Securing America's Future Energy

Intelligence Report

"Connecting the Dots on Energy Issues"

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Securing China's Future Energy?

SUMMARY

- China is dealing with significant energy security challenges, some of which are similar to those in the United States, and others of which are very different. Perhaps the greatest concern in China is power generation. In order to continue supporting a rapidly growing economy and job creation, the PRC's highest priority is simply to keep the lights on. While it will use some renewable energy sources to do so, it is clear that any resource that helps keep power flowing will be utilized, particularly coal.

- China, like the United States, is also concerned about oil dependence. Its methods for dealing with this challenge, however, are somewhat different from those in the West. China, through an aggressive program of mergers and acquisitions, is dedicated to controlling entire supply chains of vital resources, including oil.

- This is relevant to the United States for multiple reasons. At the most basic level, as the world's second-largest energy consumer, virtually anything China does in the energy world can affect other nations. More specifically, by creating isolated oil supply lines, China is effectively taking oil off of the global market, which can have a direct impact on other consuming nations, including the United States.

- Because of the risk that some potential Chinese approaches to energy security may pose to U.S. energy security, policymakers may want to consider engaging more vigorously in developing an energy security dialogue with China and drawing China into existing global energy institutions, like the International Energy Agency.

ANALYSIS

Last month, Securing America's Future Energy led a delegation to China to learn about a range of energy issues and the manner in which the second largest energy-consuming nation and the most rapidly growing energy consumer in the world approaches them. After a week meeting with representatives of large companies in the energy sector, high-ranking government officials, and academics, it became even more clear that while the United States and China share many energy-related concerns and goals, we also have unique challenges and even face common challenges differently. Considering that China will continue to have a growing impact on energy markets, geopolitics, and the global economy, understanding their challenges—and how they are both similar and different from our own—is a valuable exercise.

Chinese Security Concern #1: Power Generation

While we in the United States generally think of energy security largely as an oil issue—with good reason—in China it also is an electrical power issue, as the Chinese government struggles to ensure sufficient generating capacity in a growing economy. While it is a given that we have sufficient generating capacity to meet our need for electricity in the United States, in China it requires real efforts just to keep the lights on, a fact that the SAFE delegation witnessed directly, repeatedly finding itself in indoor public spaces that were cooler and darker than one would find in the United States.

China's power sector is dominated by coal and will be for decades to come. They are working on carbon capture and storage technology, in addition to technologies that would use carbon instead of storing it, but they do not appear to be making substantial progress towards viable large-scale CCS projects. The Chinese government is placing a strong emphasis on promoting energy efficiency, as it is recognized as a very cost-effective way to help meet demand.

The Chinese also emphasize renewable energy. Yet, not unlike in the United States, while wind and solar are growing rapidly, they remain relatively small and will continue to be small for years to come, despite a goal of producing 20 percent of energy from renewable resources (including hydroelectric power) by 2020. China appears committed to nuclear power as a form of clean scalable baseload power despite the accident in Japan (almost 30 reactors are currently under construction).

In virtually every meeting in China—and an interesting thing about meeting with industry and government officials in China is that the message across meetings is often eerily consistent—officials professed substantial concern about local air pollution and carbon emissions. While there is no reason to believe that those concerns are not genuine, nor is there reason to believe that they will take priority over increasing generation capacity in order to power a growing economy. The Chinese government's predominant economic goal appears to be creating millions of new jobs every year to support its growing population and help raise the standard of living nationwide. While all goals are important, it was extremely clear that job creation is the first priority.

