international news

British energy users' views

by Roger Woodham and Eleanor Lawrence

CONTINUING its investigation of the way in which energy is being conserved in the UK, and at the same time reinforcing its disbelief at what it sees as a "surfeit of inconclusive thinking" on the part of the government, the Energy Resources Subcommittee of the Select Committee on Science and Technology last week turned to the chemical industry, represented by three members of the Chemical Industries Association (CIA) Limited.

The subcommittee was clearly anxious to hear firm advice from the CIA about what sort of measures the government should be taking to see that energy is not wasted. In the event, what it got were some general comments about price restraint and taxation, but few specific recommendations.

The CIA did say, however, that the chemical industry in the UK expects to reduce its energy requirements per unit of output by about 10% by 1980, principally by good energy 'housekeeping'—maintaining a watchful eye on the amount of lighting used, unnecessary leakages of steam, the quality of insulation and lagging, and so on. Capital investment also helps, but usually only in situations where the increased cost of energy has made it economically sensible to replace equipment before it is worn out. As the association pointed out, although energy costs to the chemical industry have gone up by about 80% between 1973 and 1975, capital costs are not far behind with an increase of some 55%.

The CIA emphasised, however, that improvements in chemical manufacturing techniques could make for extensive energy savings. Some 4 million MW h of the 19 million MW h of electricity used by the chemical industry in a year —equivalent to about 460 MW out of 2,200 MW on a continuous basis—goes in the manufacture of chlorine alone, the CIA stated by way of an example, and the efficiency of that process has been increased in recent years by some 5% as metal anodes have come to replace carbon ones. Quite a respectable saving of energy.

Mr G. G. Harrison, of ICI, also confirmed the need for courses in energy awareness for people entering and working in the chemical industry.

● Following the CIA, the Energy Subcommittee took evidence this week from another massive energy user, the British Steel Corporation (BSC). With an annual total fuel bill of £600 million and a 10% share of Britain's total energy requirements, the steel industry is obviously in a position to affect the government's energy-saving plans considederably.

The main burden of BSC's argument was that modernisation of its plant and processes is essential if any further saving in energy consumption is to be made. If modernisation could go ahead quickly, the BSC reckoned on reducing the energy costs per tonne of steel produced by 10% by 1978.

Unlike many industries where energy costs have previously been only a few percent of total basic costs, British Steel has always been aware of the possibilities of a more efficient use of energy. Since 1967 it has made a reduction of 13% in its energy requirements, but the 10% reduction envisaged up to 1978 would represent a much stepped-up effort. Asked about the possible shortage of qualified fuel engineers, BSC's Director of Research and Development admitted ruefully that the energy crisis and the growing need for fuel engineers had meant a massive turnover in BSC's own engineering force as it was one of the few sources of trained, experienced fuel engineers in the country. He envisaged that a much more extensive in-house training scheme would be necessary in the future.

A long term possibility for minimising energy costs for the steel industry is to harness the heat-requiring reactions (basically the reduction of iron ore) directly to the process heat from nuclear reactors without the intermediate generation of electricity. Unfortunately for the steel industry in Britain, the only reactor capable of reaching the required temperatures of around 1,000 °C is the high temperature reactor, which is not exactly a high priority in Britain's nuclear research programme. The Select Committee appeared slightly pained to learn that we should have to import this type of reactor technology from the USA, Japan or Germany in about 15–20 years when the link-up has been sufficiently developed. But as BSC gently pointed out, it was hardly fair to expect a commercial reactor to be developed without a market for electricity generation. This market has now been cornered by the SGHWR, the Select Committee's own choice. □

IN a further step forward in the British government's efforts to cut defence expenditure from 5.8% of GNP in 1974 to 4.5% in the late 1970s, the Statement on the Defence Estimates, 1975 (Cmnd 5976, HMSO, £1.22) announces more explicitly the targets to be aimed at. Previous plans were for expenditure (at 1974 prices) to rise from about £4,000 million for 1975–76 to £4,300 million in 1978–79 and £4,450 million in the 1980s. Now the aim is to cut £300 million a year off the budget in the next few years and eventually, in the 1980s, to be paying only £3,790 million for defence.

Research and development expenditure is also to be cut fairly heavily. Throughout the 1960s the proportion of the defence budget devoted to it declined steadily from 15.5% (1961) to 9% (1970). Since then there has been a steady rise back to 12% and the plans were for it to stay at that figure until 1978–79 and then decline to 10% by the mid-1980s. Revised plans call for no substantial change in these percentages, but in absolute terms £440 million (1974 prices) less will be spent in the coming decade on research and development. Research accounts for about one-sixth of the expenditure, and of that sixth about one-fifth is called 'general or basic' research. One-third of expenditure on research and development goes to aircraft, another third to guided weapons and electronics; 38,000 civilians and 1,500 military personnel work in the research and development field.

Part of the cut in expenditure that will be called for should come from the rationalisation process now going ahead in research and development establishments. The plans are for four 'systems' establishments for the four environments sea, land, air and underwater, and a number of 'technology' establishments dealing with service-wide requirements such as communications or propulsion.