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china's coal sector

recent developments and implications for prices

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- *The rapid emergence of China as a thermal coal exporter in the mid-1990s highlighted the extent to which changes in China's coal supply and demand balance can contribute to shifts in international coal trade and world energy prices.*
- *Since then the coal industry in China has undergone a process of significant realignment in response to capacity expansion by industry and the subsequent increase in demand for energy. China's National Development and Reform Commission has also reduced government intervention in the market.*
- *In 2003 and 2004 an increase in domestic demand for coal and infrastructure constraints led to a significant rise in coal prices in China. The increase in demand for both thermal and metallurgical coal in China has been largely met by domestic production.*
- *Policy measures by the Chinese Government to increase mine safety, reduce infrastructure bottlenecks and reform pricing mechanisms are aimed at maintaining the domestic coal demand and supply balance.*

introduction

Over the past 25 years, China has undergone significant economic reform and has emerged as one of the world's fastest growing economies. Coal consumption in China has increased in response to a rapid expansion in industrial production and the consequent increased demand for electricity. Coal transport capacity constraints contributed to a substantial rise in domestic coal prices in 2003 and 2004 and an increase in power supply disruptions resulting from insufficient supplies of coal.

One of the challenges facing China's government has been to balance the pace of economic reforms and infrastructure developments with increased growth in domestic and foreign demand for consumer goods. Regulatory reform has contributed to maintaining the domestic coal demand and supply balance in the past few years.

In March 2003 ABARE released a comprehensive study on China's changing coal industry (Ball et al. 2003). The study was undertaken in response to a number of significant developments in China since the mid-1990s. These included reforms in coal producing and consuming sectors, a downturn in the domestic coal market, and the rapid emergence of China as the world's second largest coal exporter after Australia. China is now the world's largest producer and consumer of coal.

The key conclusion in that study was that China's coal exports had been largely dependent on government policies to maintain the balance between domestic coal demand and supply. In this article, recent policy changes that could affect China's coal industry, particularly the impact of regulatory changes on demand and supply, are examined.

Since the release of the 2003 study, significant policy changes have affected the coal market in China. These policies, aimed at increasing the efficiency of coal use, improving incentives for investment in domestic production, reducing distribution constraints, improving port facilities, and limiting coal exports, have resulted in China's coal industry being significantly realigned. The policies have focused primarily on ensuring that domestically produced coal is used to meet increasing domestic energy demand.

economic growth and energy consumption in China

China's economy has expanded rapidly in recent years. In 2005, China's rate of economic growth is estimated to have been 9.9 per cent in real terms, following average annual growth of 9.2 per cent from 2000 to 2004 (National Bureau of Statistics of China 2006).

Industrial production has been the major contributor to the expansion in China's gross domestic product, underpinned by strong growth in consumption both in China and in China's major trading partners. The growth in industrial production has been driven largely by increasing investment across all sectors, with particularly strong output expansion in energy intensive industries, including iron and steel, cement, plate glass and chemicals.

Total primary energy consumption in 2005 rose to 1234 million tonnes of oil equivalent – an increase of 14 per cent from 935 million tonnes of oil equivalent in 2004 (National Bureau of Statistics 2006; IEA 2005). This rapid expansion in industrial energy use has outweighed efficiency gains in energy production and energy conservation measures such as those that contributed to the slowdown in China's energy consumption in the late 1990s (figure A).

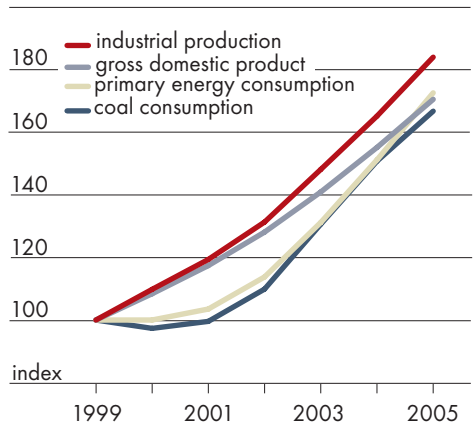
The industrial sector is the largest user of energy in China. In 2003 it accounted for approximately 70 per cent of total final consumption of coal. The rapid growth in the industrial sector has resulted in rising energy demand in China, particularly for coal fired generated electricity.

