



The Brookings Foreign Policy Studies Energy Security Series

China by Erica Downs

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The Energy Security Series

The rise of China and India as major global economic powers, the continued growth in U.S. energy demand, and instability in key oil-exporting regions are dramatically affecting international energy markets. Prospects for stable production are increasingly linked to internal political issues and the regional ambitions of major suppliers. These dynamics will affect the global balance of power, as energy security is becoming a more important factor in countries' national security and economic development calculations.

The Brookings Foreign Policy Studies Energy Security Series is examining four key energy-consuming nations—China, India, Japan, and the United States—and several major producing countries—Russia to start, and then the Gulf States and others as resources become available. The Series will analyze the implications of these nations' policies for the global energy security environment. Initial funding under this project has supported a set of baseline papers focused on oil. Future analyses on this topic will cover the full spectrum of energy security issues.

This report, a study of China's oil policies and policymaking, was written by Erica Downs, the China Energy Fellow at the John L. Thornton China Center at the Brookings Institution.

EXECUTIVE SUMMARY

Grappling with Rapid Energy Demand Growth

China's blistering economic growth has made access to adequate energy supplies an increasingly important priority. It is the world's second largest consumer and third largest producer of primary energy. From 2000 to 2005, China's energy consumption rose by 60 percent, accounting for almost half of the growth in world energy consumption. The country is able to meet more than 90 percent of its energy needs with domestic supplies—largely because of abundant coal reserves and a coal-based economy. However, it imports almost half of the oil it consumes.

Self-sufficient in oil as recently as 1993, China became the world's second largest consumer of oil behind the United States in 2003. A year later it was the number three importer of oil after the United States and Japan. Between 2000 and 2005, China was responsible for about one quarter of the growth in world oil demand, but only accounted for less than 8 percent of global consumption. However, imports are projected to account for 60–80 percent of China's oil consumption by 2020.

China is grappling with its new role as a major importer of oil. The country's loss of self-sufficiency, substantial increases in the volume and cost of its oil imports after the turn of the century, and its emergence as an important factor in the world oil market and accompanying international scrutiny all caught China's leaders by surprise. For the past decade, Beijing has been struggling to cope with the domestic and foreign consequences of rapid demand growth.

A State of Flux

The Chinese government's efforts to meet China's energy requirements are in a state of flux as it faces policy and management challenges. The energy crisis of 2003–04—when widespread electricity shortages plagued the country and oil demand surged by 850,000 bpd—highlighted the deficiencies in China's energy policymaking apparatus, which is characterized by ineffective institutions and strong vested interests. Poor coordination of the conflicting objectives of different components of the bureaucracy and tensions between the government and the state-owned energy companies have hindered development of a comprehensive national energy strategy. Recent attempts to craft a more effective bureaucracy and policies are part of a larger effort to balance market and administrative mechanisms, supply expansion and demand moderation, and the interests of the government and companies in managing the country's energy challenges.

For the past decade, Beijing has been struggling to cope with the domestic and foreign consequences of rapid demand growth.

This monograph examines China's approach to energy security. It focuses on oil because it is presently the only fuel that China imports in substantial quantities, and consequently, the fuel China is most concerned about securing. Oil is also increasingly influencing China's international behavior. The paper is divided into five sections. Sections 1 and 2 assess the country's energy balance and Chinese conceptions of energy security. Section 3 analyzes how China's policymaking apparatus has undermined the country's ability to cope with rapid energy demand growth; it explores the likely impact of recent institutional changes to address this problem. Section 4 analyzes specific policies and projects to moderate demand and increase supply. Section 5 discusses the implications of China's oil policies domestically and internationally. A number of key findings result:

- The establishment in 2005 of the Energy Leading Group—a supraministerial coordinating body headed by Premier Wen Jiabao—signified the leadership's dissatisfaction with China's energy policymaking apparatus, but it is unlikely to solve all of the problems that hamper energy sector management. These include manpower and funding shortages in policymaking and statistical bodies, the influence of state energy firms, and inadequate institutional arrangements to coordinate conflicting interests.
- The government will continue its struggle to balance the use of administrative and market mechanisms in the energy sector. Beijing will continue to adjust the caps on gasoline and diesel prices toward international levels, but will do so gradually because of concerns about the impact on economic growth and social stability.
- There has been a major shift—at least rhetorically—in China's approach to energy development in recent years, with the leadership placing greater emphasis on demand moderation. However, China's fractured energy policymaking apparatus and the lack of a bureaucratic champion for demand moderation to counterbalance the interests of the powerful state-owned energy companies in supply expansion pose a challenge to the government's ambitious energy conservation targets.
- The relationship between the government and China's national oil companies (NOCs) will be characterized by increased friction at home and improved coordination abroad. Domestically, the NOCs will continue to seek greater autonomy from the government. Internationally, the recent trend of greater coordination between the NOCs and the government will continue, with Beijing employing political and financial tools to help firms acquire trade and investment opportunities.
- Public debate on energy security indicates that some participants question the relationship between the foreign investments of China's NOCs and the country's energy security. More Chinese analysts now argue that the acquisition of equity oil will do little to help China deal with supply disruptions.
- Beijing is increasingly aware that domestic energy security is linked to international energy security. But there is no agreement as to the role China should play in global and regional initiatives and institutions that facilitate cooperation among oil importers.
- China's oil interests, like those of other countries, will continue to shape its broader foreign policy. Beijing is probably more willing to take actions to gain and maintain access to oil that run afoul of U.S. interests when those interests are not top U.S. foreign policy objectives.

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China

By Erica Downs

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Acronyms

bcm	billion cubic meters
bpd	barrels per day
CAFÉ	Corporate Average Fuel Economy
CCP	Chinese Communist Party
CNPC	China National Petroleum Corporation
CNOOC	China National Offshore Oil Corporation
CPS	Central Party School
EIA	U.S. Energy Information Agency
ELG	Energy Leading Group
GDP	gross domestic product
IEA	International Energy Agency
km	kilometer
LNG	liquefied natural gas
MFA	Ministry of Foreign Affairs
MOE	Ministry of Energy
mpg	miles per gallon
NDRC	National Development and Reform Commission
NOCs	national oil companies
NPC	National People's Congress
SEC	State Energy Commission
SEO	State Energy Office
SETC	State Economic and Trade Commission
Sinopec	China Petroleum and Chemical Corporation
SPR	strategic petroleum reserve
UNSC	United Nations Security Council

Introduction

Until 1993 China was self-sufficient in meeting its energy needs. A decade later it had become the world's second largest consumer of oil behind the United States, and by 2004, the world's third largest importer of oil after the United States and Japan. While China accounted for less than 8 percent of global oil consumption between 2000 and 2005, it was responsible for 27 percent of the growth in global oil consumption over that period.¹ This demand growth has contributed to oil's increasing prominence on Beijing's domestic and foreign policy agendas.

China's emergence as a major oil importer surprised its leadership. When Premier Zhu Rongji abolished the country's Ministry of Energy (MOE) in 1993—on the eve of China's transition to a net oil importer—he and his colleagues expected that the country would continue to be energy self-sufficient.² The substantial increase in both the volume and cost of its oil imports that began at the turn of the century also caught the Chinese leadership off guard. Over the past decade, the Chinese have struggled to cope with the domestic and international ramifications of this demand growth, prompting changes in the country's energy bureaucracy and its approaches to ensuring that its oil requirements are met.

In recent years the government has grappled with reform of its energy policymaking apparatus, which some Chinese analysts consider a threat to the country's energy security. China's energy bureaucracy is characterized by ineffective institutions and strong vested interests. Poor coordination and conflicting objectives among the bureaucracy's different components have impeded development of a single national energy strategy. Energy policies are made piecemeal and are often shaped by powerful stakeholders' interests. China's influential state-owned energy companies—especially the oil firms—have considerable impact on energy sector development because they possess the political, financial and human resources that the energy policymaking bodies lack.

The energy crisis of 2003–04 was a catalyst for change in China's energy bureaucracy. The country suffered widespread power shortages, which contributed to a substantial increase in oil demand and imports as diesel generators were run to maintain power. In 2004 blackouts plagued twenty-four out of thirty-one of China's provinces. Oil demand grew by 15 percent (850,000 barrels per day [bpd])³ and net imports of crude and refined products by almost 50 percent (900,000 bpd).⁴ The power shortages and surge in oil demand and imports served as an indictment of China's energy sector management. In 2005 the formation of the Energy Leading Group (ELG) headed by Premier Wen Jiabao and its administrative body, the State Energy Office (SEO), signified the leadership's dissatisfaction with China's energy policymaking apparatus. But it fell short of the creation of an authoritative, independent, and well-staffed ministerial-level agency to oversee the energy sector. The need for such an entity continues to be the subject of intense debate within Chinese energy circles.

China's approach to meeting its oil requirements is also in flux.

- First, the Chinese leadership is committed—at least rhetorically and apparently much more than in the past—to placing equal emphasis on demand moderation and supply

expansion. Achieving this objective will require overcoming some of the obstacles that historically have hampered demand-side management in China. These include the absence of a bureaucratic champion for energy conservation to balance against the influence of the powerful state-owned energy companies, which have a vested interest in supply expansion and a reluctance to shoulder the political and economic costs of policies aimed at slowing energy demand growth, such as increasing fuel prices.

- Second, the Chinese government is reassessing its roles in the domestic and international oil markets. Domestically, oil shortages in Guangdong Province in the summer of 2005—rooted in oil product prices that were substantially below those on the international market—forced Chinese officials to acknowledge, albeit obliquely, the difficulties in maintaining price controls for a country that imports almost half of its oil. Internationally, the government has expanded its efforts to help China's national oil companies (NOCs) secure trade and investment opportunities and to prevent them from competing against each other.
- Third, assessments of the effectiveness of some oil policies have changed. On the one hand, the controversy over whether China should establish a strategic petroleum reserve (SPR) eased after Hu Jintao and Wen Jiabao took office in 2003. On the other hand, the idea of acquiring equity stakes in oil exploration and production assets abroad—once assumed to be axiomatic by participants in the public energy security debate—is now being openly questioned in the media, the oil industry and academic circles.

This study examines some of the major oil policies and projects that China has pursued—and not pursued—and the economic and political factors that have influenced them. The focus is on oil, not only because it is the only fuel that China imports in substantial quantities, but also because oil increasingly influences China's international behavior. The monograph is divided into five sections. Parts 1 and 2 assess China's energy balance and conceptions of energy security. Part 3 examines China's energy policymaking apparatus, and Part 4 analyzes specific policies and projects to moderate oil demand growth and increase oil supplies. Part 5, the concluding section, offers observations on the domestic and global implications of China's evolving oil policies.

Part 1. China's Energy Balance

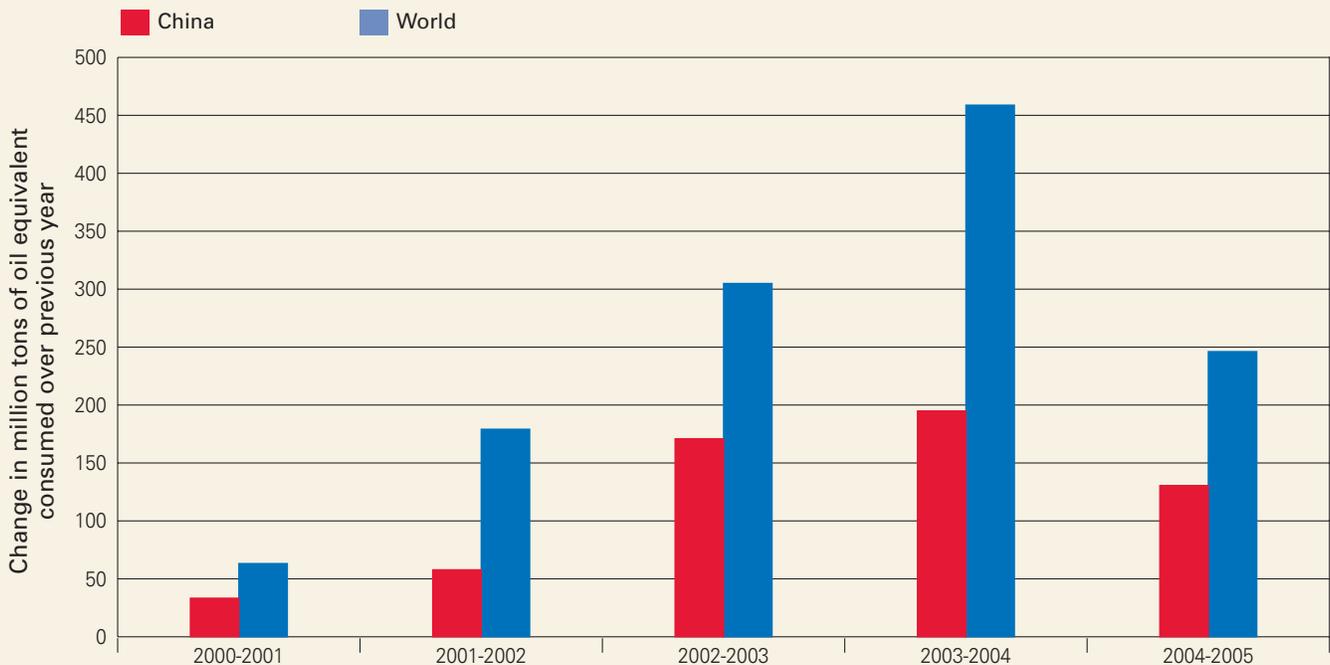
Figure 1. China's Total Primary Energy Consumption, 2000–2005



Source: BP Statistical Review of World Energy, June 2006

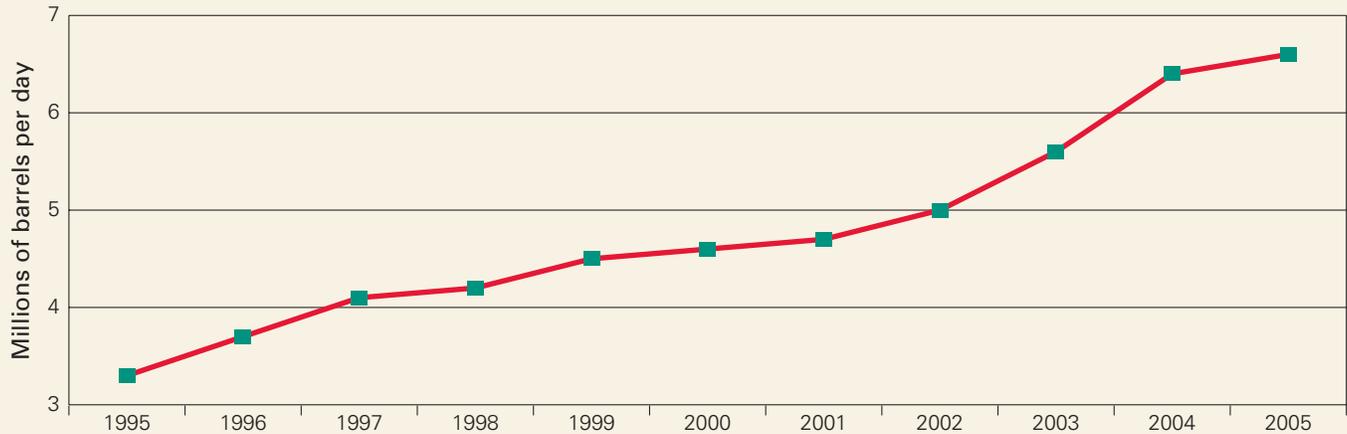
China's burgeoning appetite for energy has made access to adequate supplies an increasingly important priority. China is the world's second largest consumer of primary energy behind the United States and the third largest producer of primary energy after the United States and Russia. From 2000 to 2005, China's energy consumption rose by 60 percent (fig. 1), accounting for almost half of the growth in world energy consumption (fig. 2). Although China is able to meet more than 90 percent of its primary energy requirements with domestic supplies, it imports almost half of the oil it consumes. Consequently, the issue at the heart of China's energy insecurity is the country's growing oil deficit.

Figure 2. Incremental Growth in Chinese and Global Primary Energy Consumption, 2000–2005



Source: BP Statistical Review of World Energy, June 2006

Figure 3. China's Oil Demand, 1995–2005



Source: International Energy Agency, *Monthly Oil Market Report* (various issues)

Oil Demand

Almost three decades of rapid economic growth have generated a demand for oil that has outstripped domestic sources of supply. Chinese and international energy experts alike agree that China's reliance on imported oil will increase. The only question is by how much.

