



THE JAMES A. BAKER III
INSTITUTE FOR PUBLIC POLICY
OF RICE UNIVERSITY

**ENERGY SECURITY: IMPLICATIONS FOR
U.S.-CHINA-MIDDLE EAST RELATIONS**

ENERGY SECURITY IN NORTHEAST ASIA:
THE POTENTIAL FOR COOPERATION AMONG THE MAJOR ENERGY
CONSUMING ECONOMIES OF CHINA, JAPAN AND THE UNITED STATES

DR. STEVEN W. LEWIS

*RESEARCH FELLOW IN ASIAN POLITICS AND ECONOMICS
JAMES A. BAKER III INSTITUTE FOR PUBLIC POLICY
PROFESSOR OF THE PRACTICE IN HUMANITIES AND DIRECTOR OF ASIAN STUDIES
RICE UNIVERSITY*

PREPARED IN CONJUNCTION WITH AN ENERGY CONFERENCE SPONSORED BY
THE SHANGHAI INSTITUTE FOR INTERNATIONAL STUDIES
AND
THE JAMES A. BAKER III INSTITUTE FOR PUBLIC POLICY
RICE UNIVERSITY - JULY 18, 2005

THIS PROGRAM WAS MADE POSSIBLE THROUGH THE GENEROUS SUPPORT OF BAKER BOTTS L.L.P.

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Energy Security in Northeast Asia: The Potential for Cooperation Among the Major Energy Consuming Economies of China, Japan and the United States

The Potential for Cooperation

What is the potential for successful cooperation among China, Japan, and the United States in securing long-term stable supplies of oil and fuels to support growth in the world's three largest economies?

To fully answer this question would require an understanding of a wide array of domestic political, economic, and social factors in these three countries, as well as the historical and contemporary international governmental, corporate, and social interactions of their populations. This study is a preliminary attempt to develop this broader explanation by examining three salient factors for understanding the potential for cooperation among the three countries:¹

- How might the changing attitudes, knowledge, and influence of the Chinese people affect the capacity for cooperation on energy and environmental issues with Japan and the United States?
- How might the changing relations between China's government, regulatory, and state-owned institutions and its state-owned oil and gas companies affect the ability of these actors to cooperate with Japanese and American governments and corporations?
- How might the Chinese, Japanese, and American governments, state-owned oil and gas companies, and multinationals construct multilateral institutions to coordinate energy policy?

China's gradual integration into the global economy began in the Post-Mao reform era of the 1970s and was accelerated by reformist leader Deng Xiaoping in the 1980s and 1990s. New Communist Party General Secretary Hu Jintao and Premier Wen Jiabao have continued this

¹ This brief paper focuses on the construction of multilateral institutions of cooperation; for a more complete discussion of this issue and a bibliography of sources and works cited, see Steven W. Lewis, "The Future of Energy Security and Energy Policy in Northeast Asia: Cooperation Among China, Japan and the United States," Baker Institute Energy Forum conference report, September 2004, available in PDF file format on the website: [http://www.rice.edu/energy/research/asiaenergy/docs/UFJ_conferencereport_web.pdf]

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integration at full speed in a post-World Trade Organization (WTO) accession era. This progress has not only generated a thirst for oil and fuel imports, but also a flurry of academic reports projecting skyrocketing demand, and broad public discussion throughout China on energy pricing and energy security policies.

However, domestic supply of oil and fuels is unlikely to keep pace with domestic demand. China's domestic oil production is widely estimated currently to be around 3.5 million barrels a day (b/d), with demand between 5.5 and 6 million b/d, based on 2003 figures. Many projections place domestic production at similar levels in 2010, but with demand at more than 7 million b/d. Throughout much of the next decade of development, China is expected to require between 3 and 4 million b/d of petroleum imports:

Tables 1 and 2 show the general decline in production levels of China's major oil fields and the relative production abilities of its three major national oil companies (NOCs): China National Petroleum Corporation (CNPC, parent company of PetroChina), China National Petroleum Corp. (Sinopec), and China National Offshore Oil Corporation (CNOOC).

