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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 impact 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 the short-term and long-term impact on U.S. interests of alternatives being pursued by China, Japan, and South Korea to bolster their energy security. 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. 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 proven energy reserves and relative geographical proximity to northeast Asian markets, is already an arena for competition between 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 among great powers to spurring unprecedented regional cooperation. Depending on how events unfold, the U.S. alliances with Japan and South Korea, as well as our relationships with Russia and China, could be challenged to adapt to changing conditions.

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 not be updated.

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

Introduction

Rising competition for energy and Asian government conceptions of energy security in China, Japan, and South Korea are of interest to U.S. policymakers for three primary reasons. First, the surge in China's oil demand, which jumped by a third in 2003 and continued to rise in 2004, 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.

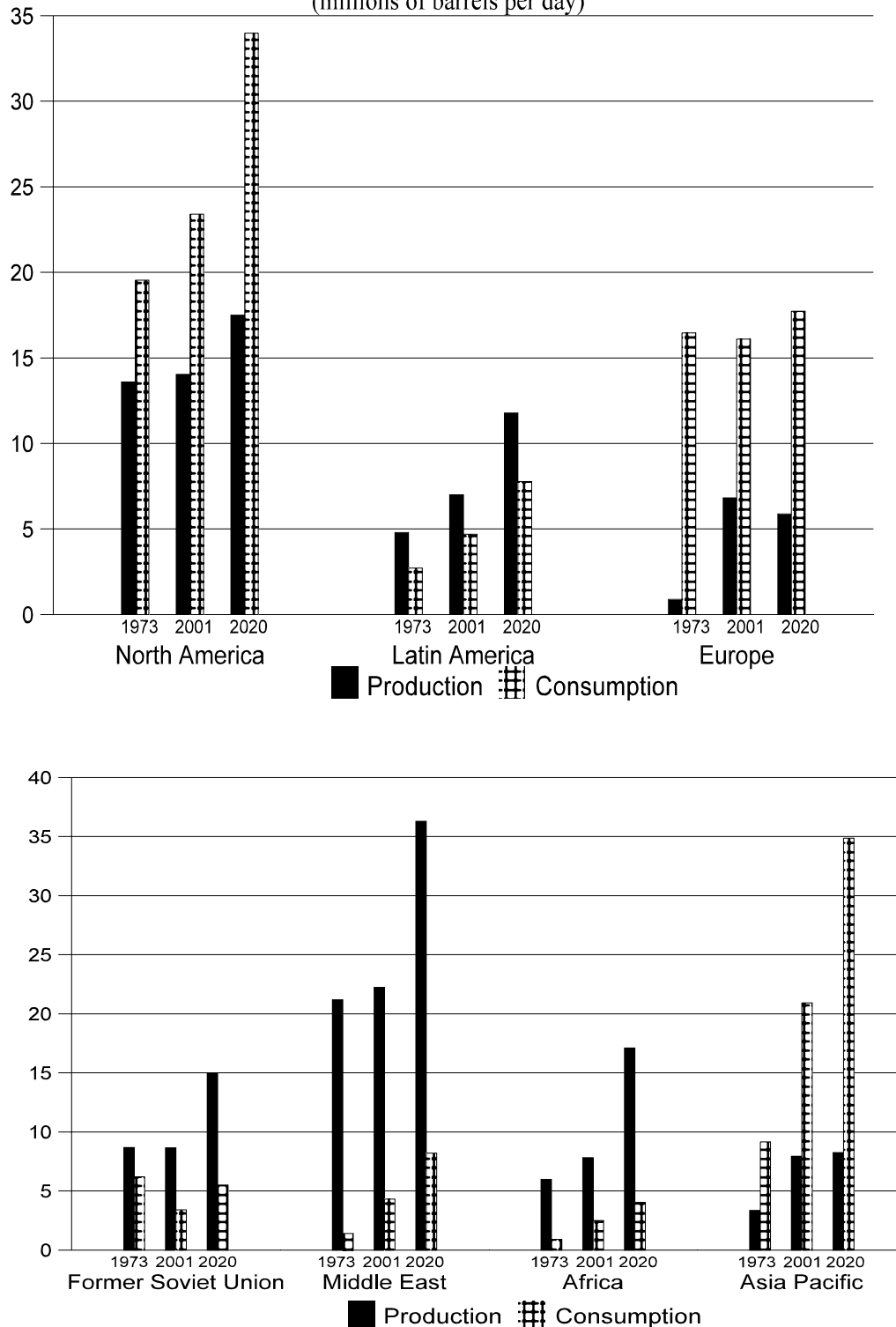
A glance at **Figure 1** (see next page), which charts past and projected oil production and consumption by region reveals the prominence of North America, Asia, and the Middle East as the most significant players in global oil markets. It also underscores the growing challenge of satisfying Asian demand. Asian consumers will likely have to increase their dependence on the oil production of the Middle East, supplies that the United States will also compete for as its consumption increases.