China's demand for oil doubled over the past decade, increasing from 3.3 million barrels per day (bpd) in 1995 to 6.6 million bpd in 2005 (fig. 3), almost one third of U.S. demand.⁵ Between 2000 and 2005, China accounted for about one quarter of the increase in world oil demand growth.⁶ In 2004 alone China's oil demand grew by 850,000 bpd, a year-on-year gain of about 15 percent,⁷ primarily because of a surge in demand for diesel for power generation. The surge in Chinese demand in 2004—which most oil market analysts did not anticipate and which moderated in 2005—underscored China's emergence as a decisive factor in the world oil market.

Table 1. Projections of China's Oil Demand in 2020 (million barrels per day)

Source	Date	Projection
United States Energy Information Administration	2006	11.7
National Development and Reform Commission (China)	2006	10–12
China National Petroleum Corporation	2006	10.0
Institute for Energy Economics, Japan	2005	11.8
International Monetary Fund	2005	13.6
Energy Research Institute (China)	2005	13.0
International Energy Agency	2005	11.2
National Administration of Statistics (China)	2004	12.7

Energy experts agree that China's oil demand will continue to grow through 2020, although their projections vary: recent estimates range from 10 million to 13.6 million bpd (table 1).⁸ Different assumptions about the growth rate of China's gross domestic product (GDP) and the income elasticity of demand probably explain a large portion of the discrepancies.⁹ If history is any guide, higher estimates may prove to be more accurate; both Chinese and international forecasters have repeatedly underestimated China's oil demand.

Domestic Oil Supply

China's domestic oil supply has failed to keep pace with demand, and the outlook for substantially increasing it is grim. Most of China's producing fields have reached production plateaus or will soon decline.¹⁰ Increased output from fields in western China and offshore will likely only slightly offset production declines in China's oldest and largest oil fields in the northeast, including Daqing.¹¹ Although Chinese and foreign oil companies continue to explore for oil within the country's borders, the aggressiveness with which China's NOCs are seeking to acquire oil assets abroad indicates that domestic prospects are limited.

Table 2. Projections of China's Oil Supply in 2020 (million barrels per day)

Source	Date	Projection
United States Energy Information Administration	2006	3.8
China National Petroleum Corporation	2006	4.0
Institute for Energy Economics, Japan	2005	3.8
International Energy Agency	2005	3.0
Energy Research Institute (China)	2005	4.0

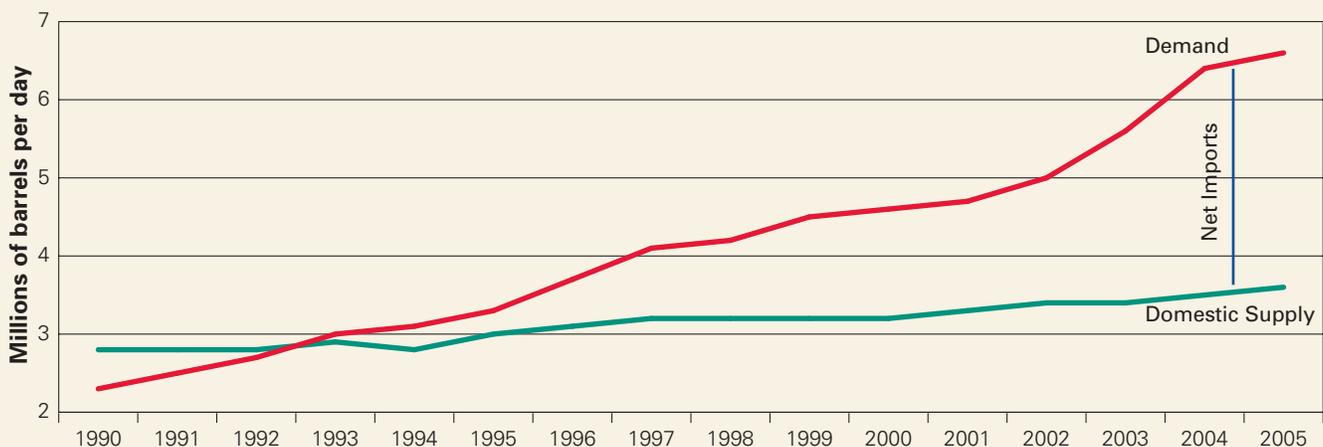
There is consensus among experts that China's domestic oil supply will continue to fall short of demand. But there are differences of opinion about whether it will grow moderately or decline over the next two decades from 3.6 million bpd in 2005.¹² Recent projections of China's oil production for 2020 range from 3.0 million bpd to 4.0 million bpd (table 2).¹³ In May 2006, the director of Department of Development Planning for the China National Petroleum Corporation (CNPC) stated

that China's oil output is only expected to increase from 3.6 million bpd in 2005 to 4.0 million bpd between 2006 and 2020, with output beginning to decline in 2021.¹⁴

Oil Imports

The widening scissors-like gap between China's oil demand and domestic supply indicates that it will be increasingly dependent on imported oil (fig. 4). Based on the demand and supply projections above, China's oil imports are expected to increase from about 3 million bpd in 2005 to between 6 million and 11 million bpd in 2020, some

Figure 4. China's Oil Demand and Domestic Supply, 1990–2005



Source: International Energy Agency, *Monthly Oil Market Report* (various issues)

60-80 percent of the country's total oil consumption. This wide projected range reflects the uncertainty about China's future oil demand and domestic supply.

Natural Gas

In sharp contrast to its concerns about the country's growing reliance on foreign oil, the Chinese government has fewer worries about importing natural gas. While seeking ways to slow the growth of oil imports, officials are working to bolster natural gas demand and imports to help expand the share of natural gas in China's energy mix. Both production and consumption of natural gas in China more than doubled between 1995 and 2005, with production increasing from 17.4 billion to 50 billion cubic meters (bcm) and consumption growing from 17.4 to 47 bcm over this period.¹⁵

Chinese and international energy experts agree that China's demand for and imports of natural gas will grow. But their projections vary much more widely than for oil, because of the tremendous uncertainty about the pace of the development of China's natural gas market. Recent estimates of China's natural gas demand in 2020 range from 125 to 250 bcm (table 3)¹⁶ and of domestic natural gas supply run from 80 to 150 bcm (table 4).¹⁷ These projections indicate that China could import as much as 130 bcm of natural gas in 2020, accounting for almost 70 percent of its total natural gas consumption. Whether China's natural gas demand and imports are closer to the lower- or higher-end projections will depend in large

part on whether China is able to overcome some of the existing barriers to expanding natural gas use. These include building the necessary infrastructure, pricing natural gas competitively against coal (especially in electric power generation), and developing policies to create a more stable environment for investment and operation.¹⁸

China, which began importing LNG in May 2006 with the first delivery from Australia's Northwest Shelf Project to China's Guangdong LNG terminal, will remain a small importer of natural gas until after 2010 because of a lack of infrastructure. China will probably only have three LNG receiving terminals (Guangdong, Fujian, and Shanghai) and no import pipelines operational before 2010.¹⁹ If the Chinese government wants to meet its gas consumption target of 250 bcm in 2020, China will need to construct at least two import pipelines and several additional LNG receiving terminals.

Table 3. Projections of China's Natural Gas Demand in 2020 (billion cubic meters)

Source	Date	Projection
United States Energy Information Administration	2006	133
China Engineering Institute	2006	200
National Development Reform Commission (China)	2005	250
Institute for Energy Economics, Japan	2005	180
International Energy Agency	2005	106
China National Petroleum Corporation	2004	160-210
China National Offshore Oil Corporation	2004	200

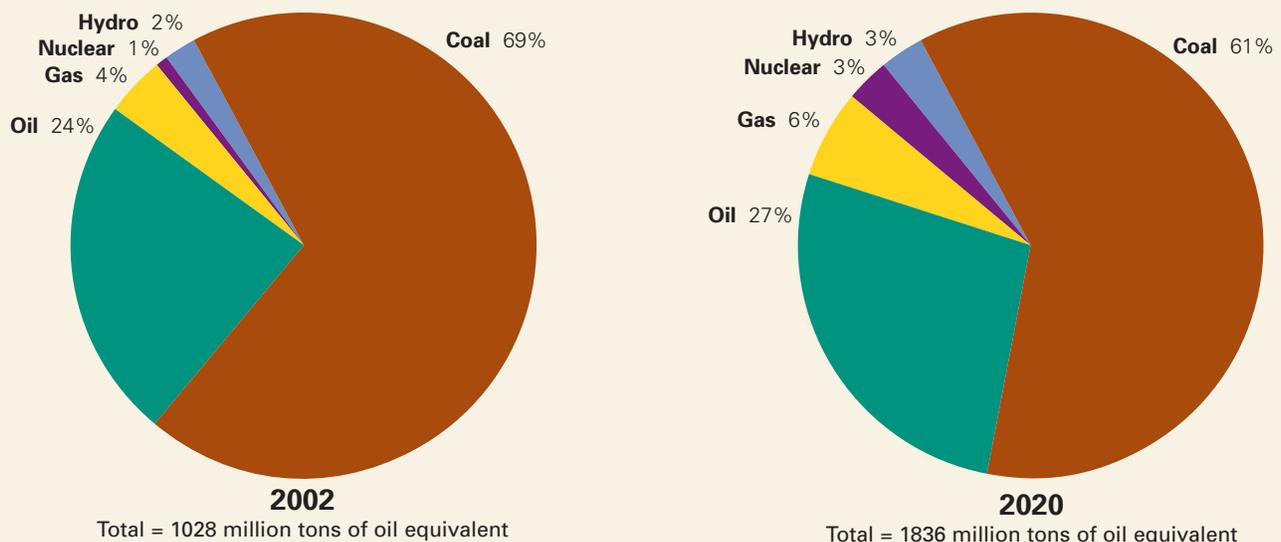
Table 4. Projections of China's Natural Gas Supply in 2020 (billion cubic meters)

Source	Date	Projection
United States Energy Information Administration	2006	98
China Engineering Institute	2006	80
National Development Reform Commission (China)	2005	150
Institute for Energy Economics, Japan	2005	138
China National Petroleum Corporation	2004	120

Coal and Other Fuels

Despite China's increasing reliance on imported energy, the country will remain able to meet the bulk of its own energy requirements. In an attempt to downplay international concerns about the "China energy threat," Chinese officials have highlighted the fact that the country supplies almost all of the energy it consumes.²⁰ The Institute for Energy Economics, Japan, projects that China will continue to do so, with the percentage of demand satisfied by domestic supply decreasing from more than 90 percent to about 80 percent.²¹ China's ability to provide for the majority of its energy requirements is due to the country's abundant coal reserves and its coal-based economy. The International Energy Agency (IEA) projects that coal will continue to dominate China's energy mix through 2020, but its share will decrease slightly between 2002 and 2020, from 69 percent to 61 percent. The share of natural gas will grow from 4 to 6 percent, while that of oil will increase slightly from 24 to 27 percent. Nuclear power, hydropower, and other renewables are likely to remain a small fraction of China's energy mix because of financial, technological, and ecological constraints (fig. 5).²²

Figure 5. China's Primary Energy Demand^a, 2002 and 2020



a. Excludes biomass and waste

Source: International Energy Agency, *World Energy Outlook 2004*

Part 2. What Does Energy Security Mean in China?

In China, as in other countries, energy security is a term often used but infrequently defined. China's shift to a net importer of oil in 1993 introduced the term "energy security" to Chinese discourse on energy. It was not until 2000, however, when China's oil imports doubled and the bill tripled, that energy security became a common theme of public discourse. A search of the "China Economic News" library of China Infobank, a database of Chinese periodicals, reveals that the term "energy security" appeared in only forty-one publications from 1994 through 1999, but in 1,150 publications from 2000 through 2005.²³

Increased usage of the term, however, has not been accompanied by clarity of concept. Analysts in China often use the same shorthand definition as their U.S. counterparts—adequate, affordable and reliable supplies—but generally do not elaborate on what they mean by each of these terms. A review of Chinese public discourse indicates that energy security is the acquisition of sufficient energy supplies to protect the Chinese leadership's core objectives at prices that are neither too high nor too low to undermine those objectives. Reliability, for oil and natural gas, includes the safe delivery of imports to China. However, Chinese analysts differ in the emphasis they place on these three components.²⁴

Adequate Supplies

One dimension of energy security for China is access to sufficient energy supplies to protect the leadership's core objectives. These include continued economic growth, the prevention of Taiwanese independence, China's continued emergence as a global power, and the survival of the Chinese Communist Party (CCP).²⁵

- First, oil is necessary for economic growth because there are no efficient and cost-effective substitutes for gasoline, diesel, and jet fuel for transportation.
- Second, oil is required to power the military; inadequate supplies could hamper China's efforts to prevent Taiwan's permanent separation from the mainland.
- Third, because oil is a source of both economic and military power, it underpins China's rise to great power status. Li Junru, vice president of the CCP's Central Party School, has argued that the most important factor affecting China's "peaceful rise" to international preeminence is not Taiwan, but rather the global competition for energy resources.²⁶
- Fourth, all of the elements above help bolster the legitimacy of the CCP.

Reasonable Prices

From the Chinese government's perspective, energy security is enhanced by prices that are neither too low nor too high to jeopardize its core objectives. On the one hand, the leadership wants oil prices that are low enough to maintain social stability among key

constituents, including farmers, fisherman, and taxi drivers. Oil demand by these groups is relatively inelastic because their livelihood depends on driving tractors, boats, and cars. On the other hand, the leadership does not want prices so low that they prompt the country's refiners to cut back their runs—creating a shortage of oil products on the domestic market and harming the very consumers that low oil prices are intended to help—and to reduce investment in additional refining capacity.

Safe Delivery of Imports

Another component of energy security for Beijing is the safe delivery of energy imports because China does not possess the naval power projection capabilities to protect its seaborne energy imports. During the November 29, 2003 Central Economic Work Conference, Hu Jintao reportedly voiced concern about the security of the delivery of energy imports to China with his discussion of the “Malacca Dilemma,” referring to the passage of about 80 percent of China’s oil imports through the Strait of Malacca.²⁷ There is some concern in Beijing that in the event of a Sino-U.S. conflict over Taiwan, the United States might attempt to interdict the flow of oil to China. According to Yang Yi, director of the Institute of Strategic Studies at China’s National Defense University, “[w]hen I was the naval attaché at the Chinese Embassy in the United States, an American asked me how we would defend our strategic sea passages if it became necessary to do so. I said, speaking diplomatically, that the U.S., the world’s traffic cop, is very good at maintaining order and that we can go along for the ride. But, truthfully speaking, this is not reliable. If we do not have any conflicts of interest with the U.S., we can go along for the ride. As soon as a conflict occurs, however, it will be disastrous. For example, if the U.S. implements a large scale blockade or embargo in the Taiwan Strait, would we be able to withstand it?”²⁸ But other analysts offer more sanguine views, arguing not only that China’s chances of going to war with another country are practically zero, but also that it would be extremely difficult to blockade China.²⁹

Despite Beijing’s discomfort with its reliance on the United States Navy for safe passage of oil imports through the sea lanes of communication, many analysts recognize that it is a long-term reality for China. In the words of one Chinese foreign policy analyst, “How long will it take China to build a navy to match the U.S.? There will be no oil (left) in the world then!”³⁰

The Changing Energy Security Debate

Chinese discussions of energy security are more sophisticated and comprehensive today than a decade ago. The country’s growing reliance on foreign oil remains the focal point of debate. But in recent years, there has been increased emphasis on other sources of energy and on domestic factors affecting energy security.

The notion that energy self-sufficiency is a panacea for China’s energy security has receded. Chinese officials and analysts recognize that the country will remain dependent on imported oil. Discussions have shifted from whether or not China should import large quantities of oil to how China can manage the risks associated with import dependence.

Fears prevalent in the 1990s about whether China had enough money to buy all of the oil it needed have given way to concerns about whether there will be enough oil made available for China to buy.

Fears prevalent in the 1990s about whether China had enough money to buy all of the oil it needed have given way to concerns about whether there will be enough oil made available for China to buy. Many Chinese analysts are skeptical of Western analysts' assumption that oil will always be available on the world market—albeit at a fluctuating price—and the ensuing implication that “the best energy security money can buy is: money.”³¹ In contrast, An Fengquan of the China Petrochemical Consulting Corporation, which provides the Chinese government with advice on oil security matters, has argued the opposite: “[e]xperience proves that having money does not necessarily mean you can buy oil. ‘Money’ does not necessarily buy ‘China’s oil security.’”³² The defeat of bids by Chinese oil companies for the Russian oil producer Slavneft in 2002 and the U.S. oil company Unocal in 2005 by economic nationalism, and the perception that the United States increasingly regards military power as a legitimate instrument for gaining access to oil³³ have heightened awareness in China of the fact that both oil producing and consuming states repeatedly intervene in the world market to further national interests.

