

European Nuclear Education Initiatives



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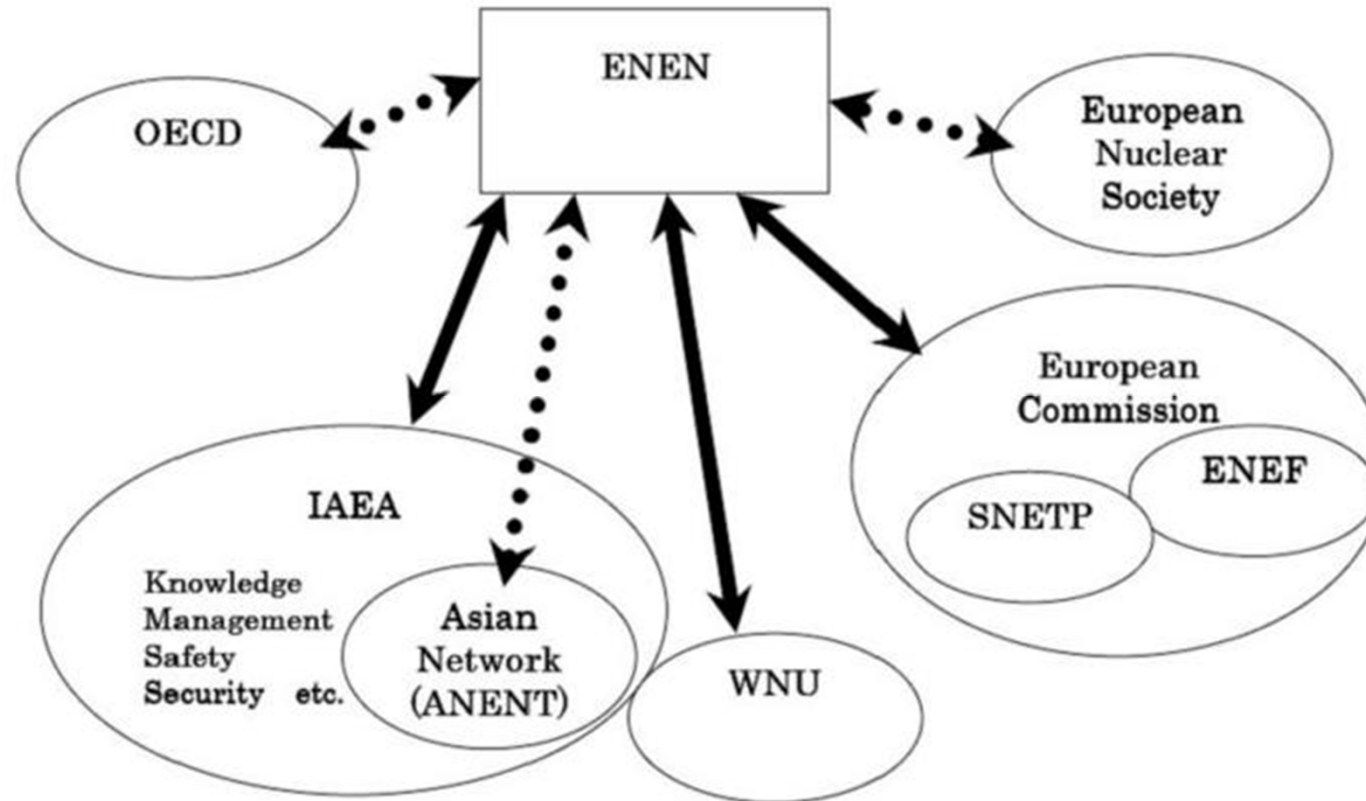
- **Commission Initiatives**
 - *The European Nuclear Education Network (ENEN)*
 - *The European Nuclear Energy Leadership Academy (ENELEA)*
 - *The European Nuclear Energy Forum (ENEF)*
 - *The Actinide Network (ACTINET I3)*
- **Joint Research Centre Initiatives**
 - *The European Safeguards R&D Association (ESARDA)*
 - *The European Human Resources Observatory Nuclear (EHRO-N)*
- **Institute for Transuranium Elements' Initiatives**
 - *Actinide User Lab (Actuslab)*
 - *European Nuclear Safety and Security School (EN3S)*

A non profit international organization established on 22 September 2003

Its mission is the preservation and further development of expertise in the nuclear fields by higher education and training

ENEN has at present 60 members (mainly universities) 27 of which associated (government institutions, nuclear companies, regulatory bodies and nuclear learning societies)

