

Greens/EFA Conference – European Parliament – Brussels

7th May 2003

*At the start of a new European electricity market:
Threat or opportunity for sustainable energy policies?*

Plutonium Industry in the European Market

Yves Marignac
Executive Director of **WISE-Paris**

Civil Plutonium Industry

- **Military origin**
- **Development of the fast-breeder myth**
(a technology that produces more energy than it consumes)
- **An industry, which today has the appearance of a market with:**
 - a “resource”: plutonium
 - a manufactured product: **MOX fuel**
(MOX : ”mixed oxide”, mixture of plutonium and uranium)
 - an output: **electricity**
 - and industrial actors at every stage
- **Two main operators: Areva (France) and BNFL (UK)**
(respectively operators of the reprocessing plants at La Hague and Sellafield)
- **Annual turnover of approx. 3 billion Euro**
(Areva 1.8 billion and BNFL 1.3 billion)

An Entirely Factitious “Market”

- **The use of plutonium is costly whatever might be its justification**
- **At the beginning: reuse of plutonium as a source of energy, but:**
 - **Value of plutonium = zero**
in the accounts of EDF, France, since 1992
in the National Assets Register of the UK since at least 2001
 - **Even if plutonium was available for free, MOX would stay more expensive than UOX**
(UOX : “uranium oxide” standard fuel based on uranium alone)
 - **Report to the French Prime Minister in 2000: reprocessing-MOX represents an expenditure of 150 million Euro by “avoided” ton of plutonium in the final balance**
- **Today: “elimination” of an awkward excess material**

Indirect Costs Linked to Risks

- **Plutonium industry does not come up for the external costs arising from increased environmental risks and problems**
- **Problem of releases**

Despite OSPAR, reprocessing plants release thousands of times more radioactivity than a nuclear power plant and they pollute the oceans (Ireland, Norway)
Equivalent to a major accident every year (WISE-Paris STOA Report)
- **Problem of waste**

Reprocessing multiplies “secondary” wastes without any benefit on the global volume
Spent MOX is too hot to be dealt with by our generation
- **Problems of safety and security**

Reprocessing plants produce more plutonium a day than is needed to make a bomb
Terrorist threat on transports and storage (deployment of missiles at La Hague as a consequence)

Cheaper and Safer Alternatives

- **Reprocessing-MOX is a hardly efficient strategy:**
 - Saves approx. 10% of the resources (uranium)
 - Shows a gain of approx. 15% in the final plutonium balance
- **Alternatives do exist:**
 - For spent fuel management: direct disposal
 - For plutonium stocks: immobilisation
(ceramic matrix, vitrification, “bad MOX”)
- **In all cases, compared to plutonium strategy:**
 - Lower direct costs
 - Reduced risks

A Battered Industry Organizing its Survival

- **Plutonium industry is facing a global crisis due to the progressive completion of reprocessing and MOX contracts**
- **How to make use of government and EU support in order to organize a strategic “fait accompli”:**
 - **Continual rise of separated plutonium stock**
stocks held in France (31/12/01) 80.5 t, including 33.5 t from abroad
stocks held in the UK (31/12/01) 82.4 t, including 17.1 t from abroad
 - **Increase of MOX production capacities with no economic justification**
Today the licensed capacity is 300 tHM (heavy metal)/y with a theoretical capacity of 400 tHM, for 35 licensed reactors and a need of 200-250 tHM/y
- **This strategy was, if not encouraged, at least made easier by numerous EU Member States**

Customers of Plutonium Industry

• EU Member States:

	Nuclear Power Production					Reprocessing					MOX Fuel			
	New plants	Ongoing	Moratorium / phase-out	Phased out	Never	Producer	Customer				Producer	Customer		
							Ongoing	Planned phase-out	Phased out	Never		Ongoing	Planned phase-out	Phased out
France		Orange				Dark Red	Orange				Dark Red	Orange		
UK			Yellow			Dark Red	Orange				Dark Red	Orange		
Belgium			Yellow						Green		Dark Red		Yellow	
Germany			Yellow					Yellow					Yellow	
Sweden			Yellow						Green				Yellow	
Spain			Yellow						Green					
Netherlands			Yellow					Yellow	Green				Yellow	
Italy				Green				Yellow						
Finland	Dark Red													Blue
Austria					Blue									
Ireland					Blue									
Greece					Blue									
Luxembourg					Blue									
Denmark					Blue									
Portugal					Blue									

- **Other customers (non EU-members): Japan, Switzerland** (and Australia)
- **Accession countries** : expired and/or still valid reprocessing contracts with Russia without waste return clause; tendency towards abandoning reprocessing

A Further Step: Disarmament

- **The plutonium industry gives itself a new target: management of surplus military plutonium**
- **US-Russian agreement of 2000: “disposition” of 34 t in each country**
 - **US: giving up the MOX+ immobilization strategy in favor of the MOX only approach**

Pressure on Europe (Belgium and France, but not the UK) to produce LTAs assumed to accelerate the process in the US for more rapid disarmament
At the same time, the US launches a new plutonium pit fabrication facility
 - **Russia: wants its fast-breeder program to be financed by Western countries**

No interest in the use of MOX in Russian thermal reactors
Either the program is financed through G8 (\$ 2 billion for a start)
Or financial package to sell military plutonium as MOX throughout Europe
- **The USA accept implicit conditions set by the Russian Government and turn them explicitly to their partners**

Conclusions and recommendations

- **No justification whatsoever, neither technical nor economical, to continue the plutonium option to separate and use this material**

- **Member States and the EU should:**

- **Concerning management of civil plutonium stocks:**

Consider all alternatives and re-open options

- Long-term effects of discharges and waste problems
- Safety problems (proliferation and terrorist threats)
- Economic burden of the support to the plutonium industry

- **Concerning the management of surplus military plutonium:**

Assess global impacts of the strategy imposed by the USA (LTAs and Russian MOX)

- Proliferation and efficiency of disarmament efforts
- Risks to the environment and health
- Support of the artificial plutonium economy