However, growing confidence in the world oil market as a source of oil for China is emerging among some analysts. Scholars at the Chinese Academy of Social Sciences, for example, argue that as long as China is willing to pay the market price for oil, the world market will provide China with the oil it needs. Even if certain exporters decide that they do not want to sell oil to China, other countries will take their place.³⁴ While this is a minority perspective in Chinese public discourse, an increasing number of participants espouse it.³⁵

In recent years, there has also been growing recognition in China that enhancing energy security involves more than managing the country's dependence on imported oil. Despite the preoccupation of Chinese officials and analysts with external threats to China's oil supply, the country's worst energy crisis in two decades was an entirely domestic affair. The crisis focused attention on the domestic determinants of energy security and strengthened the chorus of voices identifying China's energy bureaucracy as a source of energy insecurity and calling for its reform.

Part 3. China's Energy Policymaking Apparatus: Ineffective Institutions and Powerful Firms

China's energy policies (whether implemented or not) have been shaped by two key features of the energy policymaking apparatus: the ineffectiveness of the central government institutions involved in the energy sector and the strength of the state-owned energy companies. The liberalization and decentralization of the energy sector that have accompanied China's shift from a planned toward a market economy, along with bureaucratic restructuring over the past two decades, have resulted in a shift of power and resources away from the central government to the state-owned energy companies and in a fragmented institutional structure of authority over the energy sector.³⁶ This situation has impeded coordination among conflicting interests in the energy sector,³⁷ stymied the development of a comprehensive national energy strategy,³⁸ and allowed China's powerful state-owned energy companies to exert considerable influence in the country's energy policymaking. As a result, China's energy projects and agenda are often driven by the corporate interests of China's energy firms rather than by the national interests of the Chinese state.³⁹

In the case of China's oil sector, authority is divided among and within a number of government agencies. The most powerful one is the National Development and Reform Commission (NDRC), which is in charge of planning long-term energy development, setting energy prices, and approving investment in domestic and international energy projects. There are at least seven offices within the NDRC that oversee the oil sector, including the Energy Bureau.⁴⁰ Other government agencies involved in oil policymaking include the Ministry of Land and Resources, which oversees the surveying of natural resources, including oil and natural gas, and grants exploration and production licenses; the Ministry of Commerce, which issues licenses for oil imports and exports and regulations for investments by foreign firms in China's energy markets and by Chinese firms in foreign energy markets; and the Ministry of Finance, which formulates tax and fiscal policies to promote the central government's energy objectives. The Ministry of Foreign Affairs (MFA) provides support to the national oil companies (NOCs) in their bids to acquire trade and investment opportunities abroad—part of the MFA's broader mandate to promote commercial relations with other countries—and works to ensure that the deals pursued by the NOCs do not run counter to other foreign policy objectives.⁴¹ In 2005 the Chinese government increased the number of players involved in energy policymaking with the creation of an Energy Leading Group (ELG) and its administrative body, the State Energy Office (SEO), which are discussed below.

Ineffective Institutions

Many Chinese energy experts have long maintained that the country's fractured energy bureaucracy undermines its energy security.⁴² And an increasing number of experts have joined the chorus of voices calling for institutional change. Widespread elec-

tricity shortages, escalating oil imports, coal transportation bottlenecks and mining accidents, setbacks in the NOCs efforts to acquire assets abroad, and the slow progress in strengthening demand-side management led many experts to conclude that China's energy bureaucracy is ill-suited to managing the country's energy challenges.⁴³ Within Chinese energy circles, the issue of what kind of institutional structure would be most effective has emerged as an important topic in the energy security debate. The majority of experts favor establishment of a ministerial or supra-ministerial body to centralize authority over the energy sector and to coordinate with other government agencies involved in energy matters, like the MFA.⁴⁴

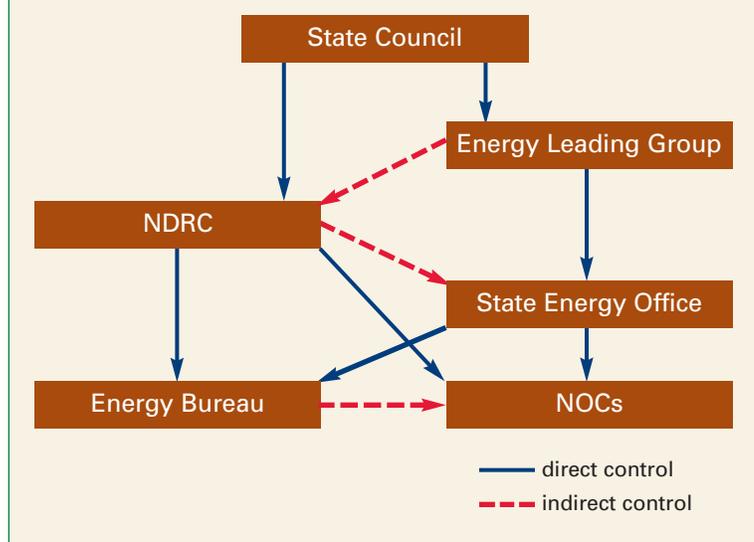
This diagnosis of China's energy problems as rooted in the country's fragmented energy bureaucracy and the prescription for the creation of a high-level government body to oversee and coordinate the energy sector is not without precedent. The Chinese government established both the State Energy Commission (SEC) (1980–82) and the Ministry of Energy (MOE) (1988–93) in the wake of acute energy shortages to recentralize authority over the energy sector. Neither institution could effectively coordinate and implement energy policy, in part because they could not overcome the vested interests of other stakeholders.

The SEC—created in part to improve policy implementation—was doomed from the start by insufficient authority and resources, and by an unclear mandate.⁴⁵ Although the SEC was a supraministerial body, it had no coercive power over the ministries of coal, petroleum and electric power because these ministries were not formally subordinate to it. The SEC also had no control over funds for energy sector development, which contributed to its lack of influence over other stakeholders in the energy policymaking apparatus. Additionally, the SEC's responsibilities for the formulation and adoption of energy laws and regulations and for policy implementation were unclear.

The MOE similarly failed to gain control over the energy sector. Its authority had overlapped with that of both the State Development and Planning Commission and the state-owned energy companies.⁴⁶ The government formed the MOE by merging the administrative functions of the Ministry of Petroleum Industry, the Ministry of Coal Industry, the Ministry of Nuclear Industry (their management and production functions went to the state energy firms⁴⁷), and the power sector of the Ministry of Water Resources and Electric Power. These ministries opposed the merger, with officials from the former Ministry of Coal Industry going so far as to petition to have their ministry reconstituted.⁴⁸ The MOE was only active in the electricity sector because the other energy subsectors refused to coordinate planning and investment activities.⁴⁹ Zhu Rongji—a strong advocate for letting market forces play a larger role in the country's energy sector—abolished the ministry in 1993.

The Chinese government's efforts to recentralize authority over the energy sector have been crisis-driven, incremental, and limited in effect. Progress has been slow and piecemeal because of the enormous difficulty of redistributing power within China's energy bureaucracy. The establishment of an Energy Bureau under the NDRC in 2003 (fig. 6) and the creation of the ELG and SEO in 2005 reflect the leadership's recognition of both the need for

Figure 6. Selected Components of China's Energy Bureaucracy



a more effective institutional structure of authority as well as resistance by influential stakeholders to any changes that would diminish their power. Indeed, the most difficult aspect of altering the institutional landscape of energy policymaking is balancing the interests of various stakeholders.⁵⁰

The Energy Bureau

The establishment of the NDRC Energy Bureau during the National People's Congress (NPC) in March 2003 was a compromise among key stakeholders in China's energy bureaucracy.⁵¹ Proponents of recentralizing authority over the energy sector had hoped that the electricity shortages that began in 2002 coupled with growing concerns over the security of China's oil supply on the eve of the Iraq war, would compel the Chinese leadership to create a high-level agency to manage the energy sector.⁵² However, this proposal was reportedly rejected due to opposition from the

NDRC and the energy companies, and also because of concerns that the authority of such an agency would overlap with that of the NDRC.⁵³ The ultimate establishment of the Energy Bureau *under* the NDRC served the interests of the NDRC and the energy companies alike. This configuration preserved the NDRC's influence and prevented the creation of another layer of authority over the energy companies.

A lack of manpower, financial resources and political clout has limited the ability of the Energy Bureau to manage China's energy sector. The Energy Bureau originally had only thirty positions; in 2005 the Chinese government authorized this number to be increased to fifty-seven.⁵⁴ Even Xu Dingming, the previous director of the Energy Bureau, publicly acknowledged that he did not have enough manpower to fulfill the bureau's mandate.⁵⁵ The small staff has been so overwhelmed with discrete issues like project approval that it has had little time to devote to broader issues, including the development of a comprehensive energy strategy.⁵⁶ For example, there are only three people responsible for the collection and analysis of energy data.⁵⁷ The Energy Bureau has also lacked funding for independent policy analysis.

Moreover, as an agency *within* the NDRC, the Energy Bureau does not have the authority to coordinate among more politically powerful stakeholders such as the state-owned energy companies and other ministries.⁵⁸ According to a senior researcher at the NDRC Energy Research Institute, "[i]n most cases, the Energy Bureau is incapable of coordinating relations."⁵⁹ Similarly, a researcher with the Development Research Center, an influential think tank under the State Council, in a 2004 article noted that while, in theory, coordination of the research and drafting of the Petroleum Law is a task for the Energy Bureau, in practice it does not have the power to reconcile the multiple conflicting interests involved.⁶⁰

The Energy Leading Group and the State Energy Office

The creation in 2005 of an Energy Leading Group (ELG) under the State Council headed by Premier Wen Jiabao (table 5) and a State Energy Office (SEO) reporting directly to the premier indicated that leadership shared the dissatisfaction of many energy experts and officials with the energy policymaking apparatus. The idea to establish the ELG and SEO emerged from the energy crisis of 2003–04. The widespread energy bottlenecks and shortages highlighted—for both the NDRC and the top leadership—the need for institutional change in the energy bureaucracy.

The energy crisis prompted NDRC officials to express to the top leaders their frustration with the NDRC’s inability to manage the sector without support from the central leadership.⁶¹ Despite being the most powerful agency in China’s energy policymaking apparatus, the NDRC did not have the authority to coordinate other vested interests like the MFA. (There has been friction between the MFA and the NDRC, and the MFA and the NOCs.

Chinese diplomats, concerned about the impact of NOC investments on broader foreign policy objectives, have complained that they often do not learn about investments made by China’s NOCs until after the fact.) In the spring of 2004, Ma Kai, the head of the NDRC, began to convene a series of informal meetings (*pengtoubui*) within the NDRC to discuss management of the energy crisis. These sessions, which were also attended by executives from China’s NOCs, gave rise to the idea of creating a higher-level body to oversee the energy sector.

By the end of 2004, the Chinese leadership had reached consensus on the creation of a new energy authority. In early November, Hu Jintao chaired a Politburo meeting to discuss the country’s energy situation, and members decided to establish a leading group and a leading group office for energy.⁶² Later that month, Wen Jiabao, during a visit to Laos, appeared to confirm this decision, stating that China would establish a mechanism for dialogue on energy issues.⁶³ Additionally, the State Council contacted former minister of energy Huang Yicheng to solicit his opinion about what type of energy management body should be established.⁶⁴

In 2005, the State Council moved first to establish the SEO. In late April, an official from the NDRC publicly confirmed that the SEO had already been established under the leadership of director Ma Kai and deputy directors Ma Fucai and Xu Dingming.⁶⁵ The formal announcement of the establishment of the SEO and the ELG did not come until May with the publication of Document 2005 (14) by the State Council.⁶⁶ Although the SEO is subordinate to the ELG, the State Council probably established the SEO before the ELG, not only because a proto-

**Table 5. China’s Energy Leading Group
May 2005**

Name	Title
Wen Jiabao (Group Head)	Premier
Huang Ju (Deputy Group Head)	Vice Premier
Zeng Peiyan (Deputy Group Head)	Vice Premier
Ma Kai	Minister, National Development and Reform Commission
Li Zhaoxing	Minister of Foreign Affairs
Xu Guanhua	Minister of Science and Technology
Zhang Yunchuan	Minister, Commission of Science, Technology and Industry for National Defense
Jin Renqing	Minister of Finance
Sun Wensheng	Minister of Land and Resources
Du Qinlin	Minister of Agriculture
Bo Xilai	Minister of Commerce
Li Rongrong	Minister, State-owned Assets Supervision and Administration Commission
Xie Zhenhua	Director, State Environmental Protection Administration
Li Yizhong	Director, State Administration of Work Safety
Chai Songyue	Chairman, State Electricity Regulatory Commission
Ge Zhenfeng	Deputy Chief of the General Staff of the People’s Liberation Army

type for the SEO already existed in the informal coordination meetings organized by Ma Kai, but also because leading groups require staff to execute their decisions and manage their daily affairs.⁶⁷

The Chinese leadership probably had at least two other goals in establishing the ELG and the SEO:

- to demonstrate to the public that they are taking steps to address China's energy problems, and
- to buy time to determine how best to restructure the bureaucracy and reduce the influence of the energy firms.

A few Chinese and foreign energy experts based in Beijing have speculated that China's top leaders decided to form a leading group rather than a ministry for energy because they recognized that a ministry would likely become another layer of bureaucracy captured by vested interests.⁶⁸

Leading groups are ad hoc supra-ministerial coordinating and consulting bodies formed to build consensus on issues that cut across the government, party, and military systems when the existing bureaucratic structure is unable to do so.⁶⁹ There are two types of leading groups. Party leading groups manage policy for the Politburo and Secretariat, and State Council leading groups coordinate policy implementation for the government.⁷⁰ These groups provide a mechanism for top decisionmakers to exchange views—formally and informally—and to develop recommendations for the Politburo and the State Council. The ELG, for example, held two official meetings during its first year of existence, the second of which was attended by representatives of government departments, energy associations, and energy companies.⁷¹

Leading groups do not formulate concrete policies (*zhengce*), but rather issue guiding principles about the general direction in which bureaucratic activity should move (*fangzhen*). A *fangzhen* provides the framework for the development of *zhengce*.⁷² The recommendations of leading groups are likely to have considerable influence on the policymaking process because they represent the consensus of the leading members of the relevant government, party, and military agencies. In some cases, the Chinese leadership will adopt a leading group's recommendation with little or no modification. Leading groups, which have no permanent staff, rely on their offices to manage daily operations and for research and policy recommendations. Consequently, the effectiveness of a leading group often depends on the effectiveness of its office.⁷³

The SEO runs the risk of becoming yet another cook in the kitchen that is China's energy policymaking apparatus. Politically, it is not particularly powerful. The SEO has the bureaucratic rank of only a vice-ministry, which is below that of the NDRC and some of the state-owned energy firms. It also has no formal authority over all stakeholders in China's energy sector.⁷⁴ Moreover, the mandate of the SEO is unclear because it overlaps with that of the

china's state-owned energy companies have considerable influence over energy decision-making because of their political, financial, and human resources.

NDRC Energy Bureau.⁷⁵ Some analysts are disappointed with the SEO; one newspaper article described it as toothless policy consulting body that organizes people to write reports.⁷⁶

The institutional affiliations of the SEO's leadership and staff suggest that the influence of the NDRC and state energy firms is considerable. The director of the SEO (which is housed in the NDRC) is Ma Kai, minister of the NDRC, and the vice directors are Xu Dingming, the former director of the NDRC Energy Bureau, and Ma Fucui, the former head of CNPC. The NDRC leadership reportedly is working to ensure that the interests of the SEO do not run counter to those of the NDRC.⁷⁷ The SEO staff includes representatives from the NDRC and from the energy firms, reflecting their expertise on energy matters.

The SEO is a "corporate-driven think tank," according to Zhu Zhixin, vice director of the NDRC, designed to "serve the Chinese companies as much as possible yet at the same time ensure policies practiced by the commercial sector are not harmful to other areas."⁷⁸ The SEO may serve as a vehicle both for the state-owned energy companies to increase their influence on energy policymaking and for the government to attempt to limit their influence. Indeed, soon after assuming his position as deputy director of the SEO, Ma Fucui convened an informal meeting with executives from CNPC, China Petroleum and Chemical Corporation (Sinopec), China National Offshore Oil Corporation (CNOOC), and Sinochem Corporation to discuss the new office.⁷⁹

The ELG possesses symbolic importance and substantial power.⁸⁰ But it is unlikely to cure all of China's energy policymaking ailments because they are rooted, in part, in the institutional structure of the country's energy bureaucracy. The ELG, which includes some of China's most powerful officials, can intervene in the energy sector to solve discrete problems. However, they are not involved in the day-to-day running of the sector and the responsibilities of their primary government and Party positions preclude them from routinely involving themselves in conflicts of interests within the government and between the government and the state-owned energy companies that hamper energy policy formulation. While the establishment of the ELG is a response to the Chinese leadership's dissatisfaction with the country's ineffective energy bureaucracy and powerful firms, the formation of the ELG alone cannot alter this situation.