China's rapidly rising energy demand had major implications for the coal industry. The share of coal in China's energy mix declined from 80 per cent in 1990 to 70 per cent in 2002. This downward trend reflected the government's long term policy to lower the use of coal through improved end use efficiency and substitution of alternative fuels, including natural gas. However, since 2002, rising demand for coal,

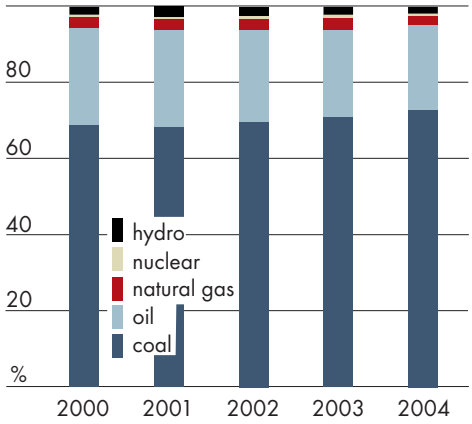
GDP growth in China

In December 2005, the National Bureau of Statistics re-estimated historical gross domestic product (GDP) in China on the basis of an underestimation of the services sector contribution to economic growth. This resulted in an upward revision of GDP growth over the past decade. The industry and economic growth figures from the National Bureau of Statistics referred to in this article are based on the revised figures released in December 2005.

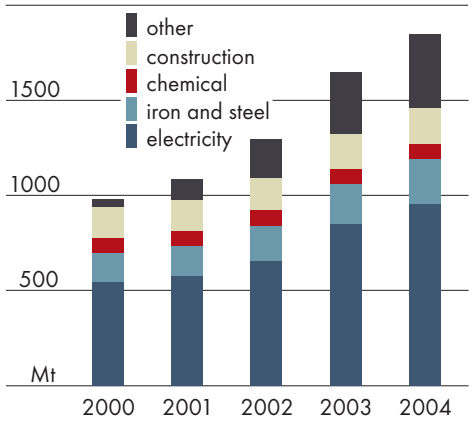
A **growth in key indicators**
China



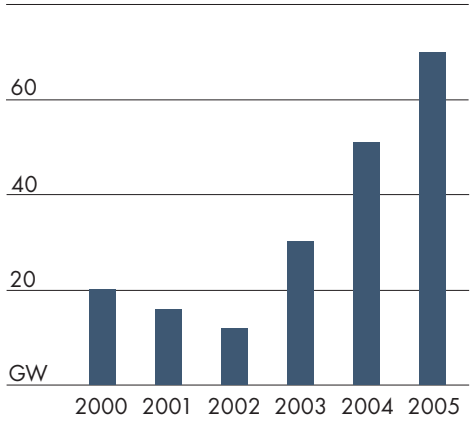
B fuel mix in primary energy consumption China



C coal consumption, by sector China



D incremental installed electricity generation capacity China



particularly for electricity generation, has reversed the trend, with the share of coal estimated to have reached 73 per cent in 2004 (figure B; IEA 2006).

coal consumption in China, by sector

Consumption of coal in China is driven to a large extent by the electricity generation sector. The expansion of the iron and steel industry, the building and construction industry, and the manufacture of durable consumer goods to meet increasing domestic and export demand has led to a rise in energy consumption. China is now the second largest consumer of electricity in net terms after the United States (EIA 2004). In 2004 the electricity and iron and steel industries are estimated to have accounted for around 50 per cent and 13 per cent respectively of total coal consumption in China (figure C; IEA 2006).

Electricity generation capacity has increased substantially over the past few years, with electricity production capacity added to the network more than doubling between 2003 and 2005 (figure D; Yu Yanshan 2005).

In 2005, an estimated 68 gigawatts of generation capacity was added to the network (Interfax, 21–27 January 2006). In that year, electricity output increased by 15 per cent to 2475 TWh (Institute of Energy Economics 2006) – growth that has largely alleviated the electricity supply shortages that occurred in 2003-04.

Reflecting the dominance of coal in China's electricity fuel mix, the substantial increase in electricity output has increased demand for thermal coal. Coal consumption by the electricity sector increased at an average annual rate of around 21 per cent between 2002 and 2004 following an increase of 5.6 per cent in 2001. A number of coal and power generation companies are publicly listed companies but substantial government control and ownership remains in both industries.

The government is increasingly linking electricity prices with coal costs and electricity consumption with the introduction of more transparent pricing mechanisms. Two-part tariff rates have been introduced to curb electricity consumption by energy intensive industries and retail electricity charges have also been increased recently to reflect higher coal prices.

The price of electricity was increased on average by US0.08c/kWh in mid-2004. An additional increase of US0.27c/kWh was introduced in the east, north, central and southern grids to pass on additional costs of transmission. For residential, agriculture and small to medium sized chemical fertiliser plants, electricity prices are to be raised only once a year (Dow Jones 2004; McCloskey's 2005).

