

Nuclear Development and the Fuel Cycle

Nuclear Development Committee (NDC)

Mission

To provide authoritative, reliable information on nuclear technologies, economics, strategies and resources to governments for use in policy analyses and decision making, including on the future role of nuclear energy within the context of energy policies that contribute to sustainable development.

Highlights

- The report entitled *Nuclear Energy in a Sustainable Development Perspective*, prepared by the NEA as a contribution to the OECD horizontal project on sustainable development, was published. It reviews the characteristics of nuclear energy from a sustainable development policy perspective and provides data and analyses aimed at supporting policy decisions.
- As part of the Agency's nuclear fuel cycle studies, the 6th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation was organised by the NEA in Madrid in co-operation with the European Commission. More than 160 experts from 15 countries participated.
- A report on nuclear education and training based upon a survey of almost 200 organisations in 16 Member countries draws the attention of policy makers to concerns raised by waning student interest in nuclear science and technology. It also provides recommendations on actions to be considered by government and industry.
- A Plant Life Management (PLIM) Workshop was held in Washington DC to discuss technical, regulatory and business issues related to the ageing, refurbishment and retirement of nuclear reactors.

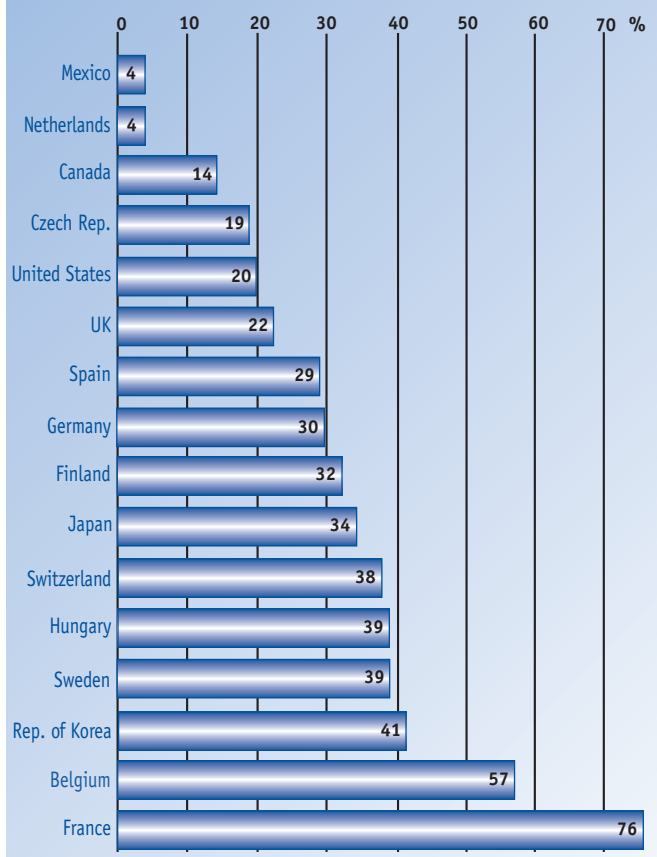
Nuclear policy issues

Responding to Member country interest in the role that nuclear energy could play in satisfying future electricity demand while preserving natural resources and the environment, the NEA published the report entitled *Nuclear Energy in a Sustainable Development Perspective*. The report is part of the NEA contribution to the OECD horizontal project on sustainable development and the preparation of the OECD Council meeting at ministerial level to be held on this topic in May 2001. The data and analyses presented in the report aim at assisting policy makers in assessing the contribution that nuclear energy can make to sustainable development goals and identifying the challenges to be overcome in order to make the contribution of nuclear energy positive.

A report on nuclear education and training was also published in 2000. The report highlights the concerns expressed by the scientific community about potential shortfalls of nuclear expertise in the medium and long term, and recommends that governments and industry consider measures to ensure the implementation of adequate educational programmes.

Plant life management (PLIM) continues to be of major interest to Member countries with mature nuclear programmes. In this light, the NEA organised a workshop on nuclear power plant life management in a changing business world, hosted by the US Department of Energy in Washington DC. Experts from 12 Member countries and two international organisations reviewed the prospects for plant life extension and discussed technological developments and regulatory issues relevant to the management and economics of nuclear plant life. The proceedings from this workshop, published in 2000, contain recommendations of interest to policy makers from governmental organisations and the industry.

Nuclear power share of total electricity production in NEA countries (2000)



Economics

In response to priorities identified by Member countries, activities in the field of economics focused on analyses of capital costs of nuclear power plants (and ways and means to reduce those costs), and the impact of electricity market deregulation on nuclear power competitiveness.

The study on *Reduction of Capital Costs of Nuclear Power Plants* concluded that significant economic gains could be obtained through technological progress, enhanced project management and policy measures. It highlights possible improvements to be made and illustrates them with examples provided by some countries and manufacturers of the expected achievements in terms of capital cost reduction. It states that significant capital cost reductions can be achieved through coherent programmes combining measures such as improved design, construction methods and project management, standardisation, series orders and streamlining of regulations.

The study on nuclear power in the context of economic deregulation was completed and a report entitled *Nuclear Power in Competitive Electricity Markets* was published. The report covers several topics including the impact of market deregulation on the competitiveness of existing and new nuclear power plants, guaranteeing funds for financing future liabilities and restructuring nuclear industries.

A study on methodologies for assessing the economic consequences of nuclear reactor accidents, carried out jointly by the NDC and the CRPPH, was completed and published in 2000. The study

provides a review of calculation methods used in evaluating the costs of nuclear accidents as well as the conclusions of the expert group in charge of the study. It highlights key issues, uncertainties and recommendations to policy makers with regard to interpreting and comparing results based upon various methods and assumptions.

Technology

The programme of work on fuel cycle studies included a review of trends in the nuclear fuel cycle and activities on various aspects of the back-end of the fuel cycle, with emphasis on actinide and fission product partitioning and transmutation. The 6th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation was organised by the NEA in Madrid, in December, in co-operation with the European Commission. More than 160 experts from 15 countries participated.

An inventory of nuclear R&D projects in NEA Member countries is being established. The first phase of this project, consisting of linking various R&D organisations and existing databases within a page on the NEA website, was performed in 2000.

Data and resource assessment

The 2000 update of *Nuclear Energy Data* provided an overview of the status and trends in nuclear power programmes and fuel cycle activities in Member countries.

The report *Uranium 1999: Resources, Production and Demand* was published jointly with the IAEA. It includes updates of statistics from 49 countries, international expert analyses and projections of uranium requirements and supply.

A Joint NEA/IAEA Expert Group completed a study on environmental remediation of world uranium production facilities. A final report summarising analytical issues, findings and experiences in 22 countries will be published in 2001.

A joint NEA/IAEA study was conducted in 2000 on the management and uses of depleted uranium. Experts from countries holding stocks of this material resulting from enrichment operations discussed their concerns, programmes and plans. A report will be finalised in 2001.

An update of the study on *Beneficial Uses and Production of Isotopes* was carried out and a report providing data and analyses on the status and trends in the field was published. The report assesses the balance between production and demand of isotopes, and provides recommendations to governments on maintaining infrastructure in order to ensure security of supply, in particular for isotopes used in major R&D programmes.

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