Powerful Firms

China's state-owned energy companies have considerable influence over energy decisionmaking because of their political, financial, and human resources. The power of these firms increased markedly during the decade when Zhu Rongji was in charge of China's economy (1993–2003). In the second half of the 1990s, Zhu Rongji deliberately enhanced the financial and administrative autonomy of China's NOCs to make them more efficient in preparation for the listing of their subsidiaries on international stock exchanges.

The energy companies' political power is derived from their origins as government ministries and the influence those ministries held over the policymaking process. When China's economic bureaucracy was created in 1953, the leadership developed an administrative structure that gave heavy industry a powerful voice in the policymaking process to facilitate

industrialization. Each heavy industry had its own ministry.⁸¹ When the Chinese government began to restructure the country's ministries into corporations in the 1980s, the companies' leaders fought to retain their bureaucratic ranks to maintain leverage over the policymaking process.⁸²

In the oil sector, CNPC and Sinopec are both ministry-level corporations whose general managers hold vice-ministerial rank. CNPC was created from the Ministry of Petroleum Industry in 1988, while Sinopec was established in 1983 by merging assets from the Ministry of Petroleum Industry and the Ministry of Chemical Industry. CNOOC, formed as a corporation under the Ministry of Petroleum Industry in 1982, has the status of a general bureau, lower than a ministry but higher than a bureau.⁸³

The general managers of China's NOCs also have direct access to the country's senior leadership, similar to the relationship executives of other international oil companies and NOCs have with their governments. In China, as in other countries, there is a revolving door between the government and the oil companies.⁸⁴ Some of China's senior leaders previously worked in the oil industry: Zeng Qinghong, a member of the Politburo Standing Committee and China's vice president; Zhou Yongkang, a member of the Politburo and minister of public security; and Wu Yi, a member of the Politburo and a vice premier of the State Council.⁸⁵ Xu Dingming, a deputy director of the SEO and the former director of the NDRC Energy Bureau, was previously the head of CNPC's planning department,⁸⁶ and Ma Fucai, the other deputy director of the SEO, was previously the general manager of CNPC and chairman of PetroChina. Numerous employees of China's NOCs also worked for the government earlier in their careers. For example, former CNPC vice president Wu Yaowen had worked for both the Ministry of Energy and the State Planning Commission.⁸⁷

The energy companies derive financial power from their profitmaking and financial independence. In 2005 the net profits of the three major Chinese oil companies listed on international stock exchanges—PetroChina, a subsidiary of CNPC; Sinopec Ltd., a subsidiary of Sinopec; and CNOOC Ltd., a subsidiary of CNOOC—accounted for about 22 percent of the total profits earned by all state-owned enterprises in China.⁸⁸ Greater profitability has brought the Chinese oil companies, especially the listed subsidiaries, greater autonomy from the Chinese government. Pursuit of profits provides the companies with a justification for resisting projects and policies supported by the government.⁸⁹ For example, in 2002 members of the board of directors of Sinopec Ltd. expressed apprehension about participating in China's national SPR because participation would undermine the company's ability to maximize shareholder value.⁹⁰ More recently, in December 2005 CNOOC Ltd. broke off talks with Chevron over the purchase of LNG from Chevron's Gorgon project in Australia because it did not want to pay the prevailing world price (a decision which reportedly angered NDRC vice minister Zhang Guobao, who had a personal interest in seeing the deal consummated).⁹¹ Furthermore, the fact that China's major oil companies all have subsidiaries that control many of their best assets and are also listed on international stock exchanges provides them with additional protection against state intervention.⁹²

The energy companies' power is also rooted in human resources: the large number of people they employ and their expertise on energy issues. At the end of 2005, PetroChina had 424,175 employees and Sinopec had 389,451 employees,⁹³ while the Energy Bureau and the SEO had only fifty-seven and twenty-four positions, respectively. Consequently, the Chinese government relies on the energy companies for manpower and for their knowledge and experience. According to a former employee of one of China's NOCs, it is hardly surprising that a large portion of the staff of the SEO is drawn from energy companies, because the companies understand energy issues.⁹⁴ Similarly, employees from Sinopec have also been involved in drafting China's strategic oil reserves law because Sinopec has the greatest knowledge in this area.⁹⁵ Chinese energy officials also periodically meet with energy firms to enhance their understanding of particular issues, such as in March 2005, when the Energy Bureau met with representatives of CNPC, Sinopec, and CNOOC to learn about China's natural gas supply and demand and to understand the natural gas shortages that emerged in the winter of 2005.⁹⁶

However, the influence of China's energy companies over policymaking is by no means unlimited. The party-state⁹⁷ also has levers of control over the companies. These include the appointment and dismissal of the energy companies' leaders and the approval of any substantial investments the companies make at home or abroad.

The CCP exercises control over China's largest state-owned enterprises in the appointment, promotion, and dismissal of top executives through its organizational department. China's leaders evaluate those executives not only on how well they run their companies, but also on how well they serve the CCP's interests. Executives who aspire to advance within the CCP and to attain high-ranking positions in the Chinese government must demonstrate success in both areas.⁹⁸

For example, in 2002 Li Yizhong, general manager of Sinopec, was made a full member of the CCP central committee. But Ma Fucai, general manager of CNPC, was only appointed as an alternate, because in the eyes of the Chinese leadership, Li did a better job than Ma at handling the protests of oil workers laid off by their respective companies.⁹⁹ Ma's political fortunes also waned because of his company's failure to secure an oil pipeline from Russia to China before the Japanese intervened, and because of a gas explosion at a CNPC field in Sichuan in 2003 that killed 242 people and injured more than 10,000. Prior to this disaster, Ma had been slated to become governor of Shandong Province.¹⁰⁰ His current position as deputy director of the SEO is less prestigious. In contrast, the top leadership's selection of Wei Liucheng, chairman of both CNOOC and its listed subsidiary CNOOC Ltd., as an alternate member of the CCP central committee in 2002, and his subsequent appointment as governor of Hainan Province were rewards for success at the helm of CNOOC Ltd.¹⁰¹ The control of the CCP over executives also extends to the listed subsidiaries of CNPC, Sinopec, and CNOOC, because many of those in senior positions within the parent companies also hold senior positions within the listed subsidiaries. For example, in the case of CNPC's subsidiary, PetroChina, the chairman and vice chairman of the board of directors, the executive directors, and three of the four non-executive directors also hold top management positions at CNPC.¹⁰²

The country's fractured energy bureaucracy has impeded formulation of a long-term national energy strategy accepted by all stakeholders.

The government also exercises control over China's energy companies through the government's investment approval system. Domestic and international investments by China's energy companies are subject to approval by the NDRC and the State Council, although the government has modestly decentralized authority over foreign investment decisionmaking. In 2004 the State Council raised the threshold for overseas energy resource projects, requiring NDRC approval from \$1 million to \$30 million. Foreign energy projects in which the investment of a Chinese company exceeds \$200 million (a small amount of money in the energy business) are reviewed by the NDRC and submitted to the State Council for approval.¹⁰³ In theory, therefore, the Chinese government still has authority over any substantial foreign investments made by China's energy companies. In practice, however, anecdotal information indicates that China's NOCs, at least in some cases, have made deals abroad and then informed the NDRC and State Council after the fact.¹⁰⁴

Impact of Ineffective Institutions and Powerful Firms on Energy Policy

The ineffectiveness of China's energy institutions and the strength of the energy companies has impacted its energy sector management in several ways. The country's fractured energy bureaucracy has impeded formulation of a long-term national energy strategy accepted by all stakeholders.¹⁰⁵ Although in recent years there has been no shortage of competing blueprints from a variety of government agencies and research institutions, there is no single entity with sufficient power to persuade the other players to embrace its proposed strategy. In addition, the lack of an overarching framework to guide energy policymaking has contributed to a reactive management style, which approaches energy challenges by "treating the head when the head hurts, treating the foot when the foot hurts." Chinese analysts have criticized this ad hoc approach of treating the symptoms but not the disease¹⁰⁶ in other policymaking arenas as well.¹⁰⁷

Lack of human and financial resources in the central government's energy policymaking bodies—countered by an abundance of these resources in the state-owned energy companies—has contributed to Beijing's reliance on the companies for policy support and advice, enabling corporate interests to shape national interests. For example, the energy firms often finance studies conducted by government agencies because they do not have adequate funds to carry out their own analysis.¹⁰⁸ In some cases, the companies' objectives conflict with those of the government. China's NOCs have bid directly against each other for overseas assets, much to the dismay of the Chinese leadership and analysts with a pro-central planning bias, who would prefer to see the firms operate abroad as a team rather than as competitors.¹⁰⁹

The energy leadership vacuum has created a situation in which many of China's efforts are shaped by discrete projects generated at lower levels, rather than by policymaking from above. Such initiatives usually originate with the state-owned energy companies, which tend to think in terms of projects, not policies. Some firms have successfully linked their interests in specific projects to a stated interest in national "energy security;" as a result, some of their projects drive policy. NDRC officials are preoccupied with the project approval process and have neither time nor resources to ensure that policies drive projects and not the reverse.¹¹⁰

Part 4. Oil Projects and Policies

Historically, China has pursued energy security with an emphasis on increasing supply over moderating demand. This supply-side bias is explained in part by factors that impede demand-side management in many countries, including the United States. These include an institutional structure that facilitates supply expansion over demand moderation, lack of financial resources devoted to demand-side management, and the fact that measures to slow demand growth tend to be politically more difficult to implement than measures to expand supply.

The recent surge in China's energy demand has prompted its leadership to attempt to correct the supply-side bias to the country's energy policies. The energy crisis of 2003–04 exposed the limits of the “growth at any cost” model of economic development associated with Jiang Zemin and Zhu Rongji and undoubtedly made the Hu-Wen administration realize that demand moderation is critical for sustainable economic development. Beijing's energy conservation plans include the ambitious—and probably unrealistic—goal of reducing the energy intensity of GDP 20 percent by 2010. How close China comes to meeting this target will depend in part on whether it can overcome the factors that have impeded demand-side management in the past.

- First, there are greater institutional impediments to moderating demand than to increasing supply. China lacks a bureaucratic champion for demand-side management—such as a Ministry of Energy—to counterbalance the country's powerful energy companies, which have a vested interest in supply expansion. Responsibility for various energy conservation efforts are scattered among different government agencies, including the NDRC Department of Environment and Resource Comprehensive Utilization, the Ministry of Finance, and the energy conservation offices within other ministries, like the Ministry of Construction. Furthermore, there is no supra-ministerial body to coordinate among them. According to a Chinese analysis published in late 2003, the Energy Conservation Law (promulgated in 1997), “remains on paper” because the country lacks a national-level, comprehensive energy management department to oversee coordination and implementation.¹¹¹ Additionally, provincial governments have their own demand-side management programs, which are unrelated to the central government.¹¹²
- Second, despite the longstanding exhortation of China's leaders to “treat energy efficiency on an equal basis with supply,” they have not supported their words with financial outlays. Investment in energy conservation as a percentage of energy supply investment has declined since its peak of 13 percent in 1982 to about 3 percent in 1996, with only a slight increase since then, according to the China Energy Group at the Lawrence Berkeley National Laboratories.¹¹³ The amount of money invested in 2003 in supply expansion (\$53 billion) was about eighteen times greater than the amount invested in energy conservation (\$2.9 billion).¹¹⁴ Underinvestment in conservation appears to be a continuing trend. The NDRC has set an ambitious target to the reduce energy intensity of GDP 20 percent by 2010, but the government had yet to devote substantial resources to it.¹¹⁵

- Third, measures to moderate demand are politically more difficult to implement than measures to increase supply because they impose costs on sectors of society and pose challenges to other objectives of the Chinese government. The leadership, for example, is particularly concerned about the impact of fuel price increases on key constituents and the paramount objectives of economic growth and social stability. To date, they have prioritized lower fuel prices for Chinese consumers over moderating oil demand. Additionally, efforts to slow the growth of oil consumption by road transport infringes on another national goal: the creation of globally competitive automobile manufacturing conglomerates.

This section examines some of the key oil projects and policies implemented—and not implemented—by the Chinese government to enhance energy security. On the demand side, this includes oil price reform, the stalled fuel tax, and other efforts to moderate oil consumption by road transport. On the supply side, such measures include diversification of oil suppliers and transport routes, acquisition of equity stakes in overseas oil exploration and development assets, and the establishment of a strategic oil reserve.

Demand Side

Oil Price Reform

The reform of China’s oil pricing mechanism—which the World Bank has deemed important if Beijing is serious about meeting its stated objective of a 20 percent reduction in the energy intensity of GDP by 2010¹¹⁶—involves balancing the interests of Chinese consumers against Sinopec and CNPC, which control more than 90 percent of the country’s refining capacity. The NDRC sets caps for the price of diesel and gasoline. Their objective is to set prices that are “low enough” to shield key constituents, especially farmers, from the full impact of international oil price increases and to maintain economic growth and combat inflation. At the same time, prices must also be “high enough” to limit losses by CNPC and Sinopec. Although the Chinese government has repeatedly prioritized social stability over corporate profitability, there is a limit to the extent to which it is willing to inflict harm on China’s oil companies.

When China was self-sufficient in oil, the government was able to use price controls with some success to provide relatively inexpensive oil to consumers. However, as China’s economic planners have discovered, it is extremely difficult to maintain a separate oil pricing regime in a country that imports almost half of the oil it consumes. The government’s price juggling act has become much more difficult as the country’s dependence on imported oil has grown and as its NOCs have become increasingly commercially oriented.

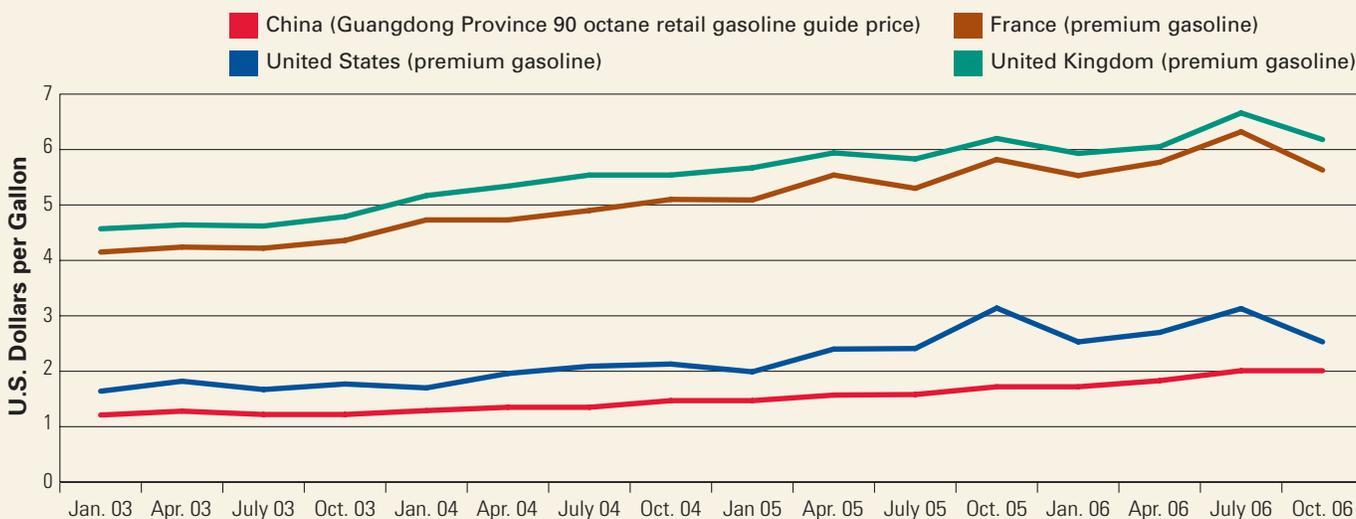
The NDRC sets guidance (wholesale) prices for gasoline and diesel for the current month based on the weighted monthly average of spot physical prices for these products in the benchmark Singapore, Rotterdam, and New York Harbor markets and allows retail prices to fluctuate within 8 percent on either side of the guidance prices depending on the prevailing average of international benchmarks.¹¹⁷ However, the government generally does not adjust prices unless the international price fluctuates by a substantial margin. And when it

has changed prices, the revisions often do not fully reflect the extent of the price change on the global market.¹¹⁸ Consequently, fuel prices in China tend to be below international levels (fig. 7). China’s refiners pay the international market price for their imported oil, but they are unable to pass the cost on to consumers when domestic oil product prices exceed international ones. In early July 2005, China’s refiners lost more than \$20 per barrel.¹¹⁹

