 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,

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[3] "Japan Risk: Infrastructure Risk," *Economist Intelligence Un*it. September 7, 2005.

[4] 2003 estimate from the Energy Information Agency.

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

[6] Statistics from *Japan Country Analysis Brief*, updated November 2005, Energy Information Administration, U.S. Department of Energy.

emphasizing its support for the Palestinians and developing relationships with regional powers independent of the United States.[7] 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, rather than the American policy of containment. Japan has distributed millions in Official Development Assistance (ODA) to the region to further economic development. All five of Japan's major trading companies reportedly are heavily involved in investment in the Middle East and receive substantial government support for their activities.[8] 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 but also is accused by the United States of pursing a nuclear weapons program and supporting international terrorism. The loss of drilling rights in the Khafji concession in Saudi Arabia in 2000[9] compelled Japanese policymakers to turn their attention to cultivating a nearly $3 billion deal with Tehran in the large Azadegan oilfield in southwestern Iran. Once fully operational, the field reportedly is expected to produce up to 300,000 barrels a day, nearly 10% of Japan's crude imports.[10] Development is expected to begin in late 2006, with production starting in 2008.

The Bush Administration has 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. Even as Iran became increasingly defiant of International Atomic Energy Agency (IAEA) demands to open up its facilities for inspection in early 2006, the Japanese firms involved in the project pledged to move ahead. The consortium of firms is reportedly nervous that it will lose its rights to the deal, possibly to China, if it does not move forward quickly.[11] Reinforcing Tokyo's fears, the Iran Petroleum Minister announced in October 2005 that he would like to see

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

[8] "Special Report: Japan-Trade," *Meed Weekly Special Report*. November 29, 2002.

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

[10] 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*).

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

China replace Japan as the largest importer of Iranian oil.[12] In response to earlier U.S. concerns, Japanese government officials encouraged Tehran to comply with IAEA regulations to quell fears about Iran's intentions. Tokyo also initiated nonproliferation talks with the Iranians.

Korea's Energy Sector

The Republic of Korea has a strikingly similar energy portfolio to Japan, but its production and consumption of energy is somewhat less efficient, less advanced, and less environmentally-friendly. South Korea is the world's fifth largest oil importer and second largest LNG importer (after Japan). It depends on oil for 55% of its energy consumption. Because 70% of the imported petroleum comes from the Middle East (Saudia 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 and Asia.[13] The government also has built up a strategic oil reserve, managed by the state-owned Korea National Oil Corporation, of about 90 days. Like Japan's trading houses, the Korean *chaebol* are active in the Middle East energy sector.

National Energy Strategy. Similar to Japan, South Korea has sought to diversify its energy portfolio to lessen its dependence on Persian Gulf oil. Natural gas in the form of LNG makes up about 11% of South Korea's consumption, and is mostly imported from Qatar, Indonesia, Malaysia, and Oman. Increasing the use of natural gas took on added importance when South Korea found coal prices from China, a major supplier, spiking due to increased domestic demand in China in 2003. Government plans to deregulate and privatize the natural gas sectors have stalled due to labor union and other interest group opposition. Looking beyond LNG, the Korea Gas Corporation (Kogas) also hopes to eventually import gas by pipeline from Irkutsk in Siberia, but Russia has not settled on whether the route would go through China or North Korea before reaching South Korea.

