

CHAPTER 5

PROSPECTS AND OBSTACLES FOR CHINESE ENERGY SECURITY

Accelerating development of power-intensive machinery, auto, steel and manufacturing sectors, the growing pace of urbanization and low energy efficiency are blamed for China's extensive shortage of energy, which may worsen before 2020. An industrial report of the State Information Center with the National Bureau of Statistics forecasts China will face a more severe power shortage this year than it did in 2003.

A total of 24 provincial areas imposed power brownouts in the past few months. According to Xu Dingming, a leading official with the Energy Bureau of the State Development and Reform Commission, China's output of primary energy was equal to 1.603 billion tons of standard coal last year, up 11 percent over the previous year. But demand outpaced supply as shortages of coal, power and oil were reported in many areas of China, whose economy grew by 9.1 percent last year, and over 7 percent in the two years before 2003.⁹

In 2003, many coal-fired power plants in China sound the alarm bell of running out of coal, and 22 provincial areas imposed brownouts due to power shortage. China produced 170 million tons of crude oil and imported about 100 million tons of crude and refined oil. China is now in the middle stage of industrialization phase characterized by faster development of energy-intensive machinery, auto, iron and steel sectors. Urban residential consumption of energy also rose dramatically due to the country's fast pace of urbanization and improved standard of living. It can be said that excessive investment in the country's iron and steel,

⁹ Xinhua, "China: Severe energy shortage warned," <http://www.energybulletin.net/604.html> People's Daily Online, 12 June 2004,

electrolytic aluminum, and cement sectors has been another contributing factor of the power shortage.

Low energy efficiency remains a problem for China as its comprehensive energy efficiency stands at 33 percent, 10 percentage points lower than that of developed countries, and China's energy consumption for per-unit output value is twice as much as that of developed countries. A survey conducted by China's power sector shows its coal-fired power plants and power transmission companies would save an equivalent of 120 million tons of standard coal if their energy efficiency was raised to the advanced level of developed countries.

Wang Guangtao, minister of construction, said energy consumption of buildings in China is double or triple that of developed countries of comparable climate. Experts estimate that if new buildings and existing buildings in China all conform to advanced energy conservation standards by 2020, their energy consumption would drop by an equivalent of 335 million tons of standard coal per year, compared with doing nothing at all. That's about one fifth of China's annual energy consumption.

The shortage signals more problems than it appears, such as the country's worsening pollution due to growing consumption of coal, and energy security. China's energy sector has to face two major challenges as growing energy supply will pose pressure on the environment and low energy efficiency has become a major constraint on the expansion of the energy sector and sustainable social and economic problems.

But China's energy demand in 2020 is projected at 3 billion tons of standard coal, almost double that of its output for 2003, which means pollution arising from coal-burning would worsen accordingly, putting further pressure on the country's water resources and transporting system.

Beside coal, it is important to note the challenges China faces in the future use of its limited energy resources and potential cooperative projects in the field.

Many Chinese people still remember the frequent blackouts in many major cities around the country last year. But experts predict that such a phenomenon is unavoidable in the approaching power consumption peak of summer. Also last year, China's oil consumption exceeded Japan and became the second largest in the world. Meanwhile, the purchase of private cars is still on the rise, causing a new round of fuel price hikes. The Chinese government has realized the importance of international cooperation and is seeking more and more opportunities not only in Asia – like with ASEAN and central Asian countries – but also around the world, with Russia and Central American countries.

Recommendations

The majority of oil supplies depend on domestic resources

China is a large oil producer and a big oil consumer in the developing stage. Oil supply should be based on domestic resources. Strengthen exploration to increase oil reserve and output, increase the self-supply rate, and secure the basic domestic oil supply.

According to the characteristics of oil resource distribution and current situations of oil field development, first it is necessary to stabilize the production in east China. Keep rolling exploration and development at the old oil fields and peripheral areas, strengthen comprehensive adjustment of old oil fields to try to increase recoverable reserve, improve the recovery factor, and extend stable production period. At the same time, speed up exploration in west China and offshore areas. Try to achieve big discover, increase new reserves production capacity. Realize strategic substitution of oil resource and stable and sustainable increase of oil production.

Utilize overseas resources to reduce the gap between domestic demand and supply

It is difficult to deny that there will be an oil shortage in China. Therefore, it is necessary for China to develop channels of trade, and actively participate in the exploration and development of overseas oil resources in order to create long-term, stable, and diverse international oil supply channels. There are basically two methods to utilize world oil resources. One is to directly buy crude oil and oil products through trade, trying to diversify the source of import, the channel of import, and products, in order to secure oil supply. The second is to participate in the exploration and development of overseas oil resources and to establish overseas crude oil and oil product bases.

Speed up the development of substitute products for oil

Natural gas can replace oil in many fields, and it is a cleaner fuel. It will be similarly difficult for domestic natural gas production to meet demand. Import would still be necessary, and thus new energy security issues would come into play. In addition, although the technologies for coal liquefaction have matured, there are economic barriers. Finally, relevant research and development on replacing oil through biomass liquefaction should be taken into account.

Enhancing the development and popularization of clean coal technology

The coal dominated energy production and consumption in China is determined by the resource conditions and economic development, it is improper and impossible to change it, thereby, the damage of environment is also severe. The State should begin with the strategy, take effective measures, and enhance the development and popularization of clean coal technology.