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Table 1: CNPC and Sinopec Domestic Crude Oil Production, By Major Field, 1997-2003
(in thousand b/d)

Field	Company	Region	1997	1998	1999	2000	2001	2002	2003	2003/1997
Daqing	CNPC	Northeast	1120.1	114.0	1090.0	1060.0	1030.0	1002.6	968.0	86.4%
Liaohe	CNPC	Northeast	300.8	290.4	286.0	280.2	277.0	270.2	264.4	87.8%
Xinjiang	CNPC	Northwest	174.0	174.2	179.8	184.0	193.6	201.0	212.0	121.8%
Changqing	CNPC	Northwest	66.0	80.0	86.0	92.8	104.0	122.0	140.3	212.5%
Tarim	CNPC	Northwest	84.0	77.0	85.2	87.0	94.6	100.4	105.0	125.0%
Huabei	CNPC	North	93.6	94.6	93.6	91.2	90.2	87.6	87.0	92.9%
Dagang	CNPC	North	88.0	86.0	82.0	80.0	79.0	78.7	84.2	95.6%
Jilin	CNPC	Northeast	80.0	79.4	68.8	66.8	71.6	88.8	95.0	118.7%
Tuha	CNPC	Northwest	60.0	59.0	58.0	55.6	49.8	50.2	47.0	78.3%
Qinghai	CNPC	Northwest	32.0	35.22	38.0	40.0	41.2	42.8	44.0	137.5%
Sichuan	CNPC	Northwest	4.6	4.3	4.0	3.4	2.8	2.7	2.7	58.6%
Yanzhang	CNPC	Northwest	21.4	32.5	42.38	49.2	63.2	63.6	110.5	516.3%
Guidong	CNPC	Northwest	12.2	12.7	12.6	12.4	12.5	13.0	14.9	122.1%
Shengli	Sinopec	North	560.2	546.2	533.0	535.2	533.6	534.3	533.1	95.1%
China Star	Sinopec	West	12.4	12.4	19.6	48.0	58.8	58.5	N.A.	N.A.
Zhongyuan	Sinopec	North	80.4	80.0	75.0	75.4	76.0	76.0	72.3	89.9%
Henan	Sinopec	Central	37.0	37.2	36.6	37.0	37.2	37.6	37.2	100.0%
Jiangsu	Sinopec	East	23.4	26.7	29.0	31.0	31.4	31.4	31.6	135.0%
Jiangnan	Sinopec	East	16.4	15.1	16.82	17.4	19.0	19.3	19.0	115.8%

Source: Adapted from data from CNPC, China Petroleum and Petrochemical Association data, in *Guoji shiyou jingji (International Petroleum Economics)*, February 2004, pg. 60.

Table 2: CNPC, Sinopec and CNOOC Domestic Crude Oil Production, 1997-2003
(in thousand b/d)

	1997	1998	1999	2000	2001	2002	2003	%1998	%2003
CNPC	2864.4	2149.2	2141.3	2121.0	2130.5	2148.3	2190.8	67	64.6
Sinopec	n.a.	706.3	691.3	744.8	756.7	757.8	760.9	22.0	22.4
CNOOC	325.64	326.3	323.4	351.4	364.4	419.7	437.1	10.1	12.8
TOTAL	3208.8	3205.1	3175.7	3217.2	3263.4	3377.3	3388.8	100	100

Source: Adapted from data from CNPC, China Petroleum and Petrochemical Association data, in *Guoji shiyou jingji (International Petroleum Economics)*, February 2004, pg. 60.; percentages do not add up to 100 owing to rounding.

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Clearly, China has a strong incentive to find new ways to cooperate with both oil consumers and oil producers. This report argues that there is indeed significant potential for successful cooperation among the oil-consuming nations of China, Japan, and the United States in order to secure long-term stable supplies of oil and support growth in the world's three largest economies. But research presented at workshops organized by the Baker Institute and its co-sponsors in Beijing, Tokyo, and Houston in the spring and summer of 2004, and additional original research by this author, suggest that such cooperation is more problematic and complex than most outside observers may realize. This paper briefly presents arguments and evidence to show the importance of these factors and offers prescriptions for academic, governmental, and corporate policymakers in these three countries who are interested in promoting successful cooperation on energy policy and energy security.

Developing Cooperation Among Chinese, Japanese, and American Governments and Corporations

Given the views of the Chinese public on energy, energy security, and environmental policies and the impact of decentralization and privatization on Chinese energy SOEs, it remains to be seen how the Chinese, Japanese, and American governments, the state-owned oil and gas companies, and the multinational firms can construct multilateral institutions of energy policy coordination. However, the potential for such cooperation seems promising despite institutional barriers.

In large part, the end result will depend on the compatibility of the competing visions of how China should best obtain energy security and improve the quality of its environment. As posed by a common metaphor used to describe international cooperation, "Even if they sleep in the same bed, will they share the same dreams?"

