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*Editor's Note: Jamestown is proud to present this special issue of China Brief on three unique aspects of Chinese energy security. Beijing has been forced to recalibrate its energy priorities to confront a complex set of challenges that include persistently high oil prices, rising domestic demand, uncertain shipment routes and long-term social health and environmental concerns. In the lead article, Wenran Jiang details Beijing's "new thinking" on energy security policy that emerged from the National People's Congress in March. The following two articles investigate key drivers of Chinese energy insecurity. First, Ian Storey underscores Beijing's external anxiety about the vulnerability of its seaborne energy imports through the Lombok/Makassar and Malacca Straits, and details some of China's proposed initiatives to mitigate shipping risk in Southeast Asia. With a view toward internal concerns, Peter Mattis provides a rich study on China's reliance on coal—which is likely to remain the predominant component in China's energy matrix—and explores its debilitating implications for economic and political reform, social health and environmental degradation.*

## Beijing's "New Thinking" on Energy Security

By Wenran Jiang

China's growing appetite for energy has caused widespread concern around the world. The Middle Kingdom is blamed for the sharp increase in global oil prices in the past few years, and the United States grows uneasy about Beijing's evolving cozy relations with major oil producers such as Iran, Saudi Arabia, Sudan and Venezuela—some of which are hostile toward Washington. Moreover, there is a growing call to contain China as an energy threat in a world of diminishing resources. Yet Beijing is resentful of such attitudes and has taken new measures to counter its critics.

### China as Victim?

In the past year, top Chinese policymakers have emphasized the fact that China, as a developing economy, is paying a huge price for mounting oil prices, a point not always recognized in the West. In 2004 alone, Beijing had to spend an extra US\$7 billion of its foreign exchange due to climbing oil prices, with payment totaling over US\$43 billion, making crude oil and



Malacca and Lombok/Makassar Straits: key strategic chokepoints for China

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product oil the country's largest single import item. As reported by Sinopecnews, this had a negative impact on consumption, investment, export and import, and China's GDP suffered a 0.8 percent downturn.

The dominant Western view holds that the worldwide increase in demand, especially from China and India, and decreasing spare production capacity conspire to keep oil prices high. Beijing sees the issue far differently. The PRC suspects the real culprit is what China's State Council Information Service calls Western government-backed, profit-seeking "international petroleum crocodiles" that manipulate oil prices. Reports in recent weeks of windfall earnings by Exxon Mobil, BP, and Royal Dutch Shell only enhance such perceptions.

In addition, take last summer's political firestorm in the U.S. over China National Offshore Oil Corporation (CNOOC)'s \$18.5 billion bid for Unocal. CNOOC dropped its bid last August after the U.S. House of Representatives effectively blocked the deal on ostensible national security grounds. California-based Chevron ended up acquiring Unocal, and plenty in Beijing came away convinced the U.S.—despite rhetoric to the contrary—does not always live up to the free-market rhetoric it broadcasts to the rest of the world.

Some even suspect the U.S. is committed to slowing down the pace of China's development by keeping energy prices high and limiting the role of Chinese companies in the global energy market. After the uproar over the Unocal bid, the Chinese have looked elsewhere, making a series of high-risk energy investments in Africa, the Middle East and Latin America. Thus when the Chinese read Western media accounts of Beijing dealing with dictators or "rogue states" as defined by the U.S., they feel especially bitter.

Given the perception gap, the recent Chinese debates on energy security have resulted in some people strongly advocating for a speedy buildup of China's own blue water navy in order to protect vital energy shipping routes. Currently, a popular Chinese online book, *The Battle in Protecting Key Oil Routes*, imagines a decisive sea engagement near the Strait of Malacca linking the Indian Ocean and the South China Sea, in which the Chinese navy destroys an entire U.S. Pacific carrier group.

