

NUCLEAR ENERGY

Nuclear power stations currently produce around one third of the electricity and 15% of the energy consumed in the EU. Nuclear energy is considered as a low-carbon alternative to fossil fuels and represents a critical component of the energy mix of many Member States. However, due to the 1986 Chernobyl disaster and the nuclear catastrophe in Fukushima in 2011, nuclear energy is highly controversial. Abandonment of nuclear power is at the earliest a medium-term prospect but, in any event, greater efforts are being made to improve the safety standards of nuclear power stations and ensure the safe handling and disposal of nuclear waste.

LEGAL BASIS

See *4.13.1

OBJECTIVES

To tackle the general shortage of "conventional" energy in the 1950s, the six founding States (Belgium, France, Germany, Italy, Luxembourg and the Netherlands) looked to nuclear energy as a means of achieving energy independence. Since the costs of investing in nuclear energy could not be met by individual States, the founding States joined together to form Euratom. The general objective of the Euratom Treaty is to contribute to the formation and development of Europe's nuclear industries, so that all the Member States can benefit from the development of atomic energy, and to ensure security of supply. At the same time, the Treaty guarantees high safety standards for the public and prevents nuclear materials intended principally for civilian use from being diverted to military use. It is important to note that Euratom's powers are limited to peaceful civil uses of nuclear energy.

ACHIEVEMENTS

A. Adopted measures on nuclear safety and shipment of nuclear material

1. Dangers arising from ionising radiation

Council Directive 96/29/Euratom of 13 May 1996 set out **basic safety standards for the protection of the health of workers and the general public** against the dangers arising from ionising radiation. The Directive makes it compulsory for each Member State to report activities that involve a hazard arising from ionising radiation. In the light of possible dangers, activities are, in certain cases, subject to prior authorisation by the relevant Member State(s). In June 2009, the Commission Communication "on Strengthening Chemical, Biological, Radiological and Nuclear Security in the EU – an **EU CBRN Action Plan**" (COM(2009)273) proposed a new CBRN policy to reduce the threat and damage from CBRN incidents to EU citizens. The Action Plan aims to (1) **prevent unauthorised access** to CBRN materials, (2) **detect CBRN materials**, to ensure an appropriate response to incidents, and (3) **prepare countermeasures**, to be able to efficiently respond to and quickly recover from incidents. On 27 April 2010, the Commission published a proposal for a Regulation "laying down **maximum permitted levels of radioactive contamination of foodstuffs** and of feedingstuffs following a nuclear accident or any other case of radiological emergency" (COM(2010)184), transforming the codification of Regulation (Euratom)3954/87, Regulation (Euratom)944/89 and Regulation (Euratom)770/90 into a recast.

On 15 February 2011, EP adopted amendments as a result of a compromise it had reached with the Council. The Regulation is currently awaiting final decision.

2. Shipments of radioactive substances

Council Regulation (Euratom)1493/93 of 8 June 1993 introduced a Community system for the declaration of shipments of radioactive substances between Member States, to ensure that the competent authorities concerned receive the same level of information concerning radiation protection control. as before 1993, when border controls were still in place.

3. Shipments of radioactive waste

Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel aims to guarantee an adequate level of protection to the population from such shipments. The Directive sets out and lists a number of strict criteria, definitions and procedures that need to be applied when transporting radioactive waste and spent fuel, for intra and extra-Community shipments.

4. Safeguarding nuclear materials

Several regulations were adopted and amended in order to establish a system of safeguards enabling the Commission to satisfy itself that source materials and nuclear products are used exclusively for the uses declared by their users (Euratom Regulation 3227/76, 220/90, 2130/93). These safeguards cover the entire nuclear fuel cycle; from the extraction of nuclear materials in the Member States, or their importation from third countries, to exportation outside the EU.