The Role of Congress

Congress plays an important role in developing our foreign policy and energy policy. 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.¹

¹ The Commission's latest report can be found at [http://www.uscc.gov/researchreports/2004/04annual_report.PDF].

**Figure 1. Production and Consumption by Region,
1973, 2001, and 2020**
(millions of barrels per day)



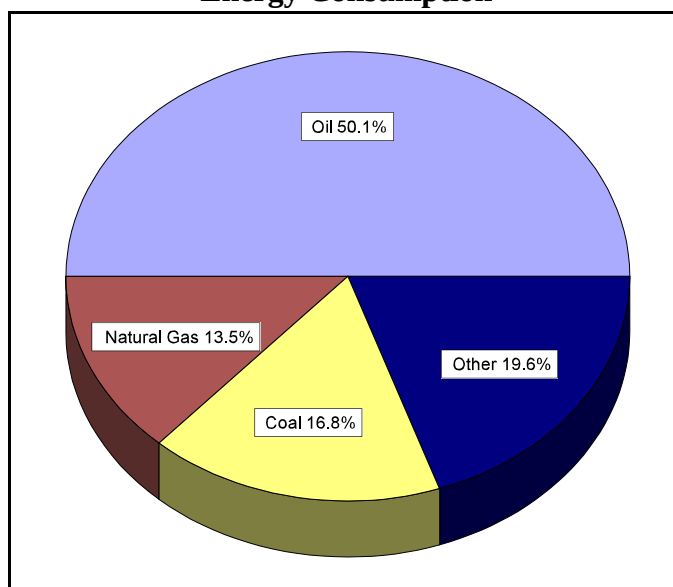
From "The Geographical Oil Production-Consumption Mismatch: Its Growth and Possible Growing Pains" by Bernard Gelb, first appearing in the International Association of Energy Economics Prague conference proceedings. Sources: BP Amoco, BP Statistical Review of World Energy 2002; U.S. Department of Energy, Energy Information Administration. Annual Energy Outlook 2003.

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 has 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, securing a strategic reserve, and research devoted to alternative sources. Japan has also heavily subsidized its oil companies working overseas, a strategy that has cost millions and, by many accounts, met with only limited success. Some 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 2. Japan's Fuel Share of Energy Consumption



Source: Energy Information Administration Country Brief on Japan, 2001 estimates.

Japan's Engagement with the Middle East. Despite attempts at diversification, Japan still imports 86% of its oil from the Middle East; its top suppliers are the United Arab Emirates, Saudi Arabia, Kuwait, and Iran.² 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 nearly four decades and has maintained diplomatic relations with OPEC (Organization of Petroleum Exporting Countries) nations to serve its energy needs.

² Statistics from *Japan Country Analysis Brief*, Energy Information Administration, U.S. Department of Energy.

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.³ 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. Through the state-run Japan National Oil Company, Japan continues to cultivate relations with oil-producing countries. 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.⁴ 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.⁵

Alternatives to Petroleum. 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 concerns has unnerved the Japanese public’s confidence in the industry. A series of accidents, the most severe at the Tokai-mura uranium processing plant in 1999, and the shutdown of all 17 of Tokyo Electric Power (TEPCO) plants in 2002⁶ due to improper maintenance, have weakened the government’s resolve to rely more heavily on nuclear power to enhance energy security.

Japan also 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. Stockpiles⁷ equivalent to a 166-day supply represent one of the highest levels in the world.⁸ Japanese automakers are leaders in producing hybrid cars which will over time reduce dependency on petroleum. Japan has also been active in the oil-rich Caspian region, specifically in Azerbaijan and Kazakhstan, to diversify its oil suppliers. 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.⁹

Japan relies on natural gas for about 13% of its energy consumption, importing primarily from Southeast Asia (40% from Indonesia, 20% from Malaysia) in the form

³ Sakai, Keiko. “Japan-Iraq Relations: The Perception Gap and its Influence on Diplomatic Policies,” *Arab Studies Quarterly*. Fall 2001.

⁴ “Special Report: Japan-Trade,” *Meed Weekly Special Report*. November 29, 2002.

⁵ “The Bubble Bursts,” *Middle East Economic Digest*. June 6, 2003.

⁶ By May 2004, 12 of the 17 plants were back in operation.

⁷ Stockpiles are the counterpart of the U.S. Strategic Petroleum Reserve (SPR).

⁸ From *Japan Daily Digest*, September 29, 2003.

⁹ “Japan Moves to Widen its Options,” *New York Times*. November 4, 2003.

of liquified natural gas (LNG).¹⁰ 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. ExxonMobil and other companies are investing billions to develop the energy sector there. Efforts are now focused on LNG development, with plans to construct a pipeline in the future.

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 172.2 million Btu, versus the U.S. value of 341.8 million Btu.¹¹ It has invested in energy conservation programs, and national energy savings plans aim to reduce per capita consumption to even lower levels. Japan has also committed funds to developing solar, hydro, and other carbon-free, environmentally friendly renewable energy sources.

