

LOWY INSTITUTE
FOR INTERNATIONAL POLICY



THE GRIFFITH - LOWY INSTITUTE PROJECT ON THE FUTURE OF CHINA

CHINA'S STRUGGLE FOR POWER

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The Griffith – Lowy Institute Project was established with the firm belief that the future of Australia and the world will be significantly shaped by the future of China and that a deeper understanding of what is happening within China will be essential to many of the key policy decisions Australian governments and businesses will need to make in the first half of the 21st century. The project will produce a stream of practically-focused, policy-relevant research on the future of China and be designed for a general audience with the aim of helping to shape broad debate about these issues in Australia and internationally. The project will focus its resources on two particular issues, China’s domestic reform challenges and the changing nature of China-Australia relations.

The views expressed in this paper are entirely the author’s own and not those of the Lowy Institute for International Policy or the Griffith Asia Institute.

Executive summary

China's rapid, sustained economic growth and its transition from a command-based to a market-based economy are changing the nature of the global and the Australian economy. The speed and depth of this transition are throwing up a myriad of policy challenges for the Chinese government that are testing its ability to adjust to new market-based signals and its commitment to supporting their market mechanisms. While a typical outside view of China is of a massive country being controlled by a powerful, monolithic centralised government with organising capabilities beyond the reach of others, present policy challenges, ranging from the environment to monetary policy to tackling organised crime, provide an important reality check.

Prof. Xu Yi-chong's brief on power sector reform in China underlines the very real constraints the central government faces in trying to manage China's power sector in a period of rising consumption. China's power sector has been one of the true reform success stories in China since the 1970s and has been central to the country's historic rise. Today, 99% of China's population has access to electricity, well above the average of 73% for middle-income developing countries. This brief explains the reality that the Chinese central government is far from omnipotent and is facing an increasingly complex situation in the power sector. It must navigate between new and influential state-owned firms run as modern corporations, rising demand for electricity from the energy-hungry engines of the economy and provincial and local governments with strong interests in rapid local growth. Yet, the regulatory framework at Beijing's disposal has not kept pace with the sector's transformation and is still based partially upon outdated central planning institutions and policy levers.

The policy challenges

- **Rising demand**

In 2002, energy intensity (ratio of energy consumption to GDP) levels in China stopped declining and began to increase as heavy industries like steel have become major drivers of the economy and exports. From 2002 to 2006, China's share of global energy demand rose from 10% to 15%. The 2002 power sector reforms created five major state-owned power generation companies. From 2002 to 2006, their collective assets exploded from 68

billion yuan to over 1 trillion yuan (approximately A\$156 billion) as power generation capacity under their control grew from 110 to over 300 gigawatts.

- Environmental costs

The step-up in demand for power is increasingly being met by smaller and dirtier power stations, many of them illegal. Over the last three years, almost 90% of newly added capacity has been coal-fired. Despite government pressure for cleaner power production, the share of larger, cleaner thermal coal plants over 300 megawatts has fallen from 43% in 2004 to only 27.5% in 2006. Twenty per cent of recent power projects are illegal as they have skirted the central government, many hiding behind complicit local and provincial governments.

- Multiple regulators

This year, the State Council, the highest organ of state power, was expected to re-establish a single ministry of energy but this failed to materialise. Instead, five central government bodies share responsibility for managing the development of the power sector, with the newest being the National Energy Administration. The lines of communication and responsibility among these central regulators are unclear and none of them has adequate resources to fulfill its mandate.

- The price of coal

China's ice storm this year that paralysed the railways and left hundreds of thousands stranded was both a natural disaster and a policy failure. In 2002, the National Development and Reform Commission, the national macroeconomic planning authority, freed the price of coal but not power tariffs. Since then, the price for coal has skyrocketed while power tariffs have only increased marginally. Power generators, facing growing losses, are increasingly refusing to purchase coal, leading to minimal stockpiles and a growing number of blackouts despite the huge increase in power generation capacity.

The way forward

China would be best served by a comprehensive reform of the power sector's fractured regulatory framework. A single ministry of energy set up as an independent regulator with control over pricing for coal, electricity and end-users, and project approval authorisation for

new power plants, would allow the regulatory framework to catch up with the rapid change in the power sector and help manage its long-term development. The National Energy Administration is a step in the right direction but is far from being an independent and effective regulator. It has only been allocated 112 positions and works under the auspices of the National Development and Reform Council.

A single, powerful regulator would help address the pricing problems between coal and power that are turning the lights off in many parts of China. Unwinding power subsidies would force energy-intensive and high-polluting sectors like steel and petrochemicals to pay market rates for their power. Tough decisions face the central government to ensure that the power sector remains a central driver of China's long-term development.