5. International conventions on Nuclear Safety and on the Physical Protection of Nuclear Material and Nuclear Facilities

All Member States and the European Atomic Energy Community (Euratom) are parties to the 1994 Convention on Nuclear Safety; an international convention aiming to improve nuclear safety worldwide (1999/819/Euratom). The Convention does not give detailed safety standards, but represents a commitment to the application of fundamental safety principles for nuclear installations: i.e. nuclear power plants and facilities for the storage, handling and treatment of radioactive materials that are on the same site and are directly related to the operation of the nuclear power plant. The parties to the Convention are committed to establishing a legislative and regulatory framework to ensure the safety of nuclear installations, which provides for:

- the establishment of sufficient national safety requirements and regulations;
- a system for licensing nuclear installations and the prohibition of operating without a licence;
- a system of inspection and assessment that should be carried out both before the construction and commissioning of an installation, and throughout its life;
- measures to enforce the regulations and the terms of licensing.

The parties must set up an independent regulatory body to ensure that the regulations are correctly implemented. Similarly, Council Decision 2007/513/Euratom approved the accession of the EURATOM to the Convention on the Physical Protection of Nuclear Material and Nuclear Facilities. The Convention is aimed at ensuring effective physical protection during the use, storage or transport of materials used for peaceful purposes, as well as preventing and fighting crime associated with this material and these facilities. Member States must establish measures

to establish and implement effective protection to prevent the theft or disappearance of nuclear material for which it is responsible, as well as the sabotage of nuclear facilities on its territory. The Euratom Treaty is broader, stating that Member States must prevent any misappropriation of nuclear material for purposes other than those for which it is intended.

B. Community framework for safety of nuclear installations

The EU Directive on Nuclear Safety (2009/71/Euratom) has established a common legal framework for the safety of nuclear power plants to protect both workers and the general public against the danger arising from ionising radiations from nuclear installations. It states that Member States shall establish a national framework with regard to (1) nuclear safety requirements, (2) licensing of nuclear power plants, (3) nuclear safety supervision, and (4) enforcement actions. In practical terms, national safety authorities are in charge of inspecting nuclear power plants and checking whether contingency plans and safety standards ensure a high level of nuclear safety. Member States have to set up and continuously improve national safety rules. The Directive makes the safety standards of the International Atomic Energy Agency (IAEA) partially legally binding and enforceable in the EU. Member States have to comply with the Directive by 22 July 2011. In light of the nuclear plant situation in Fukushima, the extraordinary EU Energy Council meeting of 21 March 2011 agreed that the Commission - in cooperation with Member States and national regulators - should prepare voluntary stress tests based on common standards. The agreement goes back to the results of an ad hoc coordination meeting of 15 March 2011, in which the Commissioner for Energy brought together the 27 national nuclear safety authorities and all operators and vendors of the 143 nuclear power plants in the EU. On the evening of the same day, he informed the EP about the plan to carry out stress tests, expressing his hope that the standards would be defined by June 2011 and the tests completed in the second half of the year.

Cooperation with third countries on nuclear safety

The EU provides financial aid to third countries with a view to ensuring nuclear safety in these countries through the establishment of an Instrument for Nuclear Safety Cooperation (Regulation (Euratom)300/2007) covering the period 2007-13 and with a budget of EUR 524 million. This Regulation is one of the external assistance instruments to third countries, adopted in the framework of the Financial Perspective 2007-2013, aimed at supporting the promotion of nuclear safety, radiation protection and the application of efficient and effective safeguards of nuclear material in third countries. The main objective is to promote through financial assistance a high level of nuclear safety, effective regulatory frameworks and the establishment of effective arrangements for the prevention of radiological accidents. It was originally intended that nuclear safety and co-operation would form part of the general "Instrument for Stability". For legal reasons, and for reasons related to the Inter-Institutional Agreement on the Financial Perspective (2007-2013), it was decided, however, that nuclear safety and security assistance would constitute a separate instrument.

C. Nuclear research and training activities

Through the adopted Seventh Framework Programme (7FP) of the EURATOM for nuclear research and training activities (2007-2011), the EU established a multi-annual framework programme for nuclear research and training activities (Council Decision 2006/970/Euratom and 2006/977/Euratom). The overall maximum amount for implementing the 7FP during the period 2007/2011 is EUR 2 751 million subdivided into two specific components:

- the development of a safe, sustainable, environmentally responsible and economically viable, technology, namely fusion energy research (EUR 1 947 million) and the enhancement of the safety performance in the fields of nuclear fission and radiation protection (EUR 287 million);

— the nuclear activities of the Joint Research Centre (JRC) - EUR 517 million.