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 pursuing a clandestine nuclear weapons program and supporting international terrorism. The loss of drilling rights in the Khafji concession in Saudi Arabia in 2000¹² compelled Japanese policymakers to turn their attention to cultivating a nearly \$3 billion deal with Tehran in the large Azadegan oilfield in southwestern Iran¹³. Once operational, the field reportedly is expected to produce around 300,000 barrels a day, nearly 10% of Japan's crude imports.¹⁴ Negotiations by a state-backed consortium stalled in summer 2003, reportedly due to pressure from the Bush administration.¹⁵ Senior U.S. government officials voiced concern over Japan's plan because of Iran's suspected nuclear weapons program in violation of its commitments under the Nonproliferation Treaty (NPT).¹⁶ Japan's preferential rights to the project expired at the end of June 2003, but negotiators were able to salvage the deal, signed

¹⁰ "Japan Risk: Infrastructure Risk," Economist Intelligence Unit. November 14, 2003.

¹¹ 2001 estimate from the Energy Information Agency, [<http://www.eia.doe.gov/emeu/cabs/japan.html>].

¹² Saudi Arabia rejected an extension of Japan's rights in negotiations because Japan was unwilling to invest in development projects in Saudi Arabia.

¹³ 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*.)

¹⁴ "Japan, Iran Seal Azadegan Oil Deal," *Nikkei Weekly*. February 23, 2004.

¹⁵ "Pressured by United States, Japan Faces Tough Choice Over Iran," *Kyodo News International*. July 3, 2003.

¹⁶ "Japan's Oil Deal in Iran Concerns U.S. Officials," *Asian Wall Street Journal*. February 20, 2004.

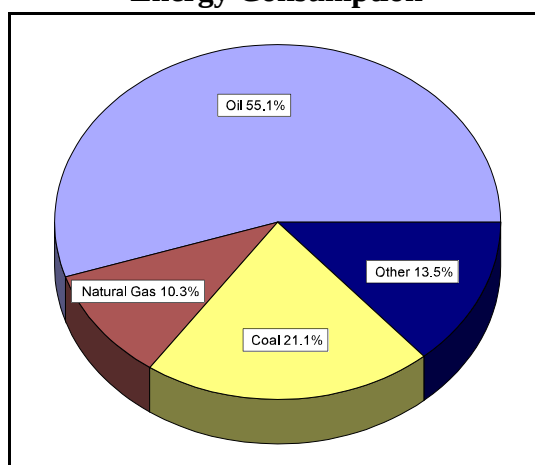
on February 18, 2004.¹⁷ Japan is seeking cooperation with international oil majors in order to drill and refine the crude in the Azadegan field.

In response to U.S. concerns, Japanese government officials encouraged Tehran to comply with International Atomic Energy Agency regulations to quell fears about Iran's intentions. Tokyo also initiated nonproliferation talks with the Iranians. Tehran agreed to IAEA inspections of its nuclear facilities, but many American observers doubt the credibility of Iran's promises. Tehran reportedly also has an interest in keeping Japanese firms involved; along with South Korea, Japan is Iran's top economic partner, and Japanese loans are Tehran's only major source of foreign credit.¹⁸

Korea's Energy Sector

The Republic of Korea has a strikingly similar energy portfolio to Japan, but its production and consumption of energy is 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, South Korea has taken measures to diversify its sources by seeking equity stakes in energy exploration worldwide, including South America and Asia. 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.

Figure 3. Korea's Fuel Share of Energy Consumption



Source: Energy Information Administration Country Brief on South Korea, 2001 estimates.

¹⁷ The agreement gives Japan 6.5 years from the start of production to recover development and exploration costs, and another six years to recover the agreed return on the investment. This represents an adjustment to Iran's earlier buy-back formulation which allowed only seven years for foreign partners to recover costs. See "Iran Industry: Mixed Signals From Azadegan Oil Deal," *Economist Intelligence Unit*, February 26, 2004.

¹⁸ "Tehran Asks Tokyo to Take Rapid Steps to Boost Relations," *Agence France Presse*, December 2, 2003.

Alternatives to Petroleum. Natural gas makes up about 10% of South Korea's consumption, and is mostly imported from Qatar, Indonesia, Malaysia, and Oman. Coal, imported primarily from China and Australia, comprises 21% of consumption.¹⁹ South Korea has made particular efforts to expand its gas imports and facilities through regional partnerships: a Korean-Japanese joint venture to build a new LNG receiving terminal is expected to be completed in 2005, and a joint feasibility study with North Korea is currently exploring the potential to build a natural gas pipeline from the Irkutsk region of Siberia, which would also provide gas to China.

South Korea has also pursued alternative energy development, including hydroelectricity and nuclear power. South Korea now has 19 nuclear reactors in operation. 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 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 real infrastructure, and the estimated costs associated with rebuilding the country exceed South Korea's 2003 GDP of \$600 billion.²⁰

In the current climate, proponents of engagement with North Korea, including those sympathetic to the South Korean's "Peace and Prosperity" policy toward the North²¹, may support the construction of gas pipelines 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. Should North Korea satisfy these requirements, a pipeline proposal could replace the Korean Peninsula Energy Development Organization (KEDO) framework.²²

¹⁹ Statistics taken from *South Korea Country Analysis Brief*, Energy Information Agency, U.S. Department of Energy.