The current high oil prices have severely challenged the Chinese government’s oil price-setting mechanism, angering both consumers and refiners. In 2005 the gap between domestic and international oil prices prompted China’s refiners to export their products rather than sell on the domestic market at a loss. This behavior contributed to widespread oil shortages in Guangdong Province, which is dominated by Sinopec. Long lines at some gasoline stations and the closure of others infuriated consumers,¹²⁰ demonstrating that price controls can harm the very people they are intended to help.¹²¹ Incensed by mounting refining and marketing losses—totaling \$3.9 billion in 2005 for Sinopec and CNPC¹²²—Sinopec executives actively lobbied the NDRC to eliminate price controls.¹²³ They had an ally in the People’s Bank of China, which issued a report calling for a reform of the country’s oil pricing mechanism.¹²⁴

The Chinese government’s short-term response to the Guangdong “oil shortage” primarily has been to “treat the symptom but not the disease.” In January 2006 the Ministry of Finance paid \$1.2 billion to Sinopec as partial compensation for the losses it suffered in 2005.¹²⁵ Beijing’s largesse generated some public consternation, with at least one commentator criticizing the payment of such a substantial sum of money to a profitable, internationally listed company, as the subjugation of public to corporate interests.¹²⁶ Two months later, the gov-

**Figure 7. Weekly Retail Gasoline Prices in Selected Countries
January 2003–October 2006^a**



^aPremium gasoline has an octane rating greater than 90.
Sources: Reuters, U.S. Energy Information Administration, 2006

ernment indicated that social stability would continue to trump corporate profitability with its announcement of a windfall profits tax on the oil produced by China's oil companies; the revenue from the tax is to be used to subsidize farmers and other key constituents.¹²⁷ The NDRC also increased price caps for diesel and gasoline in March and May of 2006,¹²⁸ although industry analysts suspect that at these levels Sinopec's refining margins become negative when the price of crude on the world market rises above \$60 per barrel.¹²⁹

Fuel Tax

China's fuel tax—under discussion for more than a decade—is an example of a demand-side management measure that the government has not yet implemented because of a lack of coordination among stakeholders and concerns about its impact on social stability. The State Council initially conceived of the fuel tax as a tool to recentralize control over the country's finances and to generate money to pay for planned infrastructure projects,¹³⁰ and secondarily, as a means to reform the road and automobile fee collection system. Many local officials arbitrarily levied fees to generate revenue to make up for budgetary shortfalls and for their own personal enrichment.¹³¹ Moderation of oil demand growth did not become an objective of the fuel tax until after the turn of the century, when the Chinese leadership began to devote more attention to demand-side management.

The fuel tax is one of the few issues—along with the Three Gorges Dam—that have been openly disputed in the National People's Congress (NPC), which usually rubber stamps such proposals. The NPC Standing Committee rejected an amendment to the 1997 Highway Law submitted by the State Council in October 1998 to replace ad hoc automobile and road fees with a national fuel tax.¹³² It also voted down an amended proposal in April 1999 by one vote.¹³³ The NPC Standing Committee finally passed a revised amendment in October 1999,¹³⁴ although some delegates continued to have reservations about the impact of the fuel tax on local and national interests.¹³⁵

Although in favor of reforming the road and automobile fee collection system,¹³⁶ NPC delegates opposed the fuel tax for a variety of reasons.¹³⁷

- First, the Standing Committee worried that the fuel tax would deprive local governments of an important source of funding for road maintenance.
- Second, they feared it would unduly burden certain constituents, such as farmers and fisherman, who purchase large amounts of gasoline and diesel but do not use them as road transport fuels.
- Third, they were concerned that if the fuel tax resulted in domestic oil product prices which were higher than those on the international market, there would be an increase in oil product smuggling.
- Fourth, the likelihood that hundreds of thousands of fee collectors would lose their jobs raised issues of social instability.

As of late 2006 the State Council had not implemented the fuel tax because of revenue-sharing conflicts among stakeholders and leadership concerns about social stability. Local

The Chinese government is grappling with how to balance seemingly contradictory objectives: moderating oil demand growth and developing an internationally competitive automobile industry.

governments have remained opposed to the fuel tax because the replacement of road and automobile fees collected by local tax authorities with a levy collected by central tax authorities deprives them of an important source of revenue.¹³⁸ Some NPC delegates also worried about the financial health of local governments that relied on road maintenance fees to pay off debt accumulated while building highways.¹³⁹ Additionally, at both central and local government levels, the fuel tax pits transportation departments—which currently generate a substantial portion of their revenue through the collection of road fees—against tax collecting departments, which stand to gain the power to collect revenue generated by the fuel tax.¹⁴⁰ The Ministry of Finance would directly collect the fuel tax.¹⁴¹

The central government remains concerned that the fuel tax might threaten social stability by disproportionately harming key constituents like taxi drivers, who have repeatedly staged protests against gasoline price hikes, and farmers. The tax could increase the ranks of China's unemployed by hundreds of thousands, if the jobs of workers who collect local road and automobile fees are eliminated. The idea of compensating farmers and fisherman has proven easier said than done. NPC delegates worry about whether a mechanism can be devised to ensure that the farmers and fisherman actually receive the funds intended for them.¹⁴²

Although Chinese analysts have repeatedly stated that the primary obstacle to implementation of the fuel tax is the challenge of balancing the interests of conflicting stakeholders,¹⁴³ the escalation in world oil prices since the NPC passed the fuel tax amendment has undoubtedly also been a factor. The price of oil has increased from about \$19 a barrel in 1999 to almost \$57 a barrel in 2005;¹⁴⁴ then Premier Zhu Rongji deemed oil prices of \$28-\$30 per barrel “too high” for the fuel tax in June 2001.¹⁴⁵ Beijing has not yet determined the exact rate of the proposed fuel tax, but discussions of the fuel tax in the Chinese media suggest that it may impose a heavier burden on consumers than the ad hoc automobile and road fees it is intended to replace.

Other Measures to Slow Oil Demand Growth in Road Transport

The Chinese government is grappling with how to balance seemingly contradictory objectives: moderating oil demand growth and developing an internationally competitive automobile industry. Chinese economic planners regard the country's emergence as a major automobile exporter as a symbol of industrialization and as a driver of overall industrial development because assembly plants outsource about 65 to 80 percent of the value of each car.¹⁴⁶ The Chinese government began to encourage car ownership in the mid-1990s to spur development of automobile industry. In 2004 there were about 27 million cars in the country.¹⁴⁷ This number is projected to increase substantially within the next three decades to reach 200 million to 387 million by 2030.¹⁴⁸ The increasing number of cars on China's roads has facilitated the emergence of a car culture similar to that of the United States,¹⁴⁹ with McDonalds recently announcing plans to team up with the Chinese oil company Sinopec to establish drive-through restaurants at service stations.¹⁵⁰

Chinese leaders recognize that China's growing vehicle fleet complicates their efforts to reduce oil demand growth and air pollution. Qiu Baoxing, vice minister of construction, has

stated that the explosive growth in China's vehicle population is "posing grave challenges to energy security,"¹⁵¹ and Pan Yue, vice minister of the State Environmental Protection Agency, has warned that the world will not be able to support "the current track of consumption patterns to develop the automobile industry in China."¹⁵² Their arguments, however, appear not to carry much weight compared to those made by the more politically powerful economic planners—notably the NDRC—who are intent on creating "national champion" automobile-manufacturing conglomerates.

The Chinese government has tried to reconcile the conflicting objectives of moderating oil demand growth and developing China's automobile industry with several measures that aim to restrain road transport oil consumption by encouraging the use of more fuel-efficient vehicles, rather than by limiting the number of vehicles. In other words, Beijing is trying to "have its cake and eat it, too." In fact, these actions, which include fuel economy standards and a luxury car tax, will probably help to limit China's oil demand growth, if strictly enforced.

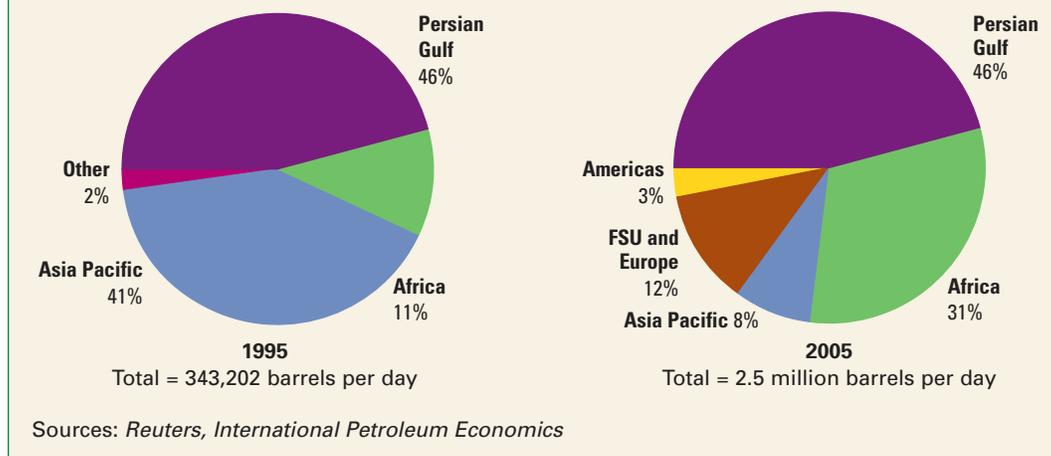
- **Fuel Economy Standards:** In July 2005 the Chinese government implemented the first stage of fuel economy standards, with a second, more stringent stage planned to go into effect in 2008.¹⁵³ There are different standards for automatic and manual transmissions and sixteen different weight classes.¹⁵⁴ The standards are slightly stricter than those in the United States and require each vehicle sold in China to meet the requirement for its weight class. These range from the lightest to the heaviest vehicles, from 38 miles per gallon (mpg) to 19 mpg in 2005 and from 43 to 21 mpg in 2008. In contrast, the Corporate Average Fuel Economy (CAFE) program in the United States only requires manufacturers to meet a fleet average of 27.5 mpg for cars and 20.7 mpg for trucks. If America's experience with the CAFE program is a guide, China's fuel economy standards, if enforced, should help reduce its oil demand growth.¹⁵⁵
- **New Car Tax Regime:** In a bid to encourage the use of smaller, more fuel-efficient cars, in April 2006 the Chinese government raised taxes on large cars and reduced taxes on small cars with engines of 1.0-1.5 liters.¹⁵⁶ Under the new regime, cars with the smallest engines—1.5 liters or less—face 3 percent taxes, while cars with the largest engines are taxed at 20 percent.¹⁵⁷ Prior to its implementation, some industry analysts and officials expressed doubt that the tax would have a substantial impact because large cars constitute only a small share of the market and their buyers are not very sensitive to pricing.¹⁵⁸

Supply Side

Diversification of Oil Suppliers and Transport Routes

The Chinese government and the NOCs agree that the key to enhancing oil security is via diversification of oil suppliers and transport routes. In terms of oil suppliers, they have sought not only to expand the number of countries from which China imports oil, but to decrease China's dependence on the Persian Gulf, which in 2005 provided almost half of China's crude oil imports. Chinese and international energy experts expect that the country's reliance on the Persian Gulf will remain substantial because of the region's large oil

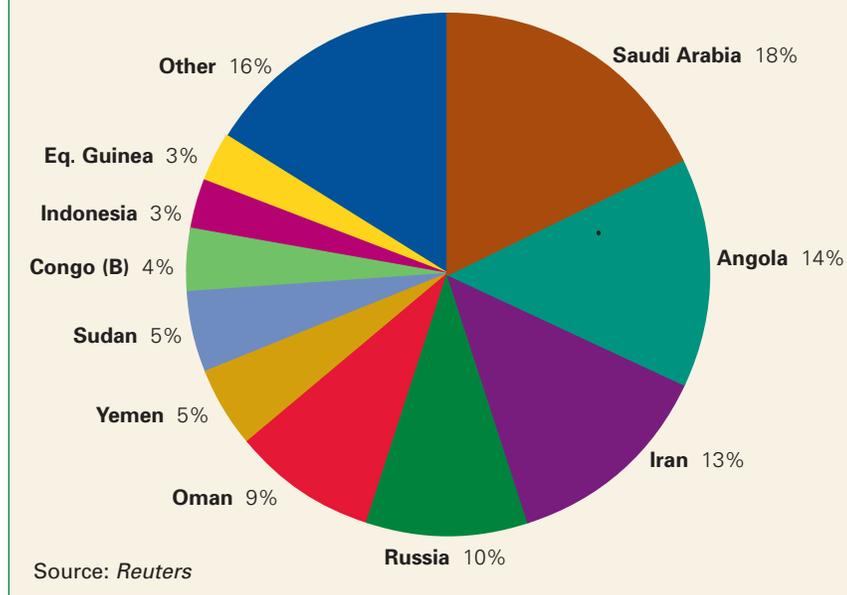
Figure 8. China's Crude Imports by Region, 1995 and 2005



reserves. In terms of transportation routes, both the government and the NOCs want to reduce China's reliance on the sea lines of communication—through which almost 90 percent of the country's crude oil imports travel—because of their vulnerability to disruption on the high seas by various modern navies.

China has achieved considerable success in diversifying the sources of its oil imports (fig. 8).¹⁵⁹ In 1995 the Persian Gulf and the Asia Pacific regions supplied almost 90 percent of China's oil imports, with Indonesia alone accounting for 31 percent.¹⁶⁰ Over the past decade, the Persian Gulf's portion of China's oil imports has hovered just below 50 percent. At the same time, growth in the share of supplies from Africa and Russia has offset a dramatic decline in the contribution of the Asia Pacific region to China's oil import mix. In 2005 the Persian Gulf and Africa accounted for more than three quarters of China's crude imports. Russia, China's fourth largest supplier of crude oil, provided 10 percent (fig. 9).

Figure 9. China's Crude Imports by Country, 2005



Two factors explain the diminishing role of the Asia Pacific region and the increasing importance of Africa in meeting China's oil import requirements.

- First, oil demand exceeds supply in the Asia Pacific region—a gap that has increased over the past ten years.¹⁶¹ For example, Indonesia, the region's second largest oil producer (behind China) and once China's largest supplier, is now a net oil importer. Consequently, countries throughout the region are seeking supplies elsewhere.

- Second, in contrast to the growing oil deficit in the Asia Pacific region, Africa’s oil surplus has grown over the past decade, and the light, sweet crudes of West Africa are well suited for China’s refineries.¹⁶²

Energy experts project the Persian Gulf will remain an important source of crude oil for China over the next twenty-five years. The region contains the majority of the world’s oil reserves and its oil infrastructure is well developed. *Petroleum Intelligence Weekly* expects the Persian Gulf is likely to supply 75 percent of China’s oil imports by 2015,¹⁶³ while the U.S. Energy Information Administration (EIA) projects that the Persian Gulf will account for 53 percent of China’s oil imports in 2020.¹⁶⁴

The development of oil pipelines from Kazakhstan and Russia occupies a prominent place in China’s diversification plans, not only because these two countries are located outside of the Persian Gulf region, but also because their exports travel to China overland. Russia and Kazakhstan—which played a negligible role in China’s oil import mix ten years ago—accounted for 11 percent of China’s crude oil imports in 2005. The Chinese government wants to increase this amount through two pipeline projects: a 400,000 bpd pipeline from western Kazakhstan to western China, which is being built in stages and a proposed 600,000 bpd pipeline from eastern Siberia to northeastern China, which depends on Moscow making a firm commitment to the project. If both pipelines are built and operated at design capacity, the combined throughput of 1 million bpd would constitute 10 to 20 percent of the 6 million to 11 million bpd China is projected to import in 2020.

