

Sweden's nuclear power game

from Wendy Barnaby

SWEDEN'S nuclear future has been decided—officially until 1985. The ruling Social Democrats' energy plan, put to Parliament last week and expected to be approved, provides for the construction of nine reactors. With the four already in operation, Sweden will have thirteen reactors with a total electrical generating capacity of about 9,500 MW by 1985. This will be only two more than previously planned, but the increase is seen by critics as the thin end whose wedge will be an existing government plan to build 24 reactors by 1990. Construction on that scale would make the Swedes the world's greatest per capita users of nuclear power.

The plan is a piece of politics worthy of Prime Minister Olof Palme's considerable skills. Forced last year by public concern over the nuclear programme to postpone a decision on those plants not then under construction, he has with the present proposal given the appearance of responsible caution while allowing his government a reconsideration in 1978 of the ways energy is to be provided for 1985–90. By 1978, he explained, there would be more knowledge available on which to make a better-informed decision. By 1978, he could have added, the next parliamentary election will be safely out of the way with the emotional energy issue securely pegged for future consideration.

On the face of it, nuclear power seems an obvious choice for Sweden. Although the country has no cheap uranium resources (that is, uranium which can be mined for less than \$10 a pound), it has almost half the non-communist world's known supplies of uranium in the next price range—\$10–15 a pound. It has been estimated that the supplies of cheap uranium may become scarce in the mid-1980s, partly because of the eight-year time lapse between discovery and production of deposits. Unless exploration is stepped up, therefore, the more expensive uranium could come into demand at about the same time as the Swedes' suspended nuclear programme would have been—and perhaps will still be—well advanced. Sweden would expect to be a major exporter of reactor fuel elements. But the nuclear issue has caused an extraordinarily vigorous public debate over the past year, focused mainly on the safety aspects and the disposal of nuclear waste. (In fact Sweden neatly solves its radioactive waste problems by sending its reactor fuel elements to Windscale, England, for reprocessing.) More recently the social and security consequences of a nuclear

decision have come into focus. Pro-nuclear groups have insisted that no rise in the standard of living will be possible without large scale nuclear power, and have pointed out the dangers of dependence on foreign energy sources. Anti-nuclear forces have responded that the choice is not between increased growth and alternative energy sources: both are possible.

The two new reactors proposed by the government are officially justified on the grounds that they, together with increased hydroelectric power, will make up the extra 15 billion kWh of electricity necessary for a projected increase of 2% a year in energy consumption. Non-oil-fired power stations are being emphasised in an attempt to lessen the country's dependence on the Middle East. As the average annual increase in consumption over the 15 years until 1973 was 4.5%, the new projection will certainly test the efficacy of save-energy campaigns. It is hoped that, by 1990, growth in energy consumption will be zero.

As well as changing the relative emphasis on present energy sources, the plan provides money for research into fusion, geothermal, wind and solar power. But the fact that the allocations for this research are roughly only 10% of those for the building of new reactors shows where the government's confidence lies. It will be surprising if, having laid the groundwork so skilfully, the Social Democrats do not use the 1978 review to hasten the day when the Swedes will be the largest users of nuclear energy in the world. □

OECD energy

THE Organisation for Economic Co-operation and Development (OECD) report on the problems and perspectives of energy research and development published earlier this year provides a comprehensive and relatively up to date (September 1974) review of expenditure on all facets of energy research throughout the OECD countries, which include Europe, the United States, Canada, Australia, New Zealand and Japan.

Although the report does not commit itself to specific criticisms of member states' energy research programmes, it obviously feels the need for a longer term approach to the problem, which appears to be lacking in many aspects of energy research programmes set up in response to the 'energy crisis' of 1973. It warns for instance that the sudden unsurge in energy R&D must not be subjected to cutbacks once the most spectacular effects of the crisis have receded and the problem has become less sensitive politically.

In general the distribution of resources should be directed to keeping

as many alternative sources of energy open as possible. Research aimed at energy production should no longer be limited to one primary source. Perhaps the country which has made the largest turnaround is the United States which now supports a massive and diverse programme on every conceivable aspect of energy production but which previously had based its energy policy very largely on the availability of cheap imported oil.

One important and as yet relatively undeveloped field of energy research is energy systems. This covers the inter-relationships between production, transport and use of energy and also takes in any factors which might have a bearing on the smooth functioning of that system, such as effects on the environment and supply of skilled manpower. The use of energy accounting to clarify the energy flow through these systems from the level of primary energy up to the finished product is also encouraged. The study of energy systems, says OECD, can be an extremely important factor in moulding future policies.

Although the tables of statistics and research programmes are necessarily incomplete and sometimes countries cannot be directly compared as some figures include a measure of industrial research whereas some pertain to government expenditure only, they provide interesting reading. The USA of course leads the field spending over \$1,000 million in the fiscal year 1974. France and Germany spent around \$350 million and \$450 million respectively and the United Kingdom spent around \$228 million in 1973–74.

With regard to the organisation of energy policy, the OECD picks out Britain and the United States as the only two countries which have set up a new ministry or agency to deal with the complete problem, thus fixing a policy course that links energy R&D administration with general energy policies. In other countries, energy research has been taken under the wing of the science ministries, where they exist, or handed to some *ad hoc* committee.

Where energy problems can be reduced to matters of technology to be solved by a specific research programme, the outlook seems fairly optimistic. The member states of OECD, comprising as they do the most highly developed industrialised societies, are orientated to cope relatively easily with that type of problem. But energy is an extremely delicate political subject and affects the whole nature of society. Therefore, says OECD, "future development [of energy] will mainly depend on the political decisions of countries with regard to the nature of their economic growth and social structures". □