In 2005 the State Council approved the implementation of a new pricing mechanism to link electricity charges to coal costs. An increase in the coal price is to be passed on to electricity consumers when the average price of coal changes by more than 5 per cent over a six month period. If the change in the average coal price is less than 5 per cent in a six month period, the percentage price movement is carried over to the next six month period. Electricity generators will be able to pass on 70 per cent of the increase in coal prices to end users but will be obliged to absorb 30 per cent through productivity gains (Interfax 2006).

Changes to the electricity regulatory framework have included the unbundling of the State Power Corporation and establishing the State Electricity Regulatory Commission (SERC). SERC is a sector specific regulatory agency that implements pricing and investment guidelines for the provision of electricity to consumers, covering all aspects of the industry – generation, transmission, distribution and retail functions (box 1).

box 1: **electricity market reform in China**

China has been restructuring its electricity sector in recent years, to enable it to better meet the challenges of rapidly growing demand, improving reliability and efficiency, lowering costs, and addressing environmental protection. The third stage of reforms commenced in late 2002 when the State Power Corporation was divided into eleven separate companies – two main power distribution companies, five generation companies and four service companies – to improve sector competition (Minchener 2004).

The two power grid companies are the State Grid Corporation and China Southern Power Grid Corporation. The State Grid Corporation was established to control electricity distribution to the north, with key responsibility for the west to east electricity project, grid interconnection, power pooling and development of the Three Gorges network. It owns the provincial electricity transmission assets in Shandong, Xinjiang east, Fujian, Chongqing and Sichuan, in addition to the five existing regional power networks, accounting for around 89 per cent of China's total network capacity. The China Southern Power Grid Company owns the transmission assets in Guangdong, Hainan, Yunnan, Guizhou and Guangxi provinces, and accounts for the remainder of the network capacity (Minchener 2004).

The five state generation companies (China Huaneng Group, China Datang Corporation, China Huadian Corporation, China Guodian Corporation, and China Power Investment Corporation), along with smaller plants owned by county level governments, large state owned enterprises such as steel mills and chemical plants, and foreign investors, compete with each other in terms of prices and clean electricity generation to win contracts from the electricity grid companies.

Other elements of the reform program include the creation of an industry regulator – the State Electricity Regulatory Commission (SERC) to regulate transmission and a number of other aspects of the electricity sector including retail tariffs. SERC was established in 2003 and regulates electricity network tariffs and end use electricity charges. In May 2005, SERC released temporary guidelines for the regulation of network tariffs and charges. At the same time, electricity prices were also increased by 0.0252 yuan/kWh following the introduction of the fuel input adjustment cost (Institute of Energy Economics 2006; Deacons 2005). Nationwide interconnection is scheduled to occur by 2010.

1 electricity price adjustments in China

	rise in price USc/kWh
Average regional increase in sales price (incl. other adjustments)	
Eastern China	0.22
Central China	0.36
Southern China	0.37
North eastern China	0.17
Average increase – all regions	0.30
Adjustment for state government projects	
Relocation compensation (for new projects)	0.78
Support for the development of renewable energy projects	0.0125
Adjustment for power generation projects	
Compensation for losses caused by the rise in coal cost and transport fees	0.122
Compensation for installation of desulfurisation facilities	0.03
Adjustment for grid construction	
State power grid construction	0.026
Rural power grid construction	0.007
Adjustment for local government projects	
Subsidy to small hydropower projects, gas fired projects, wind power projects and WEP projects	0.016

Source: Interfax China Energy Weekly.

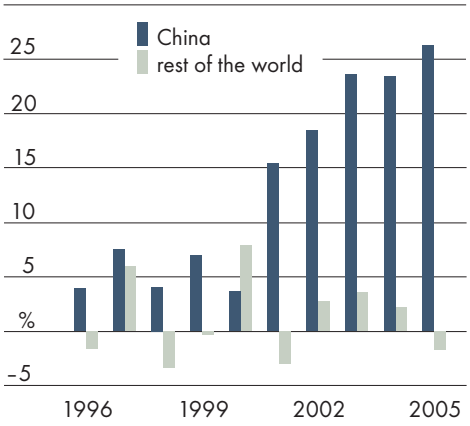
The fuel input adjustment in 2005, outlined above, was in response to a significant increase in thermal coal prices in 2004 (Deacons 2005). In June 2006, electricity charges were increased in response to increasing coal costs as well as additional adjustments for increasing construction costs of new generation and transmission projects, relocation compensation and to support the development of renewable energy projects (table 1).

Reform is also evident from the progress by electricity companies in negotiating long term contracts outside the annual government sanctioned coal conference. In June 2005, Huaneng Power International Corporation signed a long term coal supply agreement with Pingdingshan Coal Group. The contract is to supply the group with 0.5 million tonnes of coal in 2005 and a total of 2 million tonnes for both 2006 and 2007 (Interfax 2005).

