

Balance of US energy research attacked

Advisory group gives comfort to Reagan's foes

Washington

A top level advisory committee to the US Department of Energy (DoE) has told the Reagan Administration politely but firmly that it is not making the best use of its resources for energy research. In particular, the committee says that there is insufficient support for conservation technologies and that too much is being spent on nuclear energy.

The report was published shortly before President Reagan's announcement last week that he is soon to submit plans to Congress for dismantling DoE. He said that the purpose of the move is to create "a strong federal effort in basic research in energy that avoids excessive regulation".

The centrepiece of the reorganization is a new Energy Research and Technology Administration within the Department of Commerce. The plan is expected to meet fierce opposition in Congress, particularly from those who favour an independent energy research agency on the grounds that close links with the Commerce Department would reinforce the alleged pro-nuclear bias.

The criticisms of present energy research policies came from DoE's Energy Research Advisory Board (ERAB), an independent, non-partisan group. The chairman of the board is Mr Louis H. Roddis Jr, previously president of Consolidated Edison of New York, and the report was prepared at short notice at the request of DoE by a panel, led by Dr John S. Foster, vice-president for science and technology at TRW Inc., comprising all ERAB members and several outside consultants.

Objections to the Reagan plan are already coming from another direction, namely congressmen unhappy at the proposal that the nuclear weapons research carried out at the nation's weapons laboratories should be among the activities transferred to the Department of Commerce. Speaking at the National Press Club in Washington last week, commerce secretary S. Malcolm Baldrige said that his department's experience with other research agencies, such as the National Oceanic and Atmospheric Administration, made it a natural place for locating energy research. He also admitted that the Commerce Department's responsibility to assist in increasing exports could logically include the international promotion of American nuclear technology.

The ERAB report takes as its frame of reference the policy guidelines laid down

by the Reagan Administration, thereby insulating itself from the criticism that it is making a political attack on Mr Reagan's policies. Although in principle enthusiastic about the new policy directions, the ERAB committee is concerned about how decisions, such as the cutting back of research funds for conservation and solar technology, have turned out in practice. And the report champions higher energy prices as the best way of encouraging efficient use of energy and utilization of new energy sources.

All 20 members of the committee agreed on the need to emphasize new energy technologies where research has already reached the stage at which the results could, if desired, be directly taken over by the private sector, and should otherwise be dropped if this desire does not exist. For example, the report recommends the elimination of support for research into small-scale hydropower and magnetohydrodynamics (decisions already made by the Reagan Administration), and a sharp reduction in support for research on electric vehicles.

Little change is advocated for most of

the basic sciences whose budgets are the current responsibility of the department, including high energy physics and nuclear physics, and which would be incorporated directly into the new agency. And the board favours greater support for efforts aimed at improving the quality and quantity of scientific personnel at US universities in energy-related areas, described as an area "appropriate for federal concern" but currently receiving only \$10.6 million a year.

The most controversial parts of the report are those which address directly the government's role in supporting research into the generation of electricity through nuclear power. The ERAB report describes the Clinch River fast breeder reactor as being "not an urgent priority", recommending that, under current budget constraints, such a demonstration project should be postponed. Four members of the advisory board, however, dissent from this opinion on the grounds that not proceeding with the construction phase of the fast reactor would mean writing off the \$1 billion that has been invested so far, and

What case for building Clinch River?

Washington

Following Congress's decision last month to give the go-ahead for the construction of the liquid metal fast breeder reactor at Clinch River in Tennessee, the focus of the controversy surrounding the project has shifted back to the Nuclear Regulatory Commission (NRC), which would have to issue a permit allowing the construction to proceed.

Last week, the five members of the commission agreed to consider a request from the Department of Energy that it be given "emergency" exemption from conventional licensing procedures. According to Energy Secretary James Edwards, such an exemption is necessary to avoid the "undue hardship" which, he told NRC, would result from further hold-up in the long-delayed construction plans.

Critics of the reactor, however, claim that the Department of Energy is trying to manoeuvre NRC into providing a provisional construction licence as soon as possible so as to pre-empt further attempts by Congress to terminate the project. The critics claim that their case is substantiated by an internal Department of Energy memorandum, released last week by the Natural Resources Defense Council (NRDC), in which Under-Secretary of Energy Guy Fiske suggests that the request for an emergency exemption from NRC be withheld until the 1982 appropriation bill is passed — an amendment could

have been added forbidding the Department of Energy from making such a request — and that the Council on Environment Quality be asked about securing "strong support" for an internal environmental report establishing the "negligible environmental impact" of the construction of the reactor.

NRDC attorney Barbara Finamore said that the memo "reveals a calculated effort by the Department of Energy to undermine the integrity of the NRC and its licensing process". Supporters of the fast reactor, that the Clinch River project is needed to demonstrate this technology in the US licensing and safety environment.

Although the construction of the Clinch River reactor has been approved by Congress, its completion is not certain. It is generally accepted in Washington that the main reason for Congress's approval was political — the project is strongly backed by Tennessee Senator Howard Baker Jr, the leader of the Senate.

One possible outcome is that preliminary construction work will be carried out, partly to satisfy the pro-nuclear supporters in Congress to whom the fast reactor has become an important symbol, but that eventually even the utility companies which now back the project will agree that it is inappropriate to continue, and the Clinch River reactor will be abandoned on the grounds of its inefficiency and antiquity.

David Dickson

dissipate the "hard-won technology capability" already developed in the United States. The dissenters were ERAB chairman Louis Roddis, William S. Lee, president of Duke Power Company, Roland W. Schmitt, vice-president for corporate research at General Electric and John W. Simpson, a consultant previously with Westinghouse Electric. Described by critics as the "electric mafia" on ERAB, these same four are said to have been successful in toning down parts of the report which criticized the emphasis being given by the Reagan Administration to nuclear research as disproportionate to nuclear's role as an energy source.

