

Nuclear Renaissance and the subsidy issue

A case study
by Dr. Dörte Fouquet

Background and Introduction

- ❑ No successful nuclear plant order in Europe and US since early 70ies until 2004
- ❑ New order: TVO Finland Framatome, Siemens Areva consortium for EPR Reactor in 2004
- ❑ **Major lobbying steps towards new breathing**
- ❑ Kyoto
- ❑ EU Security of Supply Green Paper
- ❑ Eastern European Nuclear Accession Countries
- ❑ Rising oil prices

Subsidies to Nuclear

They are pulling our legs -

"More than half of the subsidies (in real terms) ever lavished on energy by OECD governments have gone to the nuclear industry." (The Economist, **Nuclear power Out of Chernobyl's shadow** May 6th 2004, from print edition)

Example US:

- ❑ Wind, solar and nuclear power got around \$150 billion in cumulative US Federal subsidies over roughly fifty years, some 95% of which supported nuclear power.
- ❑ Nuclear power received far higher levels of support per kilowatt-hour generated early in its history than did wind or solar.

Subsidies II

- Between 1947 and 1961: Commercial, fission-related nuclear power development received subsidies worth \$15.30 per kWh.

This compares with

- subsidies worth \$7.19/kWh for solar and
- 46¢/kWh for wind between 1975 and 1989.
- In their first 15 years, nuclear and wind technology produced comparable amount of energy (2.6 billion/Nucl. and 1.9 billion kilowatt-hours/wind), but the subsidy to nuclear outweighed that to wind by a factor of over 40, at \$39.4 billion to \$900 million.

(Source: **FEDERAL ENERGY SUBSIDIES: NOT ALL TECHNOLOGIES ARE CREATED EQUAL** by Marshall Goldberg, REPP, July 2000 • No. 11)

Subsidies III: Who pays for back end costs for Nuclear power plants?

- Example UK
- De-regulation of UK power markets and privatisation of nuclear power, shareholders of British Energy (BE) were firstly regarded by UK government as being responsible for these costs. After electricity prices fell and BE collapsed, the British government burdened future taxpayers with many of the costs, as much as a century forward. If not done, the book value of BE's equity would have been about (minus) -3.5 billion pounds. BE's liabilities would have been about minus 3.5 billion pounds greater than their assets:

Subsidies: Who pays..? (II)

- *BE's short- and long-term nuclear liabilities are 4199 million pounds.* Nuclear liabilities are here expressed in present value terms. Thus, if all the back-end costs were incurred "today," they would total 4199 million pounds for the UK alone

(see "Viewpoint, De-regulated electric power markets and operating nuclear power plants: the case of British energy, James G. Hewlett Energy Information Administration, US Department of Energy, 1000 Independence Ave, SW, Washington, DC 20585, USA)

- Conclusion: Nuclear industry can only survive under state protected not really market oriented conditions

Subsidies: Reserve funds and shopping spree

Case study: GERMANY

- ❑ Money for reserve funds for future dismantling amounts to estimated 30 Billion Euro in the hands of four energy companies in Germany where two of them hold the major part of it.
- ❑ This is much more than the Gross Domestic Product of for example all three Baltic new EU members have together. It is more the two third of all countries of this earth have as gross domestic product and it would mean place 60 of 183 states of the world.
- ❑ Since liberalisation of the energy markets these funds enable those companies to go on a huge and extensive shopping spree especially in buying electricity and other companies in Germany, in Central- and Eastern Europe but also in other EU countries such as Sweden.
- ❑ This reduced the number of serious competitors drastically and is in breach with the very idea of opening of markets.
- ❑ **And what if they go bankrupt ??? ...**
- ❑ **Who will pay for dismantling in the end (Enron was possible...) ???**

Subsidies: CONTINGENT THIRD PARTY NUCLEAR LIABILITY

- ❑ **US: Price-Anderson Act of 1957**
- ❑ The consequences of an attack or an accident at a nuclear power plant are so high that insurance companies are not fully insuring
- ❑ Price-Anderson Act established a taxpayer-backed insurance scheme for nuclear power. This law limits the amount of insurance nuclear power plant owners must carry and caps their liability in the event of a catastrophic accident or attack at limits nuclear liability to US\$ 9.4 billion in the event of a nuclear accident. .
- ❑ US nuclear power executives acknowledge that their industry is financially dependent on Price-Anderson to shield nuclear power from free market forces.
- ❑ Unless reauthorised by Congress, Price-Anderson subsidy will not apply to proposed new reactors built after December 31, 2003.
- ❑ US is not party to any international nuclear liability regime

