Euratom and Nuclear Waste

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Stockholm, April 2007

The treaty establishing the European Atomic Energy Community (Euratom) has just reached the 50th anniversary of its inception. Unlike the other treaties signed around that timesuch as the treaty establishing the European Community and the treaty establishing the European Coal and Steel Community, the Euratom treaty has neither been significantly reformed nor repealed. Consequently, it remains in force today and is very similar to when it was signed in Rome in March 1957.

The treaty has a wide ranging remit and its opening statement includes a declaration of the importance of nuclear energy: *"Recognizing that nuclear energy represents an essential resource for the development and invigoration of industry."*

To support this declaration, Article 1 of the treaty states:

> *"It shall be the task of the Community to contribute to the raising of the standards of living in the Member States and to the development of relations with the other countries by creating the conditions necessary for the speedy establishment and growth of nuclear industries."*

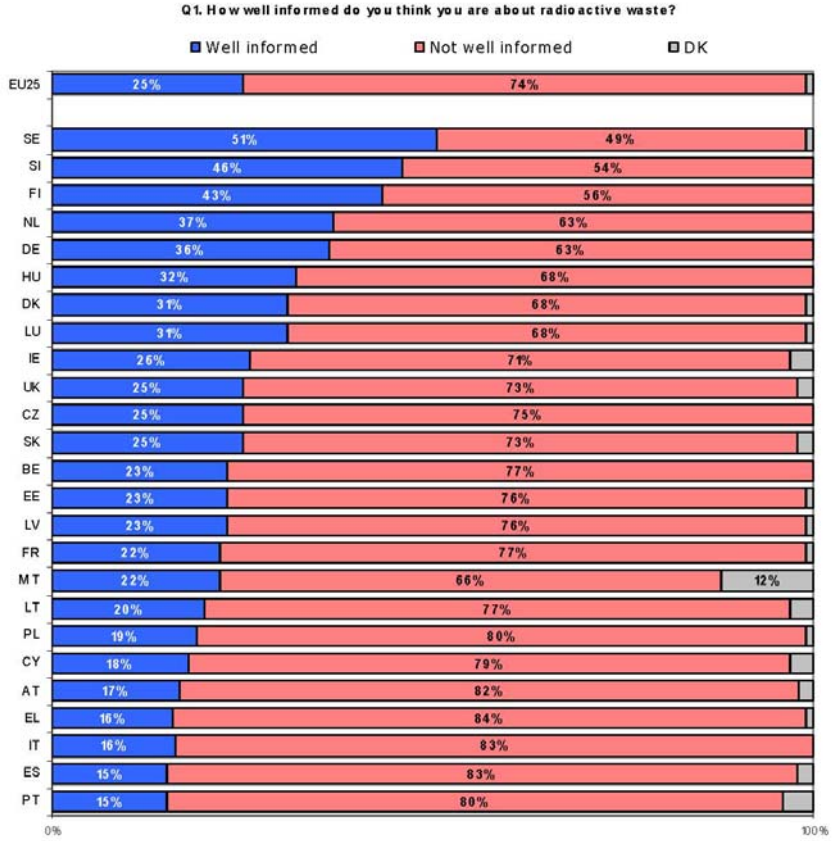
To deliver on this objective the treaty was given control over nuclear power on the European and to some degree on the national level, although this latter is a point of debate between the European Commission and the Member States. It is important to note that with the introduction of new EC legislation in other areas (for example on energy market liberalisation), the powers of the treaty have become increasingly utilised and debated. The Euratom treaty covers the following main areas:

- Chapter 1: Promotion of research
- Chapter 2: Dissemination of information
- Chapter 3: Health and Safety
- Chapter 4: Investment
- Chapter 5: Joint Undertakings
- Chapter 6: Supplies
- Chapter 7: Safeguards
- Chapter 8: Property Ownership
- Chapter 9: The nuclear common market
- Chapter 10: External relations.

There have been many papers written about the general role of the Euratom Treaty[1] and that is not the purpose of this presentation, which will instead look at the specific role that Euratom plays in the nuclear waste debate.

[1] http://www.greens-efa.org/cms/default/dok/171/171742.documents@en.htm
http://europa.eu/scadplus/leg/en/lvb/l27050.htm

However, before starting this discussion it is useful to look at the views of the citizens of Europe on nuclear waste. A 2005 Eurobarometer poll on nuclear waste found that 74% of citizens across the EU did not believe that they were well informed on nuclear waste[2]. Only in Sweden did the majority feel they were well informed. This is remarkable for an industry that has been in operation for over 50 years.