The envisaged budget for 2012-13 includes EUR 2.2 billion - or 86% of the overall sum – for nuclear fusion research and EUR 118 million for fission research projects. The nuclear research and safety assurance work of the Commission's Joint Research Centre (JRC) accounts for EUR 233 million. The Commission presented the proposal to the Council on 9 March 2011 and the latter's decision is expected before the end of the year.

A Joint Undertaking for ITER and the Development of Fusion Energy was established in order to promote scientific research and technological development in the field of fusion (Council Decision 2007/198/Euratom). As a complement to ITER, the EU and Japan adopted an agreement on a broader approach in this field (Council Decision 2007/614/Euratom). This will serve as a basis for various research and development activities concerning new materials and operating scenarios, with a view to the construction of a future demonstration power plant. In its Communication on "ITER status and possible way forward" (COM(2010)226), the Commission stressed that the cost of the project had turned out to be much higher than originally estimated. As a consequence, it emphasised the need for additional resources to ensure sufficient levels of financing throughout the entire duration of the project, calling on the Council and the EP to take a decision of general principle on the future funding of the project. In its conclusions of 12 July 2010, the Council underlined its strong commitment to ITER, stating that it was willing to bear the estimated financing needs. On 20 July 2010, the Commission proposed to provide the necessary funding by making use of EUR 1.4 billion unused funds from the EU budget and by redeploying EUR 460 million from the 7th FP for Research. The Council and the EP have not yet reached a decision on this proposal.

ROLE OF THE EUROPEAN PARLIAMENT

In adopting the Directive on supervision and control of shipments of radioactive waste and spent fuel, the EP supported amendments to strengthen and clarify the control procedure through the:

- acknowledgement of receipt of the application by the competent authorities of the Member State of destination and of transit;
- period of time allowed for granting consent or for refusal;
- identical procedure for both shipments of radioactive waste and shipments of spent fuel for disposal.

Whilst accepting the idea that the promotion of voluntary agreements between Member States provided a solution for small producers of radioactive waste, EP included an express provision that each Member State retained the right at all times to refuse entry onto its territory of both spent nuclear fuel and radioactive waste for final processing or disposal, with the exception of reshipment (2005/0272(CNS)). In its Resolution on cooperation with third countries on nuclear safety, EP adopted amendments regarding the scope, the polluter pays principle, and reporting and transparency (2006/0802(CNS)). When **assessing Euratom** in the face of the 50th anniversary of European nuclear energy policy, the EP Resolution of 10 May 2007 (2006/2230(INI)) made it clear that "the fact that EP is almost completely excluded from the Euratom legislative process and that it is consulted, and no more, on only one of the ten chapters of the Euratom Treaty" was unacceptable. It consequently stressed that a comprehensive revision of the Euratom Treaty was needed. With its legislative resolution of 22 April 2009 on the proposal for a Council directive setting up a Community framework for nuclear safety, the EP put special emphasis on the fact that **nuclear security is a matter of Community interest**, which should be taken into consideration when deciding upon licensing new plants or extending the lifetime of existing ones. However, the final directive, which was passed under the consultation procedure, focuses on the national responsibility of Member States and does not

follow the EP's suggestions. The EP also endeavoured to reinforce the credibility of the harmonisation process of safety rules at EU level and to enhance monitoring, transparency and public acceptance by:

- ensuring a real independence of the regulatory body and its legitimacy by giving it powers to take all necessary urgent measures, including the suspension of activity of a nuclear plant;
- securing the legal certainty of the directive proposal by adding the fundamental principles published by the International Atomic Energy Agency (IAEA) in 2006 as the basis upon which to establish Member States' safety requirements;
- clarifying the responsibilities and accountability of licence holders: prime responsibility for the safety of their installations, regular reporting on nuclear safety and safety culture.

With regard to the Commission proposal on maximum permitted levels of radioactive contamination of foodstuffs (COM(2010)184), the EP adopted a legislative resolution on 15 February 2011, **changing the legal basis of the Regulation** from Article 31 (Euratom Treaty) to Article 168 (TFEU), as "this article provides for the adoption of common measures in the veterinary field which have as a direct objective the protection of human health."

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