²⁰ Estimates from various sources, including Marcus Noland, *Avoiding the Apocalypse: The Future of the Two Koreas* (Institute for International Economics: Washington, DC, 2000).

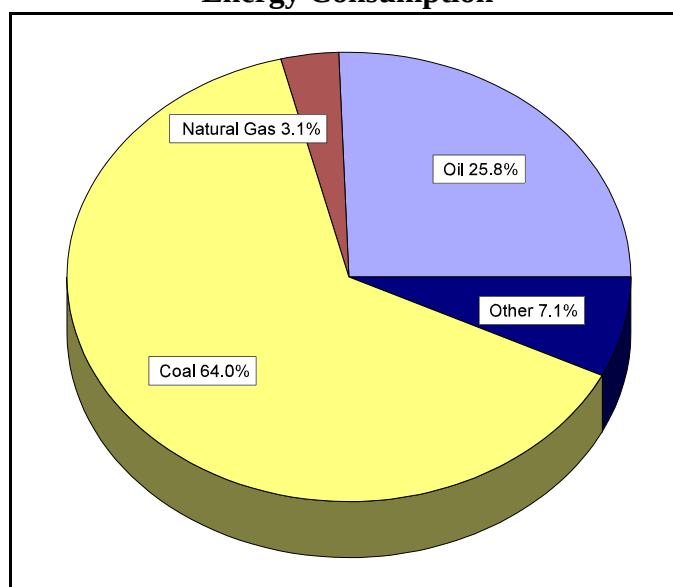
²¹ The policy of subsidizing trade and investment with the North is South Korean President Roh Moo Hyun's extension of former President Kim Dae Jung's "Sunshine Policy."

²² See Selig S. Harrison, "Toward Oil and Gas Cooperation in Northeast Asia," in *Asia Program Special Report* from the Woodrow Wilson International Center for Scholars. December 2002.

China's Energy Sector

China's energy portfolio has changed dramatically in recent years, in line with its rapid economic growth. In the past five years, in purchasing power parity terms, China's growth has constituted a quarter of the world's total GDP growth, with annual rates averaging around 8%.²³ 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 2003, China imported 275 million tonnes of oil, an increase of 11.5% from 2002 and 7.6% of the world total consumption of oil.²⁴ If China reaches per capita consumption levels comparable to South Korea²⁵, its demand will be twice that of the United States and push up the worldwide demand for oil by at least 20%.²⁶ Electricity consumption, led by the industrial sector, is expected by some observers to grow by 10% annually over the next three years.²⁷ In 2003, electricity consumption rose a remarkable 15%.²⁸

Figure 4. China's Fuel Share of Energy Consumption



Source: Energy Information Administration Country Brief on China, 2001 estimates.

²³ China: Country Briefing, *Economist Intelligence Unit*. January 9, 2004.

²⁴ Figures from *BP Statistical Review of World Energy*, June 2004.

²⁵ China's per capita consumption is 28.8 million Btu, while South Korea consumes 170.2 million Btu and the U.S. 341.8 million Btu per person. All figures from 2001, taken from the Energy Information Administration at [<http://www.eia.doe.gov>].

²⁶ "Japan: Underpowered," *Economist Intelligence Unit*. December 1, 2003.

²⁷ "Strong Growth Prospect Ahead China's Oil, Gas, Power Sectors," *Business Daily Update*. January 16, 2004.

²⁸ "China: Gone Fission," *Economist Intelligence Unit - Business China*. March 29, 2004.

Growing Dependence on the Middle East. China currently depends on the Middle East for about 60% of its energy imports. 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.” As its energy demands grew through the 1990s, China also invested in oil fields in Iraq and Iran, and reportedly considers its relationship with Iran crucial to maintaining energy security. 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.²⁹ However, China reportedly agreed to cease sending Iran dual use technology in 1997 and its arms sales to the region have dwindled.³⁰

Government Activism and Diversification. Beijing has become increasingly concerned about its growing energy needs; the government’s Tenth Fiscal Five-Year Plan for 2001-2005 included a new plan to establish a strategic stockpile for its energy sector.³¹ Beijing has also sought to establish supply sources outside of the volatile Middle East, including buying a stake in a Spanish firm to become the largest offshore producer of oil in Indonesia; signing a 25-year contract to buy liquified gas from Australia; pledging to construct a 1200 kilometer-long oil pipeline from Kazakhstan; and signing deals with over 20 countries, many of them outside the Middle East, to buy into foreign oilfields.³² In general, Beijing has taken a bilateral approach to ensuring its oil supply, as it is not a member of the International Energy Agency. In the past two years alone, Chinese companies have acquired assets in Ecuador, Australia, Kazakhstan, Azerbaijan, Algeria, and Oman, among others.³³