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If we assume that recent workshops and conferences of scholars, officials, and industry analysts in Tokyo, Beijing, and Houston comprise a representative sample of the range of policy prescriptions deemed to be in the best interests of all three countries, there is strong potential for successful cooperation. But this can only occur if the governments, corporations, and policymakers act swiftly to establish the institutional framework necessary for long-term, multilateral cooperation on energy and environmental issues.

Scholars and analysts have identified a similar set of short-term and long-term goals for cooperation, albeit with differences on some rankings and priorities and on certain measures of implementation.

All actors agree that China needs to be brought into the multilateral frameworks and stockpile control mechanisms of the IEA and the OECD. All agree that this will be achieved successfully when China not only accedes to the rules of government-to-government interaction shared by OECD members, but when its governments, NOCs, and private energy companies are sufficiently transparent such that they can provide information that is viewed as credible by governments, corporations, and individual investors alike.

Scholars assume that these are largely technical issues: the range of experiences of other oil-consuming nations in joining OECD and IEA can serve as models for China's future membership, and the establishment of the economic and statistical analysis organs required for the membership of existing OECD members might present useful blueprints for China's own path. According to this line of thinking, China needs highly-trained individuals—statisticians, accountants, lawyers—with organizational resources, including auditing guidelines and processes and independent budgets, necessary to provide high-quality data and analysis.

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The history of the development of similar institutions in other advanced industrial societies, however, suggests that these individuals and resources may not be sufficient to provide credible information. The problem is that while they may provide accurate information, such data will not be viewed as credible without the independent review by outside institutional and organizational actors. More specifically, such information must be exchanged by all in an environment of competing organizations and individuals that allows for the possibility of both agreement and disagreement by governmental, corporate, and individual (including academic) sources of information and analysis.

China needs to establish a true market for energy information. Markets require not only many players and many alternative institutional arrangements (here the competing explanations and theories of analyses), they also require low-cost information about the actions of the other actors, and the low cost-exchange of such information. Privatization and liberalization have brought more and more players to the table, each with competing explanations. Central government and local governments have their contending theories.

And SOEs and private energy companies have competing explanations as well. Foreign governments and multinational corporations have still more. This situation lacks credibility, however, as each actor merely suspects the other actors of providing information in the best interest of that actor. What is lacking is accurate information about the actions of all actors and a low-cost exchange of this type of information.

This is a classic collective action problem and one for which institutional arrangements in the advanced industrial societies have emerged over many decades. More specifically, and most importantly, multiple and overlapping government regulatory jurisdictions compete to

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provide economic analysis. In the United States, the Department of Energy, the Department of Commerce, the Department of Transportation, the Environmental Protection Agency, and other agencies must provide analysis of many of the same energy and environmental policy issues.

These analyses compete with those of the fiscally autonomous U.S. central bank, the Federal Reserve, which itself has competition among its district banks. In addition, more energy economy analysis is provided by actors serving distinctly corporate, individual, and broad social interests: economists working for energy corporation planning departments; consulting companies; investment banks; insurance companies; law firms; mutual funds; universities; the media; consumer advocacy groups and producer associations. Japan has a similar array of energy information organizations.

In addition, there are economists working for distinctly international organizations, including the OECD and the IEA. These analysts have an incentive to provide the most accurate information and predictions possible (or face unemployment). Finally, in these advanced industrial societies, the collective action problem of providing low-cost information is also solved by governments that provide data, or mandate firms and individuals to provide such data, to the public at low cost. Because energy data is largely provided for free in OECD countries, there are few barriers to entry for individuals and firms seeking to join the energy analysis industry. In sum, multiple, competing analysts and low-cost data are the sources of credibility of energy policy analysis in the OECD countries.

Contrast this situation with the case of China. As debates in recent years about the proficiency of central government statistical bureau data and analyses reveal, there is much support and

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more and more resources for the training of energy economists, energy statisticians, and energy analysts in general. China's government agencies and SOEs have trained thousands of these professionals, both at home and abroad.

What is lacking, however, is the pervasiveness of energy analysts across the Chinese bureaucracy. The absence of energy analysts in a central bank that is gradually becoming more autonomous of government policies, for example, is particularly damaging. The provision of low-cost, standardized data from all economic jurisdictions is of special concern.

China's path of privatization has not only left most experienced energy analysts working in the energy SOEs, it has actually allowed government agencies to increase the cost of data that should be made available publicly. Counter-intuitively, economic data that was previously provided at low cost by the statistical bureaus of central and local governments in the era of central planning, is now provided at higher cost through consulting agencies—organized as cooperatives—set up by bureaucratic agencies that resulted from downsizing after the 1998 reforms, which were intended to halve the ranks of public sector employment.