Chinese government officials object to the working

assumption among many Western analysts that Chinese demand is driving up oil prices. They stress that China is not just the second largest energy consumer in the world but also the second largest energy producer. They quote statistics that China accounts for only three percent of overall global oil trade, and contend that such a number will not drive up energy prices. They have pointed out repeatedly that the United States, with only five percent of the world's population, consumes 25 percent of the daily global oil supply, whereas China accounts for six percent of consumption for 22 percent of global population.

Beijing also rejects the idea that China's booming economic growth means it will quickly catch up with U.S. demand in absolute terms. In 2005, with increased domestic energy production, China's oil imports grew by just 3.3 percent even as the economy surged by nearly 10 percent. This year oil imports will fall, says Lu Jianhua, director of the Foreign Trade Department of China's Ministry of Commerce. "It is unfair to blame China for rising international oil prices," Lu says.

#### New Policy Directions

Meanwhile, China has identified a number of challenges in the energy sector. As reported by Vice Premier Zeng Peiyan to the People's Congress in March, China faces the following problems in the energy sector:

- Sustained strong energy demand that places pressure on the supply;
- Shortage in resources that limits the growth of the energy industry;
- Coal-centered supply structure that is detrimental to the environment;
- Backward technologies that inhibit the efficient supply of energy;
- International market fluctuations that negatively impact domestic energy supply.

To counter such challenges, the Chinese leadership has set the following new priorities:

- Coal mining with high efficiency and clean burning technology;
- Adjusting electricity supply structure for higher efficiency;
- Increasing the supply of natural gas;

- Speeding up the development of new energy and renewable energy sources;
- Building up petroleum reserves;
- Enhancing energy resources survey capabilities (Xinhua, December 27, 2005).

Beijing has begun to implement a range of policies to boost domestic energy exploration and production, together with energy diversification and conservation measures. China also announced that it is not in a hurry to fill its strategic oil reserve under current conditions, and that the newly added electricity supply will meet China's demands this year.

Moreover, the latest action plans for the Chinese economy as passed by the People's Congress last month reflects at least four new policy priorities of the Chinese leadership on energy security.

First, Beijing has called for a nationwide paradigm shift in development strategies. The new model is labeled as a "scientific development concept" that will endorse an environmentally friendly approach to industrialization, and regards resource and energy conservation as top priorities. For the first time, Beijing set some compulsory targets on the efficient use of energy: energy consumption per unit of GDP is to decrease by 20 percent, water consumption per unit of industrial added value is to decline by 30 percent, and industrial solid waste recycling and conservation rate is to grow 60 percent—all by 2010.

Second, Beijing has stepped up the overall supervision, regulation and coordination of the country's energy industry. As Xu Dingming, Director-General of the Energy Bureau of China's National Development and Reform Commission put it, it is difficult to coordinate the vast production lines in the coal, petroleum and electricity sectors. Additionally, there are obvious contradictions between China's medium to long-term energy plan and the reality of resources, construction, safety, environmental protection and energy efficiency. So the central government is speeding up the process of legislation in the energy area, such as passing the Renewable Energy Law this year, and drafting a national energy legislation that will serve as the constitution of the entire energy industry. Price adjustment and state-owned energy enterprise reforms are also underway.

Third, China is re-focusing on the self-reliance strategy that depends primarily on domestic energy sources to

meet economic development needs. Beijing's drive to increase energy and power production to satisfy the explosive demands for energy in the past two years has had some initial success. In 2003-04 alone, according to Xu Dingming, China put in new electricity generating capacity of 85 million kilowatts, equivalent to the entire electrical supply of Great Britain. New policy briefs from the government have put major emphasis on more exploration of domestic energy reserves.

Fourth, China does not want to be tarred as a rapacious energy user willing to enter into deals with any regime—no matter how internationally isolated—to lock up oil and natural gas assets. If Beijing succeeds in keeping demand for oil from growing at explosive rates, it will be less vulnerable on that point. China is learning to play the psychological game at the global marketplace by lowering expectations of China's demands for oil, thus taking away what Beijing believes to be an unjustifiable excuse for big Western oil companies to hike up oil prices.

