

Nuclear Development and the Fuel Cycle

Nuclear Development Committee (NDC)

The NDC continues to support member countries in the field of nuclear energy policy, addressing issues of relevance for governments and the industry at a time of nuclear technology renaissance and sustained government interest in ensuring long-term security of energy supply, reducing the risk of global climate change and pursuing sustainable development.

Nuclear policy issues

In a period of transition and uncertainties, in which some governments are showing a renewed interest in the nuclear option for economic and policy reasons and others are considering phasing out nuclear energy to avoid perceived risks and long-term liabilities, the NDC has focused its activities on enhancing the broad understanding of nuclear policy issues, analysing the role of governments and assisting member countries in policy making.

A new NEA publication entitled *Nuclear Energy Today*, issued in 2003, aims at informing policy makers about the scientific, technical, economic and social issues related to peaceful applications of nuclear energy in modern societies. The book is based upon studies and analyses carried out by the Agency over several decades in the field of nuclear science and technology, nuclear safety, radiological protection, radioactive waste management, nuclear law, and economic and social aspects of nuclear energy development. It provides authoritative and factual information on the multiple facets of nuclear energy relevant to national policy making and international co-operation in the field.

A report on *Government and Nuclear Energy*, prepared under NDC auspices, was completed at the end of 2003 and will be published early in 2004. The report examines the evolution of government's role in the field of nuclear energy from the early 1950s to today, highlighting the challenges raised by electricity market deregulation, the need to ensure security of supply and the commitments of OECD countries to the goals of sustainable development, including alleviating the risk of global climate change. It stresses the importance of international co-operation in the field of nuclear energy and the role of intergovernmental agencies such as the NEA in this regard. It is intended to stimulate and inform the debate on nuclear issues at the beginning of the 21st century.

The NEA participated in the in-depth energy policy reviews carried out by the International

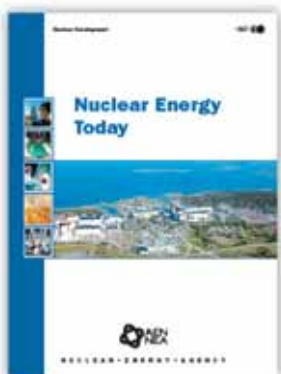
Energy Agency (IEA) on Canada, Finland, Japan and Sweden. In those countries, nuclear energy plays a major role in the supply mix and is especially important as a means to address the climate change threat. The reviews offered opportunities to analyse national policies in the field of energy and electricity market deregulation, and to identify specific challenges facing governments with regard to the role of nuclear energy.

The NEA was involved in Ministerial meetings held in 2003 by the IEA and the OECD, and contributed to the OECD delegation to the Ninth Conference of the Parties to the UNFCCC (COP9, held in Milan, Italy, at the end of November), presenting relevant publications of the Agency. The NEA continues to participate in the horizontal activities of the OECD on sustainable development whenever the topics raised are of relevance to the nuclear energy field.

Economics

A study on *Decommissioning Nuclear Power Plants: Policies, Strategies and Costs*, carried out under the joint auspices of the NDC, the CRPPH and the RWMC, was published in mid-2003 and its main findings and conclusions were presented in several international conferences. The report, based upon data provided by 26 countries, provides an overview of decommissioning cost estimates for a broad range of nuclear power plants; it also provides insights into cost drivers and the influence of national policies and industrial strategies on decommissioning costs.

Work on external costs, initiated in 2002 by a joint IEA/NEA workshop on *Externalities and Energy Policy: The Life Cycle Analysis Approach*, was pursued by a detailed analysis of external costs and benefits of nuclear electricity, based on a large literature review including previous NEA studies. The outcomes of this work were summarised in a booklet for policy makers entitled *Nuclear Electricity Generation: What Are the External Costs?*



- *Nuclear Energy Today* was prepared and published based upon the work of the Agency on scientific, technical, economic and policy issues related to nuclear energy. It provides policy makers and interested members of the public with factual information on a broad range of topics of relevance to decision making in this field.

- An overview of the internalised and external costs of nuclear-generated electricity, containing authoritative information and data, was published as a booklet for policy makers and energy analysts.

- A report on *Government and Nuclear Energy* was completed. It highlights the important role played by

governments in the development of nuclear energy and their challenging responsibilities in the context of electricity market deregulation.

- The Agency continued to provide technical support to the Generation IV International Forum (GIF), notably its Economic Modelling Working Group.

A workshop on "Power Generation Investment in Liberalised Electricity Markets" was organised jointly with the IEA and held in Paris, France on 25-26 March 2003. The presentations covered the views of investors on power generation investments, the impact of liberalisation on technology choices and the role of government policies. Among the main findings from the discussions was that governments have an important role to play in liberalised markets and economies to ensure security of supply and environmental protection. The workshop presentations and papers are posted on the two agencies' websites. The outcomes from the workshop have served as background for future work including the joint NEA/IEA study on projected costs of generating electricity, which began in December 2003.



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Security of electricity supply remains an important issue for NEA member countries.

Technology

The proceedings from the Seventh Information Exchange Meeting on "Actinide and Fission Product Partitioning and Transmutation", held in Jeju, Korea on 14-16 October 2002, were published in 2003. The preparation of the Eighth Meeting, to be held in Las Vegas, Nevada, USA on 9-11 November 2004, was initiated in co-operation with the Nuclear Science Committee.

Work concerning the back end of the fuel cycle continued, focusing on the impact of advanced fuel cycles, including P&T, on the required physical characteristics and costs of repositories for high-level waste disposal. The ad hoc expert group in charge of the study has prepared a preliminary draft report and undertaken economic analyses.

In the framework of the Generation IV International Forum (GIF), the NEA is providing technical support to the Economic Modelling Working Group in charge of economic assessment of Generation IV concepts. Work carried out by the group in 2003 was mainly devoted to reviewing existing economic models and tools and evaluating their adaptation

to Generation IV concepts, their specific technical characteristics and their degree of conceptual development.

Data and resource assessment

In the field of uranium resource assessment, the Joint NEA/IAEA Uranium Group pursued its activities with emphasis on the preparation of the 2003 update of the "Red Book", to be published in 2004. The group met twice in 2003 to review drafts of the publication and to discuss the implementation of a more efficient data collection and analysis method relying on an Internet-accessible database.

The yearly "Brown Book", *Nuclear Energy Data*, provides statistical data on nuclear electricity capacity and generation, as well as nuclear material and fuel cycle service production and demand in member countries. The 2003 edition offers, in addition, projections to 2020 and country reports highlighting key events in the nuclear energy field.



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