Chinese industry and officials have made particular inroads in the Caspian region.³⁴ Most prominent was the landmark accord between China and Kazakhstan, giving the PRC’s state-owned oil company Chinese National Petroleum Company (CNPC) a 60% stake in the Kazakh state firm Aktobemunaigaz. Depending on reserves and the economic feasibility, the two companies may develop a pipeline between Atyrau and the western province of Xinjiang. Strategic acquisitions in Azerbaijan and preferential rights to develop natural gas in Turkmenistan have also heightened Beijing’s presence in the region, against a backdrop of declining Russian influence there. China has also worked to strengthen the Shanghai Cooperation Organization (SCO, a regional security organization that includes China, Russia, Kazakhstan, Uzbekistan, Tajikistan, and Kyrgyzstan), has pursued a nuclear power

²⁹ Felix K. Chang. “Chinese Energy and Asian Security,” *Orbis*, Vol 45, #2. Spring 2001.

³⁰ Robert A. Manning, “The Asian Energy Predicament,” *Survival*, Vol. 42, Issue 3. Fall 2000.

³¹ China: Country Briefing, *Economist Intelligence Unit*. May 19, 2003.

³² “China Industry: Ill-prepared for an Oil Crisis,” *Economist Intelligence Unit*. February 18, 2003.

³³ “China Pursues Agreements for Oil in Russia, Ecuador,” *Asian Wall Street Journal*. December 19, 2003.

³⁴ See “China Stirs Up the Great Game,” *Asian Wall Street Journal*. November 17, 2003.

program with the help of European manufacturers, and announced plans in fall 2003 to build up to 29 additional reactors in the next 15 years.³⁵ Nuclear power capacity expanded from 2.1 GW to 5.4 GW in 2002.³⁶ Despite misgivings about providing nuclear power equipment to China, both the United States and Japan reportedly have loosened restrictions on supplying parts to Chinese plants in the interest of safe operations.³⁷

Other major initiatives include expanding the national gas infrastructure and developing gas-fired power plants that will use liquefied natural gas instead of oil. The China National Offshore Oil Corp (CNOOC) announced plans to build a third liquefied-natural-gas (LNG) terminal by 2009, in addition to the two existing LNG projects in Guangdong and Fujian.³⁸ Natural gas is an attractive long-term alternative for China in that it is plentiful outside the Middle East and relatively environmentally-friendly. In the short-term, however, the cost of gas infrastructure and the availability of inexpensive coal as a substitute 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.³⁹

Many Challenges Ahead. Reportedly, China is already suffering from electricity shortages in some areas of the country, resulting in rolling blackouts and manufacturing disruptions.⁴⁰ China has an electricity generation deficit of about 11%, and some companies, including major shipyards and manufacturing joint ventures with U.S. and other multinational firms, must deal with periodic shutdowns and shifts in scheduling to conserve power. According to government media reports, 19 of 31 provinces are now implementing a ration system. Despite a recent boom in power plant construction, many of the facilities are not yet producing large amounts of power. Mine closures resulting from a spate of deadly coal mining accidents have shut down several power-generating plants. Beijing has pushed for the coal industry to produce more, as it depends on the resource for 80% of its electricity generation.

Beijing has cautiously begun to deregulate electric power production and distribution, but many bureaucratic hurdles and inefficiencies remain. The government has created a new energy bureau and committed specialists to study the

³⁵ According to data from the International Atomic Energy Agency, China had three functioning nuclear power plants in 2000 and a further eight under construction due for completion in 2002-05.

³⁶ China — Country Analysis Brief from the Energy Information Agency, at [<http://www.eia.doe.gov>], accessed January 12, 2004.

³⁷ "Energy Security in Asia and Japanese Policy," *Asia-Pacific Review*, May 2003.

³⁸ "China: Petroleum and Petrochemicals," *Economist Intelligence Unit - Business China*. March 29, 2004.

³⁹ *Energy Information Administration*, China Country Briefing.

⁴⁰ "China's Dark Days and Darker Nights," *Washington Post*. January 5, 2004.

U.S. and Russian energy strategies.⁴¹ 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 and create private Chinese companies to compete abroad.⁴² Although many power generating plants have developed a degree of competition with each other, critics argue that the two main grid companies, still owned by the state, are obstacles to developing a more efficient system.⁴³

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

As China, Japan, and South Korea scramble to meet their energy needs while reducing dependence on the Middle East, the largely undeveloped resources of neighboring Siberia have become the 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.

Diplomatic and Economic Rivalry over Angarsk Pipeline

The opening round of the contest centers around negotiations on proposed pipeline routes from the eastern Siberian oilfield of Angarsk. Beijing reportedly wants the pipeline to terminate at Daqing, China's flagship oilfield with refining facilities in the industrial northeast, while Tokyo is lobbying for it to terminate in the Russian port of Nakhodka, near Vladivostok on the Sea of Japan and a short tanker trip away from Japan (see **Figure 5** on next page).⁴⁴ Analysts estimate that if Japan imported a million barrels a day from Russia, its dependence on the volatile Middle East would fall to about 63%. In addition, the Russia deal would cross only through Russian territory, facilitating construction and maintenance. However, the pipeline reportedly would cover 2500 miles of harsh terrain and, according to some estimates, cost about \$7 billion.⁴⁵

⁴¹ "Energy - Asia's Pipeline Politics," *Far Eastern Economic Review*. July 24, 2003.