Chinese Security Concern #2: Oil Dependence

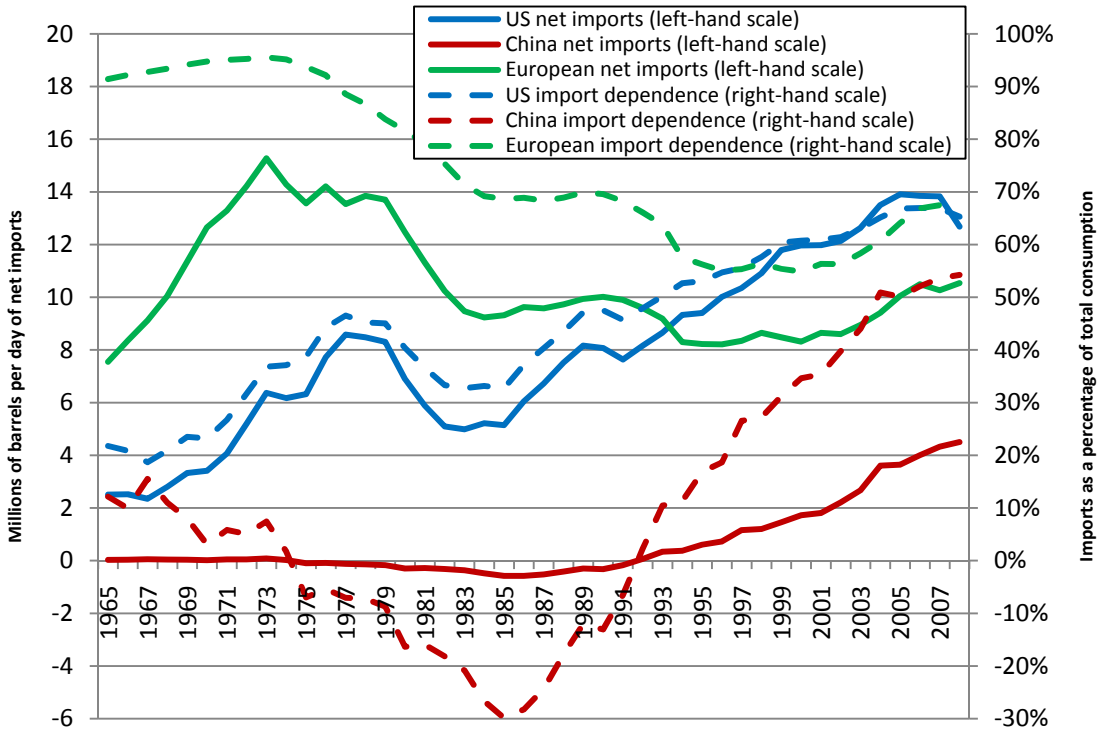
While power generation is viewed as more of a security issue in China than the United States, dependence on oil to fuel the transportation system is a critical challenge for both countries. Unlike the United States, however, where the government generally takes a hands-off approach to oil markets, the Chinese government, through its state-owned enterprises, has more actively sought to obtain physical hedges against higher oil prices through investments in foreign energy projects in Africa, the Middle East, and elsewhere. In addition, China appears intensely committed to the manufacture and deployment of electric vehicles; however, for them, EVs are not only a way to reduce oil consumption, but also an opportunity to achieve a foothold in the manufacturing of what they view as the next wave of transformative automotive technology.

Primarily because of its dependence on foreign oil, China sees itself as less energy secure than developed countries. While China relies on imports for a smaller percentage of its energy needs than the United States or Europe, its reliance on imports has risen much more steeply (see Figure 1). Whereas from 1998 to 2008 American import dependence rose from 58 percent to 65 percent and European from 56 percent to 69 percent, Chinese import dependence almost doubled, from 27 percent to 54 percent. Nevertheless, because China's overall oil consumption is much lower than that of the United States or Europe, China's net imports are also much lower—4.5 million barrels per day (mmbbl/d), as opposed to 12.7 mmbbl/d for the United States and 10.5 mmbbl/d for Europe.

China is also more vulnerable to oil shortages in the short term, as it only has sufficient stocks to cover 30 days of imports, whereas both the United States and Europe can comfortably cover more than four months of imports. China aims to build reserves comparable to those of the United States or Europe by 2020.

Looking forward, China can expect its import dependence to grow more quickly than that of the United States, both because its consumption is growing faster and because it has a weaker domestic resource base. Not only does America have a higher reserves-to-production ratio than China (12.4 years vs. 11.1 years), but the United States also has a vast unexplored domestic resource base with which to extend domestic production (e.g. OCS, unconventional, Arctic). China, however, must look overseas.

FIGURE 1 China's import dependence as compared to the U.S. and Europe (EU plus Norway and Switzerland)



Source: SAFE analysis based on BP *Statistical History of World Energy 2009*

Basics of China's Energy Security Strategy: Use Less and Control the Entire Supply Line

Domestically, China has focused on increasing energy efficiency (i.e. lowering energy intensity), which is a key objective of the current five-year plan, and developing domestic production.

To understand the first part of this goal, it is important to first understand that energy plays a much larger role in the Chinese economy than it does in that of the United States. Not only is China's energy intensity (thousand BTUs of energy used to produce one dollar of GDP) much higher than that of the United States and Europe (26.7 vs 7.5 and ~5, respectively), but it is also much higher than the rest of emerging Asia (e.g. Philippines, 11.2; Malaysia,

15.1; Indonesia, 17.1). Only Vietnam, at 24.3, comes close to China's level of energy intensity. China's high energy intensity means that any increase in the cost of energy has a larger—sometimes significantly larger—economic impact than it would in a country with lower energy intensity. This is, needless to say, concerning to a government so highly focused on job and economic growth.

The second part of the equation—increased supply—is critical as well. China puts a very high priority on physical control of supplies, which means it places a premium on domestic production and has even welcomed foreign direct investment in order to produce resources for which it lacks adequate technology (e.g. Shell's investment in shale gas). The analysis below shows that, after access to resources, acquisition of technology is the strongest driver of Chinese merger and acquisition (M&A) activity.

