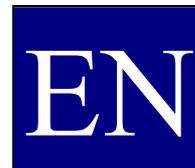




**COUNCIL OF  
THE EUROPEAN UNION**



## **Conclusions on the need for skills in the nuclear field**

***2891st COMPETITIVENESS  
(INTERNAL MARKET, INDUSTRY and RESEARCH) Council meeting  
Brussels, 1 and 2 December 2008***

The Council adopted the following conclusions:

"THE COUNCIL OF THE EUROPEAN UNION,

Recalling the conclusions of the European Council held on 13 and 14 March 2008, in which, *inter alia*, Member States and the European Union declare their wish to "remove barriers to free movement of knowledge" and invite the Commission to present a comprehensive assessment of the future skills requirements in Europe up to 2020;

Emphasising that, through Title II, Chapter I of the Euratom Treaty concerning the promotion of research, the European Atomic Energy Community benefits from an institutional framework in the field of education and training enabling it to take initiatives in those areas;

Recalling the efforts undertaken under the Bologna process to set up a European Area of Higher Education that would in particular increase the mobility of students in the EU, make European higher education more attractive and encourage training through research; Recalling the establishment of the ERASMUS MUNDUS programme to that end;

# **P R E S S**

Recalling, on the one hand, the Council conclusions on the Future of Science and Technology in Europe, and more specifically the chapter "To ensure sufficient human resources for R&D" (14687/07); and, on the other hand, the Council conclusions of 26 September 2008 on Better careers and more mobility: a European partnership for researchers (13671/08);

Noting the lack of engineers and researchers in scientific sectors;

Recalling that the Member States are committed to implementing the reforms and policies needed to make the European economy a competitive, dynamic, knowledge-based and innovation-based economy, and whereas it is consequently necessary, in order to reach these goals, to have sufficient numbers of skilled human resources in each scientific discipline, including the nuclear field; and that it is necessary to take appropriate measures to ensure that the nuclear option remains open to Member States that have chosen or will choose it;

Endorsing the analyses conducted by the OECD and the IAEA<sup>1</sup> on the essential role of technical, scientific and management skills in order to ensure extremely safe operation of nuclear installations; Considering therefore that greater coordination between EU initiatives in this field and those of the aforementioned international organisations would be helpful;

Noting that the safe use of nuclear energy, whereby 152 reactors currently supply the EU with 31 % of its electricity, will continue for many years in several Member States and will consequently necessitate the long-term availability of qualified human resources;

Emphasising that training in the nuclear field does not solely involve those Member States which have chosen the nuclear option for energy production; all the Member States, since they have research installations or make use of radioactive materials (particularly for medical purposes), need to maintain expertise in the nuclear field;

Emphasising the role played by the Commission, in accordance with the Euratom Treaty, in the field of training, through the Euratom research framework programmes, and the efforts of the Joint Research Centre in developing training and education activities in cooperation with Member States or with international partners such as the IAEA;

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<sup>1</sup> OECD-NEA, *Maintenir à l'avenir les compétences en sûreté nucléaire*, 2001.  
OECD-NEA, *Développement des compétences dans le domaine de l'énergie nucléaire*, 2004.  
IAEA, *Risk Management of Knowledge Loss in Nuclear Industry Organizations*, 2006.  
IAEA, *Knowledge management for Nuclear Industry Operating Organizations*, 2006.

Recalling the specific programmes of the Euratom R&D Framework Programme, especially the section thereof entitled "Human resources, mobility and training", which lays emphasis on the imperative need to maintain a high level of "expertise and human resources in all areas of nuclear fission and radiation protection", notably with regard to the need to maintain "the current high level of nuclear safety"; Recalling also that Article 11 of the IAEA Convention on Nuclear Safety stipulates that the States parties shall ensure the availability of sufficient human resources "for all safety-related activities in or for each nuclear installation".

IS OF THE VIEW THAT it is essential to maintain in the European Union a high level of training in the nuclear field. This effort is indispensable:

- 1) for Member States wishing to continue to make use of nuclear energy for their energy production,
- 2) for Member States wishing to begin using this energy source,
- 3) for Member States wishing to phase out the use of nuclear fission for electricity production and still facing the challenge of decommissioning nuclear facilities, and of managing radioactive waste and spent fuel,
- 4) for Member States which have not developed a nuclear power programme for energy production but which use nuclear technologies for other purposes (research, medical applications).

ACKNOWLEDGES that the existence of a knowledge base is indispensable for obvious safety reasons and to make improvements to the whole nuclear power cycle. Training availability and teaching skills based on dynamic R&D are necessary in all subject areas: the design and building of installations, radiation protection, radioactive waste and materials management, operation of installations and decommissioning.

NOTES that owing to the age pyramid within the nuclear sector, numerous retirements are scheduled in the short term.

POINTS OUT therefore that there is a real risk of the loss of nuclear knowledge for the European Union if no measures are taken.

EMPHASISES strongly that the preservation of skills in the nuclear field requires a general effort involving public and private players and in particular the nuclear industry. This preservation of skills must be based on extensive high-quality research capacities ensuring scientific and technical excellence and maintaining skills at the level of the international state of the art.

RECALLS that the great efforts undertaken in the nuclear field by the European Union and its Member States have enabled the EU to become a world reference in matters of nuclear safety and radiation protection.

NOTES, as emphasised by the European Strategic Energy Technology Plan (SET-Plan)<sup>2</sup>, that, more generally, the need for scientific and technical skills in the field of energy (including nuclear technology) is increasing.