CONTINGENT THIRD PARTY NUCLEAR LIABILITY (II)

In April 1998 (see BBC News, Sunday 26. April 1998):

- "President Leonid Kuchma told Ukrainian radio listeners on Sunday that Ukraine had lost about \$120bn to \$130bn, or six times its annual budget revenue, thanks to the disaster.
- The Belarusian Emergency Situations Minister Ivan Kenik said his country had lost \$35bn, while vast tracts of farm land in the south-east are only gradually being brought back into use. Mr Kenik said Belarus will allocate 9% of its revenue this year to Chernobyl-based programmes.
- More than 1.8 million people, including about 500,000 children, are living in the contaminated zone of Belarus around the city of Homel, over which the radiation cloud passed from nearby Chernobyl in April 1986. "

CONTINGENT THIRD PARTY NUCLEAR LIABILITY (III)

- ❑ Vienna Convention on Civil Liability for Nuclear Damage of 1963 and the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 1960 linked by the Joint Protocol adopted in 1988. The Paris Convention was later enhanced by the 1963 Brussels Supplementary Convention.
- ❑ Main principles:
- ❑ Liability is limited in amount. Under the Vienna Convention, it may be limited to not less than US\$ 5 million (value in gold on 29 April 1963), but an upper ceiling is notified. The Paris Convention sets a maximum liability of 15 million SDR provided that the installation State may provide for a greater or lesser amount but not below 5 million SDR (Special Drawing Rights - IMF) taking into account the availability of insurance coverage. The Brussels Supplementary Convention established additional funding beyond the amount available under the Paris Convention up to a total of 300 million SDRs, consisting of contributions by the installation State and contracting parties.

And EU Commission happily continues to discriminate

- ❑ European research for Renewables is a pittance in relation to Nuclear research
- ❑ The European Commission freely and unashamedly acknowledges that funding for renewables and energy efficiency dropped from an average of 138 million EUR per year in Research programme FP-5 (1999-2002) to 108 million EUR per year so far in FP-6 (2003-2006).
- ❑ In comparison, the European Commission proposes to increase the nuclear research budget under the Euratom R&D framework programme from 1352 million EUR in the period 2002-2006, to 3103 million EUR in the period 2007-2011.

Open subsidy cases

- “TVO complaint” by EREF before EU Commission dated from 14.12.2005
- Major content of complaint:
- Syndicated loan leading bank Bayerische Landesbank in 2003/2004 to TVO of € 1.95 bio = more than 60 % of fixed price contract at an interest of 2.6 %

EPR (Ad)venture in Finland: TVO not without State Aid

- ❑ The new plant project in Finland is welcomed by many including the EU Commission for market oriented non subsidy approach
- ❑ This is fake: Big spenders were the Swedish Government (worth 100 Mio €)
- ❑ French Export Guarantee (COFACE) of non notified amount of 610 million EUR – to AREVA, the second highest ever reported for COFACE
- ❑ Banking Consortium under direct participation of public Bayerische Landesbank which apparently gave in 2003 or in the beginning of 2004 a EUR 1,95 billion syndicated credit for an interest of 2,6% to the Finnish company Teollisuuden Voima Oy (TVO)
- ❑ High risk of violation of Public Procurement rules by TVO

Reserve funds for future dismantling of Nuclear plants in Germany as state aid

- Case EC T-92/02
- Stadtwerke Schwäbisch Hall GmbH et alia, represented by Dr. Dörte Fouquet, Kuhbier Rechtsanwälte,
- ./.. Kommission der Europäischen Gemeinschaften, sec. by: E.ON Kernkraft GmbH u.a.
- Decision for 2nd half of 2005 envisaged