Electricity companies are also increasing investment in coal mines, with the aim of reducing supply disruptions. Guizhou Jinyuan Electric Power Investment Co. Ltd has developed eighteen coal mining projects, with a total production capacity of 11 million tonnes a year. Huadian Group Corporation, one of the five nationwide power generation companies, has a number of coal mines under construction, with total production capacity of 7.5 million tonnes a year.

Goudian Group, another of the five nationwide electricity generation companies, has partnered with the Shanxi based Yangquan Coal Group to develop capacity of 6 million tonnes a year at the Sijiazhuang coal mine (McCloskey's 2005).

E growth in iron and steel production



developments in China's steel industry

Iron and steel production capacity in China has expanded at a rapid rate in the past six years, leading to a rise in the sector's demand for coal. In 2004 the sector consumed an estimated 235 million tonnes of thermal and metallurgical coal, representing 13 per cent of China's consumption. This compares with 150 million tonnes and 15 per cent in 2000.

Approximately 80 per cent of coal consumed by the iron and steel sector in China is used in coke production, with the remainder used for electricity generation.

Coal consumption in the iron and steel industry continues to grow at an increasing rate, underpinning coal demand despite efforts by the government to curb capacity expansion in the industry. Iron and steel

output increased by 26 per cent in 2005, following an average annual increase of 17 per cent from 2000 to 2004 (figure E; IISI 2004).

In a statement released on 12 March 2005, the State Council outlined further measures to address excess capacity in a number of industries, including the steel and coal sectors. The government intends to limit the construction of any new steel mills, unless production is associated with new motor vehicle production (Ryan 2006). Steel production growth is therefore expected to slow this year as government measures start to have an impact and domestic consumption growth slows. As a consequence, electricity and coal consumption by the industry is also expected to grow at a less rapid rate.

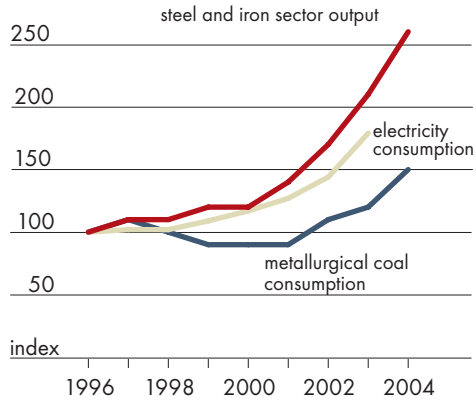
Despite the ongoing introduction of policy measures aimed at slowing capacity expansion in the steel industry, there is increasing speculation of oversupply in the domestic market, leading to downgraded profit outlooks for some producers in 2006. According to the China Iron and Steel Association, oversupply in the domestic market may lead to further consolidation in the industry, with an increase in mergers and acquisition activity expected in the next two years. A specific goal of the current industry development policy is for the largest ten steel mills in China to account for 50 per cent of total output by 2010, and 70 per cent by 2020 (ABARE 2006).

Policies aimed at greater consolidation in the steel industry and cost cutting measures led to a reduction in the marginal use of metallurgical coal in blast furnaces between 1997 and 2002. The introduction of electric arc furnaces by smaller producers also kept metallurgical coal consumption growing at a lower rate than electricity consumption by the sector between 2002 and 2004.

Electric arc furnaces use scrap steel and are favored for their flexibility in output and lower construction lead times than those of larger blast furnaces. Lower fuel rates of upgraded and new blast furnaces have also contributed to lower net coal consumption growth rates than those experienced in the electricity sectors.

Consumption of metallurgical coal by the steel sector increased by 28 per cent between 1996 and 2003, compared with the 80 per cent increase in electricity consumption over the same period (figure F; IISI 2004).

F growth in output and consumption in China's steel sector

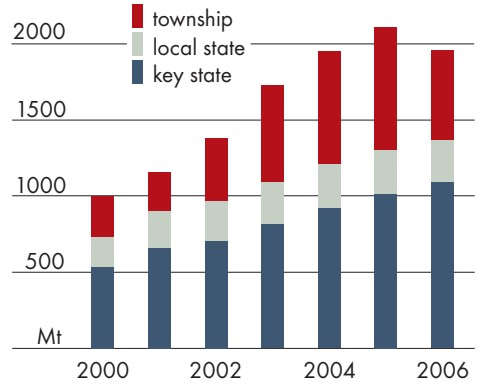


coal production in China

Coal production in China doubled between 2000 and 2005, largely reflecting the reopening of many previously closed small mines at the township and village level as well as an increase in the mechanisation of coal mines. Township, village and local state mines tend to have a smaller production capacity then key state mines.