The final report states merely that "although no correct balance among energy forms and resources can be defined *a priori*, research and development for electric supply technology is receiving a larger proportion of funding than the present and projected share of electricity in our national energy supplies". In addition to recommending that the Clinch River fast reactor should not be built, the panel suggests that high priority be given to research into nuclear waste disposal and into conventional light-water reactors, and a "little less" funding into both breeder reactor fuel cycle research and magnetic fusion.

David Dickson

Data falsification Harvard acts

Washington

Harvard Medical School announced last week that it was setting up a special committee of both faculty members and outside academics to recommend how the school should deal with future cases in which research workers are accused of producing falsified research data.

This announcement follows the resignation of a member of the medical school research staff, Dr John R. Darsee, who admitted that he had fabricated research data during an experiment last year which involved efforts to limit the damage caused by heart attacks in animals.

Dr Darsee also resigned his post as a research fellow at the Brigham and Women's Hospital in Boston. Before his resignation, according to reported comments from other members of the hospital staff, he had been under consideration to head a hospital laboratory.

As a result of allegations about Dr Darsee's work made last year by other research workers at the medical school, an investigation was carried out, in the course of which Dr Darsee admitted that he had falsified the research results in question.

A statement issued by the dean of the medical school, Dr Daniel C. Tosteson, last week stated that "none of the work which could not be verified has been presented to the scientific community". Earlier this year, Dr Darsee's supervisor, Dr Eugene Braunwald, decided that all

Christmas present for Heidelberg laboratory

The European Molecular Biology Laboratory at Heidelberg has half the Christmas present it was promised a few months ago: a liquid-helium temperature transmission electron microscope lens from Siemens AG, Munich, but not the pictures that should follow from it.

Dr Arthur Jones, head of the electron microscopy group at the laboratory, had hoped the system would have been operational by Christmas. But the lens — only the second commercial such lens in existence (the other went to Berlin) — arrived only a week ago. The first pictures, probably of hydrated crystalline specimens at 4 K, are likely to follow in January. Biological specimens should be in view in the spring.

Excitement is intense in the group about what they see as the most important development in electron microscopy for more than a decade. The Siemens group, headed by Dr I. Dietrich, appears to have shown that specimen damage by the electron beam — which limits the available resolution of a microscope on sensitive, non-periodic biological specimens — may be reduced by orders of magnitude at 4 K.

And at the same time, Dr Jacques Dubochet, in charge of specimen preparation, claims now to produce hydrated biological specimens containing vitrified — non-crystalline — ice. (The formation of crystals would create artefacts and interfere with the imaging of specimens.)

At first, however, the resolution may be no better — or even worse — than with conventional electron microscopy, because the contrast available in hydrated specimens is much less than that possible with negative staining. The reduced beam damage, however, should compensate for this by allowing greater illumination, with the result that the microscope might reveal structures without the artefacts of the conventional stains. Ultimately the use of samples labelled with heavy atoms could make a greater, artefact-free resolution available says Dubochet.

After this "cryo-TEM" will come the scanning version, the "cryo-STEM". The first electron beam down the cryo-STEM is expected by mid-year, with the first images shortly after.

Robert Walgate

abstracts of Dr Darsee's work should be withheld from presentation at the annual meeting of the American Heart Association.

The National Institutes of Health (NIH) were also notified of the alleged falsification of data, since Dr Darsee was working on NIH-sponsored research and was in receipt of an NIH research fellowship, which he has since resigned together with his academic posts.

The advisory panel set up by Dean Tosteson is being chaired by Dr Richard Ross, dean of Johns Hopkins School of Medicine. According to last week's statement, the panel has been asked "to review the case in question, and to indicate whether or not any additional measures should be undertaken, and to recommend procedures for dealing with episodes of this kind in the future".

The committee has already started work, and its report is expected early in 1982.

David Dickson

Molecular biology

Limited progress

When the director-designate of the European Molecular Biology Laboratory (EMBL) in Heidelberg takes over from Sir John Kendrew in April, he will not find much room for movement in the budget. Last June, Sir John asked the ten-nation council for DM 32 million (£7.5 million) for 1982. In the event the council has now agreed to spend DM 30.2 million, roughly a 10 per cent increase on 1981 compared with a German inflation rate of about 6 per cent.

That allows for a small increase in staff this year — some 20–25 of whom 8–10 will be scientists, according to finance director Eckhart Weis. Thus the laboratory will edge ahead of local inflation, but will come nowhere near the "indicative scheme" prepared in 1980 which foresaw a budget increase of 20 per cent and a staff of 265 rather than the 220 now employed. The directorate, for "scientific reasons", did not fill the 265 posts which were available in 1980, and since then the recession has meant that the council would not agree to the budget which would be required to re-offer them.

Meanwhile, the new EMBL director, Professor Lennard Philipson of the University of Uppsala, refuses to define his policy for the laboratory until after he is in post. But he has been taking regular soundings, and, it seems, gaining everyone's confidence. He is said to recognize the important and unusual role that physicists play at the laboratory and the significance of the EMBL outstations at DESY, Hamburg (a synchrotron radiation source which has a long queue of applicants for beam time) and the Institut Laue Langevin, Grenoble (a neutron source).

It seems likely that the new regime will see a greater integration of the work at Heidelberg, and between Heidelberg and the outstations, with the selection of two or three principal areas of biology (cell membranes, for example) as broad foci of interest. But there will be nothing so block-busting as an attack on the whole human chromosome — "that's factory work" said one senior EMBL scientist. On the