It may well be the case that China's energy demand will slow down substantially this year. Yet China remains the second largest carbon dioxide emitter after the United States, most of its cities and rivers are severely polluted, and it burns three times as much energy as the global average and many times more than industrialized countries in producing every unit of GDP. Consequently, China is now looking to make its GDP greener and is willing to spend US\$150 billion on renewable and alternative energy in the next 15 years.

Instead of blaming Beijing for its energy demands or containing China as an energy threat, the industrialized countries may be wise to seize China's vast energy market potential in technologies of energy conservation and efficiency, environmental protection techniques and know-how, renewable and alternative energy production, and joint-efforts in managing global warming. A cooperative approach to solving common energy security concerns between China and the West will moderate Beijing's foreign policy behavior, thus making easier the task of solving tough issues such as the on-going Iranian nuclear crisis. Yet all this depends on some clear thinking in the West about the true drivers of Chinese behavior in the energy sector.

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## China's "Malacca Dilemma"

By Ian Storey

Energy security, and particularly oil supply security, has become a major concern for the Chinese government over the past several years. The focus of this anxiety is the vulnerability of seaborne energy imports. At present, China lacks the naval power necessary to protect its sea lanes of communication (SLOCs). Beijing fears that during a national security crisis ships carrying energy resources could be interdicted by hostile naval forces. Any disruption to the free flow of energy resources into China could derail the economic growth on which the Chinese government depends to shore-up its legitimacy and pursue its great power ambitions.

China's heavy use of the Malacca and Lombok/Makassar straits in Southeast Asia is emblematic of this concern. The Malacca Strait is a narrow and congested waterway separating Indonesia and Malaysia, with Singapore located at its southern tip. As the shortest route between the Indian and Pacific oceans, the strait is one of the world's most important waterways. More than 60,000 vessels transit the strait each year, carrying 25 percent of global trade. The Lombok/Makassar Strait passes through the Indonesian archipelago and is used mainly by Very Large Crude Carriers. In terms of volume of oil shipped, this route is of near equivalent importance to the better known Malacca Strait.

For China, the strategic significance of these straits increases every year. At present, approximately 60 percent of China's crude oil imports originate in the Middle East, and this figure is expected to rise to 75 percent by 2015. Oil from the Persian Gulf and Africa is shipped to the PRC via the Malacca or Lombok/Makassar straits. Over the past few years Chinese leaders have come to view the straits, especially the Malacca Strait, as a strategic vulnerability. In November 2003 President Hu Jintao declared that "certain major powers" were bent on controlling the strait, and called for the adoption of new strategies to mitigate the perceived vulnerability. Thereafter, the Chinese press devoted considerable attention to the country's "Malacca dilemma," leading one newspaper to declare: "It is no exaggeration to say that whoever controls the Strait of Malacca will also have a stranglehold on the energy route of China" (*China Youth Daily*, June 15, 2004).

Over the past 18 months the Malacca Strait has attracted the attention of security analysts for reasons other than China's oil supply security. During 2003-2004 the straits witnessed an upsurge in pirate attacks. Perceived lax security in the strait engendered concerns that transnational terrorist groups might link up with pirates to disrupt maritime traffic and hence global commerce. International criticism led the littoral states (Indonesia, Malaysia, and Singapore) to step-up strait security through the establishment of coordinated air and naval patrols. As a result of these and other initiatives, the number of pirate attacks in the area declined in 2005. Yet piracy and other transnational threats in the strait remain major concerns. Due to sensitivities over sovereignty, Indonesia and Malaysia have firmly rejected the idea of external powers such as the U.S., Japan or India permanently stationing military forces in the strait. They have welcomed help from external powers, however, in the form of capacity building, intelligence exchanges, and training.