In 2005, coal production in China increased by 8 per cent to 2.1 billion tonnes. Production at local

G coal production, by mine type
China

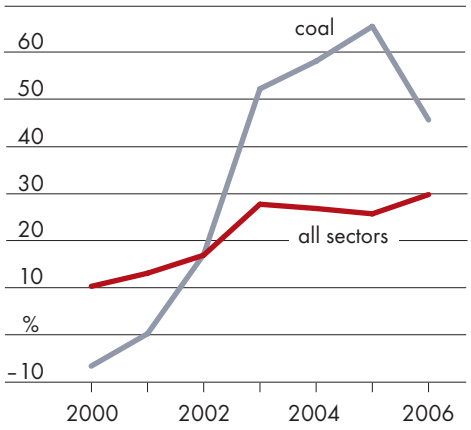


state mines is estimated to have declined by 3 per cent in 2005 to 286 million tonnes but this was offset by production from key state coal mines and township coal mines, which increased by 10 per cent and 9 per cent respectively (figure G; McCloskey's 2005). Coal is produced across China, with the top six provinces accounting for 67 per cent of production in 2005 (FACTS 2006). The largest five coal producing companies last year were Shanhua, Zhongmei, Shanxi Coke, Datong, and Longmei.

Investment in the coal industry has increased significantly in the past three years. Fixed asset investment in 2005 increased by 66 per cent, compared with an increase of 26 per cent of total fixed investment across all sectors. This follows an increase in investment in the coal industry of 58 per cent in 2004 and 52 per cent in 2003 (figure H; National Bureau of Statistics 2005). This investment has led to a substantial rise in production capacity and the supply of coal for domestic consumption in the past three years and has reduced upward pressure on prices.

In 2005, the industry was forced to reassess capacity utilisation rates and mine safety after a number of serious mine accidents. The mortality rate as a percentage of coal produced is one of the highest in the world, with approximately three fatalities per million tonnes of coal extracted (table 2). Common causes of coal mine accidents include methane gas explosions, flooding and mine collapses. In 2005, there were 5896 fatalities as a result of coal mine accidents mainly from gas explosions (Barlow Jonker 2006).

H **annual growth in investment**
China



From 1 January 2006, all coal mines will contribute a proportion of the output value of each mine to a fund to cover the cost of mine accidents, with small mines contributing the highest marginal rate. Funds not used in a particular year will carry over to the next year. The aim of the fund is to provide a financial incentive to coal mines to improve safety (table 3).

Unsafe mining practices can affect production through temporary closures enforced by safety inspectors. According to the National Development and Reform Commission, the central government agency that formulates policies for economic and social development, out of 5000 mines that breached safety standards, only 2157 were closed in 2005. However, the State Administration of Work Safety claims that 5290 small mines were closed in 2005 (Barlow Jonker 2006). The difference in reported figures may be attributed to temporary mine closures. The NDRC has allocated US$750 million to

2 **mortality rate per million tonnes of coal production, China**

	2002	2003	2004	2005
All mines	3.34	4.17	3.08	3.58 a
Key state mines	0.91	1.08	na	na
Local state mines	2.43	3.13	na	na
Township and village mines	7.12	9.62	na	na

a Estimate based on coal production and number of coal mine fatalities reported by the State Administration of Coal Mine Safety. **na** Not available.
Source: State Administration of Coalmine Safety, China.

improve mine safety, with the aim of reducing the number of coal mine accidents by 7 per cent by 2007 (Interfax 2006).

The closure of small coal mines does have an impact on coal production in the short term. However, increased mechanisation and improvement in mining processes are expected to counteract any declines in production resulting from mine closures in the medium to long term.

infrastructure bottlenecks in China

Mines are located in areas that require coal to be transported over significant distances to major industrial centres. Transport links are vital to maintaining coal supplies to power plants – these links account for approximately 60–70 per cent of rail freight used. In 2005, coal transported by rail reached 1.1 billion tonnes, an increase of 8 per cent over 2004, and coal handled at ports reached 370 million tonnes, an increase of 10 per cent from 2004 (FACTS 2006).

Distribution constraints have led to major consumers of coal located in southern provinces of China purchasing imports, as well as mines in the north increasing exports. This situation has arisen from insufficient transport capacity in periods of peak electricity production. In 2005, coal prices stabilised as distribution constraints eased following substantial price rises in 2004 resulting from infrastructure bottlenecks.