EREF upcoming report

- Subsidies for conventional energy systems in Germany and the UK since 1970

Table 15: Financial support per unit of energy production (1970-2003, in clusters of five years) [€/GJ a]

period		hard coal		lignite		mineral oil		natural gas		fossil fuels		nuclear energy	
		basis sum 2	basis sum 3	basis sum 2	basis sum 3	basis sum 2	basis sum 3	basis sum 2	basis sum 3	basis sum 2	basis sum 3	basis sum 2	basis sum 3
1970-1974	in current prices	0.27	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.10	0.03	10.55	2.03
	inflation-adjusted	0.64	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.22	0.08	13.03	4.33
1975-1979	in current prices	0.52	0.33	0.19	0.00	0.00	0.00	0.00	0.00	0.15	0.07	3.91	1.53
	inflation-adjusted	0.93	0.59	0.35	0.00	0.00	0.00	0.00	0.00	0.26	0.13	5.31	2.78
1980-1984	in current prices	1.07	0.80	0.28	0.00	0.00	0.00	0.00	0.00	0.30	0.18	2.43	1.06
	inflation-adjusted	1.56	1.17	0.40	0.00	0.00	0.00	0.00	0.00	0.45	0.26	3.02	1.53
1985-1989	in current prices	1.74	1.35	0.41	0.00	0.00	0.00	0.00	0.00	0.44	0.26	1.38	0.37
	inflation-adjusted	2.27	1.76	0.53	0.00	0.00	0.00	0.00	0.00	0.58	0.34	1.63	0.49
1990-1994	in current prices	3.21	2.02	1.20	0.00	0.00	0.00	0.00	0.00	0.80	0.37	2.03	0.23
	inflation-adjusted	3.92	2.47	1.47	0.00	0.00	0.00	0.00	0.00	0.98	0.45	2.35	0.29
1995-1999	in current prices	3.67	2.29	1.41	0.00	0.00	0.00	0.00	0.00	0.80	0.38	2.08	0.19
	inflation-adjusted	4.04	2.52	1.55	0.00	0.00	0.00	0.00	0.00	0.87	0.42	2.24	0.20
2000-2003	in current prices	3.62	1.73	1.94	0.00	0.00	0.00	0.00	0.00	1.40	0.45	2.67	0.16
	inflation-adjusted	3.76	1.80	2.75	0.00	0.00	0.00	0.00	0.00	1.64	0.46	2.74	0.16

source: own calculation on the basis of all investigated data

Note that in the single fossil fuels columns, R&D aid is not included because it could not be attributed clearly. Column 'fossil fuels' however reflects the average of all fossil fuel support per GJ and year including R&D aid.

Nuclear fission is not indicated, because this energy source, despite aid is reported since 1977 in the research reports, does not produce energy commercially so far.

Nuclear Lobbying Forces

Who is working here?

Pure lobbying:

- WNA
 - Foratom
 - GMF (Group of European Municipalities with Nuclear Facilities)
 - Eurelectric
 - Nuclear Power Industry (Suppliers as utilities)
 -
-

Middle position – or lobbying as official public mandate:

- IAEA
 - IEA
 - EURATOM
 -
-

Lobbying address and opinion force:

- EC Commission in general
- National governments
- Parliaments

Some first insight in active nuclear lobbying forces

Introduction

- We face in the US, Europe and worldwide a coordinated marshalled plan for nuclear renaissance with clear cut messages, repeating each other over and over again and channelling opinion
- There is no room for chance – but huge financial and personnel backing

Major players

WNA - World Nuclear Association

- More than 115 members and the most influential of the energy world, including political organisations or authorities such as NATO Parliamentary Assembly
- Co Chairman of the WNA Council is [Hans Blix](#), Ex Director General of the IAEA
- Even authorities who should be supervising state organs do not shy away from membership such as Pakistan Atomic Energy Authority or Israel Atomic Energy Commission and thus subscribing to the "2 main goals" of WNA, according to WNA web presentation:
- "..Dual role can be stated as follows:
 - To serve as the pre-eminent global forum and commercial meeting place for those engaged in providing the world's largest source of safe, economic and environmentally friendly energy; and
 - To provide a respected information service on nuclear energy and to speak pro-actively on behalf of nuclear energy amongst policymakers, opinion leaders, the media and the public"
- **Old boys club** within WNA and the like to struck new deals such as EPR reactor for Finland
- Example: TVO Finland, AREVA, Framatome - they are all together member of WNA