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China's struggle for power

Xu Yi-chong

The growth of China's power sector has provided one of the underpinnings for Australia's longest post-war boom. According to the Australian Treasury, from 1990 to 2004, energy exports to China grew from 0.1% of total exports to 0.6%. In 2004 alone, coal exports grew 72%. While the overall story of power sector reform over the last 30 years in China has been one of considerable success, the last two years of reform have not delivered what the government expected, as the policy-making, coordinating, and regulatory systems have fallen behind the market forces unleashed by reform. At the same time, China's industrialisation and urbanisation are increasing its energy demands, and the country's serious pollution problems are growing, making the need to address these policy coordination and regulatory shortcomings urgent. Yet, the obstacles to effective reform are deeply entrenched in China's history of industrial development and in deepening national, provincial, bureaucratic and corporate rivalries.

In June 2006, the National Development and Reform Commission (NDRC), China's macroeconomic planning agency, announced the end of a four-year power shortage and that installed generation capacity and demand had reached a relative equilibrium. It called for a slow-down in investment in power generation capacity. Yet, in the following 18 months, power companies added more than 150 gigawatts of capacity (three times Australia's total installed generation capacity).¹ Almost 90% of the newly added capacity in the past three years is coal-fired.

In March 2008, during the 11th National People's Congress, the State Council, the highest organ of state power in China, was expected to announce the establishment of a 'super' Ministry of Energy to deal with the debilitating bureaucratic conflicts among several existing government agencies, to develop a coherent national energy strategy and to coordinate policy-making and operations among several energy sub-sectors, particularly coal and electricity. Instead, a much weaker National Energy Administration (NEA), whose functions and responsibilities are yet to be fully defined, was established under the auspices of the NDRC.

¹ The 2006 NDRC failure was not an isolated example. In March 2005, at a State Council meeting, Premier Wen Jiabao also called for a reduction in power generation investment, especially in thermal power plants. This had little impact, as investment actually rose by 24% in the following year.

The NDRC's failure in 2006 to have its writ respected has raised serious concerns in China and abroad because of the inflationary impact of this investment, its high-risk nature and its detrimental environmental consequences. The failure of the State Council this year to establish an effective Ministry of Energy further deepens these concerns.

These present problems are largely the natural results of the rapid growth of China's power sector that has underpinned its sustained economic and social development. Large state-owned corporations with modern managers now dominate the sector and act as one would expect commercial firms to act. However, neither the policy-making machinery nor the regulatory system overseeing these newly powerful commercial firms has been effectively streamlined and updated to manage the long-term development of the sector as a whole.

These power sector problems reflect many of the systemic challenges facing the Chinese government in managing the transition from a command economy to an open market. China's recent attempts at power sector reform, an area of comparative success, highlight the difficulties of sequencing properly the unleashing of market forces and the development of capable and coherent regulatory structures.

China's power sector is dominated by several state-owned corporations that have tremendous economic and political clout. While the manner in which they have been retained may minimise the cost to the economy and serve as a partial substitute for effective regulation,² their growing influence and pursuit of corporate interests demands better policy coordination and an operational regulatory system. Yet, unlike most countries in the world, China has no single ministry of energy in charge of policy coordination, and the state agencies overseeing these commercial firms are many, overlapping and undermanned. Streamlining and strengthening this regulatory framework is the key to addressing the power sector's challenges and placing China on a more sustainable and steady growth path. But this is proving extremely difficult politically, paradoxically underlining a relative lack of central authority and the intense competition for power and interests in transitional China.

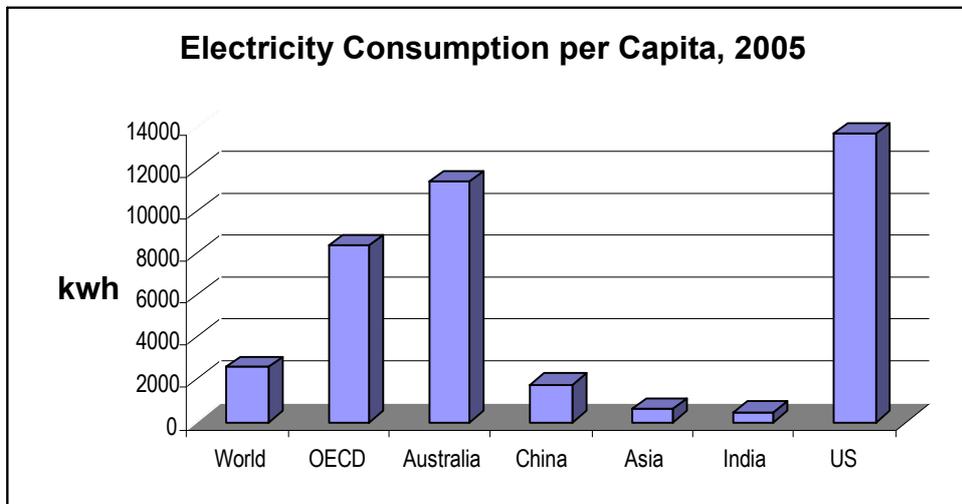
Powering on

The development of the power sector has been at the heart of much of post-Mao China's economic success and the costs associated with it. The power sector in China over the last three decades has delivered some very impressive results, with the World Bank upholding China as a model of success.³ Today, 99% of the Chinese population has access to electricity, well above the average of 73% among middle-income developing countries. The increased access to electricity has been a major contributor