The government has implemented a number of measures to address the shortfalls in rail capacity. One measure introduced was to prioritise freight carried on the network. During September and October 2003, for example, shortages of food in northern provinces resulted in the government reprioritising rail freight for other products at the expense of coal.

In 2003 the change in rail allocations resulted in a reduction in coal stocks at power plants and at ports. At least ten of the largest power plants in Shanghai, Guangdong, Zhejiang, Jiangsu and Fujian provinces experienced coal shortages (Platts 2003). Following the shortages, the government adjusted allocations for coal rail freight (Tian 2004).

3 mines' contribution to emergency accident fund

	contribution to emergency accident fund
	US$
Coal production	
0 - 30 000 tonnes	125 089
30 000 - 90 000 tonnes	250 178
90 000 - 150 000 tonnes	375 267
Additional 100 000 tonnes of production above 150 000 tonnes	62 545
Maximum contribution	750 535

Note: Based on exchange rate at 30 June 2006.
Source: Interfax 26 December 2005.

Currently, China has two coal rail transport links dedicated to coal – the 600 kilometre track from Datong to Qinhuangdao, and the 588 kilometre track from Shuozhou to Huanghua. The major capital projects that were completed in 2005 included an upgrade to the Daqin rail link and an increase in freight handling capacity at Qinhuangdao Port (McCloskey's 2005). The Huaneng Group, Datang International, the State Development and Investment Corporation, and the Ministry of Railways are planning a third coal link. This 700 kilometre rail link, currently in the preliminary planning stages, has an estimated cost of RMB 20 billion (Interfax 15 February 2006).

A number of port projects are planned in the next five years, including the refurbishment of Qinhuangdao, Dangshan and Tianjing coal ports. Improvements to large scale container ports are also planned. These include: Shanghai International Port, Dalian, Tianjin, Qingdao, Xiamen, Shenzhen and Guangzhou (Interfax 21–27 January 2006).

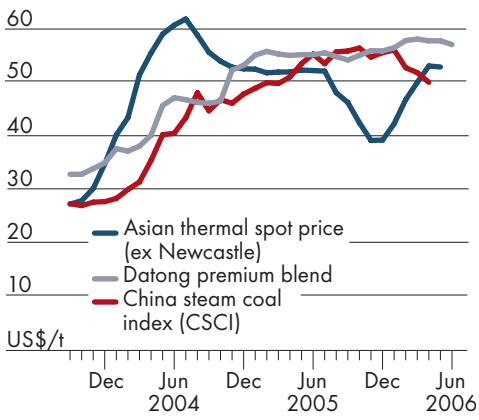
The increase in capital expenditure on port and rail facilities should reduce coal transport capacity constraints and upward pressure on domestic coal prices.

coal contract and spot prices

Coal contract negotiations between mines and major buyers have traditionally occurred at the annual coal conference, bringing together government authorities (NDRC and Ministry of Railways), major coal consumers and mining companies. In the past few years, there has been a growing trend for contract prices to be set outside the parameters of the conference. Contract prices negotiated at the coal conference are referred to as 'in-plan' prices. The difference between domestic thermal spot prices and contract prices in the past two years has led to increased investment by power companies in coal production.

Ineffective coal pricing mechanisms have led to a substantial widening of the gap between market prices for coal and contract prices in China in the past two years. The failure to reach an agreed outcome between coal producers and power companies exacerbated coal shortages in 2003 and 2004, with only half of all thermal coal delivered through conference contracts in 2004.

monthly average coal prices in China and Asian spot thermal price



As a result, domestic coal prices in China have increased substantially in the past two years. The Qinhuangdao Datong premium blend coal price increased by 41 per cent between December 2003 and December 2005, compared with an increase of almost 13 per cent in the international benchmark price (Newcastle fob coal price) over the same period. In 2005 and for the first half of 2006, the upward pressure on domestic coal prices eased, however, with prices stabilising as transport constraints eased and production capacity came on line (figure 1; Barlow Jonker).

The average price in 2005 at Qinhuangdao Port for thermal coals was RMB 388 a tonne. In December 2005, prices of contracts for delivery in 2006 between mines and power plants were lower than market prices by RMB 80–100 a tonne (McCloskey's 2005).

On 12 December 2005, the NDRC held a forum with coal producers, electricity generation companies and the Ministry of Railways to discuss coal market reforms. The forum focused on reducing the difference between coal conference prices and market based prices.

In January 2006, at the opening of the coal conference, the NDRC announced that it would let the market determine contract prices within a reasonable range. By the end of the conference, 812 million tonnes of contracts had been settled, a reduction of 192 million tonnes from the 2005 conference (Barlow Jonker January 2006).