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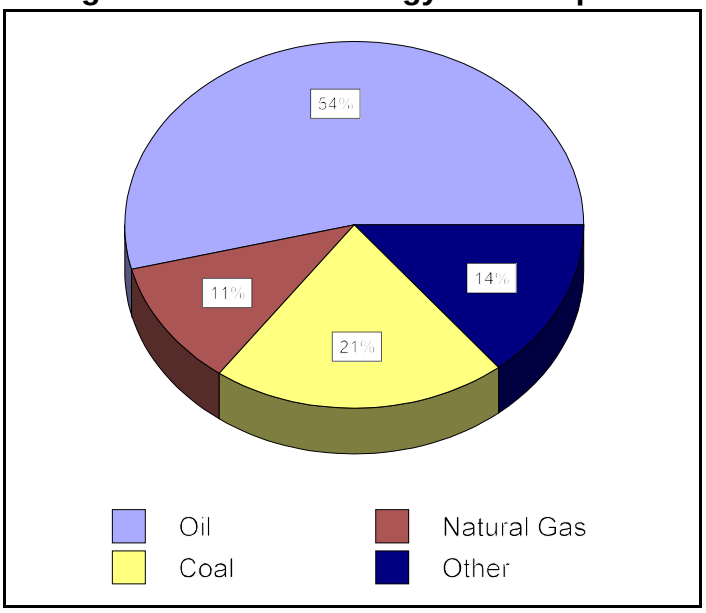
[12] "Chinese-Iranian Trade Fueled By Distrust of U.S.; Alliance Based on Oil, Arms, Vital Resources," *The Washington Times*. July 27, 2005.

[13] Statistics from *South Korea Country Analysis Brief*, updated March 2005, Energy Information Administration, U.S. Department of Energy.

Figure 2. Korea's Energy Consumption



Source: Energy Information Administration *South Korea Country Analysis Brief*, 2002 estimates.

South Korea has pursued alternative energy development, including hydroelectricity and nuclear power. After ratifying the Kyoto Protocol on greenhouse gas emissions, the government made plans to introduce up to twelve new nuclear plants before 2015. Energy consumption per capita is similar to Japan's at 177 million Btu.[14] Relatively little attention has been given to the development of renewable energy resources.

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, and the estimated costs associated with rebuilding the country exceed South Korea's 2003 GDP of $600 billion.[15] Currently, North Korea relies on coal for about 85% of its energy consumption.[16]

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 original 1994 Agreed Framework, North Korea was to be provided with two light water reactors

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[14] 2002 estimate, provided by the Energy Information Agency, U.S. Department of Energy.

[15] Estimates from various sources, including Marcus Noland, *Avoiding the Apocalypse: The Future of the Two Koreas* (Institute for International Economics: Washington, DC, 2000).

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

(LWRs) to compensate for shutting down its Yongbyon nuclear reactors. With the pact now abandoned, the parties remain divided on how, and under what circumstances, energy will be provided to North Korea in exchange for dismantling its nuclear program. In the fourth round of talks in July 2005, the United States agreed to discuss "at an appropriate time" North Korea's demand to receive LWRs, but the talks have stalled since then over a variety of disagreements. In the current climate, proponents of engagement with North Korea, including those sympathetic to the South Korean's "Peace and Prosperity" policy toward the North[17], 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 to the state without relying on its controversial nuclear energy program. The Bush Administration opposes such engagement without the complete and verifiable dismantlement of existing nuclear weapons programs.

China's Energy Sector

China's energy portfolio has changed dramatically in recent years in line with its rapid economic growth. China's real GDP is estimated to have grown by an annual average of 9.6% between 1979 and 2005; it grew by an estimated 9.8% in 2005. China, previously almost entirely dependent on coal, has turned increasingly to oil to satisfy its soaring energy demands. Although China still depends on coal to meet nearly 65% of its energy consumption, it surpassed Japan in 2003 to become the world's second largest oil consuming country after the United States. In 2004, China consumed 6.7 million barrels of oil a day, an increase of nearly 15.8% from 2003 and 8.2% of the world total consumption of oil.[18] The source for 40% of world oil demand growth since 2000, China is projected to demand over 14 million barrels per day by 2025. Electricity consumption, led by the industrial sector, has been growing by 15% annually.[19]

Government Activism and Diversification. Beijing has become increasingly concerned about its growing energy needs. 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 Petrochemical 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. BP, Shell, and ExxonMobil plan to enter the Chinese market in partnership with one of the state companies. Under the Tenth Fiscal Five-Year Plan for 2001-2005, the