- The 16th Board meeting was held in Paris, France, on 10 October 2011.
- Nuclear Reaction Research Group opens two PhD positions in Finland and France
- ENELA Conference Cycle ; putting severe accidents into perspective. Learning from the past, preparing for the future of nuclear energy" in Munich, 9–10 February, 22–23 March and 26–27 April 2012.
- 23 September 2011: FP7 ENEN–RU project with Russia Education, Training and Knowledge Management
- 23 September 2011 Practical Arrangements between IAEA and two Russian organisations – the JSC Concern Rosenergoatom and the CICET on: further cooperation to support nuclear infrastructure development and capacity building for new nuclear power programmes

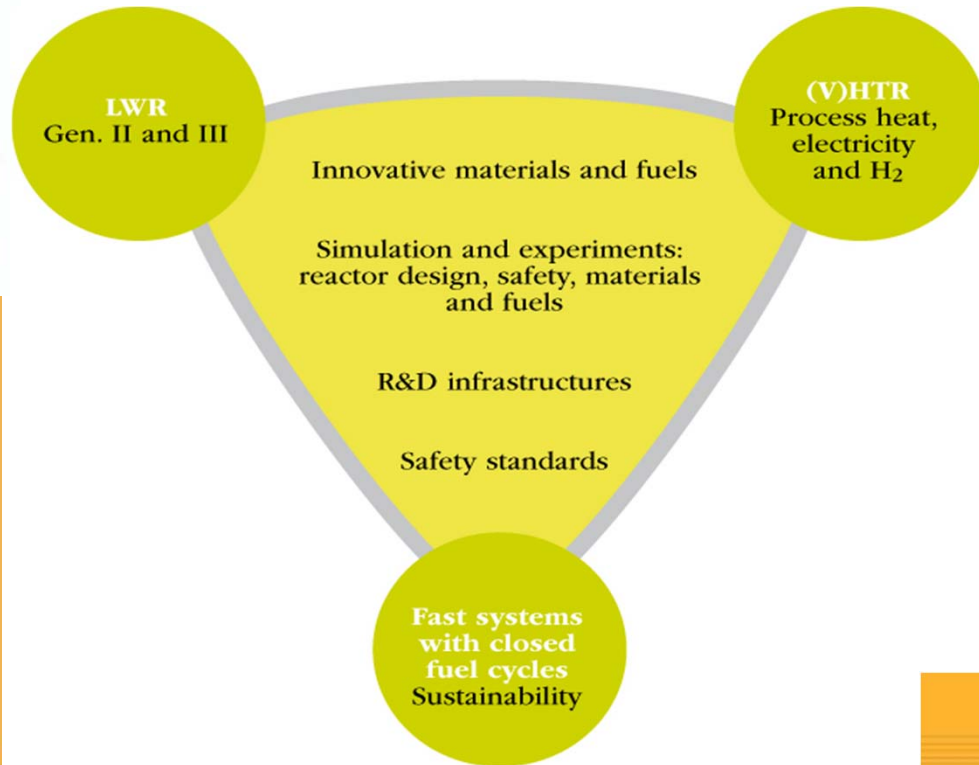
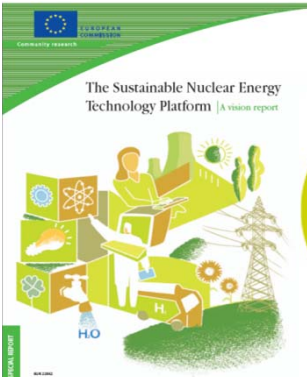


- SFEN young generation, France
- Nordic Nuclear Safety Research (NKS), Denmark, Finland, Iceland, Norway and Sweden
- "Retea Educationala in Fizica si Ingineria Nucleara", Romania
- Joint Program of the Swiss Federal Institutes of Technology (EPFL-ETHZ), Switzerland
- Nuclear Technology Education Consortium (NTEC), United Kingdom
- Japan Nuclear Human Resource Development Network (JN-HRD.NET), Japan

ENELA was established in January 2010 by six of Europe's leading nuclear companies: AREVA, AxpO AG, EnBW, E.ON Kernkraft GmbH, URENCO Limited and Vattenfall AB. ENELA is supported by the European Commission and encourages the involvement of other major institutions and organisations.

ENELAs aim is to strengthen and expand the availability of European expertise in relation to the safe, reliable, and economical generation of nuclear energy.

to educate future leaders and to ensure the further development of sustainable European nuclear energy solutions.