As a heavy user of the Malacca Strait, the PRC has a vested interest in the elimination of transnational threats in the waterway. Yet Beijing remains uneasy at the prospect of a greater role for external powers in securing the strait. Chinese security analysts have accused the U.S. and Japan of using the threat of terrorism as a pretext to expand their naval presence in and around the strait. The PRC has also watched with concern India's enhanced presence in the area, especially the modernization of military facilities on the Andaman and Nicobar Islands located near the northern entrance to the Malacca Strait. Some Chinese newspaper commentaries have bordered on the paranoid. For instance, when the United States restored the International Military Education and Training (IMET) program to Indonesia last year, one Chinese newspaper accused U.S.-Indonesia military cooperation as "targeting China" and aimed "at controlling China's avenue of approach to the Pacific" (*Takungpao*, March 7, 2005). Nevertheless, China does not want to be left out and has offered the littoral states its assistance to improve security in the strait. At a meeting held in Jakarta in September 2005 to discuss strait security, Ju Chengzi, director general of China's Ministry of Transportation, said the PRC government was willing to assist the littoral states with capacity building, technical support, training programs, hydrographic surveys, and navigation aids (*Xinhua*, September 7, 2005). More specific details have yet to be released.

Meanwhile, China is pursuing a number of options to mitigate its dependence on oil imports and reduce the country's strategic vulnerabilities. In an effort to reduce import dependence, the PRC continues to rely on domestically produced coal for its energy needs. Beijing has also emphasized energy conservation and efficiency, the expansion of nuclear power generation, and the development of alternative and renewable energy supplies. In 2004 construction began on four Strategic Petroleum Stockpile (SPS) facilities on China's eastern seaboard capable of stockpiling 20 to 30 days supply of oil imports. Two more are likely to be built in Guangdong province and another on Hainan Island.

#### New Transit Routes

As a means to reduce strategic vulnerabilities, the PRC is diversifying its sources of energy imports away from the Middle East and is considering financing transit routes that would bypass the Malacca Strait altogether. Yet all of the proposals involve significant financial outlays, technical problems, and security concerns. The most fanciful proposal thus far has been to construct a canal across the Kra Isthmus in southern Thailand. The idea of an "Asian Panama Canal" linking the Andaman Sea with the Gulf of Thailand, and hence the Indian and Pacific oceans, has been around for centuries. First suggested in 1677, the idea has been revisited at least a dozen times since then. Yet on each occasion the project has been shelved due to lack of financial resources, technical difficulties and security problems. The idea was most recently revisited in 2001. Proponents envisaged a two-lane canal, an east-west highway running parallel, and harbors, oil refineries and storage facilities at each end (*Bangkok Post*, July 6, 2003). The canal, it was argued, would create jobs, generate revenue in the form of transit fees and oil refining, and benefit the global economy because ships could save 3-4 days sailing time by avoiding the Malacca Strait.

Initially the idea seemed to arouse great interest in the PRC. Beijing, however, balked at the estimated \$20-25 billion price tag. In 2003 the government of Thaksin Shinawatra effectively killed the project when it declared it would not provide any financial support for the proposed canal. Instead, the Thaksin government championed the Strategic Energy Land Bridge (SELB), a 150-mile underground oil pipeline across southern Thailand. At an estimated cost of \$600-800 million the SELB would cost a fraction of the Kra Canal. The PRC has expressed an interest

in the project, although its enthusiasm seems to have waned somewhat because of cost concerns and escalating political violence in Thailand's southern provinces (*The Nation*, February 14, 2005). Moreover, the SELB would not really lessen the vulnerability of seaborne energy imports into the PRC, as tankers would still have to sail to and from Thailand, therefore merely shifting the focus of the problem slightly.