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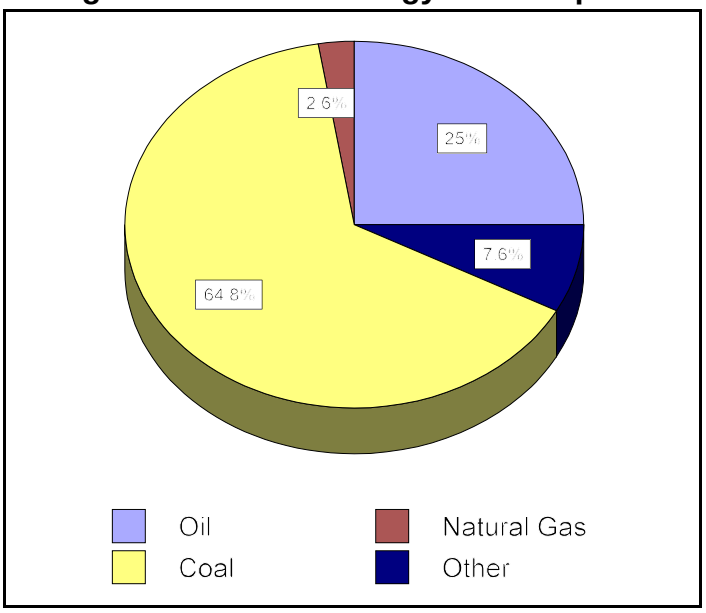
[17] The policy of subsidizing trade and investment with the North is South Korean President Roh Moo Hyun's extension of former President Kim Dae Jung's "Sunshine Policy."

[18] Statistics from *BP Statistical Review of World Energy 2005.*

[19] Statistics from *China Country Analysis Brief*, August 2005, Energy Information Administration, U.S. Department of Energy.

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.

Figure 3. China's Energy Consumption



Source: Energy Information Administration *China Country Analysis Brief*, 2003 estimates.

Beijing has worked to diversify its energy supplies aside from oil. 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 the availability of inexpensive coal as a substitute likely will preclude extensive use of natural gas. 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.[20] Despite attempts to impose stricter safety standards on China's 24,000 coal mines, thousands of miners die each year from accidents.[21] China has pursued a nuclear power program with the help of European manufacturers, and plans to build up to 27 additional reactors by 2020. 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.[22]

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[20] *China Country Analysis Brief*, August 2005, Energy Information Administration, U.S. Department of Energy.

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

[22] "Energy Security in Asia and Japanese Policy," *Asia-Pacific Review*, May 2003.

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.[23] The largest project by far is the Three Gorges Dam, expected to be completed in 2009. Beijing has cautiously begun to deregulate 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 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 capacity despite the national shortage of generating capacity.

Seeking Energy and Partnerships Overseas. China currently depends on the Middle East for roughly half of its energy imports with Saudi Arabia providing the largest amount. In 1999, then-President Jiang Zemin visited Saudi Arabia as part of an effort to cultivate energy ties, dubbing the relationship with Riyadh to be a "strategic oil partnership." Beijing has aggressively sought to buy into foreign oilfields with over 20 countries, many of them outside the Middle East. In general, Beijing has taken a bilateral approach to ensuring its oil supply, as it is not a member of the International Energy Agency. Chinese companies have acquired oil concessions in Azerbaijan, Canada, Nigeria, Venezuela, Sudan, Indonesia, and Iran, among others.

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 both a railroad link from the Caspian Sea to Western China and a natural gas pipeline are under consideration. In October 2005, CNPC announced the acquisition of PetroKazakhstan, a major oil producer located in Kazakhstan for $4.2 billion. U.S. oil majors had also tried unsuccessfully to lock up 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. China has strengthened the Shanghai Cooperation Organization (SCO), a regional security organization that includes China, Russia, Kazakhstan, Uzbekistan, Tajikistan, and Kyrgyzstan. In an indication of the SCO's expanding influence, India, Pakistan, and Iran all sent high-level officials to attend the October 2005 meeting as "observers." 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.