⁴² Felix K. Chang. "Chinese Energy and Asian Security," *Orbis*, Vol 45, #2. Spring 2001.

⁴³ "Power — China's Huge Appetite," *Far Eastern Economic Review*. December 18, 2003.

⁴⁴ "The Asian Battle for Russia's Oil and Gas," *New York Times*. January 3, 2004.

⁴⁵ "Japan to Return to Discussion of Angarsk-Nakhodka Oil Pipeline Project," *WPS: Russian Oil and Gas Report*. March 5, 2004.

Figure 5. Proposed Oil Pipeline Routes: Angarsk-Nakhodka and Angarsk-Daqing



Source: Map Resources. Adapted by CRS. Based on a map from *The Economist*. (K.Yancey 6/23/04)

China's alternative proposal to bring the oil to Daqing's refineries would be much shorter and the cost, shared by China and Russia, reportedly would be about half of the Nakhodka option.⁴⁶ China earlier projected that the Angarsk pipeline would provide 30% of its imports by 2030⁴⁷ and would cost about \$2.5 billion, less than half the Japanese option. An agreement between Russia and China, endorsed by both President Putin and President Hu, stalled, however, after the arrest of Russian oil tycoon Mikhail Khodorkovsky, chairman of Yukos, the company that had been selected to construct the pipeline. China also is seeking to conclude an agreement with Russia to build a gas pipeline parallel to the oil pipeline, then continuing it further south to Beijing.⁴⁸

The future of the Angarsk pipeline is now in the hands of President Putin. Although Beijing reportedly thought it had secured the deal, the most recent reports have indicated that Putin is leaning toward the Nakhodka option because of Japan's generous pledge of infrastructure development assistance. In addition, the Japanese plan would allow for the oil to serve not only Japan, but also domestic and other foreign markets as well. Moscow is reluctant to commit to a project that will depend solely on the Chinese market.

Putin's inclination to accept the Japanese proposal is buttressed by strengthening economic relations between Japan and Russia. Bilateral trade grew by 25% in 2003, fueled by the energy sector's growth in Sakhalin. Japanese investment in Russia also rose by nearly \$1 billion between late 2002 and spring 2004.⁴⁹ As economic ties

⁴⁶ Felix K. Chang. "Chinese Energy and Asian Security," *Orbis*, Vol 45, #2. Spring 2001.

⁴⁷ "China's Dark Days and Darker Nights," *Washington Post*. January 5, 2004.

⁴⁸ "Energy - Asia's Pipeline Politics," *Far Eastern Economic Review*. July 24, 2003.

⁴⁹ Robert A. Scalapino, testimony to Committee on House International Relations Subcommittee on Asia and the Pacific. March 17, 2004.

develop, Tokyo has made diplomatic overtures to Moscow, pledging to work towards resolution on the Northern Territories dispute dating from World War II, announcing bilateral ministerial visits, and urging more Russian involvement in Northeast Asian affairs.

Assessing the U.S. Interest. 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.

Since the arrest of Khodorkovsky in fall 2003, the direction of Russia's energy policy has not yet fully unfolded. U.S. companies, particularly ExxonMobil, the largest private oil company in the world, reportedly are also concerned about whether Putin will increase state control over the industry, thereby marginalizing private involvement. Currently, oil firms in Russia, both foreign and domestic, rely on the state-controlled pipeline monopoly to transport their production.

More Competition Ahead? Russian resources have been targeted by energy-hungry Asian consumers in other projects as well. Sakhalin, north of Japan, is being primed to become a major gas supplier to the region as well as an important oil producer. Revenue from ongoing projects has spurred rapid development of the island's infrastructure. Sakhalin-1, led by ExxonMobil, is advancing its plan to transport gas via underwater pipeline to the Japanese market, while the Royal Dutch/Shell consortium has concluded agreements with Japanese buyers to ship gas in the form of LNG.

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-1 reportedly may be hoping for additional incentives from the Japanese government to pursue the technically difficult pipeline proposal.⁵⁰ LNG producers, on the other hand, are eyeing other potential markets, including South Korea, China, and the United States.

The Kovykta gas field, located in the eastern Siberian region of Irkutsk, with reported confirmed reserves of 1.9 trillion cubic meters, also holds promise for Asian consumers while indicating the potential for further political competition over Russian energy sources. The initial proposal for a \$17 billion dollar gas pipeline, running from Irkutsk through Beijing and under the Yellow Sea to South Korea, would have served the Chinese and South Korean markets.⁵¹ In June 2004, however, Japan emerged as a potential buyer, and Russian negotiators suggested an alternative

⁵⁰ "Breaking the Ice," *Petroleum Economist*. January 1, 2004.