Internationally, China's actions also reflect its desire to control the supply chain. Whereas America seeks to ensure the functioning of the global oil and gas market, China seeks to ensure control of the entire value chain (i.e. Chinese firms producing oil, which is transported on Chinese vessels, or ideally by direct pipeline). Although Chinese firms lack some of the skill and technology of western oil companies, limiting the efficiency of their production, such an approach helps to insulate China from supply disruptions. For this reason, as shown in the M&A analysis below, China is pursuing this strategy not just with oil, but with a number of strategic resources, including coal, iron ore, minerals and uranium.

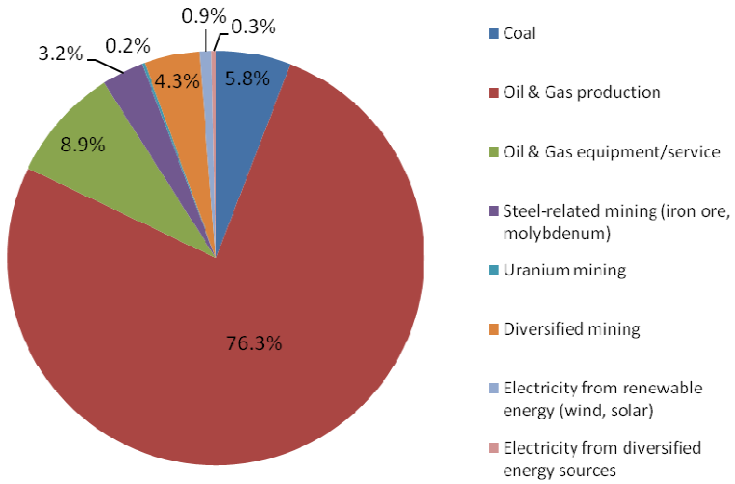
On the one hand, control of the entire value chain ensures that even in the event of a major disruption to the global energy system, China will have secured imports. In the United States, oil price rises pass through to consumers, which in turn cause consumers to buy less oil. In China, however, the government regulates prices for petroleum products. Thus, although domestic prices borne by end users have been rising gradually since January 2009, and gasoline prices are now higher than those in the United States, they still remain divorced from international prices. As such, in the event of a supply disruption, there is no price signal to cause consumption to fall—the state simply bears the cost, which puts an additional premium on securing import quantities regardless of price.

On the other hand, although China currently purchases oil at prevailing world market prices, Chinese ownership of the entire value chain gives China the possibility to take the entire trade off the market. Rather than paying a fluctuating world market price, the entire transaction from production to final sale could be done on the basis of long-term contracts with stable pricing, reducing the risk that the Chinese government has to increase subsidies in the event of a supply shock. Locking in a long-term price for producers may be an attractive alternative to hedging oil price fluctuations with derivatives, which blew up quite spectacularly in 2005 at state-owned China Aviation Oil, leading to a $550 million loss.

International Mergers and Acquisitions as a Component of China's Strategy

China's method of choice for gaining control of energy supply lines appears to be international mergers and acquisitions. To understand this issue, we have drawn on a database constructed by John Howell and Co Ltd of 75 international mergers and acquisitions over the past decade in which Chinese state-owned enterprises (SOEs) acquired stakes in foreign natural resources and energy firms. Breaking down the activity by sector shows that the majority of deals, by both size and number, seek to acquire natural resources, primarily oil and gas, for use in China, followed by deals driven by acquisition of new technology.

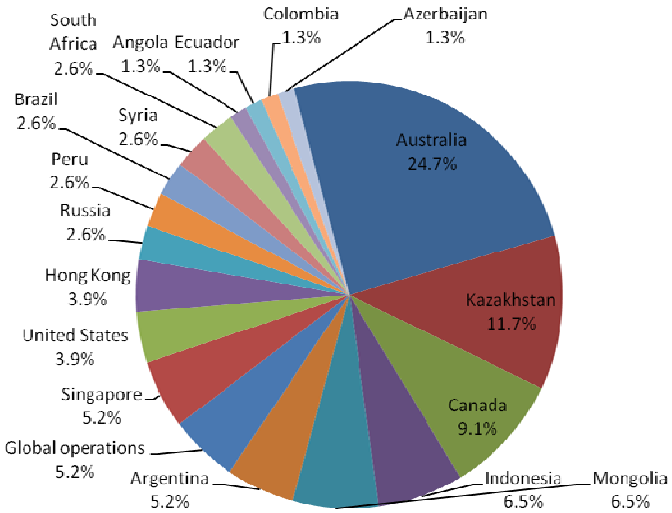
FIGURE 2 Breakdown by sector, percentage of total based on deal size



Source: John Howell and Co Ltd analysis

Looking at the data from another perspective, we can see from the number of deals in each country that Chinese SOEs focus close to home. All five of the countries with the most deals offer direct access to China, whether by sea (Australia, Canada, and Indonesia) or by land (Kazakhstan and Mongolia). Of the three deals in the United States, the largest by far was the $571 million acquisition of a 35 percent stake in AES's wind business by China Investment Corp, China's sovereign wealth fund. The two smaller deals were to acquire a solar park developer, providing a buyer for Chinese solar panels, and a producer of molybdenum, which is used to produce high-strength steel alloys.