KAZAKHSTAN-CHINA OIL PIPELINE

When the proposal for the Kazakhstan-China oil pipeline first emerged in 1997, it was dismissed by international industry analysts as a “pipe dream” because of doubts about the project economics. But it has now become a reality. In December 2005 CNPC and KazMunaiGaz completed construction of the eastern-most leg of the multi-phase 400,000 bpd pipeline from Atyrau in western Kazakhstan to Alashankou in western China (table 6). This leg of the pipeline, which can carry 200,000 bpd of crude, delivered its first batch to China in July 2006.¹⁶⁵

The pipeline first appeared as part of CNPC’s successful bids in 1997 for a majority stake in Kazakhstan’s Aktyubinsk Oil Company and for the right to negotiate a contract to develop the Uzen oilfield, which involved active lobbying by Premier Li Peng.¹⁶⁶ (The government of Kazakhstan subsequently decided

not to privatize Uzen.) The general agreement that CNPC signed with the government of Kazakhstan for Uzen linked its participation in the development of the oil field to the Chinese side assuming financial responsibility for the construction of a pipeline from western Kazakhstan to China.¹⁶⁷ International and Chinese analysts, including then CNPC vice president Wu Yaowen, agree that the company’s offer to build

Table 6. Sections of the Kazakhstan-China Oil Pipeline

Leg	Length (km)	Status
Atyrau–Kenkiyak	450	Completed in 2003; oil flows east to west
Kenkiyak–Kumkol	750	Proposed; completion targeted for 2011
Kumkol–Atasu	625	Part of an existing pipeline
Atasu–Alashankou	1000	Completed in 2005; operational in 2006
Sources: Industry Press Reports		

the pipeline was a key factor in Kazakhstan's decision to award it the Aktyubinsk and Uzen tenders over consortiums headed by international oil companies, because it would provide a non-Russian outlet for Kazakh oil.¹⁶⁸ However, international oil industry executives and analysts along with some CNPC officials immediately began to express doubts about the economics of the proposed pipeline. They were concerned about the availability of sufficient reserves to justify the cost of the proposed pipeline to Xinjiang in western China, let alone an additional pipeline to transport the oil to consumption centers further east in China.¹⁶⁹

In 1999 China shelved the Kazakhstan-China pipeline for economic reasons. The two countries conducted a feasibility study from 1997 to 1999, concluding that the 3,000 kilometer (km) line from the Caspian port of Atyrau to Dushanzi in Xinjiang—estimated to cost about \$3 billion—would need an annual throughput of at least 400,000 bpd to be profitable.¹⁷⁰ The Chinese side, which was to assume all risks related to the pipeline, determined that there was not enough oil available to fill the pipeline.¹⁷¹

CNPC's decision to shelve the Kazakhstan-China pipeline in 1999 did not mean that the company or the Chinese government had abandoned the project. Two years later the pipeline reappeared as a topic of discussion among senior officials from both countries at a September 2001 meeting between Premier Zhu Rongji and Kazakh president Nursultan Nazarbayev in Astana.¹⁷² The two countries formally revived the transnational project during Hu Jintao's visit to Kazakhstan in June 2003. In September 2005, CNPC and KazMunaigaz began work on the section of the pipeline from Atasu in central Kazakhstan to Dushanzi in Xinjiang via Alashankou on the Kazakhstan-China border.¹⁷³

The Chinese decided to revive the Kazakhstan-China pipeline project for several reasons.

- First, Kazakhstan's oil production increased, reducing CNPC's concerns about filling the pipeline. The country's oil output more than doubled from 536,000 bpd to 1.3 million bpd between 1997—when CNPC included the pipeline in its bids for the Aktyubinsk and Uzen fields—and 2004, when construction on the easternmost section of the pipeline commenced.¹⁷⁴ Astana plans to increase domestic production to 2.4 million bpd by 2010 and to 3.6 million bpd by 2015.¹⁷⁵
- Second, the increase in world oil prices from about \$19 a barrel in 1999, when CNPC shelved the pipeline, to almost \$42 a barrel in 2004, when CNPC and KazMunaiGaz signed an agreement for the construction of the Atasu-Alashankou leg, made the economics of project more attractive.¹⁷⁶
- Third, Chinese analysts have argued that uncertainty about Moscow's support for an oil pipeline to China prompted Beijing to reevaluate the Kazakhstan-China pipeline. This reconsideration was due not only to the urgency of establishing an overland import route capable of supplying a substantial volume of oil; it was also seen as a way to pressure Moscow to prioritize the construction of a pipeline from East Siberia to China over an alternative route to Russia's Pacific Coast lobbied for by Tokyo.¹⁷⁷

RUSSIA-CHINA OIL PIPELINE

Beijing is counting on Russia to help diversify its oil imports away from the Persian Gulf and seaborne transportation. But Russia has not entirely met China's expectations. Russian oil exports to China (delivered by rail) have increased substantially over the past decade, accounting for about 11 percent of China's crude oil imports in 2005.¹⁷⁸ However, Russia has not yet committed to constructing an oil pipeline between the two countries. While Beijing is undoubtedly pleased to be receiving more crude from Russia, it probably does not consider rail imports to be a perfect substitute for pipeline imports because of the more stable, longer-term supply of crude implied by a pipeline.

The construction of an oil pipeline from Russia to China has been the subject of discussions between the countries' leaders and oil companies since 1994, when Boris Yeltsin first proposed the project as a way to develop stronger bilateral economic and trade relations.¹⁷⁹ The pipeline has been a frequent topic of conversation between Chinese and Russian leaders, with bilateral meetings usually producing documents—signed by politicians and oil company executives—indicating both sides' intent, but not binding commitment, to proceed.¹⁸⁰ The lack of a pipeline after more than a decade of discussion may reflect the fact that Beijing and Moscow have been following different timetables. In the mid-1990s Russia was eager to build the pipeline to bolster bilateral relations. However, at that point, China had just become a net oil importer and buying large quantities of oil from Russia was not a priority. Over the next ten years, the development of overland oil supply routes became increasingly important to Beijing, and Moscow began to use oil as a tool to achieve other strategic interests.¹⁸¹

The Chinese had begun to regard the project as a done deal prior to the summit meeting held in Beijing between Jiang Zemin and Vladimir Putin in December 2002. Momentum for the project appeared to be building in both countries. Chinese and Russian oil companies conducted a feasibility study on an oil pipeline from Angarsk in East Siberia to Daqing,¹⁸² which proposed a 2,247 km pipeline. It was estimated to cost about \$3 billion, with a capacity of 400,000 bpd by 2005, increasing to 600,000 by 2010.¹⁸³ But the summit meeting did not yield a widely anticipated binding agreement to construct the Angarsk-Daqing pipeline.¹⁸⁴ Instead, it marked the beginning of a series of high-level bilateral meetings in which the Russians repeatedly dashed Chinese hopes for the project.

One reason for Moscow's hesitation over the pipeline was the emergence, in 2002, of a Japanese proposal for a competing pipeline from East Siberia to Russia's Pacific coast, which Tokyo indicated it would be willing to help finance. At almost twice the length and with a design capacity more than double that of the Angarsk-Daqing project, Tokyo's proposed pipeline would transport as much as 1.6 million bpd over 4,000 km from Taishet to Perevoznaya Bay. It is referred to as a rival pipeline because industry experts doubt that East Siberia contains enough oil to fill a single pipeline to the Pacific coast, let alone a spur to China.¹⁸⁵

Some Chinese commentators view Japan as the saboteur of the Angarsk-Daqing pipeline. Several hawkish Chinese analysts, including a few at the Central Party School (CPS) of the Chinese Communist Party, suspect that Tokyo's eleventh-hour bid for the Pacific coast

pipeline is aimed not only at reducing Japan's reliance on Persian Gulf oil, but also at constraining China's rise. Ma Jun of the CPS maintains that Tokyo's willingness to pay top dollar for the pipeline is motivated by fear of China's rapid economic development and its threat to Japan's position as the economic leader of East Asia.¹⁸⁶ Kang Shaobang—also of the CPS—similarly argues that Tokyo views the Pacific coast pipeline as a way to gain advantage over China in the two countries' competition for regional influence, by undermining China's energy security and weakening the Sino-Soviet strategic partnership.¹⁸⁷

Chinese analysts are also aware that Moscow has taken advantage of the competing pipeline proposals to gain leverage over both Beijing and Tokyo by playing them off each other.¹⁸⁸ Moscow has spent more than three years vacillating between the two pipeline proposals, declaring a "final decision" in favor of one route and then retracting it. Frustrated by this indecision, China made a variety of attempts to sway Moscow, including a loan of \$6 billion in 2005 from CNPC to the Russian state oil company Rosneft to purchase the main production unit of the private oil company Yukos. (Russian officials denied that this was the purpose of the loan, arguing that it was "prepayment" for oil supplies.)¹⁸⁹ Ma Fucui—while head of CNPC and PetroChina—even proposed buying Russian nuclear technology for the Lianyungang nuclear power plant in Jiangsu Province.¹⁹⁰

Russia has not yet made a final decision about either the construction of a pipeline from East Siberia to Russia's Pacific coast or a spur from that line to China. In April 2006 the Russian state company Transneft began construction of a section of the pipeline from Taishet in East Siberia to the city of Skovorodino, about seventy km from the Chinese border. Meanwhile, Russian indecision persists.

Acquisition of Equity Stakes in Oil Exploration and Production Assets Abroad

The foreign oil investments of China's NOCs represent a dovetailing of corporate and national interests, including the oil companies' goal of growing reserves and profits and the government's objective of increasing Chinese control over the country's oil supply. Although securing oil assets abroad is important to both the companies and the government, they have not devised or jointly executed a comprehensive national plan for acquiring oil assets abroad. The NOCs' foreign investments are primarily driven by the companies themselves, which have different corporate objectives. Indeed, one of the primary complaints Chinese policymakers and pundits made about the foreign investments of China's NOCs is that "each soldier is fighting his own war"—each company is placing corporate interests above national ones.¹⁹¹ However, there has been greater coordination between the government and the companies since 2005.

MULTIPLE MOTIVATIONS PROPEL CHINA'S OIL COMPANIES OVERSEAS

Complementary state and corporate interests drive Chinese NOCs to acquire oil and natural gas assets abroad. Their primary motivation for investing overseas is to acquire new reserves and generate profits. But they also use the process to compete with each other for influence with the party-state. Other drivers are increasing international competitiveness,

which is shared by the companies and the government, and enhancing energy security, which is championed by the government, but not necessarily by the NOCs. It is difficult to separate out the relative weight of motivating factors on a case-by-case basis because all of these objectives are furthered by the acquisition of foreign oil assets.

Reserve Replacement and Diversification. Oil companies continuously seek new reserves through exploration or purchase to replace what they produce, avoid shrinking reserves, and establish diversified sources of supply to disperse operating risks. As Mark Qiu, former chief financial officer (CFO) of CNOOC Ltd. puts it, China's NOCs are investing overseas for corporate "survival and development."¹⁹² According to Qiu, CNOOC Ltd.—like the international oil companies—needs to establish larger and geographically more widespread reserves to ensure its long-term survival and growth.¹⁹³ In contrast to the major IOCs, the reserve portfolios of China's oil companies are concentrated domestically. Because there appear to be few opportunities to bolster reserves within China, its oil companies are casting abroad.

Profits. The upstream sector—exploration and production—is historically the most profitable part of the oil business. China's oil companies, especially the listed firms, are following the strategy of any IOC in looking for income from upstream assets acquired overseas. They seek to accrue the rent that exists between the cost of producing a barrel of oil—including hefty taxes on production—and the final price of that barrel of oil on the international market.

China's oil companies, however, are not as singularly focused on profitability as their international counterparts because they are not subject to the same shareholder constraints. IOCs' shareholders expect them to generate returns on equity of roughly 15 percent. In contrast, the majority shareholder of China's NOCs—the Chinese government—settles for lower rates of return, especially from the parent companies. The acceptance of lower rates of return reflects the prevailing philosophy for state-owned enterprises in China, whereby basic profitability is considered a success. But it is also indicative of the government's preference for acquiring actual oil over income. Consequently, China's NOCs have made acquisitions with internal rates of return that are frequently below what most IOCs would accept.¹⁹⁴

Competition for Influence. Foreign investments by China's NOCs are also part of a competition among the companies to obtain economic and political benefits from the party-state. Acquiring foreign oil assets helps China's NOCs gain influence with key energy officials as well as access to capital from state-owned banks. The more assets a company acquires, the more likely it is to obtain support for subsequent acquisitions. This holds especially true for CNOOC, which does not have as much political clout as CNPC and Sinopec. A report by a Chinese consulting firm stated that, "[h]ere in China, CNOOC's real enemies are CNPC and Sinopec. The little brother among the three has to have more assets to have a louder voice."¹⁹⁵ The heads of the NOCs also view overseas acquisitions as a way to advance their post-oil careers—demonstrating that they are furthering the party-state's interests by creating internationally competitive firms and securing oil supplies.

Creation of Internationally Competitive Firms. The Chinese oil companies are also investing overseas to increase their international competitiveness. They have spoken of ambitions to join the ranks of the world's top oil companies, like ExxonMobil, Royal Dutch-Shell, and BP.¹⁹⁶ To be more competitive globally, the Chinese oil companies need to vie with firms in the world market. In the words of Mark Qiu, “we have to learn to play world club; you can't just play domestic league.”¹⁹⁷ Indeed, a primary motivation behind CNOOC Ltd.'s unsuccessful attempt to acquire Unocal was to develop the corporate culture of an international oil company.¹⁹⁸

The internationalization of the NOCs' operations is also part of a larger government strategy to create national champion firms—especially in “pillar industries”—which can compete with the world's leading corporations, both in China and abroad.¹⁹⁹ The creation of such world-class oil companies is a matter of national prestige. According to Peter Nolan, most senior policymakers “regarded as a national humiliation that China should have no powerful firms to match those of the advanced economies in general and the United States in particular.”

Energy Security. There is a fairly widespread—but by no means universal—perception in China that acquiring oil through foreign investment can provide consumers with a more secure and less expensive supply of oil than the international market. In most countries, the government owns the oil in the ground. A foreign company buys into an agreement, like a production sharing contract, under which the firm pays a certain amount to extract oil and splits the output with the government. After the company recoups its investment and operating costs (“cost oil”), the output is divided between the company and the government on a sliding scale, which as a general rule increasingly favors the government (“equity oil”). Under agreements that are becoming more common in the oil business, foreign oil companies also get fewer barrels as the price of oil rises.²⁰⁰

The idea that equity oil enhances energy security is rooted in some Chinese officials' suspicion of the international market as well as the expectation that in times of crisis, China's NOCs will prioritize national over corporate interests. Proponents of the idea that equity oil enhances China's energy security are skeptical of the assumption held by Western oil industry analysts that oil will always be available—albeit at a fluctuating price—on the world market. Should China find itself in a situation where it has money but is unable to buy oil—a fear expressed by NDRC officials in years past²⁰¹—they argue that the NOCs would be able to send their foreign equity production to China. In addition, some equity oil proponents maintain that barrels of oil produced by Chinese companies abroad are insulated from fluctuations in world oil prices and can provide the country's consumers with cheaper oil than the international market.²⁰²

Acquisition of oil reserves abroad, however, cannot guarantee China a supply of oil that is more reliable and less expensive than the international market. If oil produced abroad by Chinese companies is shipped home, it is likely to face the same transportation risks as oil purchased by a Chinese company on the spot market. Furthermore, overseas production is subject to a variety of host country risks. Equity barrels are also unlikely to buffer Chinese

Public debate on energy security indicates that people have begun to question the relationship between the foreign acquisitions of China's NOCs and the country's oil supply.

consumers from a price shock, because the oil market is global and the price of oil is the same at every border.²⁰³ Even if Beijing were to successfully pressure the Chinese oil companies to sell oil at below world market prices, it would only benefit a minority of Chinese consumers with cheaper oil in the short-term. But the tactic would come with the longer-term cost of denying China's oil companies the opportunity to take advantage of higher prices, which could provide funds for investment in other oil exploration and development projects.²⁰⁴

Several Chinese oil company executives have stated publicly and privately that they disagree with the notion that the acquisition of oil assets abroad can enhance China's energy security.²⁰⁵ They will, however, pay lip service to the idea to demonstrate that they are working to further the interests of the Chinese state.²⁰⁶ This may explain why some Chinese executives have been quoted arguing both for and against foreign investment as a source of energy security. Current and former employees of China's NOCs have noted that the idea that equity oil enhances energy security is primarily supported by people outside the oil industry, especially "political-types" and the media, who do not understand how the oil business works.²⁰⁷

Public debate on energy security indicates that people have begun to question the relationship between the foreign acquisitions of China's NOCs and the country's oil supply. In the past, there appeared to be virtually universal support for the acquisition of equity oil to meet the country's oil requirements. But dissenting voices have emerged in recent years. According to a former employee of a Chinese NOC, the idea that equity oil can enhance China's energy security is currently quite controversial in China.²⁰⁸ CNOOC executives have publicly indicated that overseas investment is not necessary to obtain oil. Former CNOOC Ltd. CFO Mark Qiu has highlighted Japan's failed efforts in decades past to enhance its energy security through overseas oil exploration and production as an example of the high costs and low rewards of politically influenced investments.²⁰⁹ During the March 2005 session, a member of the Chinese People's Political Consultative Conference told a reporter that equity barrels would be of no use to China in a war because they are on foreign soil.²¹⁰ Similarly, a group of experts who participated in the "China's Peaceful Rise and Energy Security Forum" concluded that China should not place too much hope in equity oil as a remedy for its oil deficit and instead should rely primarily on international trade.²¹¹

THE ORIGINS OF "GOING ABROAD"

Interlocutors from China's NOCs assert that the decision to invest in oil exploration and production abroad originally emanated from the companies themselves.²¹² CNPC, the first Chinese oil company to venture overseas, began to set its sights beyond China's borders in the late 1980s in search of reserves and profits. The firm was acutely aware that domestic oil production was failing to keep pace with consumption. And it viewed the acquisition of foreign oil assets as a means to quickly bolster its output. CNPC also wanted to expand abroad to generate profits by selling its foreign production to the international market, rather than to China's domestic market. CNPC had been incurring large losses since its creation in 1988, because the cost of producing a barrel of oil in China was higher than the state-set price for crude oil, which was below the price on the international market.