ESNII

ESNII = European Sustainable Nuclear Industrial Initiative

- **Maintain safety and competitiveness of today's technologies**
- **Enlarge the nuclear fission portfolio beyond electricity production (H₂, synthetic fuels, petrochemical/ steelmaking/ paper/ cement industries, sea-water desalination, etc.)**
- **Develop advanced reactors with closed cycle to enhance sustainability**



Nuclear Education and Training Key Elements of a Sustainable European Strategy

in close co-operation with the Strategic Research Agenda and Deployment Strategy working groups in order to provide a coherent approach for education, training and knowledge management (ETKM), to:

- identify education and training gaps and recommend actions at appropriate levels,
- take account of the knowledge that was accumulated in companies, research centres or regulators and recommend actions for transferring it to younger generations,
- support the dialogue on international cooperation in the field of education, training and knowledge management between EURATOM and non-EU countries

The ETKM group will recommend to the SNETP Governing Board a future framework for nuclear education, training and knowledge management at the European level

Founded in 2007, ENEF gathers all relevant stakeholders in the nuclear field:

- governments of the 27 EU Member States, European Institutions including the European Parliament and the European Economic and Social Committee,
- nuclear industry,
- electricity consumers and
- the civil society.

ENEF is a platform for a broad discussion, free of any taboos, on transparency issues as well as the opportunities and risks of nuclear energy.

European energy policy for Europe aim to secure energy supply, but also to save energy and promote climate-friendly energy sources.

Concrete follow-up: the Prime Ministers of the Czech Republic and Slovakia agreed to jointly host this nuclear discussion forum, the "European Nuclear Energy Forum", which is organised successively in Bratislava and Prague.

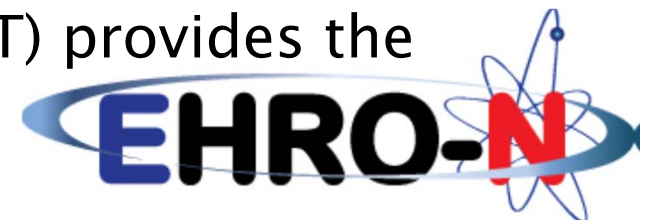
During the inaugural meeting on 26 and 27 November 2007 in Bratislava, three working groups on "Risks", "Opportunities", and "Transparency" have been set up.

EHRO-N was set-up by the European Commission following the Council's Nuclear Safety Directive, which was adopted on 25 June 2009).

EHRO-N should:

- produce and regularly update a database on the short-, medium and long-term needs of human resources for stakeholders in nuclear energy and nuclear safety.
- identify gaps and deficiencies in the European nuclear E&T infrastructure
- elaborate recommendations for remedial actions and optimizations.
- take an active part in the communication of nuclear HR issues and their relevance to the public

The operating agent (independent EC-JRC-IET) provides the necessary infrastructure, networking and long term stability.



ACTINET6 launched in March 2004, ~30 research organisations from 13 European countries



ACTINET

ACTINET I3 (2010–2012, 7.5M€ total budget, coordinator S Bourg, CEA) offers transnational access to any users from Europe Members States or Associated States

Scientific projects in the following areas:

- Actinide chemistry for separation,
- Actinides in the geological environment,
- Actinide materials

Actuslab offers researchers the possibility to use the unique facilities and associated expertise of JRC–ITU, and fosters collaboration on basic research related to the actinides of both fundamental and applied interest.

since its inception in 2001:

- 103 out of 159 proposals have been awarded
- 120 visitors from 15 different countries and 40 organisations were received
- more than 20 external PhD theses have been achieved
- more than 100 scientific papers published in peer reviewed journals



to make its nuclear research facilities better accessible for graduate and post-graduate training and education programmes in Europe.

educational tracks of EN3S will offer specialisation topics strongly related to the nuclear fuel cycle

- Nuclear Security, Safeguards and Forensics
- Nuclear Fuels
- Nuclear Fuel Reprocessing
- Nuclear Waste and Decommissioning
- Physics and Chemistry of the Actinides
- Nuclear Data

students enrolled in these tracks will be hosted by the JRC laboratories, but will remain affiliated to the universities, which are responsible for the assessment of the work and the awarding of the degree

a series of post-graduate training courses for professionals working in the field of the nuclear fuel cycle will be organised, also with emphasis on nuclear materials management

one-week to three-week courses will be offered on a two-yearly basis:

- The nuclear Fuel Cycle (from mine to waste)
- Safety of Nuclear Reactors
- Nuclear Safeguards and Forensics
- Nuclear Materials
- Nuclear Fuel Cycle Facilities in practice
- Decommissioning of nuclear installations

particular attention on the practical aspects of handling of nuclear materials, with demonstrations on-site.

Especially in the nuclear field, there is a global tendency to lose expertise

Therefore EU initiatives were launched

- to render university studies more attractive,
- to harmonise European Master of Science curricula in nuclear disciplines and
- to establish a framework for mutual recognition.
- they also aim at fostering and strengthening the relationship between universities, research organisations, regulatory bodies and industry

In the same perspective JRC initiatives offer

- Access to unique facilities to train and educate students and professionals in the field of actinide sciences
- Educational tracks in topics related to the nuclear fuel cycle

Education and Training (E&T) is a centrepiece in ensuring welfare

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Thank you!!!