Equally remarkable is the absence of an attempt to counter this which is demonstrated by a lack of current information on the web site of the department responsible for nuclear waste in the European Commission (DG TREN). The most recently available technical study dates from 2003 and apart from the Eurobarometer documents there are only two presentations by Commission staff done during the last few years[3].

Approximately one third of the nuclear power reactors operating in the EU will close over the next two decades. This will highlight the issue and problems associated with nuclear decommissioning and nuclear waste management like never before.

It is widely recognised that there must be a public perception that clear and financed plans exist for the current nuclear power programme if new reactors are to be constructed. The Euratom treaty is being increasingly used to assist with the development and implementation of these plans.

[2] Nuclear Waste, Eurobarometer Special, June 2005, http://ec.europa.eu/energy/nuclear/waste/doc/2005_06_nucelar_waste_en.pdf
[3] http://ec.europa.eu/energy/nuclear/publications/radioactive_waste_en.htm

Research and Development

The Euratom treaty has its own research and development budget which is separate from all other Community R&D and is not subject to the same decision making requirements as the EC's R&D programme, as the European Parliament does not have co-decision and only plays a consultative role.

The 7th Euratom Framework Programme budget can be seen in the table below:

Euratom 7th Framework Programme forecasted budget (2007-13) [4]

(a)	Fusion energy research	€3000 million
(b)	Nuclear Fission and radiation protection	€350 million
(c)	Nuclear Activities of the Joint Research Centre	€650 million

As can be seen, the majority of the funding is allocated for fusion research. The 2006 decision to move ahead with the ITER project in France locked the EU into large scale funding of fusion for at least two decades and thus has an impact upon the funding balance for future Framework Programmes.

In the FP6, nuclear waste is given more funding that all other nuclear fission programmes, receiving €90 million (for five years). The main research areas are:

- Geological disposal
  - improvement of fundamental knowledge, developing and testing technologies (key physical, chemical and biological processes, interaction with barriers, long-term stability, etc.)
  - new and improved tools (models for performance and safety assessment, development of alternative measures of performance and better governance)
- Partitioning and transmutation and other concepts
  - Partitioning and transmutation
  - Concepts to produce less waste

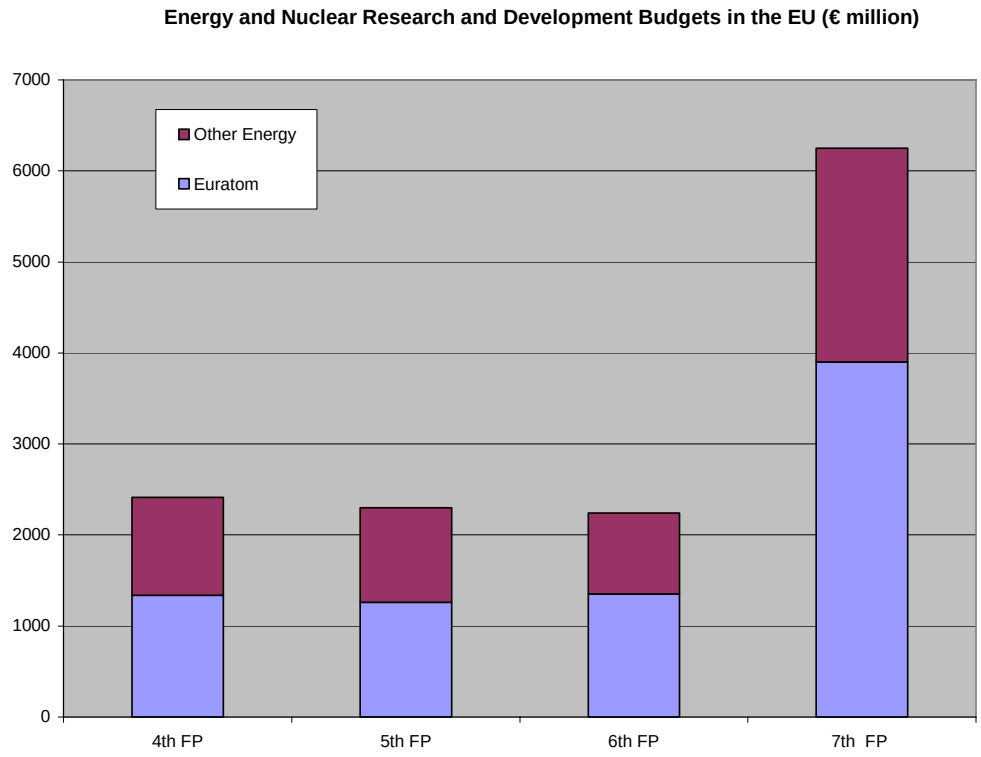
The level of funding for nuclear waste research on the European level is not very high, in particular when compared to the revenues of the nuclear generators and the expected costs of nuclear waste disposal.