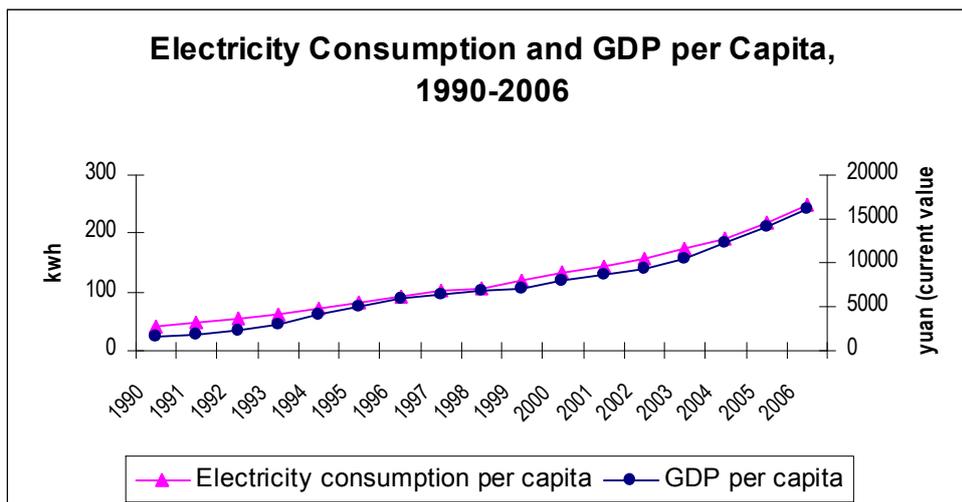
² Barry Naughton, SASAC and rising corporate power in China, *China Leadership Monitor*, 24 April 2008.

³ *The World Bank's assistance to China's energy sector*, Washington DC, World Bank, 2001.

to pulling over 400 million people out of absolute poverty in the last three decades. In 1978, China's total generation capacity, for a population of 1.1 billion, equalled Australia's today. Now, China roughly adds an Australia to its electricity grid every six months. Nevertheless, electricity consumption per capita still remains only two-thirds of the world average and less than one-sixth that of Australia.



Source: *Key world energy statistics, 2007*, Paris, IEA, 2008.



Source: *China statistical yearbook, 2007*, Beijing, China Statistics Press, 2008.

As with other high-speed (and many slow-speed) economies, China's power sector has experienced difficulties in matching capacity (with its long-term investment requirements) and demand, leading to a boom-bust cycle of over-capacity followed by power shortages. China faced serious power shortages from 1982 to 1990, 1993 to 1997, and most recently from 2002 to 2005. Today, China is yet

again in a boom cycle as the sector has grown at 18.4% annually since 2006, twice the annual average from 1978 to 2008 and much faster than the economy as a whole.

In the past 30 years, with an average annual growth rate over 9% in China's power industry, per capita power consumption grew from 16% in 1978 to 69% of the world's average in 2005. More than any other developing country, China was notably successful in saving energy in the first two decades of reform. From 1978 to 2001, China's GDP quadrupled yet energy consumption only doubled. These two unprecedented decades of improving energy intensity allowed the country to develop rapidly without putting significant strain on its energy resources.

This positive trend started reversing in 2002. Since then, the economy has grown much faster than anticipated. The real surprise has been the change in the energy intensity of economic growth – energy consumption grew four times faster than predicted to where it accounted for over 15% of global demand in 2006. Even now, though, on a per capita basis, China's energy demand remains relatively low. Part of the explanation for this upsurge in energy intensity is the growth in electricity, the form in which Chinese industry receives more and more of its energy.