Key contracts (greater than 0.2 million tonnes) accounted for 583 million tonnes or 72 per cent of the total contract volume. Contracts between coal mines and electricity companies accounted for 60 per cent of key contracts, with the other 235 million tonnes sold to other industries and designated export companies. In-plan

contracts receive priority rail transport allocation, which is also determined at the coal conference (Barlow Jonker 2006).

The trend for out of conference negotiation is continuing, with a number of contracts finalised in the months following this year's conference. The delay in determining the prices of key contracts in 2003 and 2004 led to a sharp rise in thermal coal spot prices as well as increasing the need for imports. In 2005, coal contract negotiations were finalised in the two months following the conference, leading to a stabilisation of thermal coal domestic spot prices.

4 in-plan thermal coal prices and market coal prices

	2001	2002	2003	2004
	RMB/t	RMB/t	RMB/t	RMB/t
In-plan price	144.7	152.2	155.8	220.2
Market price	141.9	168.8	173.8	302.0

Note: In-plan prices are thermal coal prices.
Source: Japan Electric Power Information Centre.

The increase in coal prices negotiated at the annual coal conference has led to an increase in electricity tariff rates. The NDRC has implemented a pricing mechanism that links coal prices to electricity charges. Prices negotiated at the conference (in-plan prices) tend to be substantially lower than out of conference spot prices (table 4). The NDRC has also indicated that the difference between in-plan and spot market prices is likely to be lower in 2006.

The NDRC is also attempting to reduce the number of relatively low trading volumes in the coal market by limiting trading by smaller coal companies. At the start of 2005, the NDRC issued new regulations that limit the number of coal trading organisations through a licence system. A licence can only be obtained if applicant companies have a capital base of US$6 million or greater. The aim is to limit the number of firms trading in the market (KPMG 2005).

The link between coal costs and downstream product/service prices is also having an impact on the allocation of capital. Price signals provided by the market can have significant impacts on the level of investment in the coal industry. Over and underinvestment in coal mines increases the volatility of China's role in global coal markets.

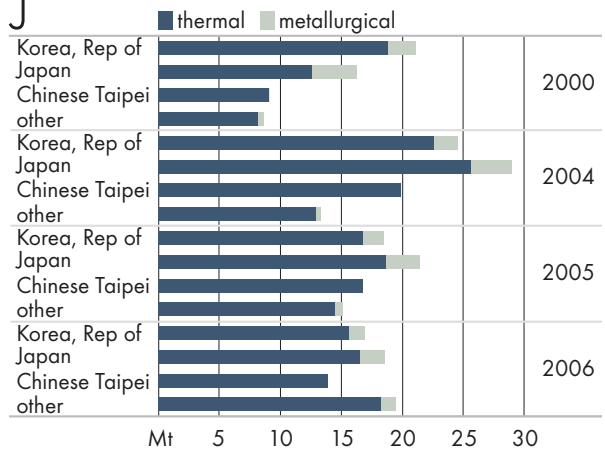
coal exports from China

As a large consumer and producer of coal, China has the potential to have a significant impact on global coal trade. From 2000 to 2003 China expanded its exports of coal from 55.1 million tonnes to 93.8 million tonnes to become the world's third largest coal exporter. However, domestic demand pressures as well as infrastructure bottlenecks limited coal exports in 2003 and 2004.

In 2005 the trend continued, with thermal and metallurgical coal exports declining by 17 per cent and almost 8 per cent respectively. China's key exports markets are Japan, the Republic of Korea and Chinese Taipei. In 2005, China's thermal coal exports to these key markets declined by 20 per cent, 16 per cent and 18 per cent respectively (figure J; ABARE; Barlow Jonker; McCloskey's).

In response to the supply constrained market in 2003, the coal export target in 2004 was reduced

J destination of China's coal exports



by 20 million tonnes to 80 million tonnes in January. Since then the export target has remained at 80 million tonnes (thermal coal 68 million tonnes and metallurgical coal 12 million tonnes) plus any unused allocation from the previous year. Exports in the past three years have remained below the export target, inclusive of the carryover from the previous year, reflecting tightness in the domestic market.

Four state owned trading companies have licences to export coal: China Coal Group Corporation; Shenhua Group Corporation; Shanxi Import and Export Group Corporation; and Minmetals Group Corporation. Each company had an equal quota share in the past two years. Total exports in 2005 were 72 million tonnes, with 8 million tonnes of underutilised quota being carried over into 2006.

A large proportion of the export quota for 2006 was allocated in December 2005, with 64 million tonnes of the quota allocated to the four licensed export companies (Barlow Jonker 2005). The quota is currently not under pressure, as rising domestic thermal coal prices have provided a disincentive to export, leading to a reduction in exports of coal to international markets. In 2006, the metallurgical coal export quota is 12 million tonnes, unchanged from 2005.

