

NUCLEAR POWER

Expected Defence

THE government's reply last week to the report of the Select Committee on Science and Technology on nuclear power chiefly defended the formation of the National Nuclear Corporation (NNC) in its current form (Cmnd 5499, HMSO, 1973).

The select committee had recommended that the government should take at least a 30% share in the new company, the remainder of the shares being open for tender. Any special management that the new company required should be provided on a contract basis, according to the select committee.

In the event, the government allowed GEC to acquire 50% of the shares and took up a mere 15% for itself through the United Kingdom Atomic Energy Authority (UKAEA).

The government says in its reply that "the basic need is for a company with the commercial, financial and managerial strength to meet the United Kingdom's requirements for nuclear power safely and to forecast cost, time of completion and performance. A company with these capabilities should also be in a position to compete successfully in the world market and would ensure that our substantial public investment in nuclear technology is exploited to the full and is suitably remunerated".

For this to be achieved, the government argues, "a unified management under the supervision of a principal shareholder who has a substantial financial commitment to the company and experience of the industry" is a main requirement.

The committee has also been worried by the prospect that GEC might withdraw from the new company. The government considers this unlikely, because GEC's financial commitment is "a serious and substantial one". Furthermore, the company has agreed not to sell its shares for five years without the consent of the government. If, later, GEC does want to sell, the UKAEA is to have first option on the shares.

The government also sets out to reassure the committee about the constitution of the Nuclear Power Advisory Board (NPAB). The committee said that unless the board was given an effective role it would be better not to appoint it. The government replies to this by stating that it sees the role of the board as being one of the greatest importance.

Equally the government defends the appointment of Lord Aldington, Chairman of the National Nuclear Corporation, to the board. The committee had argued that the construction company

should not be represented. The government says that it carefully considered the committee's comments, but believes that "NNC's views on all aspects of nuclear power development should be available to the NPAB and that this can best be achieved by Lord Aldington's membership. NNC's commercial judgment will be a very important factor in determining the direction and success of this country's future exploitation of nuclear power".

The government also declares that it is considering the committee's recommendation that the Chief Inspector of the Nuclear Installations Inspectorate should not have any other responsibilities.

The committee learned when it took evidence from Mr E. C. Williams, the Chief Inspector, that he is also the head of the Energy Technology Division within the Department of Trade and Industry. Fearing a clash of interest between the two jobs, the committee came out in favour of keeping them separate.

The government stated that it will take this into account "during further consideration of the arrangements that will be proposed for a Safety and Health Commission".

AIR POLLUTION

Emission Remission

by our Washington Correspondent

ALTHOUGH motor manufacturers have so far failed in their attempts to keep exhaust catalysts off all cars sold in the United States next year, they may yet win a partial reprieve from the full force of the Clean Air Act. Last week the Senate Public Works Committee decided to recommend to Congress that the timetable for meeting the strict exhaust emission controls specified by the act be relaxed a little. The committee will recommend, in short, that the controls be applied in California next year, as planned, but that they should not be extended to the other forty-nine states until 1976. This will be a year later than planned.

If the Senate and the House of Representatives take up the committee's recommendation, it means that exhaust catalysts would have to be fitted to all cars sold in California next year, since there is not enough time to develop other technologies for meeting the standards. But they would not have to be used elsewhere in the nation until 1976.

The committee's partial retreat will not, however, please the Ford Motor Company or Chrysler, since officials from those two manufacturers argued

COPYRIGHT

Carry on Copying

by our Washington Correspondent

A SPECIAL appeals court in Washington DC ruled last week that the copyright laws do not prevent libraries from photocopying journal articles or pages from books. The decision, which overturns an earlier ruling by a judge of the United States Court of Claims, has been warmly applauded by scientists since it means that libraries can continue to supply them with photocopies of journal articles for research purposes. But it has been roundly condemned by publishers who claim that it will drive yet another nail into the coffin of struggling magazines.

The court also said that it is up to Congress to place limits on the amount and type of photocopying that should be allowed, so the ball is now firmly in the court of Senator John McClellan's Subcommittee on Patents, Copyrights and Trademarks, which is considering amendments to the 1909 Copyright Act (see *Nature*, 244, 535; 1973).

The ruling came in a suit filed against the National Library of Medicine and the National Institutes of Health (NIH)

at public hearings early in November that Congress should not force the use of catalysts at all; instead, they contended, more time should be given for the motor companies to develop better technologies for cleaning up emissions from automobiles (see *Nature*, 246, 182; 1973).

Senator Jennings Randolph, chairman of the Public Works Committee, also announced last week that his committee is planning to hold more public hearings on a related matter—whether or not the control on emissions of oxides of nitrogen should be relaxed. The Environmental Protection Agency will announce earlier this year that the original measurements of city air pollution, which led to the standards, were incorrect and that oxides of nitrogen may not be a great problem. Those hearings will be held in December or January.

It is unlikely that the Senate will adopt the committee's recommendation for relaxing the timetable specified by the Clean Air Act until it has also made a recommendation on the nitrogen oxides question. Thus, even if Ford and Chrysler manage to persuade other members of Congress that the committee's recommendations do not go far enough, it seems unlikely that Congress would be able to act in time to prevent catalysts from being installed on California cars next year.

by Williams and Wilkins Co., a publisher of some thirty-seven medical journals, including the *Journal of Immunology and Medicine*. The company alleged that the libraries had been infringing copyright laws by widespread photocopying of articles for NIH scientists and for other libraries. In 1970, for example, NIH libraries photocopied 85,744 articles (about 930,000 pages) and in 1968 the National Library of Medicine photocopied some 120,000 articles, mostly for smaller libraries which do not have subscriptions to the journals concerned.