The present boom cycle is different from its predecessors. China's economy is thirstier for power as its energy-intensive industries and their exports are growing much faster than other sectors. In 2005 alone, China accounted for over one-third of the world's steel production. However, China's energy efficiency is still quite poor as its energy intensity level is more than ten times that of Japan and roughly five times that of the United States. China's eleventh five-year plan released in 2005 ambitiously calls for China to double, in real terms, its 2000 GDP by 2010 and to reduce its energy intensity by 20%. It has surpassed the first target but is behind on the second. By 2030, China is expected to overtake the United States as the world's largest energy-consuming country. By then, China and India together will likely account for 60% of the global demand for coal, up from 45% in 2005.⁴

China's rising energy consumption is placing greater pressure on its already polluted environment and undermining sustainability. Currently over 82% of China's power comes from coal-fired plants and 16% from hydroelectricity. The power sector is the single largest environmental culprit, responsible for an estimated 80% of China's nitrogen oxides (NOx) emissions, 50% of the country's sulphur dioxide (SO₂) emissions and 26% of its carbon dioxide (CO₂) emissions. Thermal power generation requires a large amount of processing water and is contributing to severe water shortages and environmental deterioration in many parts of the country. The rapid expansion of coal-fired

⁴ *World energy outlook 2007: China and India insights*, Paris, IEA, 2007, p 77.

generation capacity is also placing pressure on the China's rail network as more than 70% of its capacity is tied up in transporting coal.

Ensuring environmental sustainability in China's power sector faces some very powerful counter-forces: meeting rising energy demands will require continuing expansion of generation capacity; most of the newly added capacity will be coal-fired thermal capacity; it is more costly and takes longer to build larger, cleaner thermal power plants than smaller, less efficient and dirtier ones; and it is difficult to close down the small and dirty power plants due to the power of local vested interests and resistance. Indeed, the share of plants of 300 megawatts or more shrank from 43% of plants in 2004 to only 27.5% by the end of 2006.

Regulation falling behind

Electricity reform in China has gone through three main stages. During the first round of reform (mid-1980s to early 1990s), the government lowered the entry barriers to the power sector by allowing third parties other than the central government (mainly provincial and local government and also some domestic and foreign companies) to invest in electricity generation. By the early 1990s, power plants built and operated by non-state independent power producers (IPPs) accounted for about 40% of total capacity. This successful first round of reform brought about a rapid expansion of installed generation capacity, from 66 gigawatts in 1980 to 236 gigawatts in 1996. The second round of reform started in the mid-1990s when the commercialisation and corporatisation of the power sector led to the abolition of the Ministry of Electric Power Industry and the creation of the State Power Corporation of China (SPCC), a vertically integrated monopoly, operating as a hybrid of the old planning players and a new style of commercially oriented market player. By the end of the 1990s, the SPCC succeeded in expanding generation capacity and the access of rural and remote areas to electricity. Its own success led to the third round of reform in 2002 when the State Council unbundled the SPCC to introduce greater competition and efficiency. The unbundling of the power sector corresponded with a new wave of economic growth and consequent severe power shortages.

By 2002, the SPCC controlled over 90% of the country's transmission grids and 46% of its generation capacity (the rest was owned by provincial governments or independent producers). The assets of the SPCC were divided into two grid corporations; five competing generation companies, each holding about 20% market share in a given region; and four services companies (see Annexure 1 for an organisational chart). All eleven companies joined the group of elite organisations in China and are on the list of corporations owned by the central government (央企). Together with one coal and three

oil/gas companies from the wider energy sector, they control over 40% of the total assets of the central government's state-owned corporations.

Powerful corporations

The present size of the two regional grid and five generation oligopolies is truly impressive, especially as each has grown substantially since 2002. The largest of the grid corporations, the State Grid Corporation of China, is responsible for 88% of China's territory and 80% of the country's national electricity grid. It services over 1 billion people, employs over 1.5 million and controls assets of 1.2 trillion yuan (approximately A\$188 billion). The smaller one, the China Southern Power Grid Corporation Limited (CSG), serves five southern provinces and covers 20% of the national market (a mere 250 million people). The five competing generation companies have clearly decided that the best way to survive is to grow. Their collective assets have exploded from 68 billion yuan in 2002 to over 1 trillion yuan in 2006. Power generation capacity under their control expanded from 110 gigawatts in 2002 to over 300 gigawatts in 2006. These five generation companies now account for 42% of the total national capacity, with local governments controlling 45% of total capacity. As the large five have expanded, they have absorbed many IPPs, whose market share has dropped to about 6%, and is still shrinking.

These newly created corporations are in the vanguard of China's changing corporate culture and cadres. A group of young, well-educated, urban economic elites – China's 'yuppie corps' – is heading many of China's top 100 companies, including all eleven companies created in the 2002 reforms. These top managers have the Party's trust. That is the reason they were chosen. They tend to have advanced their careers within the same firm or at least in the same industry. This has allowed many of them to have built extensive networks with party and government officials and others in the industry. Unlike the old party cadres, they are relatively young and the majority of them have obtained postgraduate degrees, some from overseas. More importantly, they see themselves as managers of modern corporations and their responsibility as maximising the profits of their respective companies.

