

(from Nuclear Times, Vol. I No. 1, published by Friends of the Earth, London, June 1975)

*As the problems multiply,
the questions boil down to one:*

Is fission worth it?

Undeterred by a ten-year fiasco costing over one thousand million pounds, British energy planners are determined to press on with nuclear power. On 5 February 1975 Eric Varley, Secretary of State for Energy, announced that planning permission had been given to construct two more nuclear stations, the first of a new generation based on the British-designed Steam Generating Heavy Water Reactor or SGHWR.

One station, including four SGHW reactors, is planned to be built at Sizewell, in Suffolk, for the Central Electricity Generating Board. The other, including two SGHW reactors, is planned to be built at Torness near Edinburgh, for the South of Scotland Electricity Board. What is far from clear as yet, however, is just who is to build these stations, who is to pay for them, and why.

Ten years ago, on 25 May 1965, the British Government made a similar announcement, launching a new nuclear programme based on the British designed Advanced Gas-cooled Reactor or AGR. The first of the AGR stations, Dungeness B, was ordered in August 1965. It has still not been completed. Some knowledgeable observers doubt that it ever will be.

Its sister stations Hinkley Point B, Hartlepool and Heysham (CEGB) and Hunterston B (SSEB) are up to four years behind schedule, and none has yet started up. The AGR programme has cost, at a rough but by no means exaggerated estimate, over £1,000 million, and has produced to date not one unit of electricity.

One result of the AGR programme has been the demoralization and near-disintegration of the British nuclear power industry. Firms belonging to the two surviving 'consortia' were regrouped into one: the National Nuclear Corporation. In turn the NNC was to have a reactor-construction subsidiary, called the Nuclear Power Corporation. But the NNC was not overjoyed at inheriting the unfinished AGRs.

To lead the NNC, the government named Britain's General Electric Company, GEC, and originally agreed to turn over to GEC 50 per cent of the shares in the NNC. But in July 1974 the government rejected the grandiose scheme put forward by the CEGB and backed by GEC, to build 32 gigantic American reactors in Britain. When the choice went instead to SGHWRs, GEC threw a tantrum, and insisted that it would reduce its shareholding in NNC. The position has still not been clarified. NNC remains a paper corporation, far from ready to accept new orders for reactors.

The AGRs were ordered to meet an electricity demand which the planners expected to grow at 8 per cent per year. But from, 1964 onwards the steepest rate of growth of peak demand in England and Wales was only about 3.5 per cent - and for the past three years this peak demand has remained almost stationary, at about 40 million kilowatts. The delayed AGRs have accordingly not been missed; and all would be well, were it not that they must nonetheless be paid for.

According to the Department of Energy, the UK in January 1975 had an electrical output capacity of just over 69 million kilowatts. During the previous year the maximum peak demand was just over 45 million kilowatts. That is to say, the electricity generating system of the nation had 52 per cent more capacity than it needed to provide electricity to all consumers during the half-hour of most concentrated demand during the year. Additional stations under construction include the AGRs, the Littlebrook D oil-fired station and a number of smaller stations, among them gas-turbine stations specifically intended to meet peak demand. The Electricity Council, in its 1974 annual report, stated that growing uncertainty about future prospects made it unrealistic to do more than adopt a provisional forecast for the time being. The Council thereupon proposed to assume a growth rate of 6.4 per cent in peak demand - nearly twice the steepest rate observed in the past decade. However, even the Electricity Council and the CEBG have since had to admit that rising costs, dearer electricity and more acute concern for energy conservation are making their headlong forecasts indefensible.

In March 1975 the Chairman of the CEBG conceded reluctantly that no case could be made for ordering any more stations this year. But he went on to assure the nuclear industry that Sizewell B's SGHW reactors would nevertheless be ordered in 1976. Within a week of receiving the Torness go-ahead, the SSEB declared its desire to put another four SGHW reactors at Hunterston. The CEBG is eyeing sites at Orford Ness in Suffolk, Molesworth in Huntingdon, and Havering in Essex, among others. It already has preliminary permits for nuclear sites at Portskewett, Monmouthshire, and Oldbury, Gloucestershire, and would like to add a third station at Dungeness.

The claim is that these stations would provide cheaper electricity in the 1980s than the existing system. But the same claim was made for the AGRs. The Secretary of State for Scotland, in giving permission for the Torness station, assumed that construction of the station could take ten years. With interest on the necessary capital now in double figures, neither the Treasury - who must approve such investments - nor electricity users can take much comfort from the prospect. The recent record rise in electricity rates will certainly not be the last.

The solicitude of the government and the electricity authorities for the wellbeing of the floundering British nuclear industry thus continues to take priority over their concern for less fortunate energy consumers. The government's White Paper on public expenditure, published in March 1975, allocates £244 million of public funds for nuclear research in the coming five years. The government funding for the fast breeder reactor alone is presently more than £33 million per year, with other nuclear research adding an additional £35 million. Coal research and development gets £6 million, oil research and

development £1.5 million; research into other energy sources gets a total of less than £400,000, and into energy conservation only about £200,000.

No one has any firm idea of what tender prices will be for the Torness and Sizewell B stations; they can be fairly confidently expected to be over £500 million and £1,000 million respectively. If the AGR programme is any example, long-suffering taxpayers and electricity users will be lucky if these figures do not double. There is a common impression to the effect that nuclear power comes from uranium. But the evidence makes it clear that, in reality, nuclear reactors burn money.

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