As far as China is concerned, it would be far better if oil deliveries could be made closer to home. With this in mind, Beijing is giving serious consideration to two large infrastructure projects. The first is a 750-mile pipeline from Sittwe in Burma to Kunming in Yunnan province, with an estimated cost around \$2 billion (*Asia Times*, September 23, 2004). A Burma-China pipeline is appealing to Beijing for two reasons. First, oil tankers from the Middle East and Africa would be able to bypass the Malacca Strait by sailing directly to Sittwe. Second, the project is politically appealing given the close links between Rangoon and Beijing. Talks between the Chinese and Burmese governments on the feasibility of the project began in mid-2004. Then in December 2005 the Burmese junta signed a deal with PetroChina to supply 6.5 trillion cubic feet of natural gas to the PRC over a 30 year period. It was reported that the gas would be transferred to China via a pipeline to Kunming (*Straits Times*, February 2). If a gas pipeline is constructed, it is likely that China would also build an oil pipeline running parallel.

Another proposal is to transfer oil and gas from Pakistan into China's Xinjiang province. This route would involve oil tankers off-loading their cargoes at the Pakistani port of Gwadar, a facility heavily financed by the PRC government (*China Brief*, February 15, 2005). Energy resources would then be transported by road, or more likely rail or a pipeline, to Islamabad 900 miles to the north. From there, the energy supplies would be sent a further 750 miles to Kashi (Kashgar) in Xinjiang province along the Karakoram Highway that links Pakistan with China. Pakistani President General Pervez Musharraf has pushed the idea of a China-Pakistan "energy corridor" for several years now, arguing that the Pakistani economy would benefit from the construction of oil refineries and oil and gas storage and transshipment facilities, while China would gain an alternative to the Malacca Strait.

A China-Pakistan energy corridor would be an expensive proposition for Beijing given the long distances and rugged terrain involved. Gwadar's Baluchistan province is also prone to separatist violence. At the geopolitical level, however, the proposal is attractive for two reasons. First, Gwadar is very close to the Persian Gulf and all maritime choke points save for the Strait of Hormuz would be effectively bypassed. Second, Pakistan is a close ally of the PRC. Accordingly, the Chinese leadership seems to be taking the proposal seriously. During President Musharraf's visit to China in February 2006, the two sides agreed in principle to upgrade the Karakoram Highway. Chinese press reports speculated on the feasibility of a pipeline running alongside the upgraded highway (*Shiji Jingji Baodao*, February 24). China and Pakistan also signed an energy cooperation framework agreement. According to the joint statement issued at the end of Musharraf's trip, China agreed to help Pakistan develop oil refineries, natural gas terminals, and oil and gas storage and transit facilities (Xinhua, February 24).

The solution to China's Malacca dilemma consists of three parts: reducing import dependence through energy efficiencies and harnessing alternative sources of power, investment in the construction of pipelines that bypass the Malacca Strait, and building credible naval forces capable of securing China's SLOCs. Each of these components is expensive, time consuming and problematic. In the meantime, China will have to contend with the dilemmas and insecurities posed by its dependence on the public goods provided by the U.S. Navy.

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## The Strategic Vulnerability of China's Reliance on Coal

By Peter Mattis

China's dramatic economic boom has focused attention on the strategic aspects of the country's efforts to

secure reliable energy supplies and satisfy its growing demand for oil and natural gas. Most analysts have examined China's aggressive pursuit of overseas energy supplies, highlighting concerns this poses to international energy markets. Little attention, however, has been paid to the profound domestic implications of the Chinese need for energy to maintain its economic growth. Regardless of any Chinese success in acquiring oil and natural gas resources, coal will remain the dominant component of the Chinese energy mix for the foreseeable future. The paradox of this situation is that as necessary as coal is to sustaining China's economic growth, the burden of relying on coal inhibits meaningful political and economic reforms and is emblematic of larger issues of governance in China.

