

Resolving China's Power Shortage^(c)

Shanghai is China's financial and business hub. In late July 2004, with daytime temperatures reaching 37 degrees Celsius, the city's electricity consumption surged to a weekly record of 14.35 million kilowatt hours. The city authorities resorted to asking 2,100 businesses to operate at night, and a further 3,000 others to adjust operating hours.

Even high-profile multinational companies were not spared. General Motors and Volkswagen were ordered to suspend production for more than a week each. Shanghai Volkswagen spokesman Lu Jun explained, "It's a rule. We have to cut power for 10 days ... We've cut power and so have had to stop production. It's all over Shanghai".¹

The Shanghai episode mirrored a nationwide shortage of electric power. In Beijing, on July 22, 2004, the Municipal Power Supply Bureau imposed the capital's first brownout of the year, disrupting supply to suburban areas for 47 minutes in the afternoon.

The Chinese government has certainly been working tirelessly to resolve the power crisis. Thermal coal is the principal fuel used to generate electric power in China.

In July, Premier Wen Jiabao exhorted, "Railway departments should do their utmost for the transport of coal for electricity generation".² The Ministry of Railways increased train speed and freight loads, and allocated 90% of freight capacity to transport key materials. In the first half of 2004, Chinese railways shipped 480 million tons of coal, up 12.2% over the same period last year.

The Ministry of Communications has also pitched in. It diverted ships from overseas routes to domestic coal transport and approved emergency coal transportation on various roads and waterways.

China is the world's second-biggest coal exporter. In 2003, China exported 93 million tons of coal, including 80.8 million tons of thermal coal. To assure supplies to the electric power industry, the Chinese government has limited coal exports to 80 million tons in 2004. China Coal Import & Export Vice President Zhou Dongzhou predicted that exports of thermal coal would fall to 70 million tons.³

^(c) August 2004, I.P.L. Png.

¹ "Shanghai power crunch hits Volkswagen, others", *Reuters*, 23 July 2004.

² "Chinese premier stresses transport of coal, oil, fertilizer, grain", *Peoples Daily Online*, English Edition, 30 July 2004.

³ "Japanese utilities to pay more for coal", *Shanghai Daily*, 19 April 2004.

Since the 1960s, the Chinese government has regulated the supply of thermal coal to electric power plants. It requires coal mines to supply power plants with about one-quarter of coal purchases at a contract price.

The government regulates the supply of coal to support its regulation of the electricity industry. In the late 1990s, the Chinese government dissolved the Ministry of Electric Power, and divided its functions between the State Electricity Regulatory Commission (SERC) and the State Power Corporation of China.⁴

The State Power Corporation owns five of the six transmission grids (Northwest, North, Northeast, Central, and East) and about half of the national generating capacity. Regulation is necessary to ensure that the State Power Corporation does not abuse its monopoly power.

The SERC regulates all aspects of the electricity industry, except pricing. With regard to electricity pricing, the SERC's role is to advise the National Development Reform Commission (NDRC).

To ensure that electric power generation is economically viable, mines are required to sell coal cheaply to power plants. Typically, the government sets the contract price below the spot market price. For instance, between 2003-04, while the spot market price of thermal coal rose by 25%, the contract price rose by only 10%.

Many mines have ignored their contracts with power plants and sold coal on the spot market to earn higher profits. Some power plants cut back production, so exacerbating the national power shortage.⁵

Some estimate that the nationwide power shortage will soon reach 30 million kilowatts, which is more than double Shanghai's peak consumption.

With China headed for a power crisis, the government is under pressure to increase electricity prices. In June 2004, following persistent rises in the cost of fuel, the NDRC increased electricity prices by an average of 2.2 fen per kilowatt-hour in the East, North, Central, and South grids.

But, apparently, this increase has not been sufficient. The threat of a power crisis continues.

⁴ Xu Shaofeng, "The Reform of the Electricity Power Sector in China", International Conference on "Energy Market Reform: Issues & Problems", Hong Kong Baptist University, August 2003.

⁵ "NDRC mulls scrapping of coal price perk", *Peoples Daily Online*, English Edition, 23 July 2004.

Discussion Questions

1. Explain how the impact of a price increase on electricity consumption depends on the price elasticity of demand.
2. The price elasticity of the Indian demand for electricity has been estimated to be -0.65 among residential users and -0.45 among industrial users. If these elasticities apply to China as well, how will the impact of a price increase be spread between residential as compared with industrial users?
3. Many Chinese organizations ignore the market system. For instance, they borrow money from banks and refuse to repay, thus creating “bad debts” for lenders. Likewise, they might consume electricity without bothering to pay the power supplier. Do such organizations cause the demand for electricity to be more or less price elastic?
4. Suppose that the Chinese government regulates the electricity industry through marginal cost pricing.
 - a. How does the contract price of thermal coal affect an electric power plant's *marginal cost*?
 - b. If the contract price were raised to 99% of the spot market price, how would that affect the electric power plant's production?