

Preface

For more than 15 years China has maintained a breathtaking rate of economic growth, averaging almost 10 per cent per annum. This growth has propelled China's energy demand to the point where a country that was a net exporter of oil in the 1970s cannot now meet its domestic needs from its own natural resources. Indeed, today's price of a barrel of oil (\$60+) is attributed by some, perhaps unfairly, to the unanticipated demands that China has been making on the world oil market in recent years.

China is a country that in some respects is today not unlike the USA of the 1850s – it has a sophisticated and prosperous east coast and an interior and western region that lags a long way behind, with a much lower standard of living and heavy dependence on agriculture and mining. The interior is also still somewhat remote from the writ of Beijing, as the saying goes 'The mountains are high and the emperor is far away'.

Tens of thousands of towns and villages in western China are still without mains electricity and the benefits of communication and quality of life that they bring. These internal disparities have led to varying degrees of civil unease. For these reasons it is hardly surprising that the priority of the present government is to redress the balance. In part this is being done by a programme of power-plant construction on a scale that has probably never been matched. Currently the equivalent of a large (1Gigawatt) capacity power station is being commissioned every five days. These plants are, however, not being fuelled by oil or gas, but by coal, the one fossil fuel that China has in abundance. Although this choice of fuel would probably have been made in any case, the high world prices of oil and gas have effectively ruled them out as alternatives for power generation. This choice, however, carries a major penalty, namely that of air pollution. Particulates and acid rain continue to pose a major respiratory problem in industrialized cities and as recently as November 2005, Chinese government officials were estimating a cost to the country of around 3.5 per cent of GDP. Both oil and gas can be significantly lower in both local pollutants and greenhouse gas emissions.

The greater part of China's energy resources lie in the west of the country, while the bulk of current demand arises in the urban and industrial east. For that reason the new west–east gas pipeline is of great importance. This is one of the largest and most rapidly completed projects of its

kind in the world. For the future it is worth remembering that the nearest unexploited or underexploited oil and gas reserves in China's immediate neighbourhood lie to the north-west, in eastern Russia. These are currently being explored by consortia comprising Russian and foreign oil companies. When they are fully assessed it may prove that access to these resources by pipeline could be an important way for China to strengthen and diversify its energy supply.

The rate of growth of Chinese oil consumption is matched by the growth of the demand for transport fuels. Perhaps the most visible indication of this growth is the increase in private and other forms of car ownership. China's new middle class and the growth of its corporate activities now create rush-hour congestion equal to any found in major cities in the East. However, it would be wrong to think that vehicles are the only problem. Increase in both internal and international aviation and increases in the energy demands for shipping have both played a major role.

For transport there is no generally available alternative to oil. As the authors show, although China has some reserves of oil and a reasonably effective oil industry, there is no prospect of demand for transport fuels being fully met from internal resources, and hence imports can only rise. This has several consequences. The most obvious are the attempts to secure resources overseas either by direct acquisition or by partnership deals. In recent years China has completed deals in Sudan, Venezuela, Angola, Kazakhstan, Algeria and Indonesia (and has been rebuffed in the USA). It will be surprising if securing additional resources overseas does not remain a major objective of Chinese foreign policy for many years to come.

Another consequence is the search for direct oil substitutes. With world oil prices at their present levels, technologies that a decade ago were of research interest only are now attracting urgent attention. In particular, the possibility of new techniques to exploit coal reserves must be of great interest to China. If coal is heated under appropriately controlled conditions, new gases are evolved that may either be used directly, or used to make vehicle fuels. Some work of this kind is going on in collaboration with foreign companies, but so far there does not appear to be any production. If current world prices remain above \$50, this may prove to be a cost-effective way of improving supply security for vehicle fuels. As well as being in the world market for conventional oil, China may also have an interest in the ultra-clean vehicle fuel that is being produced by the multinationals in the Middle East from natural gas (GTL – gas to liquid). This would make a welcome contribution to improving air quality in major cities.

This is a timely volume. Understanding the oil and gas industry that China has at home is essential to understanding Chinese foreign policy and the future role of China in world oil and gas markets. It is certain to be a major one.

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