



Why does the EU need a legislative framework on nuclear safety and waste management?

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NUCLEAR ENERGY PRODUCTION (1)

World's situation (situation as of end january 2005 – source IAEA)

- 441 reactor units
- 367.253 MW
- Nuclear new build projects in India, Russia, Japan, China, Ukraine, Argentina and Iran
- World energy consumption is projected to increase by 70% between 2000 and 2030
- World energy mix by 2030 in terms of demand:
 - Almost 90% Fossil fuels: 34% oil, 28% coal and 25% natural gas
 - 5% Nuclear energy
 - 8% Renewables

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NUCLEAR ENERGY PRODUCTION (2)

Europe's situation (situation as of end january 2005 – source IAEA and WNA)

- 160 reactor units
- 134.799 MW
- Nuclear new build projects (under construction, planned or proposed) in Finland (1), France (1), Slovakia (2), Czech Republic (2) and accession countries Bulgaria (1) and Romania (4)
- Some EU countries, which mainly rely on nuclear for their electricity production (Lithuania: almost 80%), will face problems in terms of security of energy supply at closure of their nuclear power plants

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NUCLEAR ENERGY PRODUCTION (3)

- EU-25 energy demand will rise by 19% between 2000 and 2030
- EU-25 energy mix by 2030 in terms of demand:
 - 82% Fossil fuels: 35% oil, 32% natural gas and 15% coal
 - 9.5% Nuclear
 - 8.5% Renewables
- EU-25 overall energy import dependency increases to almost 70% in 2030
- EU-25 CO₂ will exceed the 1990 level by 14% in 2030 due to the following factors:
 - Nuclear phase-out in several Member States
 - Insufficient growth of renewables to compensate for the loss of nuclear output
 - Increase of the use of fossil fuels to replace nuclear

(Source: OECD)

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- Taking into account the above, serious concerns exist about:
 - Security of energy supply
 - Investment in energy infrastructure
 - Environmental impact of energy
 - Sustainable development

- Europe, and the world, is faced with the following:
 - Increased dependency on imports of fossil fuels due to a growing energy demand/need
 - Less production of primary energy
 - Increasing CO₂ emissions that contribute to the green house effect
 - Missing out on opportunities for energy savings

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RADIOACTIVE WASTE MANAGEMENT (1)

- Types of radioactive waste:
 - Low level waste (LLW): it comprises some 90% of the volume but only 1% of the radioactivity of all radioactive waste (short-lived).
 - Intermediate level waste (ILW): it makes up some 7% of the volume and has 4% of the radioactivity of all radioactive waste.
 - High level waste (HLW): arise from the use of uranium fuel in a nuclear reactor and accounts for over 95% of the total radioactivity produced in the process of electricity generation but involves a comparatively small amount of waste.

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RADIOACTIVE WASTE MANAGEMENT (2)

■ Quantities

- The European Union produces less than 50,000 cubic metres of radioactive waste per year, of which less than 1% is high-level waste (300-500 m³).
- To put the above mentioned figures in perspective it is worth mentioning that operating a 1,000-megawatt NPP for a year leads to about:
 - 60-80 m³ of LLW
 - 50 m³ of ILW (a typical garden swimming pool might have a volume of 100 m³)
 - 12-15 m³ (25-30 tonnes) of spent fuel.
- If the spent fuel is reprocessed, the amount of waste requiring final disposal would be reduced by a factor of four or five (i.e. 3 m³ of vitrified high-level waste).

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RADIOACTIVE WASTE MANAGEMENT (3)

- Around 2 million tonnes of radioactive waste of all types are safely stored/disposed of across the EU at closely regulated and monitored sites:
 - In near-surface repositories for short-lived LLW and ILW (El Cabril, Spain)
 - At surface engineered facilities for LLW and short-lived ILW (in La Manche, France)
 - In deep repositories (50 meters deep) for LLW and ILW from reactor operations (Forsmark, Sweden), etc.

- Or will be disposed:
 - In deep geological repositories for spent nuclear fuel (Olkiluoto, Finland)

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NUCLEAR PACKAGE BACKGROUND

- 2 proposals for Council directives on:
 - Safety of nuclear installations
 - Spent nuclear fuel and radioactive waste management
- Presented by the EC on 30 January 2003, using the EURATOM treaty as legal basis
- The proposals were the subject of two positive reports by the European Parliament who voted largely in favour of them
- Blocking minority in the Council has lead to a deadlock situation
- The EC has presented amended proposals on September 2004
- Major change in the proposals: the Decommissioning financing issue has been detached from the package and will be dealt with separately.

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NUCLEAR PACKAGE PRESENT SITUATION

- On-going work in the Council's Atomic Questions Group, that proposed the creation of an additional Working Party devoted to the Nuclear safety (WPNS) where the proposals for directives are being discussed.
- Concrete results not expected in the near future, however,
- Discussions at a political level on waste management, safety and decommissioning financing are in progress within the European Parliament
- New reports issued by the EP on the amended proposals are to be foreseen, and the organization of a public hearing on both subjects, later in 2005, is to be envisaged.

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OBJECTIVES OF THE PROPOSALS

- Incorporate into Community legislation the basic principles and regulations concerning the safety of nuclear installations and radioactive waste:
 - without interfering with the competences of Member States, and
 - without interfering with the already existing cooperation instruments (i.e. IAEA)
- Complement the work done by the nuclear regulators (WENRA)
- Request Member States to establish programmes for radioactive waste management
- Request Member States to present reports on nuclear safety and on their established waste management programmes to peer reviews

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OBJECTIVES OF THE PROPOSALS

- The adoption of the proposals for Directives on safety and radioactive waste management would:
 - Continue to encourage the use of good practices in the nuclear sector
 - Bring a greater degree of transparency to the nuclear sector contributing to build up public confidence
 - Ensure the equivalent level of safety for all Member States across the enlarged community
 - Establish the basis for an objective non-emotional public debate on the future of nuclear energy