In 1991 CNPC announced that internationalizing its operations was one of its three main strategies. It made its first overseas investment by purchasing a stake in a United Nations sponsored oil sands development project in Alberta, Canada. Over the next few years, individuals from the Chinese oil industry and academic circles, including the influential economist Ma Hong, endorsed the acquisition of foreign oil assets by China's NOCs. According to one former employee of a Chinese oil company, the idea that acquiring equity oil abroad enhances the country's energy security did not emerge until after China's oil companies began to invest overseas. He described the linkage between foreign equity oil and national energy security as an accidental discovery (*wai da zheng zhao*).²¹³ However, once this discovery was made, China's NOCs were quick to use "energy security" as a justification for paying a premium for some assets, often in bidding wars against each other.²¹⁴

The Chinese leadership initially did not support CNPC's decision to invest abroad.²¹⁵ The top leaders felt that China's growing oil imports were a temporary phenomenon that could best be solved by increased domestic oil exploration and production. Additionally, they were concerned about Chinese companies investing abroad because they felt it provided opportunities for the companies and their executives to enrich themselves at the expense of the state. However, the government's position gradually changed in response to increasing oil imports and CNPC's profitability abroad. By 1997 the mainstream position of Chinese industrial, academic, and government circles was in support of China's oil companies "going abroad," and has remained so, especially after the energy crisis of 2003–04.²¹⁶

GOVERNMENT-INDUSTRY INTERACTION

The Chinese leadership issues broad guidance to the NOCs on foreign investments and provides financial and diplomatic support to the companies (discussed below). Generally, however, it does not get involved in the assessment and selection of specific projects. From the Chinese leadership's perspective, perhaps its most important guidance has been to encourage the NOCs not to compete against one another for overseas projects. Zeng Qinghong, in an article penned for the Communist Party School publication *Study Times* in 2005, urged Chinese companies investing abroad to coordinate their foreign investments.²¹⁷ The Chinese government also reportedly attempted to direct CNPC, Sinopec, and CNOOC to invest in different parts of the world—an exhortation ignored by the companies.²¹⁸ In his *Study Times* article, Zeng also warned Chinese companies investing abroad to take into consideration China's political and diplomatic strategies, not just economic factors. This admonition likely came in response to the failed bid by CNOOC for the U.S. oil company Unocal and the anti-China sentiment it generated in Washington.²¹⁹ Zeng also urged Chinese companies to coordinate their foreign investments to avoid direct competition with each other and to maintain a low profile when bidding for overseas projects. The Ministry of Commerce echoed that warning, seeking to prevent Chinese companies from paying a "China premium" for overseas assets due to political opposition incited by rivals. Additionally, former President Jiang Zemin encouraged China's NOCs to invest in developing countries friendly to China, including those in Central Asia and Africa.²²⁰

The investment opportunities pursued by China's NOCs are primarily driven by the companies themselves. Indeed, media reports and foreign oil company executives paint a picture

of Chinese oil company executives scouring the globe in search of oil.²²¹ The NOCs have also sought advice on foreign acquisitions from international consultancies,²²² and they have relied on investment banks to present them with opportunities.²²³ The companies have hired Chinese academics and think tanks for assessments of political risk in countries where they are considering making investments because, according to one interlocutor from a Chinese oil company, “China’s oil companies don’t understand politics.”²²⁴

Different Companies, Different Strategies

China’s oil companies’ foreign investments are influenced by their respective histories, capabilities, and corporate objectives. They share the objective of diversifying investments. But the companies have different appetites for risk,²²⁵ profit targets,²²⁶ assessments of future world oil prices,²²⁷ and—to a certain extent—geographical areas of focus.

CNPC has sought to expand its presence in areas where its larger operations are located, including Kazakhstan and Sudan. Sinopec, which was exclusively a refining and marketing company until 1998, lags behind CNPC and CNOOC in terms of exploration and production experience. It is therefore looking at opportunities everywhere to get an idea about where it wants to focus in the future.²²⁸ Both CNPC and Sinopec have sought to sweeten their bids for upstream assets by building pipelines and investing in refineries that the international oil companies view as having questionable project economics. Examples of such projects include Nigeria’s Kaduna refinery, in which CNPC agreed to invest \$4 billion in exchange for four greenfield blocks, and a proposed export refinery in Lobito, Angola, which Sinopec has agreed to build in hopes of gaining more upstream assets.

CNOOC has focused on Asia and Africa. All of CNOOC’s foreign investments—in contrast to those of CNPC and Sinopec—are made by its listed arm, CNOOC Ltd. Since the company’s failed bid for Unocal, it reportedly has decided to take a more opportunistic approach to asset acquisition.²²⁹

Foreign Investment Approval

China’s oil companies require approval from the NDRC, as mentioned above, for any foreign investment of \$30 million or more and from the State Council for any foreign investment of \$200 million or more. When more than one company requests approval on bids for the same asset, the NDRC generally approves the company that submitted its bid first.²³⁰ The State Council usually listens to the recommendations of the NDRC.²³¹ In some cases, however, a company may be given preference because of personal relationships between the company’s executives and NDRC officials. Sinopec executives, for example, have complained that the NDRC is biased in favor of CNPC (some NDRC officials spent portions of their careers at CNPC).²³²

One objective of the approval system is to prevent China’s NOCs from competing against each other. However, the NOCs have cut some deals without prior government approval.²³³ In recent years, Chinese commentators have complained that China’s foreign investment approval process—especially the cumbersome system in place prior to July 2004—cost China’s oil companies investment opportunities,²³⁴ which may explain why at times the companies do not seek approval until after the fact.

Government Support

Both the Chinese government and the NOCs maintain that the government has a role to play in helping companies secure oil assets abroad. The mainstream position in public discourse is that government support is both desirable and necessary; other national and international oil companies receive varying degrees of home government support for acquisitions abroad, and the Chinese companies want to compete on a level playing field. The Chinese government has increasingly wielded a variety of tools—financial, political, and perhaps military—to facilitate investment opportunities for China’s oil companies. These tools are used not only to provide companies with financial assistance, but to cultivate friendly relations with governments of oil producing states, which often play a decisive role in asset acquisitions, and to lobby on behalf of China’s oil companies for specific projects.

Financial Support. The Chinese government provides direct and indirect financial support to China’s NOCs through loans—sometimes at below-market rates—and through the provision of infrastructure investment and aid to governments of oil producing states. Use of such financial instruments involves an additional bureaucratic actor, China’s state-owned banks, which regard energy resources as a profitable area for investment. Additionally, the “policy banks,” including the Export-Import Bank of China (China Eximbank) and China Development Bank, which are in charge of state-directed lending, do their part to further the government’s interest in securing oil assets abroad.²³⁵

In terms of direct financial support, the NOCs have received government loans, often on generous terms, for specific acquisitions. In 2004 the NDRC and China Eximbank announced that the bank would provide credit on preferential terms to Chinese companies for “state-encouraged key overseas investment projects,” including natural resource development.²³⁶ CNOOC Ltd. appears to be a beneficiary; in 2006 the company received a ten-year loan of \$1.6 billion from China Eximbank for its operations in Nigeria at an interest rate of about 4.05 percent, substantially below the limit of about 4.68 percent set by Beijing for commercial lending.²³⁷ CNOOC Ltd. also received generous financing for its unsuccessful \$18.5 billion bid for Unocal in 2005, including a \$4.5 billion subordinated loan at the below-market interest rate of 3.5 percent and a \$2.5 billion subordinated two-year bridge loan at zero interest, both from its wholly state-owned parent company.²³⁸

In terms of indirect financial support, the Chinese government has provided governments of oil producing states with a variety of financial incentives to offer investment opportunities to China’s oil companies. These have included construction of basic infrastructure by Chinese firms and provision of foreign aid. According to a Chinese diplomat posted at the consulate in Lagos, Nigeria, Chinese foreign aid and investment benefit China’s oil companies by convincing the local government and people that China can play a positive role in their country’s economic development.²³⁹ Aid and infrastructure development projects also advance Beijing’s broader foreign policy objectives of increasing China’s political and economic influence in the world and creating globally competitive companies.

Many acquisitions made by China’s NOCs are linked to investments in non-oil infrastructure by other Chinese firms. This is especially true in Africa, where there is a tremendous

need for basic infrastructure. Certain oil producers, notably Nigeria and Angola, have indicated that they will give preferences to foreign oil companies that can offer attractive economic packages. The most prominent example is the \$2 billion line of credit China Eximbank extended to the Angolan government in 2004—at the extraordinarily generous rate of 1.5 percent interest over seventeen years—to finance infrastructure construction by Chinese companies. The credit has been released on a project-by-project basis.²⁴⁰

Chinese and international observers agree that China Eximbank's financing package persuaded Luanda to reject Royal Dutch-Shell's plan to sell its stake in Block 18 to the Indian firm ONGC Videsh and award it instead to the Chinese firm Sinopec.²⁴¹ Indeed, China Eximbank's Vice President Li Jun described this financing agreement as an example of exchanging “loans for oil.”²⁴² China Eximbank provided Luanda with an additional \$3 billion in credit during the first half of 2006.²⁴³ The Chinese government has also offered oil producing states grants and low- and no-interest loans for pharmaceuticals and health programs, such as those offered by Wu Bangguo to Nigeria in November 2004²⁴⁴ and by Hu Jintao to Kenya in April 2006.²⁴⁵

Political Support. Politically, the government supports China's oil companies through summit meetings between Chinese leaders and their counterparts in oil producing states, the involvement of China's leaders in some project negotiations, and leveraging China's membership in international organizations. Trips abroad by Chinese leaders and invitations to their counterparts to visit Beijing convey to oil exporting countries the importance Beijing places on their relationship. The energy cooperation agreements often inked during these meetings not only provide both governments with a “deliverable,” but also can be used by the Chinese government and NOCs to press for trade and investment opportunities. Individual Chinese leaders occasionally participate in negotiations for specific mergers and acquisitions, usually in countries with large oil reserves deemed to be strategically important, such as Kazakhstan, Russia, and Iran. For example, the Chinese media attributes the success of CNPC's bid for PetroKazakhstan to Hu Jintao's personal involvement in the negotiations, and to the overall good relations between Beijing and Astana.²⁴⁶ The Chinese government has also used its membership in international organizations to help China's oil companies maintain and gain access to foreign oil assets. Beijing has used its permanent seat on the United Nations Security Council (UNSC) to shield Sudan—home to one of the NOCs' two largest (in terms of production) overseas oil projects—from economic sanctions for the atrocities in Darfur.

Military Support. It is difficult to evaluate the extent to which Chinese conventional arms transfers are explicitly aimed at facilitating oil trade and investment deals.²⁴⁷ Data is limited, making such a linkage hard to document. There is no consistent pattern of Chinese arms sales to countries in which China has substantial energy interests. Furthermore, China's arms exports are probably less effective than the financial and political tools Beijing deploys, because Chinese weapons systems are not state-of-the-art. At most, Beijing may use arms sales as one of many diplomatic instruments to foster friendly relations with oil exporting nations in order to predispose them to doing business with Chinese firms.

Table 7. Selected Countries in Which China's Oil Companies Have Signed Contracts for Equity Participation^a

Algeria	Cuba	Iraq ^b	Myanmar	Sudan	Venezuela
Angola	Ecuador	Kazakhstan	Niger	Syria	Yemen
Azerbaijan	Equatorial Guinea	Kenya	Nigeria	Thailand	
Canada	Gabon	Libya	Oman	Tunisia	
Colombia	Indonesia	Mauritania	Peru	Turkmenistan	
Côte D'Ivoire	Iran	Morocco	Russia	UAE	

a. Includes buyback and extended service contracts

b. Signed with Saddam regime

Table 8. Chinese Oil Companies' Foreign Equity Oil Production by Country, 2004

Country	Barrels per day	Share (%)
Sudan	134,752	36
Kazakhstan	110,452	30
Indonesia	46,941	13
Other	80,225	21
Total	372,370	100

Sources: CNPC website; CNOOC Ltd. Annual Report 2004; Sinochem Annual Report 2004; 21st Century Business Herald

FOREIGN OIL ASSETS: FACTS AND FIGURES

Chinese oil companies—state-owned and private—have invested in many countries (table 7), but most production is concentrated in a few countries and under CNPC's control. China's oil companies produced about 450,000 bpd of equity oil abroad in 2005,²⁴⁸ constituting 15 percent of total imports. Most of the NOCs' overseas production has been concentrated in Sudan, Kazakhstan, and Indonesia, which accounted for 79 percent of their overseas equity oil production of 372,370 bpd in 2004 (table 8),²⁴⁹ and in the hands of CNPC, which accounted for 89 percent of all of the foreign equity oil production of China's oil companies in that year (table 9).²⁵⁰ However, with recent investments by Sinopec in Angola (Block 18) and by CNOOC in Nigeria (OML 130), these countries will likely become substantial sources of foreign equity production.

Table 9. Chinese Oil Companies' Foreign Equity Oil Production by Company, 2004

Company	Barrels per day	Share (%)
CNPC ^a	329,810	89
CNOOC	29,941	8
Sinochem	8,603	2
Sinopec	4,016	1
Total	372,370	100

a. Includes PetroChina

Sources: Platts; 21st Century Business Herald; CNOOC Ltd. Annual Report 2004; Petroleum Intelligence Weekly; Sinochem Annual Report 2004

WHERE IS THE FOREIGN EQUITY OIL PRODUCED BY CHINA'S NOCs SOLD?

It is difficult to determine how much of the foreign equity production of China's NOCs is shipped home because the companies do not make publicly available information about where their equity oil is marketed. However, a review of Chinese and English language business publications indicates that while some equity barrels flow to China, others are sold on the international market. The cases of Sudan and Kazakhstan—the two largest sources of foreign oil production for China's NOCs—indicate that crude quality and transportation options help to determine where the NOCs sell their equity oil.

Equity barrels from CNPC's operations in Sudan have probably flowed to China in recent years in large part because the Nile Blend crude from Blocks 1/2/4 in the Muglad Basin, which currently accounts for the bulk of CNPC's production in Sudan, is easy for Chinese refineries to handle. For example, in 2004, CNPC produced about 135,000 bpd of equity oil in Sudan,²⁵¹ and China imported about 116,000 bpd of crude from Sudan.²⁵² However, Dar Blend, produced from Blocks 3 and 7 in the Melut Basin, in which CNPC has a 41 percent stake, may not flow to China because Chinese refiners rarely import acidic crudes. (Dar Blend has a 2.4 total acid number [TAN];²⁵³ refiners typically classify any crude with a TAN above 1.0 as high acidic.²⁵⁴)

It is worth noting that there was a substantial decline in China's crude imports from Sudan in the first eight months of 2006. During the period January–August 2006, China imported about 31,000 bpd of crude from Sudan, down from about 133,000 bpd in 2005, according to Chinese customs data.²⁵⁵ This suggests that CNPC sold its Sudanese equity production on the international market, unless the company's equity output in Sudan also dropped substantially (which is unlikely because CNPC's production in Sudan is increasing) or China's General Administration of Customs did not report all of the country's crude imports from Sudan. China's crude imports from Sudan increased substantially in September 2006, reaching about 231,000 bpd.²⁵⁶

In contrast, most of the equity barrels produced by CNPC in Kazakhstan in recent years appear to have been sold on the world market because of the difficulty of transporting them to China. In 2004, for example, CNPC's equity oil output in Kazakhstan was 110,000 bpd,²⁵⁷ but the country only exported 26,000 bpd of crude to China.²⁵⁸ Similarly, in 2005, CNPC produced about 120,000 bpd of equity oil in Kazakhstan,²⁵⁹ but China only imported 26,000 bpd of crude from Kazakhstan.²⁶⁰ However, it is likely that increasing volumes of the equity oil produced by Chinese companies in Kazakhstan will be shipped to China through pipeline running from Atyrau, Kazakhstan to Alashankou, China, which went into operation in 2006.

