UK nuclear power

A time for boosting morale

THE British Nuclear Energy Society and the British Nuclear Forum last week heard Mr Giles Shaw, Under Secretary of State for Energy, loudly sing the praises of nuclear power as a "vital contribution to our national energy supply".

In normal circumstances it might be thought that that hardly needed saying, but Mr Shaw's speech was not made in normal circumstances. It was an attempt to restore confidence to an industry that has been shocked and hurt by the recent critical press attention over the radioactive sea discharges from the fuel reprocessing plant at Sellafield (formerly Windscale) in Cumbria, operated by British Nuclear Fuels Limited (BNFL).

A self-perpetuating circle of mistrust seems to have grown up between the press and BNFL (and, by association, the whole of the nuclear power industry). A television programme broadcast in early November that raised the possibility of a link between the discharges and a locally high incidence of childhood leukaemia raised extensive interest and prompted a government inquiry. Then, only two weeks later, a slick of chemical solvent containing 600 curies of beta radioactivity was washed up onto the beach near the discharge pipeline.

The mishap appears to have been relatively unimportant from the viewpoint of radiological protection but it was a public relations disaster. A section of public beach had to be closed temporarily and the Department of the Environment issued a warning to the public to avoid "unnecessary use" of the beach. The department has been removing pieces of debris that have been washed up with, it says, activities up to 1,000 times background. BNFL said that contaminated seaweed found on the beach could be kept in contact with the skin for "very many hours without ill effect", which probably did not have the desired impact.

The liquid discharges from BNFL's reprocessing plant are the largest routine discharges of radioactivity into the environment in Britain, and possibly in Europe. The government departments that authorize the discharges have always maintained that radiation doses to the most affected individuals are well within acceptable limits laid down by the International Commission on Radiological Protection and the National Radiological Protection Board (NRPB), but the safety margins shrank rapidly last year when a revised assessment of shellfish consumption and new experimental evidence on the uptake of plutonium from the gut together increased estimated doses from plutonium by a factor of fifteen. As a result, dose to the most exposed group in 1981 was estimated to be 69 per cent of the internationally agreed limit for members of the public and well over the recommended annual limits for prolonged exposure.

The Ministry of Agriculture, Fisheries and Food says it has not attempted to apply the new gut factors to consumption in the 1970s, when discharges of alpha activity were five times higher: it says that to do so would be "unhelpful". The main objective is to reduce discharges in future (although not in the manner attempted by Greenpeace, a conservation group, before a court injunction ordered it to desist from interfering with the discharge pipeline). About £100 million is being spent on reducing emissions, and discharge procedures have been tightened to prevent a recurrence of last month's events.

The United Kingdom Atomic Energy Authority is acutely conscious of the damaging effect of such publicity, and intends to launch a public relations offensive in the new year that will involve "admitting where we have made mistakes". Mr Clifford Blumfield, director of the Dounreay fast reactor development centre in Caithness, Scotland, has recently written to all employees at the centre and their families saying that discharges from the Dounreay site are a small fraction of authorized limits and that the effects of Dounreay are only just detectable above background levels, and then only close to the site. To the management of BNFL this must look like cutting and running.

Sir Hermann Bondi, chairman of the Natural Environment Research Council, told last week's gathering that the "cheeseparing attitudes to capital investment in the 1960s" that had resulted in "technically totally unnecessary discharges" may yet cost the industry dear. The development of nuclear power was, he said, essential, not for Britain — "I couldn't care less if we have to pay a few pence more for electricity" — but for the developing world, which would suffer badly if Western reliance on oil as a fuel forced up prices still further.

This argument in fact contrasted rather sharply with one made later by Mr Shaw, who said that nuclear power might reduce generation costs and hence prices to the consumer: "The French have recognized the importance of nuclear power to their economy . . . and not surprisingly they also have cheaper electricity". But in the general air of bonhomie that was the real reason for the gathering, nobody seemed to notice.

Tim Beardsley

UK student numbers

Government predictions awry

THE Department of Education and Science has got its sums wrong on future student numbers in the United Kingdom, according to the Association of University Teachers (AUT). The department's figures fail to take into account changes in social class composition and the increasing numbers of women entrants into universities, says AUT, and could mean that "thousands of youngsters who will be well qualified to enter higher education will not be able to obtain a place".

One critical unknown in determining future student demand is the age participation rate, or the proportion of the population at any age taking up a place in higher education. The size of the 18-year-old population is, of course, known up to the year 2000. Consequently all projections of future student demand hinge on assumptions about the trend in future age participation rate of different groups.

The 18-year-old population peaks this academic year and next. The government predictions of demand for all full-time education assume an age participation rate that increases steadily and results in a peak for demand this year and next year (at around 165,000 entrants) and then drops to about 120,000 by the mid-1990s. The Royal Society has produced estimates that broadly agree with these.

The Committee of Vice-Chancellors and Principals has also produced projections of the number of university students, and these show no fall from the present peak during this decade and only a modest fall thereafter. The reason for the difference is that the committee assumes that the age participation rate for university entrance will increase more rapidly than for education as a whole.

The latest figures from AUT take this assumption even further, extrapolating existing trends in the age participation rate of women and in the social class composition (most entrants to higher education come from social classes 1 and 2). On the basis that parity in male and female participation will have been reached by the early 1990s and that the number in social classes 1 and 2 will increase by about half by 1998, AUT says that demand will increase until the 1990s before falling back to present levels. It argues that the skilled manpower needs of the economy in the year 2000 will be such that the government should plan for higher education on the assumption that the trends will continue. "It is philistine folly to cut places in future in order to save money now", says AUT's general secretary Diana Warwick.

What does the Department of Education and Science have to say about AUT's calculations? "Well, you know how it is with statistics", said a spokeswoman. "You can make them show anything you want. But our statisticians will be looking at the AUT figures to determine the areas of difference."

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