

New publications



General interest

Annual Report 2004

ISBN 92-64-01053-X

Free: paper or web.

Strategic Plan of the Nuclear Energy Agency – 2005-2009 (The)

Summary

ISBN 92-64-01057-2

Free: paper or web.

The NEA mission is to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes; as well as to provide authoritative assessments and to forge common understandings on key issues as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Economic and technical aspects of the nuclear fuel cycle

Beneficial Uses and Production of Isotopes – 2004 Update

ISBN 92-64-00880-2 – Price: € 24, US\$ 29, £ 16, ¥ 3 200.

Radioactive isotopes continue to play an increasingly important role in medical diagnosis and therapy, key industrial applications and scientific research. They can be vital to the health and well-being of citizens, and contribute to the world economy. It is therefore important to understand their production and use. This report provides a solid basis for understanding the production and use of radioisotopes in the world today. It will be of interest not only to government policy makers, but also to scientists, medical practitioners, students and industrial users.

Nuclear Energy Data – 2005

Bilingual

ISBN 92-64-01100-5 – Price: € 24, US\$ 29, £ 16, ¥ 3 200.

This new edition of *Nuclear Energy Data*, the OECD Nuclear Energy Agency's annual compilation of essential statistics on nuclear energy in OECD countries, offers a projection horizon lengthened to 2025 for the first time. It presents the reader with a comprehensive and easy-to-access overview on status and trends in nuclear energy in OECD countries and in the various sectors of the nuclear fuel cycle. This publication provides authoritative information to policy makers, experts and academics involved in the nuclear energy field.

Projected Costs of Generating Electricity – 2005 Update

ISBN 92-64-00826-8 – Price: € 70, US\$ 91, £ 47, ¥ 9 400.

This sixth study in a series on projected costs of generating electricity presents and analyses cost estimates for some 130 power and co-generation (heat and power) plants using coal, gas, nuclear and renewable energy sources. Experts from 19 member countries, 2 international organisations and 3 non-OECD countries contributed to the study. Levelised lifetime costs were calculated with input data from participating experts and commonly agreed generic assumptions, using a uniform methodology. The study shows that

the competitiveness of alternative generation sources and technologies depends on many factors and that there is no absolute winner. Key issues related to generation costs are addressed in the report including methodologies to incorporate risk in cost assessments, impact of carbon emission trading and integration of wind power into electricity grids. The projected costs presented are generic and do not reflect the full range of factors (e.g., security of supply, risks and carbon emissions) that investors and other decision makers need to take into account. This report will be, however, a reference for energy policy makers, electricity system analysts and energy economists.

Nuclear safety and regulation

CSNI Technical Opinion Papers – Nos. 7-8

Living PSA and its Use in the Nuclear Safety Decision-making Process

Development and Use of Risk Monitors at Nuclear Power Plants

ISBN 92-64-01047-5

Free: paper or web.

Probabilistic safety analyses (PSAs) for many of the nuclear power plants throughout the world are being maintained as "living PSAs" (LPSAs), being updated to take account of changes to the design and operation of the plant, improvements in the understanding of how the plant behaves in fault situations and improved PSA methods, models and data. One of the specific applications of a living PSA is the risk monitor, used by operators and regulators to provide risk information employed in the decision-making process to ensure the safe operation of nuclear power plants. Since the first risk monitors were put into operation in 1988, the number of risk monitors worldwide has increased rapidly. By the end of 2003 there were more than 110 in operation and this figure should increase to over 150 when those monitors being developed are placed in service. Combining these two technical opinion papers into a single publication provides the reader – notably senior researchers and industry leaders, nuclear safety regulators, nuclear power plant operators – with a concise assessment of the current state of the art, thus enabling better analysis when evaluating proposals or the development of these applications.

Joint CSNI/CNRA Strategic Plan and Mandate – 2005-2009

ISBN 92-64-01060-2

Free: paper or web.

The mission of the Committee on Nuclear Regulatory Activities (CNRA) and the Committee on the Safety of Nuclear Installations (CSNI) is to assist member countries in maintaining and further developing the knowledge, competence and infrastructure needed to support the safe operation of nuclear power plants and fuel cycle facilities throughout their life cycle, shared experience and up-to-date methods. Readers will find the committees' mission, joint strategic plan and mandates herein.

Nuclear Regulatory Decision Making

ISBN 92-64-01051-3

Free: paper or web.