### China's Dependence on Coal

Coal accounts for 65 percent of China's primary energy consumption (EIA, August 2005). Although this marks a decline for coal's share in the Chinese energy mix in percentage terms over the last ten years, actual coal consumption has increased as China's energy and electricity demand has grown rapidly. Despite the problems with coal usage outlined below, China's thirst for energy makes it unlikely that the energy mix will change substantially in the near future. Chinese coal production itself grew by approximately 575 million tons since 1998 and could conceivably grow by another 300-400 million tons over the next five years (BP Statistical Review, 2005). Beijing's plan to build 20 nuclear power plants by 2020 could help ameliorate the increasing demand for coal, but more likely is that total Chinese coal consumption will continue to grow. Chinese energy investment and development has thus far proven unable to keep up with the roughly 6-10 percent annual increase in electricity consumption (EIA, August 2005).

### The "Soft" Impact of Coal

China's reliance on coal has a number of consequences for both the Chinese citizenry and the environment. The high sulfur content of much of Chinese coal results in high levels of sulfur dioxide (SO<sub>2</sub>) emissions that not only aggravates respiratory and heart problems but also contributes to the toxification of water resources and desertification through acid rain. Additionally, mine tailings, particularly from smaller producers, play a noticeable role in the already substantial loss of Chinese farmland each year.

The impressive economic growth of China in the last 25 years has tangibly improved the overall standard of living. Nevertheless, the resulting pollution—especially that from increased coal burning—has had a substantial toll on human life. In both urban and rural areas, diseases aggravated by SO<sub>2</sub> inhalation account for 30 to 35 percent of the mortality rate (World Health Organization, 2005). A World Bank report estimated that 178,000 people die each year due to high ambient pollution levels in urban centers brought about in large part by industrial coal usage. Household use accounts for an additional 111,000 premature deaths (World Bank, 1997). While these statistics are somewhat dated, the air pollution problem has indeed worsened as coal consumption has increased.

Coal extraction and resulting mine tailings contribute in part to China's already serious problem of losing agricultural land to urbanization, economic development and pollution. Moreover, mining and washing coal, particularly by small producers, is contributing to the water shortages already prevalent throughout the country. With 28 percent of the world's population but only seven percent of its arable land, China cannot afford to continue destroying its most fertile agricultural areas for the sake of economic development—lest it bring about a food crisis. This is what Premier Wen Jiabao was referring to when he discussed the loss of Chinese farmland in his speech introducing the “New Socialist Countryside” (*Renmin Ribao*, March 6). The combination of the fact that only 28 percent of China's coal is washed, water shortages in coal-producing areas, and the potential for an agricultural crisis mean that washing coal—one of the most common methods for producing cleaner burning coal—is simply not an option for China (Asian Development Bank, 2002).

### Economic Implications

The consequences of Chinese coal usage also extend into the economic sphere, overlapping with the human and environmental problems. The burden that coal places on strained healthcare and infrastructure systems exacerbates the urban-rural and coastal-inland divides in China and makes meaningful reform more difficult.

In terms of deepening the divides within China, heavy reliance on coal inhibits economic growth in rural and inland economies. The air pollution resulting from coal increases national healthcare costs by an estimated two

percent of GDP annually (*Environment*, June 2004). Given that the benefits of the last decade of economic growth have been mostly confined to the cities, this places a disproportionate burden on rural areas for increasing healthcare expenses. These costs inhibit rural and inland government spending on needed development projects including energy, education, and transportation. In areas such as Sichuan and Guizhou, investment in hydropower could conceivably meet increasing energy demand, but the local governments lack needed financial resources while existing projects direct the energy toward coastal areas.

On the transportation side, China's inland provinces are already inadequately serviced by railways with a transportation density less than one-fourth that of the coastal provinces (*Zhongguo Tongji Nianjian*, 2004). The need to transport coal, consisting of 40 percent of all freight in China, creates bottlenecks that prevent exports (Asian Development Bank, 2002). Lacking a means to move their products to external or even coastal markets, the inland provincial economies can produce only for themselves. Even goods that in a period of declining profit margins in China could be produced more efficiently and profitably in these inland provinces cannot be moved beyond local markets. The net result is that the bottlenecks created by coal exacerbate unemployment problems and restrict economic potential. Transporting coal, in part, was a significant reason for the failure of the “Open Up the West” campaign designed to improve the economic performance of these inland provinces. Barring substantial reform, the “New Socialist Countryside” campaign is unlikely to prove more fruitful.

