

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.

Highlights

- An international conference at ministerial level on Nuclear Energy for the 21st Century was held in Paris on 21-22 March, hosted by the French government, and organised by the IAEA in co-operation with the OECD and the NEA.
- The joint NEA/IEA study on *Projected Costs of Generating Electricity*, published in March, highlights the increasing competitiveness of nuclear power in countries relying on this option.
- The joint NEA/IEA workshop on security of supply for electricity generation, held in Paris in May, brought together experts and decision makers to discuss the role of technologies and policy measures in ensuring security of supply in liberalised electricity markets.
- The proceedings of the Eighth Information Exchange Meeting on Partitioning and Transmutation provide a comprehensive overview of ongoing research in the field and reflect the interest of scientists and policy makers for advanced fuel cycle technologies.

Nuclear policy issues

The NEA co-operated in the organisation of the international conference at ministerial level on Nuclear Energy for the 21st Century. Some 65 countries were represented at the conference, which included presentations by more than 30 ministers and two round-table sessions addressing world energy needs, resource and environmental challenges, and driving factors for government and industry policy choices. The conference demonstrated a renewed interest among policy makers for

Mr. D. Johnston, OECD Secretary-General and Mr. P. Devedjian, *ministre délégué à l'Industrie*, France, during the Nuclear Energy for the 21st Century press conference.



Ministère délégué à l'Industrie, France

the nuclear option in terms of its capacity to enhance security of energy supply, to reduce environmental impacts of energy production and use, and to provide electricity to consumers at affordable costs.

The NEA also participated in the in-depth energy policy reviews of Belgium and Spain, carried out by the International Energy Agency (IEA). In both of those countries, nuclear energy plays a significant role in the electricity generation mix, but the development of nuclear power programmes is on hold. NEA participation in the reviews provides specific expertise on nuclear technology issues and promotes a fair and comprehensive assessment of the opportunities and challenges facing government policy makers in the field of nuclear energy.

Economics

The study on *Projected Costs of Generating Electricity* carried out jointly with the IEA was published in March. The study, based on data provided by 22 countries, covers some 130 power plants using coal, gas, nuclear, hydro and other renewable sources. It shows an increasing competitive margin for nuclear energy in most countries which have chosen to rely on this option. The conclusions of the study were presented by senior NEA staff in several international conferences and seminars, serving as the basis for discussions among policy makers on the future role of nuclear energy in liberalised electricity markets.

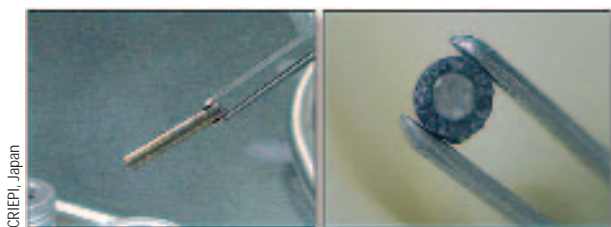
Shares of uranium resources and production (in %)		
	Resources*	Production**
Australia	23	20
Canada	12	27
United States	7.5	2
Namibia	5.5	7
Niger	5	8.5
South Africa	8.5	2.5
Kazakhstan	18.5	9
Russian Federation	6	8.5
Uzbekistan	2.5	6.5
Ukraine	1.5	2
Others	10	7

* Total known resources recoverable at less than 130 USD/tU; ** in 2003.

Jointly with the IEA, the NEA organised a workshop on security of supply for electricity generation, held in May. The workshop addressed security of supply issues from the technology and policy viewpoints, with emphasis on the role of government in liberalised markets and on the specific contributions of different energy sources to securing electricity supply at affordable costs and prices for consumers. The proceedings of the workshop were published mid-year on the two agencies' websites. The main findings and conclusions of the workshop were presented in a background paper which served as an introduction to the NEA Steering Committee policy debate on security of energy supply held in October.

Technology

The proceedings of the Eighth Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation held in Las Vegas, Nevada, USA, on 9-11 November 2004 were published. They contain all of the papers presented orally or as posters and an executive summary of the five technical sessions and the two poster sessions. The ninth meeting in the series will be held in Nîmes, France, during the autumn of 2006, and will be hosted by the French *Commissariat à l'énergie atomique*.



A U-Pu-Zr alloy before (left) and after (right) an experiment designed to study the partitioning process.

The study on advanced fuel cycles and waste management was completed and will be published in 2006. It continues the series on advanced fuel cycles, emphasizing comparative assessment of waste repository performance for high-level waste generated by various advanced fuel cycle schemes. The

findings from the study confirm those of previous reports, and show that fuel cycle schemes existing and under development offer a wide range of options for satisfying sustainable development goals in terms of natural resource management, waste minimisation and economic effectiveness.

The study on innovation in nuclear energy, launched in October 2004, continued to progress. Based on country reports and case studies from ten member countries, the study seeks to identify the special characteristics of nuclear innovation systems and the main elements determining nuclear innovation performance, which will enable the development of policy recommendations on ways and means to enhance nuclear innovation in support of advanced nuclear energy systems. A second meeting was held in May 2005. The final report of the study is expected to be published in 2006.

Data and resource assessment

In the area of uranium resource assessment, the Joint NEA/IAEA Uranium Group pursued its activities placing emphasis on the preparation of the 2005 update of the "Red Book", to be published in 2006. Under the leadership of the Uranium Group, the Secretariat also began preparing a retrospective of data on uranium resources and production, drawing from the series of Red Books published since 1968. The retrospective is expected to be available by mid-2006.

The yearly edition of the "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 2005 edition offered projections to 2025 and country reports highlighting key events in the nuclear energy field.

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