Weak and fragmented regulators

In contrast to the powerful corporations, the government agencies that are supposed to make energy policies and to coordinate and regulate the operations of all energy companies, are fragmented, and lack both authority and capacity. While competition among the companies has led to excessive investment in power generation and distribution, the multiplication and competition among regulators has weakened the state's ability to manage this crucial sector; a nasty double-edged sword. In 2002, four main agencies were mandated to oversee the development of the power sector: the NDRC; the newly created State Electricity Regulatory Commission (SERC); the State Asset Supervision and Administration Commission (SASAC); and the State Environmental Protection Agency (SEPA).

- The NDRC is China's main macroeconomic planning and monitoring agency under the State Council. After 2002, it maintained authority over investment approvals in the power sector and electricity pricing in order to ensure macroeconomic stability. The NDRC, however, has limited human and other resources to regulate the newly created market players. Its energy bureau is charged with developing and overseeing the national energy strategy and coordinating the actions of various energy sub-sectors. It also works together with the investment department on project investment approvals and the pricing department on electricity price setting. Until very recently, however, it had fewer than 50 staff. In 2005, when China's energy problems drew international attention, the State Council created the National Energy Leading Group, headed by Premier Wen Jiabao, as a new inter-agency body to improve policy-making and policy coordination. The Group included leaders from 13 government agencies. NDRC minister, Ma Kai, led the 24-person, vice-ministry level State Energy Office, in charge of the daily work of the Leading Group. The idea of developing a single government agency to make national energy strategy, monitor energy security, organise energy-related research and coordinate activities of all state-owned energy corporations might sound good. Yet this particular effort failed. The leading group met only twice in the next two and half years. Little was achieved.
- SERC was established in 2002 as an independent regulatory agency for the newly liberalised power sector, but it was not granted the powers that were crucial for the job. SERC is responsible for establishing and overseeing market rules, including competitive bidding rules and those protecting fair competition. However, SERC experiments with market competition have only just started on a pilot basis in Northeast and East China. SERC is in charge of supervising market entry and licensing, yet it does not have control over project or investment approval. It is asked to propose modifications to power tariffs but does not set tariffs. It is also supposed to participate in and regulate technical standard setting, yet it has neither the manpower nor expertise to do so. In sum, without any authority over regulating investment and pricing, SERC, the sector's independent regulator, is an empty shell.
- SASAC was created in 2003 to 'own' and manage state-owned corporations in the public interest. As the ultimate owner of state-owned corporations, SASAC seeks to ensure high returns on state assets, but it does not have the authority to collect dividends from SOEs. That power is in the hands of the Ministry of Finance. Neither does it have direct control over their budgets. Consequently, SASAC has few resources and little clout to ensure the value of state assets or to monitor these state-owned corporations. SASAC is mandated to supervise the

business performance of these large corporations, but it does not have control over the appointment of senior people in these companies. That power is in the hands of the Organization Bureau of the CCP Central Committee. SASAC makes only the less important personnel decisions, while the Party appoints the senior managers. However, unlike SASAC, the Organization Bureau of the CCP Central Committee has no authority over the actual operation of these corporations.

- SEPA, now the Ministry of Environmental Protection, should be the key player in ensuring the protection of the environment, especially in the power sector. While the NDRC considers the approval of a project, the power company is required to seek approval from SEPA simultaneously. However its authority is more formal than real as it lacks the human or financial capacity to sanction erring companies, nor does it have the authority to repudiate the project approvals granted by the NDRC. Furthermore, the more polluting power plants tend to be small ones. These are often built illegally without formal approval from either the NDRC or SEPA but are often financed and/or supported by the host provincial or local governments.

Provincial and local governments have powerful political interests in the power sector that often work against effective regulation. Even though the main power companies are owned by the central government, they all run large numbers of subsidiaries across the country. These are often subject to political pressure by the host provincial governments while being lured by the financial incentives given by them to invest and expand their local operations, even, at times, in violation of the ‘rules’ set by the central government. Every provincial government has an interest in making sure that it has sufficient electricity supply and wants the benefits from the job opportunities offered by the industry. Holding exactly the same bureaucratic rank as provincial governments, central ministries are explicitly forbidden to issue instructions to their local counterparts. The Politburo and the State Council are the ultimate authority for battles between central regulators and provincial governments. Yet, neither has the human resources nor ability to adjudicate every power project in question.

Cowboy-style market competition

This combination of regulatory agencies with overlapping, competing yet incomplete mandates enhances the commercial latitude of the unbundled generation and distribution firms and contributes greatly to China’s overinvestment in inefficient and dirty energy. In principle, most power projects have to get approval from the NDRC, but in practice 20% of the recent power projects are illegal. Of these, 13% never went through the approval process and 24% went through the initial approval process but did not go through the feasibility stage. 63% received approval from the NDRC but the

projects violated the rules set out in the approval. Almost all these projects had support from local governments.