The development of domestic capital markets and the simultaneous growth of a middle class with substantial resources and investment goals—through individual retirement accounts, for example—may provide the motivations for energy analysts to leave the SOEs and government agencies and to circulate more widely among corporations, banks, and the media. But this cannot occur until there is a shared pool of data that can be commercially analyzed.

China's top leadership does not seem to recognize the importance of multiple, competing explanations—based on low-cost data and the free exchange of data—as the sources of

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credibility in energy analysis. The central government's policy of centralizing information, even as it greatly enhances the training and resources available to government energy analysts, is likely to be counterproductive in the long-term. These measures may provide more and more accurate information, but not necessarily more credible information. The long-term goal of bringing China into multilateral institutions of cooperation on energy and environmental issues depends upon distinctly domestic reforms to establish a credible energy information industry.

There is much agreement on the goals of multilateral cooperation on energy security and among Chinese, American, and Japanese scholars. All agree that the establishment of successful cooperation in the oil and gas sector in the short term can lead to broader long-term cooperation in other energy sectors and also on environmental issues.

The leading short-term goals for China are the establishment of a strategic petroleum reserve and stockpiles of oil and fuel in tandem with cooperative efforts with other oil-consuming countries to lower the cost of oil and fuel from the Middle East (reducing the so-called Asian Premium). Some scholars and analysts view the former as primarily a matter of government and corporate investment, while others view it as a matter of adapting to the global oil market, or to introducing modern financial instruments to use the advantages of oil futures markets in a more sophisticated manner (e.g., stock tickets).

In general, Japanese and Chinese scholars have identified government-to-government interaction as essential for cooperation, while American scholars have identified market solutions as the primary solution. Japanese scholars at the Institute of Energy Economics, Japan (IEEJ) have thus focused on specific goals for cooperation in the short term: "For the

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near-term consideration on regional energy cooperation, oil should be given priority in view of easy exchange: (1) oil stockpiling and rules for emergency response; (2) compatibility of importing facilities; and (3) a business alliance for joint purchase and operation of fleets.”

Chinese and Japanese scholars have also advocated the establishment of cooperation goals among Asian consumer nations and oil-producing nations: “Asian countries need sufficient energy supply at reasonable prices to meet their growing energy requirement (energy supply security), [and the] Middle East needs markets for their energy commodity to secure stable and sufficient revenue flows (energy demand security).” Essential to this, Japanese scholars argue, is the “establishment of a common perception among Asian consuming countries and to unite in various stages such as policy, government, and the private sector.”

American scholars, however, argue that the international oil market is one indivisible market. Neither physical supplies nor firm contracts guarantee delivery or price,” and, as demonstrated by history, “strategic stocks require international cooperation.” Scholars also disagree about the appropriate venue for negotiating government-to-government cooperation on the establishment of stockpiles and actions designed to lower the Asian premium. Some see ASEAN +3 as the most appropriate venue, while others propose the Boao Forum for Asia.

Rather than reproduce these complex arguments here, this study will simply focus on the challenges to these short-term goals posed by the changes in energy and environmental awareness of the Chinese public, and the changes in business and government relations in the energy sector in China.

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First, consider the challenges for government-to-government interaction created by the views of urban Chinese on energy security and environmental awareness. As studies of nationalism in China suggest, the Chinese government is likely to be primarily concerned with avoiding popular protest and discontent over its foreign relations, including cooperation and conflict over energy supplies. As surveys reveal, urban Chinese do value multilateral cooperation on energy and environmental issues, but they are also relatively uninformed about the exact nature of their foreign energy ties (their misidentification of oil import sources, for example).

The Chinese public also perceives that broad international organizations of economic cooperation—the WTO and the IEA—are more influential than regional economic organizations, including ASEAN and talks between Japan, South Korea, and China. These urban Chinese believe that the United States is an influential actor in the resolution of China's energy problems. Government-to-government interaction in the short term may be especially problematic, given Japanese and Chinese competition over potential Russian supplies of oil as part of their diversification strategies and any perceived conflict over boundaries that involve energy resources (the Sendakyu or Diaoyutai Islands). On the U.S.-Chinese side, there is potential conflict over the Taiwan Straits and also the Korean peninsula.