⁵¹ "Eastern Approaches," *Petroleum Economist*. February 1, 2004.

pipeline that would parallel the proposed Angarsk-Nakhodka oil pipeline, and therefore serve the Japanese market as well (see **Figure 6**)⁵² The ongoing negotiations may yield more political tension as the consumers angle for more assured access to energy supplies.

Figure 6. Proposed Gas Pipeline Routes: Irkutsk-Nakhodka and Irkutsk-Beijing-South Korea



Source: Map Resources. Adapted by CRS. Based on a map from *The Economist*. (K.Yancey 6/23/04)

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 more immediate impact on U.S. foreign relations.

Short-Term Impacts

China's growing need for energy has already contributed to a degree of intra-Asian tension, particularly in Sino-Japanese relations. In addition to the contest over the pipeline from Angarsk, China has stopped exporting oil to Japan. Japan, by far China's largest export customer, has annually imported 3-4 million tonnes⁵³ of crude, about 1.5% of its oil imports, from Daqing since the early 1970's. In 2002 China proposed to reduce its shipments and add a premium to international prices. Negotiations broke down in late 2003, and China ceased shipments in January 2004.⁵⁴

⁵² "Kovykta Confrontation," *World Gas Intelligence*. June 14, 2004.

⁵³ "Tonne" refers to a metric ton, which is about 1,000 kilograms, or 2,204.6 pounds.

⁵⁴ *Japan Digest* item. January 9, 2004.

Electricity shortages may have a negative impact on foreign direct investment in China, which in turn could hinder China's GDP growth. U.S. businesses pursuing opportunity in China may be discouraged by the inconsistent energy supply. The rate of inbound foreign direct investment (FDI) in China reportedly slowed in 2003, particularly in areas suffering from power outages.⁵⁵

Possible Mid-Term Implications

Bilateral Relationships with Asian Allies. The issue of 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. Defense Minister Shigeru Ishiba was recently quoted as saying, "To have other countries...do all the unpleasant, hard things, while we take the oil after Iraq becomes affluent and peaceful through the painful efforts of the rest of the world, I don't think that would be acceptable."⁵⁶ 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.⁵⁷ 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.

South Korea has also supported the U.S.-led war in Iraq, but has been less explicit in stating its rationale. Many observers think that Seoul is most concerned with maintaining strong relations with the United States in order to resolve the North Korean nuclear issue. Regardless of whether concerns about energy supply have contributed to President Roh's decision to support the coalition in Iraq, preserving the strength of the U.S.-South Korea alliance will likely require careful attention to the considerable energy needs of the peninsula.

⁵⁵ "China's Spring for Growth Runs Into Power Shortage," *Financial Times*. December 4, 2003.

⁵⁶ "Mission to Iraq Eases Japan Toward a True Military," *New York Times*. January 14, 2004.

⁵⁷ "Japan's Military Sculptures New Image in Iraqi Sand," *Washington Post*. February 10, 2004.

Possible Long-Term Strategic Ramifications

Enhanced Regional Cooperation. Optimistic analysts point out the potential for unprecedented cooperation between Asian countries, with the shared goal of enhancing energy security for the region. In May 2004, as oil prices reached record highs, Japan, South Korea, China, India, and the Philippines agreed to meet regularly to enhance energy cooperation; the same week the 22-member Asia Cooperation Dialogue decided separately to begin to build a regional oil stockpile, according to news sources.⁵⁸ In June 2004, ASEAN Plus Three (Southeast Asian nations plus Japan, South Korea, and China), organized a meeting of energy ministers which pledged to cooperate in improving energy security, including the creation of stockpiles.⁵⁹ 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 the draw down 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 (see **Figure 7** on next page), 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 Straits, 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, which drives its desire to invest in closer energy sources. As China's military modernizes, however, one of its key objectives is likely to be the protection of its sea lanes to the Middle East.⁶⁰

⁵⁸ "Asian Countries Aim to Club Together Over Oil Price," *Reuters News*. May 24, 2004.

⁵⁹ "As Oil Prices Rise, a Sense of Alarm in Asia," *New York Times*. June 10, 2004.

⁶⁰ See *Global Trends 2020 - East Asia*. National Intelligence Council. Fall 2003. Accessed at [http://www.cia.gov/nic/NIC_2020_project.html].

Figure 7. 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. China’s thirst for oil has led to new partnerships with Central Asian states, an area of traditional rivalry between great powers. Moscow is challenged by Beijing’s inroads with members of the former Soviet empire, and both continental powers are aware of expanded American presence with the establishment of U.S. bases in Uzbekistan, Tajikistan, and Kyrgyzstan. The three powers will likely remain very attentive to the sensitive issue of pipeline construction. Russia retains considerable influence over the Caspian region because the existing pipeline network crosses through Russian territory.