### Ineffective Regulation and the Problem of Accountability

There are several significant impediments to resolving these human, environmental, and economic problems with coal, both at the national and local levels. At the more macro-level, state-owned enterprises (SOEs) still dominate the energy sector, with the consequence that effective regulation is very limited. The traditional method for levying fines against companies in violation simply does not work against SOEs and only produces what is best described as government-subsidized pollution. The financial penalties meted out to SOEs violating pollution control laws are ultimately recorded as losses paid by the government, as well as taxpayers. To compound the problem of regulation further, many of the regulatory organs are overtaxed and impotent

due, at least in part, to staffing shortages. For example, the Energy Bureau of the Development Reform Commission has 27 staff members to oversee a US\$1.2 trillion industry, and the government has yet to make meaningful steps forward (China Daily, December 2, 2004). The establishment of the State Energy Office in 2005 led by Wen Jiabao demonstrates official recognition of regulatory problems, but this office is understaffed as well and has not taken an active role.

Local party cadres can also contribute to the regulation problem. The economic transformation and boom has created space for a new kind of party official guided by a “big-fish-in-a-small-pond” strategy who tries to build up his or her own little fiefdom. Rather than aiming for promotion, some rent-seeking cadres attempt to play locals off against their superiors and serve as the intermediary brokering settlements—not coincidentally to their own financial benefit. Also at the local level, party cadres often face a number of contradictory directives. Even when cadres are ordered to lower pollution within their districts, controlling pollution receives a lower priority than economic development on the cadres’ evaluation scale. Consequently, a negative rating will have a minimal impact on an individual cadre’s career—assuming that the official actually seeks promotion—if the jurisdiction performs well economically. A cadre, consequently, is unlikely to shut down a small coal mine that provides jobs and income to the district barring direct higher-level intervention; yet, as noted above, the regulatory organizations are ill-equipped for such a task across the entire country.

Cadre evaluations have been used in the past to cement necessary reforms. During the early days of the reform era, cadre evaluations that focused on economic and market liberalization strengthened directives from Beijing to move away from socialist economic practices. Additionally, in China’s potentially tempestuous domestic political environment, such evaluations demonstrate clearly the central government’s intent for future policy and provide political cover (*Holding China Together*, 2004).  
Moving Forward and the Prospects for Resolution

The Chinese government is embarking on a new campaign to shut down many of the small coal producers and power plants in an effort to reform the coal sector. The plans call for the creation of coal production base-areas and the closing of all coal mines

that produce less than 30,000 tons of coal per year (Xinhua, April 4). Although such plans are already inhibited for the reasons stated above, there is another significant issue here. Chinese construction of coal power plants is proceeding at a very high rate and these plants will need coal. Beijing’s energy planning calls for an additional 562 coal-fired power plants in the next few years and anecdotal evidence suggests that smaller plants are going up at a rate of three to five per day (*Christian Science Monitor*, 2004). Simply put, coal will be a considerable part of China’s energy future.

China can take a number of steps to alleviate the impact of coal. China’s demonstrated need to improve its debilitating coal situation offers a vast market for both old and new technologies that China can utilize on its own. Coal liquefaction offers a potential source for diesel and gasoline and utilizes China’s abundance of coal, but it is only economically viable with oil prices above 35 to 40 dollars. Newer clean coal technologies designed to improve efficiency and alternative energy could also help ameliorate the Chinese energy dilemmas. From Beijing’s perspective, the capital improvements required for exploiting these technologies in China’s inland provinces could aid the success of the “New Socialist Countryside” campaign and help reduce the rural-urban divide. Any solution will probably need a larger energy bureaucracy with greater regulatory authority and monitoring capability. An expanded and more capable energy bureaucracy alone will not be successful; significant investment in newer and more efficient energy infrastructure and technologies will be required.

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