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The options UK energy planners are ignoring

By Walt Patterson

Official British energy policy – or what might in a dim light pass for energy policy – can be summarised in six words: North Sea oil and nuclear electricity. We shall have a brief whirl as oil exporters, mainly to pay the foreign-exchange bills we shall have incurred in developing the oilfields. Thereafter, probably well before the year 2000, we shall rely increasingly on electricity, from ever larger power stations, most of them nuclear, and many of them using fast breeder reactors.

The UK Atomic Energy Authority propose that we should have 25 1000-megawatt fast reactor power stations in operation in Britain by the year 2000 – this in addition to the orthodox nuclear stations. Underlining government commitment to this electronuclear future, the recent White Paper on public expenditure earmarks £244 million for nuclear research and development in the coming five years. Current government funding for all energy R&D amounts to some £92 million annually. Of this more than two-thirds, £68.5 million, is for nuclear R&D, of which fully £33 million is for the fast breeder reactor.

Is this lop-sided, indeed singleminded, electronuclear emphasis appropriate? On the contrary; there is good reason to believe it the most expensive, most hazardous and least certain way imaginable to fulfil our energy requirements.

At the end of May we passed the tenth anniversary of Britain's second nuclear programme, based on the Advanced Gas-cooled Reactors. None of the AGRs has yet started up; all are at least three years behind schedule; and the first, Dungeness B, may well never operate at all. The programme has cost us – taxpayers and electricity users – thus far, at a conservative estimate, well over £1000 million, and generated not a kilowatt.

The Central Electricity Generating Board has accepted with reluctance another British design, the Steam Generating Heavy Water Reactor, for a third programme. But even its necessity is far from apparent. The CEGB has, according to the Department of Energy's bulletin *Energy Trends*, 59,451 megawatts of generating capacity. The maximum load it has ever had to supply is 40,935 megawatts. It therefore has an excess capacity of 45 per cent. Stations still under construction include not only the AGRs but also the 2000 megawatt Littlebrook D oil-fired station and several gas turbine stations specifically intended to cope with peak loads. With interest rates in double figures we are in no hurry for more electricity capacity.

In any case some 55 per cent of present British energy use requires low temperature heat. Should we not now de-emphasise electricity? Steam-cycle generating stations waste about two thirds of the primary energy in the form of heat – 'waste' heat, because it is not used. It could be, in district heating systems, as it is in many other countries.

The Electricity Acts could be amended to require the CEGB to supply not 'electricity' but 'energy'. Small old power stations in urban locations, now being retired as 'uneconomic', could be converted into 'total energy' stations supplying both electricity and heat, with capital expenditure a great deal less than that contemplated for building nuclear dinosaurs. If the heat load were met in this way, the electricity output could be reserved for uses specifically requiring its higher quality energy.

Present government backing for solar energy amounts at most to £35,000 – one-thousandth of that for the fast breeder. Wind power gets precisely nil. So do combined gas and steam turbines, another promising technology. Advanced coal technology gets only token support. Yet fluidised-bed combustion might be a world break-through in high efficiency, pollution-free use of coal, especially appropriate for small urban-sited total energy stations.

Above all we could take energy conservation seriously. It is almost always faster, cheaper and easier to save a kilowatt than to add another kilowatt of supply. Instead of mere exhortation – costing £3.3 million so far – why not, for instance, offer grants for improving thermal insulation?

If only the planners could be persuaded to take a closer look they too might realise that Britain's energy options abound. Why do we not take advantage of them – all of them, not just the most demanding and unpropitious?