Moscow is also wary of Chinese expansion in the Russian Far East, fearing that Beijing's influence will grow in a region already populated with hundreds of thousands of ethnic Chinese.⁶¹ The United States actively has discouraged the construction of pipelines that cross into Iran⁶² and has encouraged American investment in order to enhance U.S. presence in the region. Some analysts suggest that Beijing's increasing presence might have a negative effect on the struggling democratic and market reforms in several 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 our own security 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.⁶³ 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.⁶⁴ 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.⁶⁵

Other analysts, however, point to the 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.⁶⁶ 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.

⁶¹ 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.

⁶² For example, the Clinton Administration actively advocated for the construction of the Baku-Tblisi-Ceyhan pipeline to transport oil out of the Caspian region because it avoided Iranian territory.

⁶³ "Foreign Concerns Make Deals with Saudis to Search for Gas," *New York Times*. March 8, 2004.

⁶⁴ See Kent Calder, *Asia's Deadly Triangle*. Nicholas Brealey: London, 1997.

⁶⁵ Gal Luft, "U.S., China Are on Collision Course Over Oil," *L.A. Times* opinion piece. February 2, 2004.

⁶⁶ See Felix K. Chang. "Chinese Energy and Asian Security," *Orbis*, Vol 45, #2. Spring 2001.

Options for Congress and Executive Branch Policymakers

Outlined below are several options that Members of Congress could explore. As a first step in addressing some of the issues raised in this report, Congress might wish to consider requesting an estimate from the intelligence community on the impact of rising energy competition on international security.

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 our own 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, the change in conditions could warrant a change in policy to one of explicitly attempting to lock up energy resources for the United States alone. Such a policy, which might include more diversifying 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.⁶⁷ 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, marked by Secretary of Energy Spencer Abraham's January 2004 visit to Japan, China, the Philippines, and Australia. While in Asia, Abraham publicized 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 the 2008 Olympic Games to be held in Beijing; and to promote the use of cleaner-burning fuels and

⁶⁷ Jeffrey Brown and Kang Wu. "Asian Oil Market Outlook: Role of the Key Players," *Asia Pacific Issues*, No. 7. East-West Center. October 2003.

reform in the energy sector in the Philippines.⁶⁸ 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.⁶⁹ 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, now amounting to a seven day supply. 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.

In May 2004, Secretary Abraham signed a Memorandum of Understanding (MOU) with China's National Development and Reform Commission (NDRC) that launched the U.S.-China Energy Policy Dialogue.⁷⁰ This dialogue may serve as a forum for discussing coordination and technology-sharing efforts at the policy level.

⁶⁸ "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.

⁶⁹ Suggested by Kent E. Calder in hearing before the U.S.-China Economic and Security Review Commission. October 30, 2003.

⁷⁰ "Secretary of Energy Abraham Signs Agreement with China's National Development and Reform Commission," U.S. Department of Energy press release. May 23, 2004.

U.S. Leadership in Developing Multilateral Energy Cooperation Frameworks

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 a leadership role 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.”⁷¹

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.⁷² However, opponents may argue against admitting China into the agency because the current members are defined as being industrialized democracies, a category which still does not include China because of its Communist political system.

Other specialists 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 that would mitigate the effects of supply disruptions, as well as inclusion in conversations about the coordinated release of reserves. Another approach might be for the IEA to sponsor oil stockpiles in regions of concern.⁷³

A third multilateral alternative for the U.S. could be one of fostering 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

⁷¹ 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).

⁷² Testimony of Edward L. Morse in hearing before the U.S.-China Economic and Security Review Commission. October 30, 2003.

⁷³ *Ibid.*

institution is the Asian Pacific Economic Cooperation (APEC) forum, which issued a resolution in November 2001 calling for cooperation in developing measures to ensure energy security for the region.⁷⁴ As energy cooperation between northeast Asian countries improved, strategies to develop the Russian Far East might energize regional trade and spur economic growth.⁷⁵

A regional approach likely would still 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. Some analysts point to the danger of lessening American influence if a competition develops between regional and international arrangements.

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.⁷⁶ It appears that Japan's agreement with Iran on the Azadegan deal, valued at \$2.8 billion, qualifies for sanctions, as would the \$1.6 billion stake in the South Pars field project agreed between two Iranian companies and the South Korean firm LG Engineering Group and Construction Corporation.⁷⁷ Under ILSA, the United States has the option to impose sanctions on the companies involved in the Iran agreements. However, because of Japan's and South Korea's contributions to the coalition in Iraq and the war on terrorism, most observers say that the Bush Administration is unlikely to take this step.

⁷⁴ "Energy Security in Asia and Japanese Policy," *Asia-Pacific Review*, May 2003.

⁷⁵ From "Russia's Oil Development and its Implication for Japan" report by the Institute of Energy Economics, Japan. September 18, 2003.

⁷⁶ "Is the Iran-Libya Sanctions Act Dead?" *World Markets Research Center Daily Analysis*. April 26, 2004.

⁷⁷ See CRS Report RS20871, *The Iran-Libya Sanctions Act (ILSA)*, by Kenneth Katzman.