China's NOCs have also shipped cargoes of equity oil from other overseas projects to China. In September 1997, a tanker carrying 440,000 barrels of crude produced by CNPC in Peru and purchased in Southeast Asia arrived in the Chinese port of Qinhuangdao. This merited an article in the *China Petroleum News* because it was the first foreign equity oil produced by a Chinese company to reach China.²⁶¹ More recently, in June 2006, Sinochem announced the delivery of 330,000 barrels of crude from its operations in Ecuador, which was the first time the company had shipped equity oil to China.²⁶²

Strategic Petroleum Reserve

Progress on China's strategic petroleum reserve (SPR)—under discussion since the 1980s²⁶³—has been hampered by disagreement among different factions of the Chinese bureaucracy. Yang Chaohong, editor of *Guoji shiyou jingji (International Petroleum Economics)*, describes China's SPR as the “Three Gorges” of China's oil industry because the intense debate over whether the country should build an SPR is similar to that over the controversial dam.²⁶⁴ The positions of senior policymakers in the SPR debate are difficult to identify not only because of official secrecy about the SPR,²⁶⁵ but also because of the opaqueness of the decisionmaking process at the apex of China's political system. However, the public debate of less-powerful actors most likely reflects disagreements over China's SPR at higher levels of the government.

Chinese interlocutors and media reports indicate that strong bureaucratic opposition to an SPR delayed the launch of this project. According to Niu Li of the NDRC's Information Center, the government established a policy for constructing an oil reserve system in 1998, but concerns that it would be a waste of money limited progress.²⁶⁶ Although support for an SPR is the mainstream position within China according to Chinese officials and analysts,²⁶⁷

the influence of the “don’t build” faction on policymaking has been quite large.²⁶⁸ This faction apparently was headed by Premier Zhu Rongji until the March 2003 leadership transition.²⁶⁹ While Zhu did not publicly voice his opposition to the establishment of strategic oil stocks, less prominent but like-minded stakeholders have argued against the construction of an SPR for reasons of cost and effectiveness.²⁷⁰

Opponents from China’s economic bureaucracy, oil industry, and academia have argued that China cannot afford an SPR. Individuals from the now defunct State Economic and Trade Commission (SETC) and CNPC maintained that China does not have the money to build a reserve large enough to be effective and that establishing a smaller reserve would be “a ridiculously inadequate effort to save a grave situation” (*bei shui che xin*).²⁷¹ The economist Song Guoqing of Beijing University argued that China cannot afford the luxury of an SPR because it has more essential economic tasks and scarce resources.²⁷² Indeed, one international observer noted that Chinese decisionmakers prefer to allocate investment to projects that will impact current rather than future economic problems.²⁷³

In addition, some opponents argued that SPRs are no longer an effective way to enhance energy security.²⁷⁴ They cited as evidence the fact that the United States, Germany, and other countries have been reducing their strategic oil stocks. Yet they also maintained that the chance of a major oil supply disruption is smaller today than in the 1970s because many countries now have SPRs and coordinate their use. In short, these analysts argued that China does not need to build a SPR because it will benefit from other countries releasing their strategic stocks.

Members of the “don’t build” faction maintained that there are better ways to enhance energy security than through the construction of an SPR. One SETC official, for example, asserted that stockpiles are not necessary because China relies on coal for two-thirds of its energy needs,²⁷⁵ despite the fact that there are no efficient and cost effective substitutes for oil in the transportation sector. Oil company officials also questioned the need to build stockpiles when the chances of a drawdown are slim.²⁷⁶ Other opponents argued that acquisition of equity positions in overseas oil fields, increasing overland imports, or substituting other sources of energy for oil would enhance energy security more than an SPR.²⁷⁷ These opponents generally did not explain how such alternative measures are better able to protect China from a supply disruption and its consequences.

The “build” faction ultimately prevailed over the “don’t build” faction in the Chinese SPR debate. In 2001 the SETC included the construction of a national oil reserve system with a storage capacity of 8 million cubic meters (about 55 million barrels) by 2005 in the tenth five-year plan for the development of the oil industry.²⁷⁸ The State Council endorsed this SPR decision in November 2002, and established a State Oil Reserves Office within the NDRC Energy Bureau in 2003.²⁷⁹ Later that year government officials stated that Beijing had selected four sites for the construction of China’s first-phase SPR facilities: Zhenhai and Aoshan in Zhejiang Province, Huangdao in Shandong Province, and Dalian in Liaoning Province.²⁸⁰ Together these four locations will have a storage capacity of 16.2 million cubic meters. If filled to the industry standard maximum of 90 percent of nameplate capacity,

these facilities will hold about 92 million barrels of oil,²⁸¹ less than 10 percent of China's oil imports in 2005. The government aims to complete the construction of storage tanks at all four sites by 2008.²⁸²

Controversy over China's SPR program continued after the triumph of the "build" faction. Stakeholders in the project have been divided over key issues, including funding, purpose, and size. While some progress appears to have been made on the question of who will pay, uncertainty continues to surround the questions of how the SPR will be used and how large it will be.

Controversy over
China's SPR
program continued
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the "build" faction.

The issue of who will fund the SPR has been a subject of much debate between the Chinese government and China's NOCs.²⁸³ Some government officials argued that the huge costs of the reserve should not be born by the government alone, and that the oil enterprises with relevant facilities should take responsibility.²⁸⁴ The oil companies, however, maintained that the government should foot the bill for the project, not only because maintaining strategic stocks would negatively impact the companies' profitability, but also because a national project should be undertaken by the state.²⁸⁵

The debate intensified in late 2002 when Sinopec reduced its product inventory despite concern about a potential conflict in Iraq.²⁸⁶ Sinopec's actions highlighted the issue of how to balance the commercial interests of the increasingly profit-oriented oil companies with national security interests.²⁸⁷ The Chinese media, assuming that the Chinese oil companies were arms of state policy, accused Sinopec of threatening national energy security. The board of directors of Sinopec's partially privatized subsidiary responded that the company's ability to complete its basic task—maximizing shareholder value—would be jeopardized if the company had to fund oil reserves. The Chinese government ultimately decided to finance China's SPR. Beijing is funding the \$1.6 billion construction costs and paying Chinese oil companies fees for building and managing the four SPR sites.²⁸⁸

Debate has also been intense about whether China should use its SPR to manage supply disruptions or to attempt to control domestic oil prices. In January 2005, *Petroleum Intelligence Weekly* reported that Beijing intends to use its SPR not only to deal with supply emergencies, but also to moderate prices and help refiners by permitting them to draw on the reserve when prices rise above a certain level.²⁸⁹ The use of China's SPR as a "buffer stock" (*pingzhan kucun*) to restrain domestic oil prices has met with opposition from Chinese economists, who have published lengthy commentaries explaining why any such attempt is likely to meet with failure. They note that there are no examples to date of governments successfully using stocks to moderate commodity prices.²⁹⁰ In 2004 an official from the NDRC and a researcher with the NDRC's Energy Research Institute, in response to concerns voiced by academic and economic circles, told the Chinese media that the main purpose of China's SPR would be to deal with supply disruptions caused by war or other unexpected events, and not to restrain high oil prices.²⁹¹ However, as of late 2006, Beijing had not yet publicly disclosed the circumstances under which it would draw down China's SPR.

The Chinese government launched China's SPR program with the ultimate size of the reserve undecided. The initial aim is to cover twenty to thirty days of refinery demand.²⁹²

Officials have been divided over what the final target should be. Zhang Guobao, the previous NDRC vice minister responsible for energy, said at a media briefing in Beijing in September 2005 that officials were still debating whether the capacity of China's SPR should be extended to 90 or 120 days of import coverage.²⁹³ In July 2006 Xu Yongsheng, deputy director of the NDRC Energy Bureau, stated that "[o]ur long term target is to maintain strategic oil reserves equivalent to at least 90 days of net imports."²⁹⁴ The following month, Chen Deming, who replaced Zhang Guobao as the NDRC's top energy official in June 2006, said that China does not intend to raise its inventories to that level.²⁹⁵

The issue of whether China will coordinate the release of its SPR with other major oil consuming countries has remained largely unaddressed in public discussions.²⁹⁶ The IEA is the only institution that coordinates the international drawdown of strategic oil stocks. China is not a member of the IEA, which requires membership in the Organization for Economic Cooperation and Development and the maintenance of strategic oil stocks equivalent to 90 days of net import coverage based on the previous year's imports. The IEA has actively sought to engage Beijing on the development of China's SPR program. Chinese officials have embraced the opportunity to learn from the IEA about how member countries manage their strategic oil stocks,²⁹⁷ but have not indicated whether and how China's current cooperation with the IEA on SPR issues might continue after China's reserve is built.

Part 5. Conclusion

China's approach to energy security is in a state of flux as it faces a series of policy trade-offs: between state and market; supply expansion and demand management; the government and the national oil companies; multilateral and bilateral cooperation; and foreign policy radicalization and moderation. This section offers some observations on how these dynamics may evolve. The choices China makes will have consequences both for its own development and for the rest of world.

State versus Market

The Chinese government will continue to struggle to balance the roles played by state and market forces in China's energy sector. On the one hand, the current Chinese leadership does not have as much faith in market forces as former Premier Zhu Rongji. There is also a sense among some analysts in China that Zhu Rongji bears some responsibility for the energy crisis of 2003–04 precisely because of his confidence in market forces. That confidence informed his decisions to abolish China's Ministry of Energy and increase the power and autonomy of China's state-owned energy companies—reinforcing the phenomenon of ineffective institutions and powerful firms that many analysts regard as a flaw of China's energy policymaking apparatus. His belief in market forces may also have contributed to his opposition to the establishment of an SPR.

On the other hand, the current Chinese leadership recognizes that more is not necessarily better with respect to state intervention in energy markets. The oil shortages in southern China in the summer of 2005 demonstrated that price controls can harm the very consumers they are intended to benefit. The Chinese government will continue to periodically adjust the caps on prices for gasoline and diesel to reflect price fluctuations on the international market, but will do so gradually and, in the short-term, incompletely, because of concerns about the impact on economic growth and social stability.

The ongoing debate over whether China needs to establish a Ministry of Energy is part of the broader discussion about the role of the state in the energy market. The energy crisis of 2003–04, and the perception that it was rooted in the 1990s liberalization and decentralization of state control over energy, has strengthened the hand of those officials and analysts in favor of the creation of a standing ministerial or supra-ministerial body to oversee the energy sector. Many of the analysts who belong to this camp view the establishment of the SEO and the ELG as merely the first step toward further recentralization. But effective institutional change in China's energy sector is difficult to accomplish because of the substantial power shifts that any reorganization creates for the parties involved. Indeed, one of the reasons the Chinese leadership decided to create the SEO and ELG instead of a Ministry of Energy is that it is easier to add new actors to the institutional landscape than to shift power among existing ones.

Supply Expansion versus Demand Management

There has been a major shift, at least rhetorically, in China's approach to energy security in recent years, with the leadership recognizing that greater emphasis must be placed on demand-side management. China's leaders are concerned that China will not be able to sustain economic growth unless the country consumes energy more efficiently.²⁹⁸ However, the country's fractured energy bureaucracy and the absence of a bureaucratic champion for demand-side management pose challenges to the leadership's ambitious energy conservation targets. Whether China can correct supply-side bias in its energy policies will depend, in large part, on whether the situation of ineffective institutions and powerful firms continues to impede the leadership's objective of placing equal emphasis on demand moderation and supply expansion, or whether the recognition at the apex of the Chinese political system of the need to constrain demand growth creates a political environment in which institutional and policy changes—including the further reform of energy prices—can be made to bolster demand-side management.

The Government versus the NOCs

The relationship between the government and China's NOCs will be characterized by increased friction at home and closer coordination abroad. Inside the country's borders, China's NOCs will continue to seek greater autonomy from the Chinese government. The companies' response to the gap between domestic and international oil product prices in the summer of 2005 indicated that while company executives do accept some reduction in profits to foster social stability (and to enhance their post-oil career prospects by demonstrating respect for leadership interests), their tolerance is not unlimited. Furthermore, the fact that Sinopec Ltd. is listed on the New York and Hong Kong stock exchanges undoubtedly provides the company with a powerful argument for increasing the sale of oil products on the international market and for lobbying for the elimination of price controls.

Outside China's borders the recent trend of greater coordination between the NOCs and the government will continue. The NOCs and Beijing alike regard government support for state-owned and private oil companies as common practice by major oil importers worthy of emulation. In recent years this approach has met with considerable success in Angola, Kazakhstan, and Nigeria. Coordination between the NOCs and the MFA will probably increase. Because of the potential impact on Beijing's foreign policy objectives, the MFA is eager to be kept informed of projects pursued by the NOCs. And with their bids for assets in Russia (Slavneft) and the United States (Unocal) defeated due to anti-foreign nationalism, the NOCs recognize the need for greater information about political and economic risks abroad.

Multilateral versus Bilateral Cooperation

Beijing's awareness that China's energy security is part and parcel of international energy security has increased, but no consensus has emerged, at least in public discourse, about what role China should play in global and regional initiatives and institutions designed

to facilitate cooperation among oil importers. In Beijing “international energy cooperation” usually means bilateral trade and investment deals between China and oil exporters. However, in response to its emergence as a decisive player in the global oil market and the accompanying—and from Beijing’s perspective unwanted—surge in international interest in China’s oil demand, the leadership has begun to acknowledge that the country has a responsibility to enhance global energy security.²⁹⁹

Whether this rhetoric leads to multilateral cooperation depends on choices made in the governments of OECD/IEA members as well as in Beijing. These countries need to determine if the benefits of inviting China to join the club outweigh the costs to the values shared by OECD/IEA member countries from any revision of the membership values—which include an open market economy, democratic pluralism, and respect for human rights—to make China eligible sooner rather than later. Beijing will also need to perform a cost-benefit analysis, weighing the advantages of having a seat at the table where world oil market’s “rules” are set against the constraints to freedom of action that may be imposed by membership. In the short term, the Chinese government would probably welcome opportunities for closer cooperation, such as inclusion in regular meetings with officials from both member and other nonmember countries.³⁰⁰

Foreign Policy Radicalization versus Moderation

A key issue for policymakers and pundits in Washington and other world capitals is how China’s demand for oil will affect its international behavior. Oil is undoubtedly playing an increasingly important role in Chinese foreign policy, although Beijing’s view of its priority varies by country. As in other countries, China’s oil interests will continue to shape its foreign policy on non-oil issues as well.

The Chinese leadership is probably more willing to pursue foreign policies to gain and maintain access to oil where they will not run afoul of top U.S. foreign policy objectives. China’s behavior toward Sudan and Iran—often grouped together as examples of how China’s global oil interests can be inimical to the United States—illustrate this point. In taking actions to protect its global oil interests, Beijing has been more willing to generate friction with the United States in the case of Sudan than Iran.

In the case of Sudan, Beijing weakened the language of at least one UNSC resolution that initially included an automatic trigger for sanctions if Khartoum failed to stop the atrocities in Darfur. The two main drivers for China’s behavior were energy and the government’s longstanding opposition to the use of sanctions, especially to punish violations of human rights. However, China has agreed to deployment of UN forces in Darfur if the African Union supports the idea.

In the case of Iran, China has had to balance several competing interests. These include energy and other economic ties, regional stability, and its relationship with the United States, for which Iran’s nuclear ambitions are a sensitive national security issue. In February 2006 Beijing—under substantial pressure from Washington—voted as a member of the Board of

Governors of the International Atomic Energy Agency to report the Iran nuclear issue to the UNSC. It also supported the July 31st UNSC resolution demanding the halt of Iran's uranium enrichment program and threatening sanctions.

The Chinese government's response to the furor that erupted in the United States in the summer of 2005 over CNOOC Ltd.'s bid for Unocal also sheds light on how Beijing balances energy and other foreign policy priorities. CNOOC Ltd.'s bid was made after Unocal had already accepted an offer from Chevron, and was portrayed by many commentators as an example of how Beijing's appetite for oil is becoming a source of Sino-U.S. tension. But it also illustrates that Beijing gives its relationship with the United States priority over the acquisition of foreign oil assets by a Chinese NOC. The Chinese leadership, which had never enthusiastically supported the bid, requested that CNOOC Ltd. withdraw its offer to prevent further damage to the bilateral relationship—and to the planned visit to the United States in September 2005 by Hu Jintao.³⁰¹