

European Community



European Community Information Service
350 Sparks Street, suite 1110, Ottawa, Ontario K1R 7S8

INFORMATION NOTE

EC NUCLEAR STRATEGY OUTLINED

In a bid to get the nine EC member states to bring their national nuclear energy programmes into an EC framework, and to work out a common stand on nuclear development for the forthcoming International Fuel Cycle Evaluation (INFCE)* talks, the EC Commission has submitted to the Council of Energy Ministers proposals on nuclear-fuel reprocessing, fast-breeder reactors and nuclear waste disposal.

Energy Commissioner Guido Brunner has described the documents as a first step towards outlining Europe's nuclear needs. Mr. Brunner told a Brussels press conference that the Commission wants to participate in the INFCE talks as a full member. The Commission documents are intended to give INFCE participants a better idea of Europe's energy dependence: 80 per cent of its uranium is imported; by 1985 it is expected that half of all energy it uses will be imported (the target of 40 per cent, set in 1974, is now recognized as being beyond reach).

The Commission therefore urges that:

- Fast-breeder reactors, which use uranium much more economically than present-day reactors, be maintained as an option for energy-short Europe;
- To lessen the EC's dependence on outside sources of uranium for its nuclear power plants, reprocessing plants for spent nuclear fuel be set up;
- A network of EC nuclear waste-disposal sites be developed.

Meanwhile, the EC Council of Ministers is expected to decide in September whether to site the EC's \$170-million fusion-energy project, JET (Joint European Torus), in Garching, Germany, or Culham, England.

Following are summaries of the Commission's proposals on nuclear energy, overall energy goals for 1985 and on the 1977-80 programme of the EC's Joint Research Centre.

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* A two-year study proposed at the seven-nation London Summit in May to assess the possibilities of entering the plutonium economy without prejudice to safety, environment and non-proliferation of nuclear weapons.

REPROCESSING

Because of the Community's great dependence on outside energy supplies, and in order to diversify sources, nuclear energy is indispensable. The Community's own reserves of nuclear material, however, are insufficient for future requirements. Therefore, the Community cannot afford to throw away spent nuclear fuel, which can be reprocessed and reused in advanced types of reactors such as fast breeders. The Commission also concluded that reprocessing is compatible with concern for the safety of the public, protection of the environment and with the exclusively peaceful use of nuclear material.

As a rational approach to the nuclear technology of the future, the Commission advocates a strategy that would:

- bring together in joint ventures promoters of reprocessing facilities and power-station operators;
- offer member countries economical reprocessing services;
- provide financial aid;
- enable non EC countries (particularly the Community's European neighbours) to participate in these joint ventures.

Such joint reprocessing facilities would be subject to the strict controls developed within the Community's EURATOM safeguards system and would help toward the general aim of avoiding the proliferation of potentially dangerous nuclear material.

The Commission is also proposing the creation of a committee to study and help carry-out this strategy. It would report to the Council of Ministers by the end of 1978 on the means of financing and promoting joint reprocessing facilities.

FAST BREEDERS

The fast breeder is another essential link in the Community strategy of reducing dependence on outside sources of energy. The Commission proposes:

- that the Community and its member states preserve the option of making fast-breeder reactors available to utilities on a commercial basis during the early 1990s;
- that the development of fast-breeder technologies by industry should continue without loss of momentum and that at the same time extra efforts should be made to achieve fully adequate performance of this reactor system in terms of safety, radiological protection and impact on the environment.

As the EC's hydrocarbon supplies are likely to decrease more rapidly, nuclear fission will have to maintain and possibly improve its contribution to the EC's energy balance during the first part of the next century.

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The potential contribution of nuclear energy is, however, limited. In 1976, nuclear energy contributed about 2.1% of the total consumption of primary energy in the Community. This percentage may rise to about 10% in 1985 and to a maximum of 20% in the year 2000, when nuclear power stations may cover an important part, but not all, of the demand for electricity. The share of nuclear power in the production of electricity for the years 1976, 1985 and 2000 is respectively 8.4%, 30% and 50-70%.

Natural uranium sources are finite and supplies are by no means assured. Community reserves amount to only 3.5% of world reserves, which are estimated to total about 3.5 million tons. Reprocessing and fast breeders would make significant contributions to reducing dependence.

Fast breeders can extract at least sixty times more energy from natural or depleted uranium than thermal reactors. With the help of breeder reactors, five thousand tons of uranium could provide as much energy as all the oil in the North Sea (recoverable reserves about 3 billion tons).

A fully commercial fast-breeder programme will require more than twenty years. An expanded programme will probably be needed in the first quarter of the next century in order to sustain the Community's nuclear power programme and at the same time reduce annual uranium needs.

WASTE DISPOSAL

As a further contribution to the debate on the Community's nuclear policies, the Commission has adopted an action plan for the management and disposal of nuclear waste.

The Commission stresses the paramount necessity of maintaining the strictest standards of safety and protection for the citizen and for the environment.

The waste material has to be treated and conditioned in such a way as to satisfy the most stringent conditions for permanent storage. Various methods of processing highly active waste in the Community and its development on an industrial scale are now being studied. As for permanent storage, some promising solutions are under study (for example, storage in certain geological formations).

The proposed plan will be directed at all the problems posed by the differing types of radioactive nuclear waste, and will pay special attention to wastes that are highly radioactive and/or have very long life, especially those from reprocessing factories.

It will extend from 1978 to 1990. A shorter period would not be worth the effort, taking into account the duration and importance of work to be carried out. The plan could be revised every three years in the light of experience.

NEW ENERGY POLICY OBJECTIVES FOR 1985

In addition to the nuclear energy strategy, the Commission has proposed to the Council new energy objectives for 1985, emphasizing the necessity to reduce the Community's energy dependence to 50% by 1985. The Commission suggests that the share of oil in the consumption of energy should be reduced.

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The objective for 1985 is to set a platform for petrol imports up to a maximum of 500 MTEP (million tons equivalent petrol), or 10 million barrels a day, and to make this a basis for the general energy policy.

The Commission also suggests new targets for coal and hydrocarbons production, natural gas consumption (more natural gas should be substituted for oil), and policies for a rational use of energy.

JOINT RESEARCH CENTRE

Energy and environmental protection will be the two priority issues in the \$400 million 1977-80 programme of the four JRC research institutes at Ispra, Italy; Petten, the Netherlands; Geel, Belgium, and Karlsruhe, Germany.

The JRC energy research is part of the Community's overall energy strategy and will be, in great part, concerned with aspects of nuclear safety, accounting for approximately 48% of the total effort. One of the objectives will be to improve the safety of light - water reactors and liquid metal fast-breeder reactors by studying the phenomena associated with simulated accidents, by improving the assessment of reliability and risk, and by measures to prevent the failure of reactor components.

Environmental research will include the study of more effective means of combating air and water pollution and the setting up of a data and documentation network on chemicals harmful to the environment.

Full details are available on request.