Inner Mongolia provides a very good example of this problem. In 2002-2005, 134 new power projects with a total capacity of 85 gigawatts were initiated with a total capital investment of over 400 billion yuan. Most of them were energy-intensive and highly-polluting coal-fired thermal power plants. Through this investment, though, the region achieved three top rankings nationally; the highest GDP growth rate, the highest industrial growth rate and the highest investment in fixed assets. This allowed the regional government leaders to take the credit until the State Council intervened and discovered the scandal.

Another effect of the power companies' relatively free hand is their predatory behaviour in renewable energy. With increasing concerns for the environment and pressure to develop alternative energy sources, the government is encouraging development in renewables. The Chinese government has set an official goal of 10% of total energy production to come from renewable sources by 2010 and 15% by 2020. Instead of investing in these new energy sources, however, power companies are simply competing to get their foot in first without actually developing the technology. Most major wind power projects, for example, have been dominated by the five power companies. They have acquired licenses but have not followed up with substantial investment. In 2006, wind power only accounted for 2.6 gigawatts of power, just over half of the 2010 target of 5 gigawatts.⁵ For hydroelectric power, the opposite is true. Companies are competing to build dams with or without official approval. In southwest China, all the major rivers have been cut into sections with literally hundreds of small hydro projects altering the flows of these life-giving rivers. In 2006, hydropower in China accounted for 130 gigawatts compared with the 2010 goal of 190 gigawatts.⁶

The struggle over coal

The 2002 reforms created a final problem that was at the heart of China's power crisis during the 2008 ice storm that froze the New Year celebrations for hundreds of millions of Chinese. This problem with coal also lies at the heart of the tense transition from a command to a market economy. In 2002, the NDRC announced that the government would allow coal prices to be decided by the market and that the power sector would no longer enjoy the privilege of guided prices. However, electricity prices remained under the control of the NDRC. Coal prices went up immediately. In

⁵ E. Martinot and Li J.F., *Powering China's development: the role of renewable energy*, Washington DC, Worldwatch Institute, 2007, p 14.

⁶ For more information on how China's dams are changing the Mekong river and the millions of people in Southeast Asia who rely on it for the livelihoods, see M. Osborne, *River at risk: the Mekong and the water politics of China and Southeast Asia*, Sydney, Lowy Institute for International Policy, 2004.

response, power plants signed contracts with coal mines for only 37% of the coal they would need in the following year. Since then, the rapid expansion of thermal generation capacity, driven by the lack of effective regulation, has led to tightening coal supplies. From 2002 to 2004, the domestic market price for coal doubled.

From 2002, the annual coal procurement conference has become progressively more acrimonious, as coal producers have sought to capitalise on rising market prices while generators have fought to protect their diminishing margins. Power shortages have spread across the country and inflicted serious damage. In 2004, the stalemate at the annual conference threatened power supplies and in December that year the NDRC announced a new scheme for linking wholesale power tariffs to coal prices. This scheme had two components: power generation prices would float with coal prices; and retail and wholesale power tariffs would be linked. This directive led to a 4.2% increase in power tariffs in 2005 (2.5 cents/kwh). At the same time, however, the NDRC also decided that 30% of the cost increase stemming from the rising price of coal must be absorbed by the generators. Unhappy with the scheme, in early 2006, at the annual coal purchasing conference, the five power companies colluded and not a single contract for coal supplies in the coming year was signed. The NDRC had no choice but to intervene again, announcing another increase in power tariffs for wholesale and retail by 2.5 cents per kilowatt.

The government's policy of linking wholesale power tariffs to coal prices did not result in parallel increases in both coal prices and power tariffs. As coal prices rose rapidly with surging demand, power companies appealed for the government's intervention in coal markets without much success. Then in the autumn of 2007, the power tariff was temporarily frozen because of inflationary pressures. At the end of 2007, coal storage at large power plants dropped to a dangerous level – less than 3-5 days of supplies. This was despite coal production rising by 18.1% that year. As a result, the power sector called for rolling blackouts. The public saw this as blackmail by the power companies to force either the coal sector to control its price or the central government to intervene.

Before any action could be taken, the first snowstorm in early 2008 brought the country to a halt. Transmission towers collapsed in several southern provinces and rolling blackouts were enforced in most central and southern provinces. Power plants ran out of coal and the railways, which depend on electricity, could not transport coal to the power plants. It was a nightmare for the government. President Hu Jintao and Premier Wen Jiabao went around the country, bullhorn in hand, calling for calm and for coal miners, railway workers and power plant employees to work during the New Year holiday to deal with the crisis.

Undoubtedly, this was the worst snowstorm in half a century in the country and the worst in a century in many provinces. It was also a policy failure, the result of the disorderly and unregulated competition among the powerful corporations. This ‘top-down’ management approach did not resolve the fundamental price conflicts between the coal and power sectors. Many companies supplying resources to China are predicting a difficult summer of 2008 when rising electricity demand might bring about another wave of blackouts. For the Chinese government, it has become apparent that a better organised and more effective policy process is needed to be able to develop a coherent national energy strategy, implement policies and regulate increasingly independent and powerful market players.