Ties with Iran Strengthen. Despite working to reduce dependence on the Middle East, China reportedly considers its relationship with Iran crucial to maintaining energy security. The number of energy-related deals has reportedly risen substantially between Beijing and Tehran, as have overall trade and commercial

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[23] "China Beats the Power Crunch," *Reuters*. September 21, 2005.

ties.[24] The two countries inked an agreement in 2004-2005 that gives Sinopec a 50% stake in the Yadavaran oil field. This is in addition to a commitment by Iran to provide China with LNG over the next 30 years.[25] The economic cooperation agreement also includes Chinese development of the Tehran subway system, as well as future plans to construct an oil pipeline from Iran to the Caspian Sea where it will link up with the China-Kazakhstan pipeline. After signing the deal, Iran's Petroleum Minister said he would like to see China replace Japan as Iran's largest energy partner. 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.[26] 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.[27] Others claim that the flow of arms continues.[28] In December 2005, the Bush Administration announced new sanctions against several state-owned Chinese companies for aiding Iran in developing its missile and chemical programs. Officials did not specify which type of technology was exported.[29]

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 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.

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,

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

[25] "Iran Looking East for Alliances on Oil," *New York Times*. April 19, 2005.

[26] Felix K. Chang. "Chinese Energy and Asian Security," *Orbis*, Vol 45, #2. Spring 2001.

[27] Robert A. Manning, "The Asian Energy Predicament," *Survival*, Vol. 42, Issue 3. Fall 2000.

[28] 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.

[29] "U.S. to Punish 9 Companies Said to Help Iran on Arms," *New York Times*. December 28, 2005.

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. The subsequent announcement from the Kremlin appears to try to satisfy both demands, but most energy analysts caution that the decision is still 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.[30] 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%.[31]

Figure 4. Proposed Oil Pipeline Routes: Angarsk/Taishet-Nakhodka and Angarsk/Taishet-Daqing

Source: Map Resources. Adapted by CRS. Based on a map from *The Economist.* (K.Yancey 1/23/06)

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

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

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

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.[32] The initial phase, to be completed in 2008, would have an annual capacity of 30 million tonnes; the final pipeline capacity is to be 80 million tonnes. Before the pipeline is extended to the Pacific, about one third of the deposits would be transported to the Pacific — presumably for Japan, and possibly South Korea — by rail.[33] Russia has also promised to increase the supply of oil by rail to China immediately, pledging 15 million tons in 2006.[34]

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 warmed relations recently, including holding large-scale bilateral military exercises in August 2005. Russia is the top supplier of arms to China, and both countries are wary of the U.S. military presence in Central Asia. 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. 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 largest exporter of natural gas and with abundant reserves, Russia is poised to be the 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-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.

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

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

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

[34] "Russian Prime Minister Visits Beijing, Won't Commit to Pipeline," *Jamestown EDM* (Eurasian Daily Monitor). November 8, 2005.

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.[35]

Sakhalin Resources Under Development. With natural gas reserves estimated at 96 trillion cubic feet and oil reserves at about 14 billion barrels, Sakhalin, north of Japan, is primed to become a major gas supplier to the region as well as an important oil producer.[36] 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, will provide both oil and natural gas first to the Russian market. The consortium is also advancing a plan to transport gas via underwater pipeline to the Japanese market. Sakhalin II, under the Shell/Mitsubishi/Mitsui consortium with Gazprom set to join in 2006, has concluded agreements with Japanese buyers to ship gas in the form of LNG, and it also plans to supply natural gas to U.S. and South Korean markets.

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.[37] 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. Moscow's influence, despite little earlier interference, may become more of a factor with government-controlled Gazprom poised to join Sakhalin II. Further, the activism of international and local NGOs concerned about harmful effects on the environment and indigenous communities has exposed the projects to criticism and protest. As a result, the firms, state actors, and international financial institutions involved in future development in areas such as the Lake Baikal region may be reluctant to commit resources if they fear similar exposure.

Assessing the U.S. 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.

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

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

[37] "Breaking the Ice," *Petroleum Economist*. January 1, 2004.

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 Asian 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, America's major 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. Prime Minister Koizumi has 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.