The fundamental objective of all nuclear safety regulatory bodies is to ensure that nuclear utilities operate their plants at all times in an acceptably safe manner. In meeting this objective, the regulatory body should strive to ensure that its regulatory decisions are technically sound, consistent from case to case, and timely. In addition, the regulator must be aware that its decisions and the circumstances surrounding those decisions can affect how its stakeholders, such as government policy makers, the industry it regulates, and the public, view it as an effective and credible regulator. In order to maintain the confidence of those stakeholders, the regulator should make sure that its decisions are transparent, have a clear basis in law and regulations, and are seen by impartial

observers to be fair to all parties. Based on the work of a Nuclear Energy Agency (NEA) expert group, this report discusses some of the basic principles and criteria that a regulatory body should consider in making decisions and describes the elements of an integrated framework for regulatory decision making.

Review of the Role, Activities and Working Methods of the CNRA

Committee on Nuclear Regulatory Activities (CNRA)

ISBN 92-64-01062-9

Free: paper or web.

This report, prepared by an independent review group, characterises the current role, priorities and working methods of the NEA Committee on

Nuclear Regulatory Activities (CNRA), identifies and analyses issues of concern, and suggests ways to further increase the efficiency and effectiveness as well as the visibility of the committee. It also reviews the role and interactions between the CNRA and the other NEA standing technical committees and international organisations, and suggests ways to improve co-ordination and co-operation. In formulating its report, the review group examined various CNRA documents (e.g. summary records, reports), interviewed past and present CNRA members, standing technical committee chairs and others, and gathered additional input through a questionnaire. Conclusions and recommendations have been derived concerning the mid-term and long-term role and orientation of the committee and, in particular, the balance between technical- and policy-related activities.

Radiological protection

Optimisation in Operational Radiological Protection

A Report by the Working Group on Operational Radiological Protection of the Information System on Occupational Exposure

ISBN 92-64-01050-5

Free: paper or web.

Operational approaches to the optimisation of radiological protection continue to evolve at nuclear power plants. The continual improvement of protection has been greatly facilitated by the exchange of good practice and experience through

the Information System on Occupational Exposure (ISOE). With the forthcoming revision of the system of radiological protection, as recommended by the International Commission on Radiological Protection (ICRP), the ISOE programme considered that it would be important and useful to document good operational practice to ensure that it is reflected appropriately in the new ICRP recommendations. This report is a compilation of practical examples of good practice in optimisation. It is intended to assist nuclear power plants in providing the most appropriate protection for the public and workers, and to highlight for the ICRP concepts that should be reflected in its new recommendations.

Radioactive waste management

Geological Repositories: Political and Technical Progress

Workshop Proceedings, Stockholm, Sweden, 8-10 December 2003

ISBN 92-64-00830-6 – Price: € 55, US\$ 72, £ 37, ¥ 7 400.

Various long-term radioactive waste management options have been considered in order to protect humans and the environment both now and in the future. Most experts worldwide agree that disposal in engineered facilities, or repositories, located in appropriate formations deep underground, provides a suitable option. Engineered geological disposal

is seen as a radioactive waste management end-point providing security and safety in a sustainable manner that does not necessarily require monitoring, maintenance and institutional control. Internationally, this option is regarded to be technically feasible, acceptable from an ethical and environmental viewpoint, as well as acceptable from an international legal perspective. The Stockholm International Conference on Geological Repositories: Political and Technical Progress brought together over 200 high-level decision makers and other interested stakeholders from the national, regional and local levels. Regulatory bodies and radioactive waste management implementing organisations also took part. In addition to providing a forum for the exchange of the most up-to-date information in the field, it also served to strengthen international co-operation on radioactive waste management and disposal issues.

Management of Uncertainty in Safety Cases and the Role of Risk

Workshop Proceedings, Stockholm, Sweden, 2-4 February 2004

ISBN 92-64-00878-0 – Price: € 50, US\$ 65, £ 34, ¥ 6 700.

The OECD Nuclear Energy Agency (NEA) organised a workshop on the "Management of Uncertainty in Safety Cases and the Role of Risk" in Stockholm, Sweden, on 2-4 February 2004. The workshop's main objective was to discuss different approaches to treating uncertainties in safety cases for radioactive waste management facilities, and more specifically how concepts of risk can be used in

both post-closure safety cases and regulatory evaluations. This report includes a synthesis of the plenary presentations and the discussions that took place during the workshop. These proceedings will be of interest to waste repository safety assessors and managers.

Stability and Buffering Capacity of the Geosphere for Long-term Isolation of Radioactive Waste

Application to Argillaceous Media – "Clay Club" Workshop Proceedings, Braunschweig, Germany, 9-11 December 2003

ISBN 92-64-00908-6 – Price: € 55, US\$ 72, £ 37, ¥ 7 400.