Latest steps

In June 2008, the Chinese government made two important decisions concerning the power sector. The Organization Bureau of the CCP Central Committee shuffled the top management team in three of the five major generation corporations and the NDRC raised the power tariff by 4.7% while imposing a temporary price freeze on coal. Together, these moves were designed to mediate the conflicts between the two sectors and ensure the adequate and reliable supply of coal and electricity. It is too early to determine the results of these two decisions, but they indicate the direction of the continuing reform of the sector.

Changing the top management team: As with 2006, the retirement of some managers opened the door for a management shake-up within the power generation sector. This time around, however, it was the fundamental conflicts between coal and power that determined who went where. The two sectors have reversed their long-held positions in which coal was a perennial loss-making industry while the power industry accumulated not only wealth but also influence. By mid-year 2008, over 80% of power generation companies were losing money, with the accumulated losses of the five major power generation companies reaching 2.7 billion yuan (approximately A\$422 million). Some could not continue operating without new injections of capital, mainly because coal prices were rising while power tariffs had been frozen since August 2007. The shuffling of the top management of Huaneng, Huadian and Guodian generation companies is widely seen as an attempt to bring the two sectors together. Some managers were moved horizontally between the five power corporations while others who had specialised in coal were brought into the power sector. If this is a way to bridge the growing differences between coal and power, other measures to supplement these efforts are clearly needed.

Price control: As a major step to match domestic with international prices, on 18 June 2008, the NDRC announced an 18% increase in fuel prices and a 4.7% increase in the power tariff. The decision was made after the inflation rate in the country had stabilised at 7.5%. Residential consumption,

agriculture, fertiliser production and regions and areas affected by the earthquake in Sichuan, Shaanxi, and Gansu were excluded from these price hikes. The NDRC provided three reasons for the power tariff increase: (a) to compensate for rising coal prices; (b) to cover some of the cost for stricter environmental regulations and renewable energy; and (c) to pass on some investment costs in transmission and distribution facilities to end-users. Ironically, while the conflicts between the coal and power sectors have discredited the NDRC's ability to effectively coordinate the activities of coal and power companies, it has also, at least for now, strengthened the NDRC, by giving it the green light to deploy one of its most direct levers for administrative intervention – price controls.

Catching regulation up

These two steps taken by the central governments – shuffling top management teams and adjusting energy prices – are temporary measures. Such 'top-down' commands bear little relation to 'regulation'. Nor are they able to resolve the fundamental problems in the power sector that require coordination with other sectors and a set of coherent policies and strategies. A dedicated government agency can help reduce uncertainty, mediate conflicts and ensure stability. In the absence of a Ministry of Energy, the onus is on the NDRC, which cannot act as an effective macroeconomic policy-maker unless it is able to separate policy and regulatory responsibilities. If the newly strengthened NEA under the NDRC acts as a policy-maker, it needs to clarify its relationship with the NDRC and surrender the regulatory responsibilities, especially over investment and power tariff setting, to the SERC.

Four months after the NEA was 'created', the State Council finally announced its structure and functions. It is responsible for the country's energy policy-making, coordination of various sub-energy sectors, energy conservation, and energy resources utilisation. It maintains some regulatory functions, such as project approval and standard setting for renewable energies. Since the nuclear energy sector has been moved to the NEA from the State Commission of Science, Technology, and Industry for National Defence, it is also in charge of project approval and standard setting for nuclear power plants. The most controversial responsibility – energy price setting – is at the moment in the pricing department of the NDRC, separate from the responsibilities of the NEA.