Other publishing companies joined in the suit on Williams and Wilkins's behalf, arguing that the advent of fast copying techniques and the widespread and growing practice of passing photocopied material from one library to another is cutting into the sales of journals and will eventually force small circulation magazines out of the market. The full Court of Claims—essentially an appeals court—held last week, however, that if such photocopying is banned, medical research would suffer. But the decision was a vexed one, for the court was split four to three and one of the judges declared in a dissenting opinion that “the decision will be read that a copyright holder has no rights that a library is bound to respect”. Attorneys for the publishing company have indicated that they will probably appeal to the United States Supreme Court.

In the meantime, McClellan's subcommittee is considering a bill which would allow libraries to photocopy copyright works only if they have satisfied themselves that the material cannot be obtained through the usual commercial channels. In other words, no library would be able to photocopy a scientific article for a client, without paying a royalty to the publisher, if the journal is still in print. That provision caused such a hue and cry from library organisations, however, that McClellan reopened hearings on the matter in August; his subcommittee has yet to take further action.

ENERGY

Unnatural Gas

NORTH Sea gas will not last for ever. When reserves are exhausted, which is estimated to be in about twenty years time, what will there be to replace it?

One possible candidate now being actively studied is a substitute natural gas (SNG) made from coal. A plant for producing SNG is now being tested at Westfield, Fife. This is the first time that a gas with the calorific value of natural gas, about 800 British Thermal Units (BTU) per cubic foot, has been produced from coal on a commercial

scale. The burning characteristics of the gas are also similar to those of North Sea gas and it can be used in equipment designed for North Sea gas without any expensive modification.

The Westfield plant manufactures SNG in two distinct stages. First, the well established Lurgi process is used to gasify the coal almost completely and a gas of low calorific value, or 'lean' gas, is produced. This lean gas is then enriched catalytically to give SNG. It is the catalytic enrichment (a methanation) which is the key to the production of SNG and the Gas Board is loath to reveal the full details of its operation.

The Lurgi process converts almost all the coal into gas, unlike the system used to manufacture town gas which produces coke and tar as well. The lean gas so produced provides about 176 useful therms (1 therm = 10^5 BTU) from each ton of coal used but this depends on the quality of the coal. Town gas, on the other hand, produces only 75 therms a ton even though it has a calorific value of 500 BTU compared to the 300 BTU of the lean gas. The methanation process consumes energy, of course, but 145 useful therms of SNG gas can be obtained from each ton of coal.

This demonstration plant has not, however, been built with sales in Britain in mind. It is being financed, at a cost of \$6 million, by a consortium of about twenty North American companies and is being run by a subsidiary of the Continental Oil Company in association with Scottish Gas. The Gas Board has access to the results of the project—the process design was carried out by British Gas and Continental Oil

experts—but the board regards SNG as an insurance against the future and not the solution to an immediate need. The potential importance of the project is at present centred firmly in North America.

Fourteen Lurgi plants have been built around the world but only two are still in operation: the Westfield installation and another at Cecilburg in South Africa. Successful in their day, the other plants were made obsolete when plentiful supplies of natural gas became available. The Cecilburg Lurgi, a much larger undertaking, owes its survival to strategic considerations and cheap local coal.

In the United States, the demand for natural gas is increasing rapidly and, according to some sources, the reserves will only last for another ten to twelve years. Two plants are already in operation in North America based on another catalytic process developed in Britain to obtain SNG from oil. Nine similar plants are under construction. These plants are very successful but their future is now uncertain because of the current oil shortage.

The economics of the operation at Westfield depend on the price of coal and it is hoped that by experimenting with various slagging techniques (deliberately allowing certain concentrations of slag to build up in the furnace) the cheaper, low grade coals may be used. The United States has enormous coal reserves and if the Westfield project is successful it will provide a missing link from the chain of processes necessary to convert some of these reserves into SNG. The possible application of the process in Britain is, of course, further in the future.

Short Notes

Blowing in the Wind

A NOVEL aspect of the energy crisis was revealed in *Pravda* last week (November 27). Ten million tonnes of Soviet coal are, it seems, lost annually in transit. With the increasing mechanisation of the mining industry, the proportion of the fine fraction in each coal shipment has increased and faster freight shipment means that this fine fraction is blown away from open wagons, causing a loss of up to 15 to 20% of each shipment. This costs some 5 million roubles a year in counter-pollution measures.

The Soviet Committee of National Control is considering methods to prevent this loss. The most promising would seem to be that of Professor V. Beshkov, who suggests covering the shipments with a protective synthetic film, made from waste products of the cellulose and petroleum industries. Other proposals include mechanical

compaction of the slack, coking of the coal at the pit head to eliminate transport (the losses of coke in transit are considerably lower), and such elementary precautions as sealing up cracks in the wagons to avoid coal falling on to the track.

But why not buy a few tarpaulins?

Sliding into Europe

BBC-2 is running a series of programmes under the overall title *Life in the Nine* to explain how Britain may be affected by joining the European Economic Community (EEC). The programme on November 26 dealt particularly with EEC regulations applying to road transport. In the course of it Mr Geoffrey Cave-Wood, a member of the Road Hauliers Association, said that an increase in the axle and total weights of lorries from the present British limits to the expected EEC limits would be a good thing for many reasons, one of which is that the extra weights of these vehicles would enable them to stop more effectively.