

# 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

Several studies over the past years showed that education and training has been decreasing, perhaps to problematic levels. A new NEA publication entitled *Nuclear Competence Building* presents the results of a study that is a follow-up to the 2000 NEA study on nuclear education and training. This new study addresses the question of infrastructure as a whole in order to identify good practices and to help governments in the process of integrating nuclear R&D and education in an international setting. The report also includes a set of conclusions and recommendations for policy makers and other stakeholders.

In addition, the NEA co-sponsored the International Conference on Nuclear Knowledge Management that was organised by the International Atomic Energy Agency (IAEA). The objective of the conference was to reach a common understanding of issues related to nuclear knowledge management for sustaining knowledge and expertise in nuclear science and technology. The papers presented in the conference are available on the IAEA website ([www.iaea.org/km/cnkm/index.html](http://www.iaea.org/km/cnkm/index.html)).

The NEA also participated in the in-depth energy policy reviews of the Czech Republic and France, carried out by the International Energy Agency (IEA). In those countries, nuclear energy plays a major role in the supply mix and is considered 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.

A report on *Government and Nuclear Energy*, prepared under NDC auspices, was completed at the end of 2003 and was 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.

### Economics

The study on projected costs of generating electricity carried out jointly with the IEA was completed in 2004 and will be published

early in 2005. Nineteen member countries and three non-member countries contributed to the study and provided data on more than 130 power plants. The coverage of the study includes coal, gas, nuclear, hydro and other renewable source power plants, as well as combined heat and power plants. The study shows that the competitive margin of nuclear energy has increased in most countries which have chosen to rely on this option.



### Technology

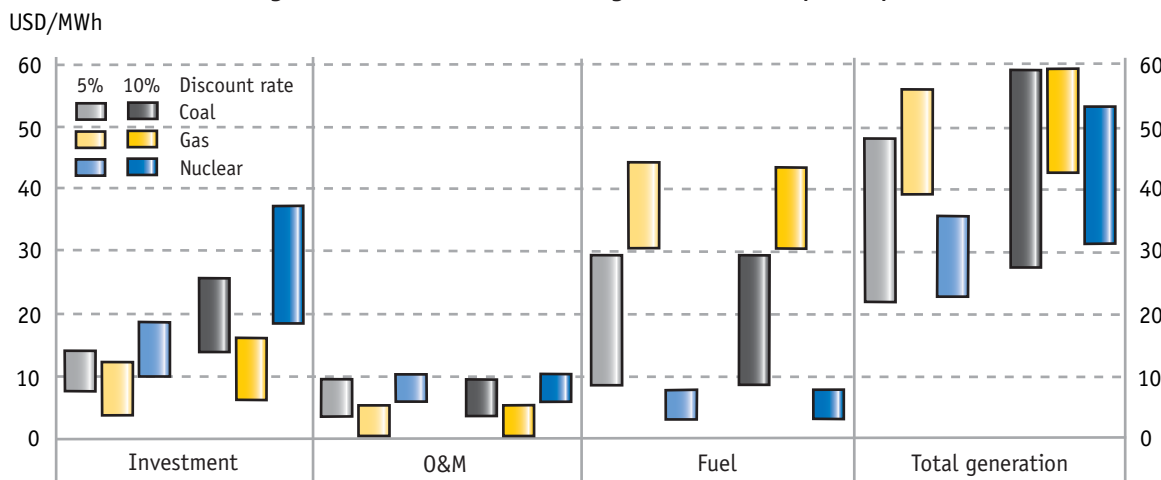
The Eighth Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation was held in Las Vegas, Nevada, USA, on 9-11 November 2004. As for earlier meetings, it was organised in co-operation with the NEA Nuclear Science Committee. The local host was the University of Nevada Las Vegas; co-sponsors were the IAEA, the European Commission and the US Department of Energy. More than 70 papers were presented, which are available on the conference website at [www.nea.fr/html/pt/iempt8/index.html](http://www.nea.fr/html/pt/iempt8/index.html).

In recognition of the importance of "innovation" in future nuclear development, a study on Innovation in Nuclear Energy Technology was launched in October 2004 in order to obtain guidance on ways and means to achieve maximum nuclear innovation in support of advanced nuclear energy systems.

A report on *Non-electricity Products of Nuclear Energy* was completed and posted on the NEA website at the end of 2004.

- A report on *Nuclear Competence Building* was published, presenting the results of an international survey on initiatives launched during recent years in the area of nuclear education and training.
- The joint IEA/NEA study on *Projected Costs of Generating Electricity* was completed, with contributions from 19 member countries and 3 non-member countries, which provided data on more than 130 power plants.
- The NDC celebrated its 50<sup>th</sup> meeting with a special session during which invited speakers reviewed the history of the Committee and provided guidance on its future role.
- A report on *Non-electricity Products of Nuclear Energy* was completed and made available on the NEA website.
- The Agency continued to provide technical support to the Generation IV International Forum (GIF).

Range of levelised costs for coal, gas and nuclear power plants



While non-electrical applications of nuclear energy such as desalination, district and process heating, hydrogen production, etc., have been considered since the very beginning of nuclear energy development, they have not been deployed thus far to a significant industrial scale in any country. The report reviews the current status and the future prospects for non-electricity products of nuclear energy, and the capabilities of nuclear energy systems to provide non-electricity products in a viable and competitive manner. The report also discusses strategic issues of relevance for the development and deployment of non-electricity nuclear systems, which would need to be elaborated in a future study.

## Data and resource assessment

In the area of uranium resource assessment, the Joint NEA/IAEA Uranium Group pursued its activities with emphasis on the preparation of the 2005 update of the "Red Book", to be published in 2006. The group met once in 2004 to review and approve the questionnaire to be used to collect data for that publication. The group also agreed to implement a more efficient data collection and analysis method relying on an Internet-accessible database called the Red Book Online, which will be

used to collect data for the 2005 update. The 2003 update was published in English and French in the summer of 2004.

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 2004 edition offered projections to 2020 and country reports highlighting key events in the nuclear energy field. The 2005 edition will extend the projection horizon to 2025.

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