In short, there are many potential tripwires, even minor and temporary international conflicts that can provoke protests in Chinese cities and effectively stall government-to-government interaction among the three countries. The Chinese public seems to value market solutions and international market institutions, but it is not clear the extent to which it separates the actions of the Japanese and American governments and Japanese and U.S. energy companies (and multinationals).

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The Chinese people believe that the country's SOEs should develop domestic energy resources, rather than multinationals or private energy companies. They do not trust the abilities of China's SOEs to "go abroad" successfully to obtain equity oil. Overall, it is important to note that the views of the Chinese public present a significant challenge to the short-term goals of multilateral cooperation identified by Japanese, American, and Chinese scholars.

The importance of understanding the depth and scope of privatization and decentralization in China also presents significant challenges to the government-to-government and market-oriented short-term goals identified by scholars of all three countries. China's oil and gas SOEs and local governments are certainly the most influential actors in developing China's domestic energy infrastructure, in establishing overseas sources of oil supplies, and in implementing environmental protection rules and regulations. Foreign and Chinese scholars, however, have identified the central government as the main actor representing Chinese interests in solving its energy security and environmental problems. But experience and history suggest that foreign actors need to engage both state enterprises and local governments directly, as they are the actors who have initiated reforms since 1978.

Furthermore, the strategies adopted by the central leadership of the Communist Party—the creation of competing special economic jurisdictions controlled by leaders appointed from Beijing, and the maintenance of the nomenklatura system that sees the competing subsidiaries of the oil and gas SOEs also appointed from the capital—continue to present the coordination problems of decentralization even as they appear to centralize authority. Market solutions to the short-term goals identified by scholars are also hindered by China's changes in business and government relations.

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In sum, these solutions may require the participation of corporatized oil and gas companies, although studies of China's oil and gas SOEs suggest that they largely function much as traditional NOCs. Calls by Chinese and Middle Eastern scholars to establish effective mechanisms of cooperation between China and the Gulf states must also focus on the critical role played by the oil and gas SOEs, which may have more extensive ties in the Middle East than the central government foreign and security policy organs.

Tentative Policy Recommendations for Chinese, Japanese, and American Governments and Corporations

Given the constraints on energy policy, energy security policy, and environmental policy in China posed by the views of the Chinese people and the privatization and decentralization of government and business relations, a key question centers on what recommendations scholars can suggest to achieve successful cooperation among Chinese, Japanese, and U.S. governments and corporations?

Regarding long-term goals, any measures that help Chinese policymakers (governmental and non-governmental) develop institutions that will integrate China into cooperative frameworks with the OECD and IEA are valuable. Chief among these, as identified by all scholars, are the institutions of energy information analysis. However, foreign governments and corporations need to help develop statistical analysis across Chinese bureaucratic agencies in numerous localities and to foster the creation of independent analysis by private consultants and academic institutions.

The Japanese and U.S. governments, in particular, should continue their exchanges that

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promote, as the Japanese government has identified, “3-E” (energy, environment, and economy) cooperation and educational exchange. Chinese NOCs and multinational corporations should also help develop and support academic research on these issues. All actors should help the Chinese government study ways to provide low-cost economic data, as in other oil-consuming societies, and to stop the privatization of government economic data.

Finally, as with Japanese and American populations, the Chinese people need to have a more comprehensive and accurate understanding of China’s complex foreign energy relations. Education exchange may facilitate this, particularly among groups with higher income and education levels, but comparative surveys of views on energy security and environmental awareness may also increase these understandings. In particular, asking the Chinese people to identify themselves as Chinese energy consumers—by telling interviewees that they are participating in an international survey and publishing the results of this in the Chinese media—may not only help scholars better understand the influence of localism, nationalism, and transnationalism in energy and environmental policy issues, but also actually generate a shared understanding among the three populations.

As for the short-term goals, the governments, corporations and peoples of China, Japan, and the United States have no choice but to explore both government-to-government and market-oriented solutions. Spillover from potential disruptions in other security and economic spheres may be ameliorated if there are repeated, high-level dialogues among government actors and the inclusion of representatives from central governments, influential local governments, and the Chinese energy SOEs and multinational corporations.

The Chinese and U.S. governments, having a more diffuse division of labor in energy policy,

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energy security policy, and environmental policy among national government organs than the Japanese, may need to be more creative in demonstrating a long-term commitment to dialogue among the three countries. Scholars in all three countries need to examine more closely the influence of local governments and the SOEs on energy and environmental policy formation in China. Discussion of such research in international workshops and conferences should continue, particularly in the absence of sustained government-to-government discussions.