WNA - Message

- Nuclear power “combines reliability, affordability and energy independence. The greatest asset of nuclear energy may be its capability to generate emissions-free - and therefore climate friendly - electricity on a virtually unlimited scale.”
- Nuclear energy in Europe “is making a visible comeback....Among many national planners, the main question today is whether nuclear capacity can expand fast enough to meet the increasingly urgent goal of sustaining modern industrial economies while reducing climate-threatening emissions.”
- “Political resistance among minority Greens remains adamant, and public opinion about energy issues is demonstrably not well informed. This makes “energy” a topic where superficial postures often substitute for sound policies. But across Europe there are spreading signs of a growing recognition and acceptance of the need for more nuclear power.”
- “Some countries - including Finland and several in central and Eastern Europe - are building new reactors to obtain energy power for economic growth on environmentally acceptable terms. Other countries such as Sweden and Germany, having flirted with a “phase out” of nuclear power, now seem likely to keep the reactors they have and eventually even add to their existing capacity. ..”

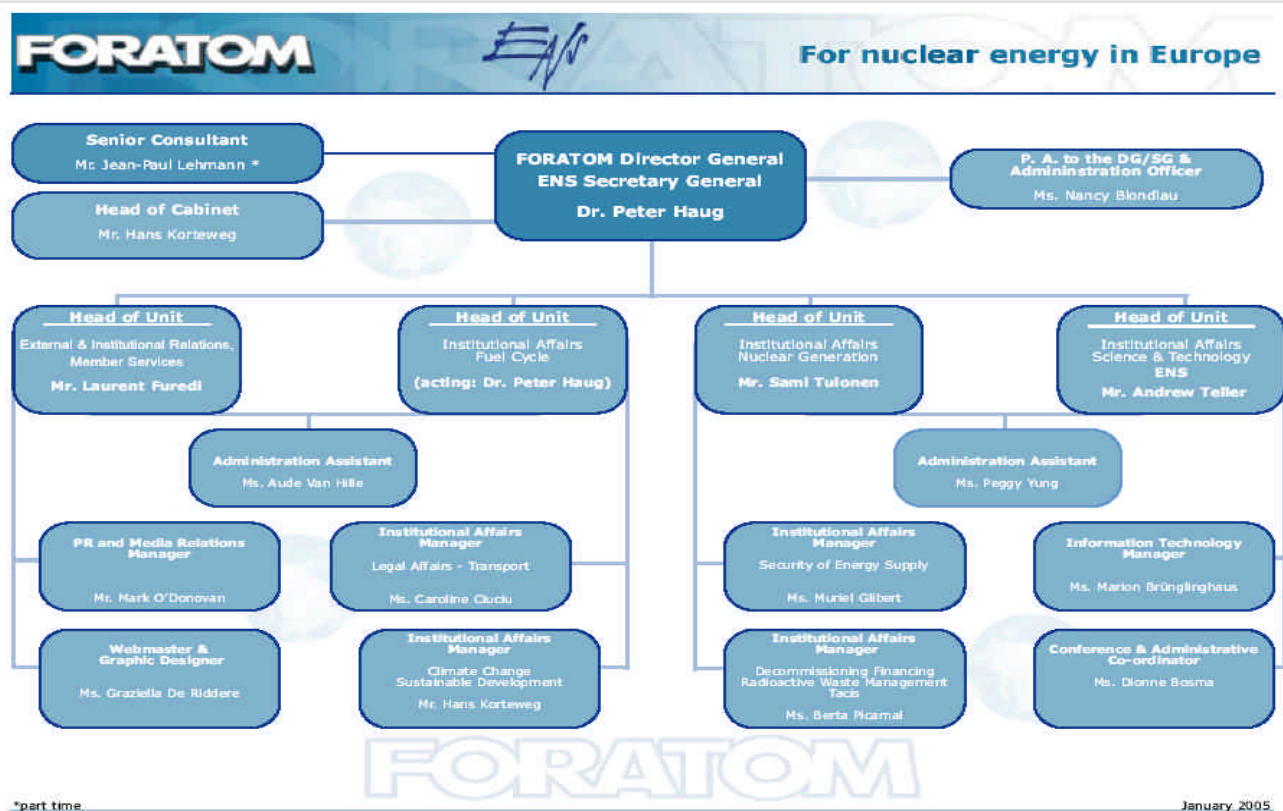
FORATOM, “trade association of the European nuclear industry”

- ❑ **Members:**
- ❑ 16 national nuclear associations and the companies that they represent, that means about 800 firms, employing according to Foratom about 400,000 people.
- ❑ Among them are some of Europe’s (and the world's) largest nuclear utilities and nuclear fuel cycle companies and others engaged in the transport of radioactive materials and the management of radioactive waste -
- ❑ Including “some of Europe's biggest industrial concerns –
- ❑ for example, EDF and AREVA of France, RWE and E.ON of Germany, Vattenfall
- ❑ and TVO in the Nordic region and CEZ in the Czech Republic.”

