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Going West

Nuclear power in China seems to be heading in the wrong direction, says Walter Patterson

'Nuclear power is inevitable. The present reserves of coal and petroleum will be used up in 200 years but uranium will last for 2500 years'. The sentiment is long since familiar in Western industrial countries, on the lips of official energy planners. The speaker quoted, however, is Peng Shilu, Vice-Minister of Water Resources and Electric Power in the People's Republic of China, in an interview published in Hong Kong in April 1984. His comment highlights one of the most controversial facets of China's 'four modernisations'.

On 26 February 1978, China officially entered the era of civil nuclear power. Hua Guofeng, then chairman of the Communist Party, announced that China was embarking on a nuclear power programme, to 'catch up with the rest of the world'. After a head start of several millennia, Chinese civilisation has now – in this respect at least – caught up as far as 1974. China is still in the early stages of work on its first-ever 'commercial' nuclear power stations.

Wistful longing

Nevertheless official Chinese pronouncements in 1984 envisaged having 10,000 megawatts of nuclear power in operation by the year 2000. These confident assertions are an uncanny after-echo of similar assertions made by nuclear establishments in Western industrial countries a decade ago.

China has already started construction of a 300-megawatt nuclear station using an indigenous Chinese design of pressurized water reactor (PWR), at Qinshan near Shanghai. But the focus of immediate interest to nuclear promoters in the UK, France and the US is the plan to build a nuclear power station on the south China coast, at Daya Bay in Guangdong province, some 50-odd kilometres northeast of Hong Kong. The plan for the Guangdong station, with two 900-megawatt PWRs, got the go-ahead from Peking in 1978, and the provincial authorities opened discussions with China Light & Power, the main electricity supplier in Hong Kong. The proposal was for China Light to become a partner in a joint venture with Guangdong, to put up part of the capital investment required for the Daya Bay plant – estimated at about HK\$36 billions, or some US\$4 billions – and to take 70 per cent of its electricity output to sell to customers in Hong Kong.

The prospect of gaining a foothold in what was seen as a multi-billion dollar market for civil nuclear technology in China prompted a parade of Western nuclear interests to Peking and Guangdong. Chief suitors were the UK, France and the US. By late 1983 the favoured package for Daya Bay appeared to be two PWRs from Framatome of France, coupled to turboalternators from GEC of Britain.

The merchant bankers Lazard Bros carried out an investment analysis of the proposal, and reported favourably; and in October, 1983 the Hong Kong government agreed in principle to participate in the Daya Bay project. The Hong Kong Nuclear Investment Company was established with China Light as the major shareholder and all seemed set fair. But the Lazard Bros analysis was never made public, and doubting voices began to be heard.

Joint venture

The original plan called for the Daya Bay station to enter service in 1991. In December 1983, however, an official party visiting the site from Hong Kong were told by the Chinese deputy head of the project that there would be not one but two stations at Daya Bay. The first would be the joint-venture station, and was now scheduled for completion in 1989 – a construction period of only some five years. The second would be a completely indigenous Chinese station, whose construction would commence even before the first two-unit station had been completed. The second station was declared to be necessary to supply Guangdong province and the city of Guangzhou (Canton).

Sceptics wondered where the Chinese would find the capital for this second station, and what the relationship would be between this 'indigenous' plant and the imported plant next door. The first Daya Bay plant could only be financed on the basis that most of its output was to be sold – under terms of extreme vagueness – to Hong Kong. Nothing was said about any licensing of foreign technology.

The confusion was compounded by an interview with Peng Shilu, the Chinese head of the Daya Bay project, in the April issue of the Hong Kong periodical *Petroleum News*, in which he made the comment quoted above. Asked to describe his methods of costing the project, he offered no details, but claimed that the figure invariably stated – HK\$36 billion – was in fact an over-estimate and that China Light agreed that the cost would be only HK\$24 billions. China Light have never said anything of the kind.

Peng also insisted that all subsequent nuclear stations in China would be 'indigenous'. That being the intention, the role of the first Daya Bay station in the Chinese nuclear power programme became even more obscure. If it were to be a one-off plant, most of whose output was to be sold to Hong Kong, and whose technology was not to be used for later Chinese stations, it appeared to be merely an exercise in venture capital management – hardly the Chinese norm – in a context whose risks have seen Western financial organisations fleeing the market in droves, with nuclear projects collapsing about their ears.

Doubts about the economic plausibility of the Daya Bay project were underlined when Hong Kong Electric, the smaller electricity supplier in the colony, announced in March 1984 that it would not be participating; it considered that coal-fired plant would be more cost-effective. Framatome and GEC submitted their bids in February and March – the only bids the Chinese invited – and let it be known that they expected contracts to be awarded within two months. However, the weeks passed with no further progress toward establishment of the joint venture company that would award contracts and manage the plant. Some reports indicated that the delay was due in part to British government manoeuvring about the long term future of Hong Kong, due to revert to Chinese control in 1997. Other reports asserted that China Light was having second thoughts about the whole idea.

Within Hong Kong outspoken criticism of the project, on grounds of economics, safety and environmental impact, was being voiced, not only by local organisations like the Hong Kong

Friends of the Earth but also within the deliberations of the Environment Protection Committee, official advisors to the Hong Kong government. Matters came to a head in June 1984, when the Hong Kong government summarily dismissed two of the most persistent critics from the Committee.

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