In 2005 the total electricity generated by nuclear power plants in the EU was 924 billion kWh. In some countries, like Sweden and Spain, the utilities are required to set aside a fixed amount for nuclear waste management, this is around 0.1€cents/kWh. This would roughly amount to €9 billion per year if replicated over the whole of the EU, five hundred times more than the EU's annual research budget for waste management.

However, the important contrast is between nuclear and non-nuclear energy research. As can be seen below, nuclear receives more funding that all other energy sources combined. This bias toward

[4] The agreed figures for 2007-11 are: JRC €541 million; nuclear fission €395; and nuclear fusion €2167. The final figures provided are a proportional increase based on the original Commission proposal taking into consideration the reduction in the overall budget.

nuclear R&D is to the detriment of other energy technologies that can deliver safe and sustainable energy options within the next decade or so (such as generation III solar PV).



Nuclear Package

In November 2002 the European Commission published proposals for legislation on nuclear safety, radioactive waste management and decommissioning policy. This used article 31 of the Euratom treaty, relating to health and safety, to propose new rules in the three policy areas (nuclear safety standards, timetables for the management of radioactive waste and decommissioning). The draft legislation was discussed in the European Council and Parliament and changed significantly during this process. However, ultimately, the package was rejected by the European Council, as a number of countries (including the Czech Republic, Finland, Germany, Slovakia, Sweden and UK) blocked its acceptance.

Radioactive Waste

In the area of radioactive waste management, the original Commission proposal put forward plans for strict timetables for the disposal of radioactive waste, these were:

- Authorisation for the development of appropriate disposal sites should be granted no later than 2008
- Authorisation for the operation of sites to dispose of low level radioactive waste should be completed by 2013
- Authorisation for the operation of sites to dispose of high level radioactive waste should be completed by 2018.

These timetables were quickly recognised as unworkable and were dropped during the redrafting process in the European Council. However, these changes were still insufficient for the proposals to be approved in the Council. The revised text strongly supported the need for geological disposal of nuclear waste for long lived radioactive waste and references to the protection of the environment were deleted (and only referred to protection of workers and the public).

Decommissioning

The European Parliament passed an amendment in its first reading of the Electricity Market Directive in 2002 calling for the separation of decommissioning and radioactive waste management funds from the accounts of utilities. This amendment was overturned and in its place a joint institutional statement was put forward which called for the separate management of decommissioning and waste management funds:

> *"The three institutions are strongly committed to the principal that the funds collected for the decommissioning and management for nuclear waste should be separated from the normal accounts and cash flow of an undertaking. Separated management of decommissioning funds is essential to secure both the availability of funds to pay for decommissioning and radioactive waste management and in order to prevent market distortion by using the cash flow of or the more favourable financial ratings due to potential access to the decommissioning funds for competitive purposes in the energy market."*

This statement led to the European Commission preparing a draft directive under article 31 of the Euratom treaty which included recommendations on the financial management of decommissioning funds. However, there were legal uncertainties about the use of the Euratom treaty specifically for financial issues and subsequently the issues relating to the funding of decommissioning were included in the nuclear safety directive of the nuclear package.

If adopted the proposed measures would have required the operators of nuclear facilities to ensure that there were adequate funds to cover their future decommissioning activities and that under normal circumstances these should be retained in legally separate accounts from that of the operator and only used for the purpose for which they were accumulated. However, as with other elements of the package, the proposal was watered down and then rejected.

In October 2006 the Commission published a recommendation on decommissioning and radioactive waste management funds. Although it is not binding on Member States, it states that segregated funds are the preferred method of accounting for future decommissioning funds and new installations should set up such funds. Furthermore, the collected revenues should only be used for the purpose for which they have been established. In addition the recommendation calls on Member States to report annually to the European Commission on their fund management.

The failure of the EU to set binding rules for decommissioning and waste management funds is a major concern both from the point of view of guaranteeing that sufficient funds are in place to pay for the necessary activities in the future and reducing market distortions. As can be seen in the two examples given below there is still considerable variation amongst member states in the methodologies they use to accumulate their decommissioning and waste management funds.