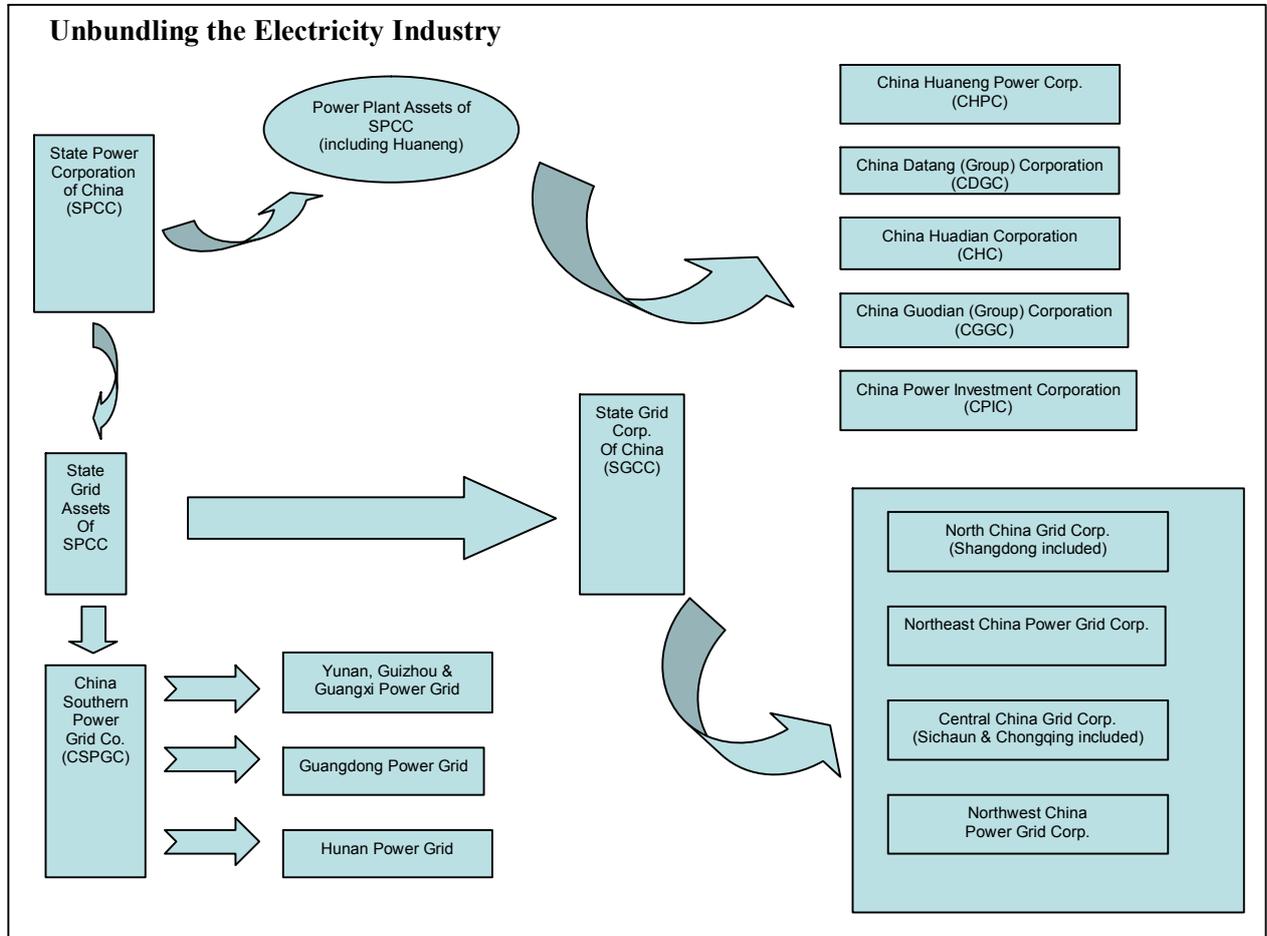
To widespread disappointment, the NEA was formally allocated 112 positions, in contrast to the speculated 250 earlier in the year. It remains a question whether or how such a small body of cadres can fulfil all the responsibilities. It is also unclear how the NEA that is at a rank higher than the pricing department but under the auspice of NDRC in general will work out price setting, especially for electricity, which includes pricing for power coal, for electricity getting on the grid and for end-

users. The document issued by the State Council stipulates that the NEA would participate in price setting but said nothing about who would be the ultimate decision-maker.

Effective regulation may be possible only when a strong regulator is in charge, so that decisions are shielded from political considerations and lobbying by interest groups. Of course, the regulator needs to make its decisions within a framework that is approved through political and legislative processes. When the responsibilities of being a policy-maker, a regulator, and a policy implementation body are separated and allocated to different government agencies, the most vexing problems facing the Chinese power sector can be dealt with in a better way. To overcome the differences between coal and power pricing, subsidies that keep power tariff down must be unwound without triggering an economic slowdown or sparking social discontent. Recent economic growth has been led by several energy-intensive industries – steel, petrochemical, construction materials, and nonferrous materials. Their growth has been built on cheap electricity and high pollution. It makes sense to raise power tariffs high enough to discourage the expansion of such energy-intensive and high-polluting industries. Yet, to do so will create real problems not only for these industries but also the economy as a whole. Residential use of electricity has long been subsidised as well. Unwinding subsidies is a question that has many political implications, particularly in China where the power sector has been a vehicle for other objectives: helping the poor; containing inflation; maintaining the competitiveness of downstream industry; and ensuring employment.

The development of China's power sector has been key to its rapid and sustained growth over the last thirty years. Bolstering the regulatory system to match the new powerful corporate interests in the power sector is proving to be a serious challenge. Success is crucial to ensuring that the power sector supports China's continued growth and development and Australian exports. Ultimately, these issues will test the government's commitment to a market-based economy.

Annexure 1



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