

# international news

ALTHOUGH a crash research and development programme on solar energy has long been advocated by a small band of scientists and environmentalists, who see the Sun as a bountiful source of clean energy—and also by some Congressmen who see it as a useful source of votes—until recently the federal government has not seemed to share the enthusiasm. But there are now signs that the Energy Research and Development Administration (ERDA) has recast the priority of the solar energy programme it inherited from other government agencies earlier this year. Officials of ERDA are now publicly predicting that solar power could provide a very large contribution to energy needs in the United States in the twenty-first century.

The latest piece of evidence to that effect is contained in a report, published by ERDA earlier this month, in which the agency outlines an ambitious, 10-year research and development effort designed to reduce the costs of solar technologies and, it is hoped, to pave the way for their commercial introduction. ERDA states in the report that if the effort is successful, energy derived from the Sun could supply as much as 25% of the country's energy requirements by the year 2020.

Although it should be noted that the report is conspicuously devoid of cost figures—a factor which makes it difficult to compare ERDA's new proposals with previous government plans—solar enthusiasts are generally pleased that ERDA is slowly moving closer to their own predictions of what is possible (although it still has a long way to go). The new report, moreover, follows hard on the heels of the publication by

## ERDA looks to the Sun

by Colin Norman, Washington

ERDA of an overall plan for energy research and development in which solar power is raised to the same level of priority as the breeder reactor and the thermonuclear power programme.

In spite of the generally optimistic tone of the report, however, ERDA is quick to caution that the potential contribution from the Sun will only be realised "if the costs of collecting and utilising solar energy can be reduced substantially"—in some cases by a factor of 100 or more.

The general approach outlined in the report is to press ahead as swiftly as practicable with demonstration projects, and to get early industrial participation in the effort to help pave the way to commercial introduction of the technology. A focal point for the programme will be a new solar energy research institute, a large laboratory which ERDA is planning to establish early next year which is expected to have a budget of about \$50 million by 1980.

The research programme is divided into three chief parts—direct thermal applications, such as solar heating and cooling; conversion of solar energy to electricity; and the development of fuels from plants.

Efforts in the first category are probably the most advanced. According to

a directive from Congress, ERDA plans to install up to 4,000 solar heating units in private homes and public buildings as part of a demonstration programme. (There are, however, unconfirmed rumours in ERDA and in Congress that the Office of Management and Budget—a powerful White House office similar in some respects to the British Treasury—will allow ERDA to install only 350 units.) The emphasis will shift to development of combined heating and cooling units in the late 1970s.

As for the conversion of solar energy to electricity, technologies to use wind power are closest to the demonstration phase. The National Aeronautics and Space Administration Agency is now building a small generating plant, and ERDA hopes to begin work next year on a larger unit. The commercial use of solar energy to generate electricity through photovoltaic cells will require some research breakthroughs to reduce the costs by a factor of at least 100, ERDA reckons, but demonstration plants with a capacity of between 1 and 5 MW are being planned for the mid-1980s. Similar sized plants for generating electricity from solar-produced steam are also planned for the mid-1980s, and in that case ERDA reckons that a cost reduction of between 50 and 70% will be required. The least advanced solar-electric concept at present is the idea of using ocean thermal gradients.

Finally, ERDA hopes to initiate a number of studies with industry in the late 1970s designed to explore the large scale use of plants and animal wastes to produce fuels such as alcohol and methane. □

New legislation on the conservation and use of mineral deposits was recently passed by the Supreme Soviet of the USSR and is to come into force on January 1, 1976.

The measures proposed do not, at first glance, seem particularly spectacular, and are concerned mainly with rational planning to reduce wastage, the introduction of new and more effective methods of ore dressing and petroleum processing, and improved methods of quality control, including the use of radioisotopes in both ferrous and non-ferrous metallurgy. The need for further prospecting for new beds and deposits and the improvement of prospecting methods is urged; this,

## Legislation on use of Soviet minerals

from Vera Rich

incidentally, is regularly cited as a justification for the expenditure on the Soviet space programme, since, officially, Kosmos reconnaissance satellites are engaged, *inter alia*, in surveying mineral resources.

It is not, however, the measures themselves which attract attention so much as the urgency with which they are expressed. The Supreme Soviet "resolved: to consider as one of the

most important state problems the ensuring of rational, complex and economic use of mineral wealth and the intensification of its conservation within the aims of the further development of the socialist economy". In his address to the convocation, N. A. Tikhovov, Deputy Chairman of the Council of Ministers of the USSR, stated that in the past four years the Soviet national income has risen by 26%, the output of industry by more than 1.3 times, and real earnings by 19%. In order to continue thus to construct "the material and technical bases of a communist society", the rational use of mineral resources must be treated as a matter of great importance. Soviet