1) Some countries require that operators put aside funds or establish guarantees to pay for decommission prior to operation. Furthermore, the discount rate (the assumed interest rate applied

to the collected funds) that utilities use varies considerably, from 1.5% in Spain to 5.5% in Germany, which, given the length of time between collection and utilisation, has a considerable impact upon the annual contribution required by nuclear operators.

2) The degree of access by the utility varies considerably. Some utilities, such as in Germany, keep their decommissioning and waste management funds in their own accounts with little or no restriction placed upon the utilities in accessing the funds. On the other hand, in other countries, such as in Sweden and Spain, the utilities do not have any access to or control of their funds. The table below summarises the situation across the EU. The access to these funds can have an impact upon the ability of utilities to perform in the market – i.e. potential access 'own resources' for market activities can be cheaper than borrowing capital.

Access to Decommissioning Funds[5]

Payment from current budget	**Internal**		**External**	
	Unrestricted	Restricted	Unrestricted	Restricted
UK (NDA)	D, B, NL, IT (SOGIN-ENEL), CZ	F, CZ	IT (CCSE)	FIN, LT, S, UK (NLF: British Energy), SK, E, BG, HU, SI

British Energy

In November 2002 the British Government made available a €1 billion loan to British Energy to enable it to continue trading following a collapse in the company's share price due to lower energy prices. This was followed by a significant restructure package which proposed that the British Government take responsibility for the financing of around €6 billion in waste management activities. In July 2003 the European Commission announced that it was investigating, under competition rules, the restructuring package.

In September 2004 the Commission approved the restructuring package in part due to the Euratom Treaty, as it stated:

> *The Commission concludes that, insofar as they fulfil the Guidelines in respect of restructuring aid* ***and are in line with the objectives of the Euratom Treaty,*** *the aids in question are compatible with the common market.*

This has set a precedent for the use of the Euratom treaty to justify State Aid for funding the management of radioactive waste.

British Nuclear Decommissioning Authority

On December 1 2004 the European Commission announced it would launch an investigation into Britain's new Nuclear Decommissioning Authority (NDA) to establish whether it would break European Union law by providing illegal state aid to BNFL. The NDA would inherit most of the

[5] Comparison Among Different Decommissioning funds methodologies for Nuclear Installations, Final Report, on Behalf of the European Commission, Wuppertal Institute, 2007.

liabilities of British Nuclear Fuels Limited (BNFL) and the UKAEA, which would be absolved from the responsibility to meet these liabilities.

In April 2006 the Commission approved the proposal and stated that the polluter-pays principle applies to nuclear liabilities and that the operators of nuclear plants should cover the decommissioning costs for their plants. The Commission used several computation methods to determine whether BNFL completely fulfilled these obligations and that BNFL had complied with the polluter-pays principle. The Commission concluded therefore that the measure did not involve state aid to BNFL and that the measures were in line with the objectives of the Euratom Treaty.

Once again the Commission ruled that Government financial assistance to meet requirements on radioactive waste management was justifiable as it was within the objectives of the Euratom Treaty.

Next Steps

In January 2007 the European Commission published its latest PINC paper[6]. This was part of an 'energy package', a series of proposals covering renewables, carbon capture and storage, market liberalisation rules, etc. The PINC paper is the fifth in a series dating back to the 1970s and is supposed to put forward the Commission's view on the necessary investment for the nuclear sector.

The PINC paper contained proposals for further discussions in a number of areas including:

- Ensuring that Member States put in place national plans for management of radioactive waste
- During the early phase of FP7, establishing technology platforms to ensure closer coordination of research in national, industrial and Community programmes in the field of sustainable nuclear fission and geological disposal
- Monitoring the recommendation on harmonisation of national approaches to management of decommissioning funds to ensure that adequate resources are available

Since then the Commission has made clear that during 2008 they intend to bring forward a revised 'nuclear package'.

The failure to introducing binding legislation on nuclear decommissioning is a major market failure and fuels the trend of market concentration that is prevalent in Europe today. In 2007/8 the Commission will bring forward a revised energy market directive, which could be used to readdress this issue.

As more and more nuclear facilities are closed, the lack of financial and technical solutions to the current radioactive waste problems will become more apparent. The use of the Euratom treaty to in part justify government financial support for waste management activities and as a false mechanism (a 'red herring') to try and introduce binding legislation on decommissioning funding issues must be addressed. The next 18 months offer an opportunity to begin this process.

[6] Communication from the Commission to the Council and the European Parliament, Nuclear Illustrative Programme, Presentation under Article 40 of the Euratom Treaty for the Opinion of the European Economic and Social Committee.