Possible Long-Term Strategic Ramifications

Enhanced Regional Cooperation. Optimistic 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. 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 costly 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.[38]

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

Figure 5. Strait of Malacca

Source: Map Resources. Adapted by CRS. Based on a map from *The Economist* print edition, June 10, 2004. (K.Yancey 6/24/04)

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.[39]

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 in August 2005, Moscow and Beijing have beefed up the influence of the Shanghai Cooperation Organization, including calling for the removal of U.S. military bases in Uzbekistan. Notably, Russia will initially provide part of the oil to be pumped through the new Kazakh-China pipeline as Kazakhstan develops its reserves. According to some analysts, the development of China-Kazakhstan-Russia energy cooperation lessens U.S. strategic leverage considerably.[40] 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 even 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?** Many energy experts suggest that China's quest for energy security will inevitably lead it to seek new sources of supply in the Middle East. Given that U.S. alliance partners Japan and South Korea have been willing to engage Iran, a country included in the "axis of evil," to secure energy contracts, some fear that a rising China would be even more assertive in cultivating relationships with U.S. adversaries. In March 2004, Saudi Arabia announced that, in a bid for stronger ties with China and Russia, it had granted contracts to oil companies from those countries to explore for natural gas reserves in the kingdom after talks with American firms collapsed.[41] 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 more politically close with the Gulf states in order to secure long-term access, thereby marginalizing U.S. power.[42] 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.[43]

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[39] 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.

[40] 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.

[41] "Foreign Concerns Make Deals with Saudis to Search for Gas," *New York Times*. March 8, 2004.

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

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

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.[44] 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.

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 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, would 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.[45] 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 developing cleaner air, with a particular focus on

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

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

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.[46] Congress could consider these factors when reviewing the Department's International Carbon Capture and Storage Initiative and the International Partnerships for the Hydrogen Economy.

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, 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. Because China does not yet have an expansive oil infrastructure, it may have less of a vested interest in maintaining an oil-based economy, particularly if there were viable alternatives. 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.[47] 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.

Deputy Secretary of State Robert Zoellick has pressed for energy cooperation with China in the U.S.-China Senior Dialogue effort that he has spearheaded. As part of a series of talks encouraging Beijing to become a "responsible stakeholder" in the world, Zoellick stated,

> "China is acting as if it can somehow 'lock up' energy supplies around the world. This is not a sensible path to achieving energy security. Moreover, a mercantilist strategy leads to partnerships with regimes that hurt China's reputation and lead others to question its intentions. In contrast, market strategies can lessen volatility, instability,

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[46] "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.

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

> and hoarding. China should work with the United States and others to develop diverse sources of energy, including through clean coal technology, nuclear, renewables, hydrogen, and biofuels."[48]

Zoellick singled out the Asia Pacific Partnership on Clean Development and Climate and the U.S.-China Energy Policy Dialogue sponsored by the U.S. Department of Energy and China's National Development and Reform Commission (NDRC) as fora for developing such cooperation.

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."[49]

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 26 industrialized countries, 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.[50] 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.

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[48] "Whither China: From Membership to Responsibility?" U.S. State Department press release. Remarks by Robert B. Zoellick, Deputy Secretary of State to National Committee on U.S.-China Relations, September 21, 2005.

[49] 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).

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

Another approach might be for the IEA to sponsor oil stockpiles in regions of concern.[51]

A third 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.[52] 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. Despite the strong American presence in many of the major international institutions, a regional body would necessarily entail less leverage overall for the United States.

Iran-Libya Sanctions Act (ILSA) Enforcement

Under the 1996 Iran-Libya Sanctions Act (ILSA) (P.L. 104-172), 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, over $30 billion reportedly has been invested in Iran's oil and gas sector without being sanctioned, mostly by European companies.[53] It appears that Japan's agreement with Iran on the Azadegan deal, valued at $2.8 billion, qualifies for sanctions, as would the Sinopec deal to develop the Yadavaran field. Under ILSA, the United States has the option to impose sanctions on the companies involved in the Iran agreements. However, most observers say that the Bush Administration is unlikely to take this step.

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[51] *Ibid*.

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

[53] "Is the Iran-Libya Sanctions Act Dead?" *World Markets Research Center Daily Analysis*. April 26, 2004.