NOTES also that there are still too many administrative and other impediments to the free movement of nuclear experts.

AND CONSIDERS therefore that measures are required.

In particular, THE COUNCIL:

1. INSISTS that the appropriate conditions must be created for mutual recognition of nuclear professional qualifications throughout the European Union; ENCOURAGES the Member States and the Commission to establish a "**review of professional qualifications and skills**" in the nuclear field for the European Union, which would give an overall picture of the current situation and enable appropriate solutions to be identified and implemented. Such a review could pave the way for drawing up a pan-European **chart of skills and knowledge** relating to occupations in the nuclear field; acceptance of this could lead to the production of a **European handbook of skills, experience and professional qualifications**, which would facilitate the mobility of employees within the EU.
2. WELCOMES the existence within the European Union of **coordinated teaching and training leading to qualifications in the nuclear field**, provided notably by the European Nuclear Education Network (ENEN). HOPES that, with the help of the EU, ENEN and its members will continue to develop the coordination of nuclear education and training in Europe.

BELIEVES however that additional efforts are needed, notably by:

- reinforcing the teaching of basic scientific prerequisites in preparation for energy-related occupations, and giving a new impetus to mathematics, physics and chemistry teaching at every level;
- developing generally the provision of programmes in different languages specifically geared to energy-related and especially nuclear-related occupations;
- assessing ways of attracting more European and non-European students to those programmes by improving the competitiveness of scientific and technical careers in public and private companies within the European Union;
- equipping European universities and institutions involved in nuclear-related teaching programmes with the capacity to accept such students;
- where necessary extending the network of institutions and universities offering this type of teaching, and ensuring mutual recognition of qualifications obtained in given Member States;

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<sup>2</sup> Commission communication of 22 November 2007, 15458/07, (COM(2007)723) and Council conclusions of 28 February 2008 (6326/1/08).

- improving the visibility of European nuclear training as currently organised in associations and networks, which constitutes a world level reference;
- making available common European technical documentation and teaching materials, in particular through the use of new information technologies.

BELIEVES that such measures regarding initial training will help to endow Europe with a pool of skilled technicians and engineers or high-level postgraduates and university PhDs.

3. CONSIDERS that the provision of relevant European life-long training opportunities should also be encouraged in order to facilitate **mobility between different nuclear occupations** (regulatory and safety expertise, design, operation, research, teaching), and to improve career attractiveness and professional efficiency. INSISTS on the necessity of ensuring teacher training and mobility to augment the pool of teachers.
4. STRESSES the importance of **training through research**, which should lead to an enhancement of the research effort of Member States and of the European Union as a whole in all scientific disciplines contributing to ensure the safe management of nuclear activities and favouring long-term technological progress. With this in mind, the Council STRESSES also the importance of **research infrastructures** in the field of training and the need to maintain their availability for researchers, teachers and students throughout the EU.
5. ENCOURAGES those Member States that so wish and the European Commission to set up **cooperation schemes** and schemes to share best practice.
6. In the same spirit, the Council NOTES the progress made by the **European Research Area** in the field of researchers' mobility and of the development of their careers, in particular by the implementation of the R&D framework programme, but CONSIDERS that those Member States that so wish and the Commission should study ways of increasing such **mobility for researchers and nuclear experts** within the European Union, and should extend it to trainers in the nuclear field.
7. NOTES with interest the work of the European Nuclear Energy Forum and of the technology platform on nuclear energy (SNE-TP) on the issue of skills management. CONSIDERS, in general, that Member States that so wish should support **public investments** and **public/private partnerships** for **initial and life-long training** of people working in the nuclear field. CONSIDERS that the private sector should also give consideration to the issue and launch new privately financed initiatives, in the field of both initial and life-long training, and ENCOURAGES this sector to welcome young professionals during their training period.

8. CONSIDERS that the issue of skills requirements is also relevant in the **international context** and therefore INVITES the European Commission and the Member States, in particular as part of the external dimension of the European Research Area, to:
- promote European know-how at international level, and enhance the attractiveness of the European training offer;
  - include within the framework of scientific and technological cooperation agreements the principle of cooperation on teaching and training in the nuclear area and all the arrangements associated with this (mutual exchanges of students, exchanges of researchers/teachers, assessment of the possibility of mutual recognition of qualifications, etc.);
  - provide regular information about existing programmes awarding degrees in Europe and about their capacity for accepting students from third countries. However, it will be necessary to take due care that this does not result in a "brain drain" from third countries which have chosen to use nuclear energy and which need to preserve skills in that sector for the same reasons as the European Union; it will also be necessary to take measures to prevent a "brain drain" from Europe to third countries;
  - encourage the creation of international consortia for the pooling of resources between universities, research institutes and industry;
  - use the participation of the European Union in international scientific collaboration, in particular the bodies of which EURATOM is a member, to develop with its international partners solutions in the area of maintaining skills in the nuclear field.
9. RECALLS that provisions have been adopted in the 7th Euratom R&D framework programme in the area of training in the field of controlled thermonuclear fusion. BELIEVES that in view of the common ambitions of the European Union and of its international partners in the field of fusion, the Commission and Member States should take all measures to ensure that the Member States and the EU continue to provide appropriate training and availability of human resources to permit the completion of the various phases (ITER, DEMO and so on) leading to the construction of a prototype fusion reactor.
10. INVITES the Commission to report to the Council on a regular basis regarding the follow-up to these Council conclusions.
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