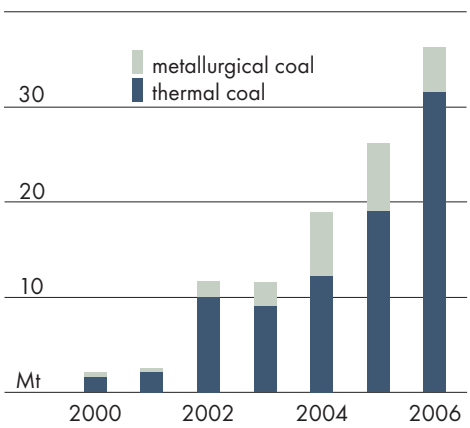
There has been a reduction in government assistance to coal exporters as domestic production is now being used to meet domestic demand. The most recent change to government policy affecting thermal coal exporters was in May 2005 when coal export rebates were cut from 11 per cent to 8 per cent. In 2004 the export tax rebate on coke and coking coal was lowered from 15 per cent to 5 per cent and from 13 per cent to 5 per cent respectively (McCloskey's 2006).

It is expected that the thermal coal export tax rebate may be reduced again in September (McCloskey's 2006). The current situation of exports falling well short of the export target is expected to continue as domestic coal prices are expected to remain at current high levels in 2006.

import demand for coal in China

Imports of both thermal and metallurgical coal account for approximately 1 per cent of China's coal consumption. Total coal imports in 2005 reached 26.2 million tonnes, of which metallurgical coal imports accounted for 28 per cent. In 2005, imports of thermal coal increased by 56 per cent from 2004 (figure K; ABARE; Barlow Jonker; McCloskey's).

K **coal imports**
China



Australia continues to hold the largest share of China's metallurgical coal and thermal coal imports. accounting for 48 per cent of total coking coal imports in 2005 (McCloskey's 2006). This reflects Australia's reliability as a supplier of premium hard coking coals that are in relatively short supply worldwide and are suitable for blending with coal produced in China.

Australia's share of China's coal imports came under pressure from Viet Nam in 2005 – Viet Nam exporters have the advantage of lower transport costs but their coal has a lower calorific rating than other potential suppliers. In 2005, anthracite coal exports to China from Viet Nam increased by 62 per cent and accounted for 39 per cent of total imports (McCloskey's website). Anthracite tends to be used

for cement production and potentially can be used as an alternative to thermal coal to generate electricity. For metallurgical coal, Mongolia and Canada were the two major suppliers other than Australia in 2005 and accounted for 32 and 17 per cent of coking coal imports respectively (McCloskey's 2006).

In April 2005, China's import tariff on steaming coal was reduced from 6 per cent to 3 per cent. The import tariff on coking coal was set at zero in January 2005, down from 3 per cent. The reduction in import duties has encouraged increased imports of steaming and coking coal. However, the effect of the lowered tariffs is difficult to separate from the effects of differences between domestic and international coal prices (Barlow Jonker 2005).

One factor that may limit coal exports and increase the demand for coal imports in the future is the development of coal liquefaction projects in China. The technology is being considered as one option to reduce China's growing oil and petroleum import dependence. China's first coal liquefaction project is scheduled to begin operating in 2007 and is located in Inner Mongolia. The Shenhua Group, one of China's largest coal producers, is financing the project. The takeup rate of this technology is influenced by the relative cost of oil to coal, and production costs. Production costs of the Shenhua project are expected to be approximately US$24 a barrel (Shenhua Group Corporation 2004).

Imports of coal will continue to be needed to meet China's increasing demand for energy as infrastructure constraints limit the amount of coal that can be transported by rail. Domestic coal production is expected to supply the majority of the increase in coal demand. Imports will continue to account for a small proportion of total coal consumption but are expected to continue to increase in absolute terms.

conclusion

The coal market in China has returned to a more sustainable position in 2006, compared with the supply constrained market in 2003 and 2004. Significant changes to electricity market regulation and the increase in generation capacity in the past three years has led to a subsequent rise in demand for thermal coal. The reduction in thermal coal exports has resulted from the widening gap between domestic coal prices and international benchmark prices. Demand for metallurgical coal also increased in the past five years in response to the capacity expansion in the iron and steel sector.

Increased investment in coal production and transport links has reduced upward pressure on coal prices in China. Despite these positive developments, the coal industry continues to face significant issues, including mine safety, transport infrastructure constraints in periods of high demand, and ineffective pricing mechanisms that distort price signals for both producers and consumers.

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