Most experts worldwide agree that radioactive waste disposal in engineered facilities, or repositories, located in appropriate formations deep underground, provide a suitable waste management option for protecting humans and the environment now and in the future. An NEA workshop was organised on 9-11 December 2003 in Braunschweig, Germany, devoted specifically to argillaceous settings for deep geological repositories. The workshop brought together scientists from academic institutions, engineers from various research institutions or companies, consultants, regulatory authorities and national waste management organisations to establish the scientific basis for stability and buffering capacity of deep geological waste management systems. The present report synthesises the main outcomes of that workshop and presents a compilation of the related abstracts.

Nuclear Science and the Data Bank

Accelerator and Spallation Target Technologies for ADS Applications – A Status Report

ISBN 92-64-01056-4

Free: paper or web.

The efficient and safe management of spent fuel produced during the operation of commercial nuclear power plants is an important issue. Worldwide, more than 250 000 tons of spent fuel from reactors currently operating will require disposal. These numbers account for only high-

level radioactive waste generated by present-day power reactors. Nearly all issues related to risks to future generations arising from the long-term disposal of such spent nuclear fuel is attributable to only about 1% of its content. This 1% is made up primarily of plutonium, neptunium, americium and curium (called transuranic elements) and the long-lived isotopes of iodine and technetium. When transuranics are removed from discharged fuel destined for disposal, the toxic nature of the spent fuel drops below that of natural uranium ore (that which was originally mined for the nuclear

fuel) within a period of several hundred years. This significantly reduces the burden on geological repositories and the problem of addressing the remaining long-term residues can thus be done in controlled environments having timescales of centuries rather than millennia. To address the disposal of transuranics, accelerator-driven systems (ADS), i.e. a sub-critical system driven by an accelerator to sustain the chain reaction, seem to have great potential for transuranic transmutation, though much R&D work is still required in order to demonstrate their desired capability as a whole system. This report describes the current status of accelerator and spallation target technologies and suggests technical issues that need to be resolved for ADS applications. It will be of particular interest to nuclear scientists involved in ADS development and in advanced fuel cycles in general.

JEFF-3.0 Nuclear Data Library (The) JEFF Report 19 – Synopsis of the General Purpose File

ISBN 92-64-01046-7

Free: paper or web.

To master the technology and the economics of nuclear energy, deep insight is needed into the physical and chemical phenomena at work in nuclear reactors and all parts of the associated fuel cycle. Scientific knowledge should be constantly updated in order to:

- improve the safety and the economics of existing installations and anticipate possible problems;
- optimise the design of future installations;
- develop satisfactory techniques for radioactive waste storage and disposal.

One of the most important basic tools needed for accomplishing the above is accurate nuclear data.

NEA Data Bank member countries have long supported the development of the Joint Evaluated Fission and Fusion (JEFF) library, which is used as reference data for nuclear applications in many European countries. The third, improved version of the data library (JEFF-3.0) was recently issued. The present report describes the contents of this library.

Shielding Aspects of Accelerators, Targets and Irradiation Facilities – SATIF 7

Workshop Proceedings, Lisbon, Portugal, 17-18 May 2004

ISBN 92-64-01042-4 – Price: € 70, US\$ 91, £ 47, ¥ 9 400.

Particle accelerators are used today for an increasing range of scientific and technological applications. They are very powerful tools to investigate the origin and structure of matter, and to improve understanding of the interaction of radiation with materials, including transmutation of nuclides and beneficial effects of risks from radiation. They are used to identify properties of molecules that can be used in pharmacy, for medical diagnosis and therapy, or for biophysics studies. Particle accelerators must be operated in safe ways that protect operators, the population and the environment. New technological and research applications give rise to new aspects in radiation shielding. These workshop proceedings review the state of the art in radiation shielding of accelerator facilities and of irradiated targets. They also evaluate progress made and discuss the additional developments required to meet radiation protection needs.



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Employment opportunities

Vacancies occur in the OECD Nuclear Energy Agency Secretariat in the following areas:



Energy economics
Nuclear safety
Radioactive waste management
Radiation protection
Nuclear energy economics
Nuclear science
Nuclear law
Nuclear engineering
Computing

Qualifications:

Relevant university degree; at least two or three years' professional experience; very good knowledge of one of the two official languages of the Organisation (English or French) and ability to draft well in that language; good knowledge of the other.

Vacancies are open to candidates from OECD member countries. The OECD is an equal opportunity employer.

Initial appointment:

Two or three years.

Basic annual salary:

From € 56 502 (Administrator) and from € 81 019 (Principal Administrator), supplemented by allowances depending on residence and family situation.

For information regarding current vacancies see:

www.nea.fr/html/general/jobs/index.html

OECD Nuclear Energy Agency

