

# New publications

## General interest

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### **Nuclear Energy Data 2011**

978-92-64-12187-4. 140 pages. Price: € 40, US\$ 56, £ 36, ¥ 5 200.

*Nuclear Energy Data*, the OECD Nuclear Energy Agency's annual compilation of statistics and country reports on nuclear energy, contains official information provided by OECD member country governments on plans for new nuclear plant construction, nuclear fuel cycle developments as well as current and projected nuclear generating capacity to 2035. For the first time, it includes data for Chile, Estonia, Israel and Slovenia, which recently became OECD members. Key elements of this edition show a 2% increase in nuclear and total electricity production and a 0.5% increase in nuclear generating capacity. They also show excess conversion and enrichment capacities in OECD Europe, and insufficient capacity to meet requirements in the North American and Pacific regions. Further details are provided in the publication's numerous tables, graphs and reports.

### **ウラニウム2009: 資源、生産、需給**

(Japanese version of Uranium 2009: Resources, Production and Demand)

482 pages. Free: web.

### **技术路线图: 核能**

(Chinese version of Nuclear Energy Technology Roadmap)

48 pages. Free: paper or web.

## Economic and technical aspects of the nuclear fuel cycle

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### **Carbon Pricing, Power Markets and the Competitiveness of Nuclear Power**

978-92-64-11887-4. 108 pages. Price: € 33, US\$ 46, £ 29, ¥ 4 200.

This study assesses the competitiveness of nuclear power against coal- and gas-fired power generation in liberalised electricity markets with either CO<sub>2</sub> trading or carbon taxes. It uses daily price data for electricity, gas, coal and carbon from 2005 to 2010, which encompasses the first years of the European Emissions Trading System (EU ETS), the world's foremost carbon trading framework. The study shows that even with modest carbon pricing, competition for new investment in electricity markets will take place between nuclear energy and gas-fired power generation, with coal-fired power struggling to be profitable. The outcome of the competition between nuclear and gas-fired generation hinges, in addition to carbon pricing, on the capital costs for new nuclear power plant construction, gas prices and the profit margins applied. Strong competition in electricity markets reinforces the attractiveness of nuclear energy, as does carbon pricing, in particular when the latter ranges between USD 40 and USD 70 per tonne of CO<sub>2</sub>. The data and analyses contained in this study provide a robust framework for assessing cost and investment issues in liberalised electricity markets with carbon pricing.

## Nuclear safety and regulation

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### **CSNI Technical Opinion Papers – No. 13**

**LOCA Criteria Basis and Test Methodology**

978-92-64-99154-5. 40 pages. Free: paper or web.

Acceptance criteria for emergency core cooling systems (ECCS) define the maximum temperature and degree of oxidation in order to avoid excessive embrittlement and hence failure of the fuel cladding, which would affect core cooling in the case of a loss-of-coolant accident (LOCA). The criteria are mainly based on experimental data obtained in the 1970s-80s. Several types of tests have been performed to evaluate structural integrity and embrittlement of the cladding under LOCA conditions, and consequently different test methodologies have been used for determining the cladding embrittlement criteria. The current trend towards high burn-up and the use of new cladding alloys has increased the need for international discussions on these test methodologies and acceptance criteria. In response,

the NEA Committee on the Safety of Nuclear Installations (CSNI) and its Working Group on Fuel Safety produced this technical opinion paper, which should be of particular interest to nuclear safety regulators, nuclear power plant operators and fuel researchers.

## Radiological protection

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### **Practices and Experience in Stakeholder Involvement for Post-nuclear Emergency Management**

978-92-64-99166-8. 25 pages. Free: paper or web.

One of the most important aspects of post-accident consequence management is the involvement of stakeholders: in the planning, preparation and execution as well as in sustaining efforts over the long term. Having recognised the significance of stakeholder participation in several International Nuclear Emergency Exercises (INEX), the NEA Committee on Radiation Protection and Public Health (CRPPH) decided to organise the Practices and Experience in Stakeholder Involvement for Post-nuclear Emergency Management Workshop to explore these issues. This summary highlights the key issues discussed during the workshop, which brought together 75 emergency management and communication specialists from 16 countries. In light of the accident at the Fukushima Daiichi nuclear power plant, the experience shared during this workshop will be central to further improving national emergency management arrangements.

## Nuclear law

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### **Nuclear Law Bulletin No. 87 (June 2011)**

Volume 2011/1

0304-341X. 110 pages. Annual subscription (two issues per year): € 116, US\$ 150, £ 92, ¥ 16 500.

The *Nuclear Law Bulletin* is a unique international publication for both professionals and academics in the field of nuclear law. It provides subscribers with authoritative and comprehensive information on nuclear law developments. Published twice a year in both English and French, it features topical articles written by renowned legal experts, covers legislative developments worldwide and reports on relevant case law, bilateral and international agreements as well as regulatory activities of international organisations. Feature articles in this issue address the 25<sup>th</sup> anniversary of the Chernobyl accident, Japanese legislation in light of the Fukushima Daiichi accident and the long-term operation of nuclear power plants.

## Nuclear science and the Data Bank

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### **Potential Benefits and Impacts of Advanced Nuclear Fuel Cycles with Actinide Partitioning and Transmutation**

978-92-64-99165-1. 74 pages. Free: paper or web.

This report provides a comparative analysis of different studies performed to assess the potential impact of partitioning and transmutation (P&T) on different types of geological repositories for radioactive waste in various licensing and regulatory environments. Criteria, metrics and impact measures have been analysed and compared with the goal of providing an objective comparison of the state of the art to help shape decisions on options for future advanced fuel cycles. P&T allows a reduction of the inventory of the emplaced materials which can have a significant impact on the repository. Such a reduction can also make the uncertainty about repository performance less important both during normal evolution and in the case of disruptive scenarios. While P&T will never replace the need for waste repositories, it has the potential to significantly improve public perception regarding the ability to effectively manage radioactive waste by largely reducing the transuranic (TRU) waste masses to be stored and, consequently, to improve public acceptance of the geological repositories. Both issues are important for the future sustainability of nuclear power.

### **Technology and Components of Accelerator-driven Systems**

Workshop Proceedings, Karlsruhe, Germany, 15-17 March 2010

978-92-64-11727-3. 442 pages. Price: € 90, US\$ 126, £ 81, ¥ 11 700.

The accelerator-driven system (ADS) is a potential transmutation system option as part of partitioning and transmutation strategies for radioactive waste in advanced nuclear fuel cycles. These proceedings contain all the technical papers presented at the workshop on Technology and Components of Accelerator-driven Systems held on 15-17 March 2010 in Karlsruhe, Germany. The workshop provided experts with a forum to present and discuss state-of-the-art developments in the field of ADS and neutron sources. It included a special session on the EUROTRANS as well as four technical sessions covering current ADS experiments and test facilities, accelerators, neutron sources and subcritical systems.