FIGURE 3 Country of primary operations by number of deals



Source: John Howell and Co Ltd analysis

Taking a closer look, we see that oil and gas not only dominates in terms of size of deals, but also in terms of the number of deals and the range of target countries.

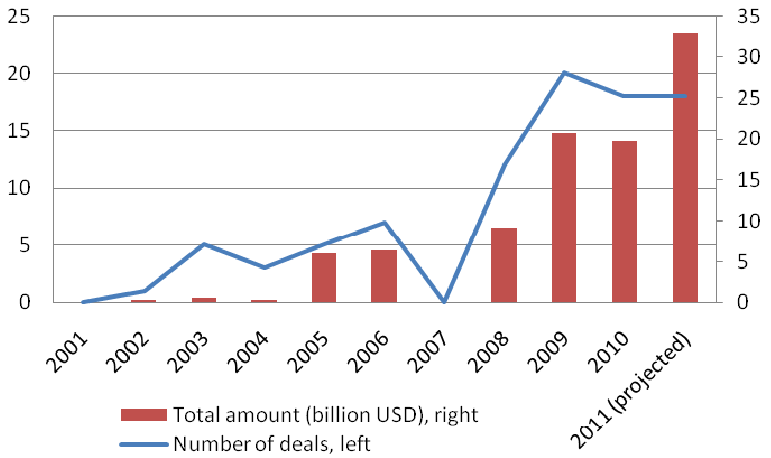
TABLE 1 Detailed breakdown of M&A deals by Chinese SOEs (Excluding deals that did not disclose transaction value)

Industry	Number of deals	Total (mil USD)	Target country
Coal	10	3,994	Australia, Mongolia
Oil & Gas production	37	52,238	Angola, Argentina, Australia, Canada, Colombia, Indonesia, Kazakhstan, Luxembourg, Norway, Peru, Russia, Singapore, Switzerland, Syria
Oil & Gas equipment/service	4	6,075	Australia, Canada, Ecuador, Indonesia, Kazakhstan
Steel-related mining (iron ore, molybdenum)	9	2,224	Argentina, Australia, Brazil, Hong Kong, Indonesia, US
Uranium mining	5	149	Australia, South Africa
Diversified mining	2	2,929	Australia, Canada
Renewable energy	3	636	Australia, Mongolia, US
Diversified electricity	1	227	Australia

Source: John Howell and Co Ltd analysis

Finally, we see that, although Chinese SOEs stopped buying in 2007 during the financial crisis, they have used the last three years of recession in the developed countries as a buying opportunity, suggesting that international acquisitions are a core, and growing, component of China's energy security strategy.

FIGURE 4 Annual natural resources and energy-related acquisitions



Source: John Howell and Co Ltd analysis

Implications for the United States

That China faces enormous challenges in the area of energy security should come as no surprise. Nor should we be shocked at the aggressiveness with which the Chinese government is attempting not only to overcome those challenges, but—in some cases—to strengthen and inoculate itself in ways the United States does not.

In terms of domestic power generation, China clearly lags. To put it simply, in order to grow, create jobs, and compete on the global economic stage, China needs to be able to keep the lights on, and it will exploit the most efficient resources—clean or not—to do so.

China's moves overseas are a direct outgrowth of the need for energy—not just electric power, though that is a priority—at home. Their efforts to control supply lines through aggressive M&A activity is something U.S. policymakers should be paying attention to. The United States depends on the stable functioning of the world energy market for its energy security. Anything that increases the supply in that market tends to make the global energy system more stable and adaptive, thus increasing U.S. energy security. The opposite is also true, making it clear that the United States has an interest in drawing China away from its strategy of isolated supply lines and into the existing global energy system. The United States might encourage the Chinese government to join the main institutions of the global energy system, most importantly the International Energy Agency, and reduce subsidies to enable the price mechanism to ration Chinese demand. The United States could also encourage Chinese companies to look globally not just for oil resources but for customers as well; a China that sells oil on global markets is, after all, at least a China that is involved in those markets. In short, U.S. energy security will benefit if Chinese national oil companies deploy their capital to increase global oil supply, but it will suffer if that supply is not subject to world market prices and is permanently earmarked for China.

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