The 2002 Annual Report
of the OECD Nuclear Energy Agency (NEA)

Adjusting to the needs for international co-operation in nuclear energy

In its 2002 Annual Report published today, the Nuclear Energy Agency (NEA) notes that during the year the nuclear option was brought back on the agenda of several energy policy makers in Europe and North America.

Issues related to nuclear energy and sustainable development were addressed in several high-level meetings, including the OECD Forum 2002, the World Summit on Sustainable Development and the Eighth Conference of the Parties to the UN Framework Convention on Climate Change (COP8). The Agency contributed to the debate drawing from findings of its study on Nuclear Energy and the Kyoto Protocol as well as earlier works.

In this context, renewed interest was triggered in some OECD member countries by nuclear energy’s potential role in ensuring stable energy supply, and reducing external dependence on oil and gas, as well as alleviating the risk of global climate change. On the other hand, some European countries have been pursuing nuclear phase-out policies with varying speeds and horizons.

At the end of 2002, 362 nuclear power units were connected to the grid in OECD countries, providing approximately 24% of total electricity supply in the OECD area. Three new nuclear power units were brought into operation: one in the Czech Republic and two in Korea; two units were retired in the United Kingdom. Seven units were under construction: three in Japan, two in Korea and two in the Slovak Republic. While total electricity generation in OECD countries is projected to increase in the next decade, the nuclear share is likely to decline slowly due to expected closure of ageing plants. Licence extensions and the commissioning of new units will, however, offset part of this trend.

The report notes that, in general, in a context of electricity market deregulation, nuclear power plant lifetime extensions and capacity uprating have proven cost-effective and often the cheapest way to increase electricity generation in liberalised markets.
In a long-term perspective, international endeavours are under way to develop and deploy by the 2030 horizon a fourth generation of nuclear energy systems that will respond to society’s future needs. The NEA has participated by providing technical secretariat assistance in the development of the Generation IV International Forum (GIF) Technology Roadmap. The roadmap recommended concept-specific and cross-cutting R&D programmes.

The safety performance of nuclear power plants in OECD countries continued to be very good, as reflected in a wide range of published performance indicators. However, the analysis of a number of operating events which occurred in 2002 highlighted certain aspects requiring close attention such as organisational changes, hardware modifications, loss of technical expertise and loss of corporate knowledge. Issues of special relevance, which were studied by the NEA during the year, included regulatory aspects of decommissioning nuclear reactors, public communication, performance indicators both of nuclear safety and of regulatory effectiveness, maintaining nuclear safety competence for the future, external hazards, and regulatory requirements for future nuclear reactors.

In the area of radiological protection, the NEA continued to be closely involved in the definition of new directions and approaches for the international system of radiological protection, with the objective of achieving a system that will better address regulator and practitioner needs within the context of scientific progress, social judgement and risk governance. NEA views in this respect were published in a report entitled The Way Forward in Radiological Protection. A meeting was organised, jointly with the International Commission on Radiological Protection (ICRP), on the “Radiological Protection of the Environment: The Path Forward to a New Policy”, and an Asian Regional Conference on the “Evolution of the System of Radiological Protection” was held in Tokyo (Japan) to collect regional and cultural views and concerns.

Several encouraging signs of progress in respect of siting radioactive waste management repositories were recorded during the year, notably in Finland and Sweden, illustrating a clear trend towards implementing, in a realistic and practical way, measures for the final disposal of spent nuclear fuel and highly radioactive waste. A major event was the agreement by the United States Senate, in July, that the project for a national geological repository for this type of waste should be further pursued at the Yucca Mountain site in Nevada. The NEA, jointly with the International Atomic Energy Agency (IAEA), contributed to this process by organising an international peer review of the performance assessment supporting the site recommendation process. Other peer reviews in this field were organised by the NEA at the request of Belgium, France and Switzerland.

Several converging activities were pursued by the NEA in respect of relations between civil society and nuclear energy. A report entitled Society and Nuclear Energy: Towards a Better Understanding was published, which analyses literature and research work on risk perception and communication, as well as public participation in decision making on nuclear energy projects. Similarly, the NEA explored in detail the implications of stakeholder involvement in radiation protection decision making, including various process aspects of such involvement, as an input to ICRP discussions on the evolution of the radiological protection system. Also, in the field of radioactive waste management, the NEA addressed the issue of public confidence through a series of workshops in a national context organised under the aegis of its Forum on Stakeholder Confidence. The third such workshop took place in Canada. An information document on member countries’ experience with stakeholder involvement was finalised.

The 2002 Annual Report of the Nuclear Energy Agency is available free online at http://www.nea.fr or in paper format on request from the OECD/NEA Publications Office, Le Seine St. Germain, 12 boulevard des Iles, 92130 Issy-les-Moulineaux, France (neapub@nea.fr).