Foratom- Message

- promotes “the peaceful use of nuclear energy by acting as the voice of the industry in policy discussions involving the European Institutions”
- works to “**enhance relations between the industry and the institutions, especially the European Parliament and the European Commission**”
- „public communications role”
- delivers “high-quality information on nuclear energy topics to the European Institutions, the media and the public”
- provides “regular information to its members on relevant developments emerging from the European Institutions”
- and “co-ordinates exchanges of information on European nuclear energy issues”
- “technical and economic **advisor to international organisations**, channelling industry expertise into those agencies on various issues.”

Foratom Organigramme – copying the EC Commission's structure



Working groups within Foratom

- [Accession](#)
- [Climate Change](#)
- [Communications \(Nice\)](#)
- [Liability & Legal Affairs](#)
- [Quality Management](#)
- [Research & Development](#)
- [Sustainable Development](#)
- [Transport](#)
- [Waste Management](#)

Foratom Communication - NICE group

- ❑ This is a real **AWACS and STRATEGY Nuclear Force**
- ❑ Nice stands for Nuclear Information Committee Europe
- ❑ Tasks/Mission:
- ❑ "The Nuclear Information Committee Europe (NICE) increases the effectiveness of nuclear communication activities in Europe.
- ❑ NICE proactively identifies current and future communication issues of common interest for the nuclear sector of the industry.
- ❑ NICE acts as a vehicle for initiation, evaluation and co-ordination of communication issues, so the same issues and statement appear and are used both on national and European levels, the latter also in the case of the European Institutions.
- ❑ "NICE has input from Foratom and from the European Nuclear Society (ENS), the "learned society representing more than 20,000 nuclear professionals, mainly scientists and engineers, belonging to 23 national nuclear societies operating across Europe."

The European Nuclear Society

Promotion of nuclear energy “ by all suitable means” and in particular by:

- ❑ fostering and coordinating the activities of the member organisations
- ❑ encouraging the exchange of scientists and engineers between different countries
- ❑ disseminating information within the nuclear community, to decision-makers and the public
- ❑ sponsoring meetings devoted to scientific and technical matters and to the communication on nuclear applications
- ❑ striving to enhance the operational excellence of the existing power plants, to explain the benefits of and the need for nuclear energy, and to develop the engineering expertise and manufacturing capacity which will be needed in the future
- ❑ fostering engineering education and training
- ❑ cooperating with international governmental and non-governmental organisations and with other organisations having similar aims
- ❑ promoting international standardisation in the nuclear field
- ❑ encouraging the formation of organisations of nuclear scientists and engineers where no such organisations exist “

ENS “core Activities”

- “Networking” and “knowledge management”

Example:

- **3rd International Conference on Education and Training in Radiological Protection
23 - 25 November 2005, Brussels, Belgium.**
- Already EU Commission, OECD, IAEA etc. accepted keynote speaker status
- **Foratom and ENS are residing under the same address in Brussels:**
- Rue de la Loi 57, B - 1040 Brussels, Belgium

New Nuclear - students – worldwide - Approach

- Strict and clear campaign from WNA, Foratom and ENS organisations on new training for new nuclear-
- **„Attracting Young Scientists and Engineers**
- Nuclear science and engineering .. and the associated industries are sometimes perceived by young graduates to be unattractive. .. [WNA Nuclear Science & Technology Achievements Working Group](#) to try to convey some of the excitement bound up ... There are three separate areas:
- [Case studies](#) describing some of the contributions which nuclear technology has made to mankind
- [Future challenges](#) which the nuclear industry still faces and remain to be solved by the next generation of scientists and engineers.
- [Personal histories](#) of some young people already involved in the nuclear industry, who have found it a rewarding place to utilise the skills which they have developed.” (WNA web page)

Nuclear Conferences in Europe and World wide - Exclusive and efficient

- ❑ **Principle of high participation fees and prestigious circle guarantee likeminded approach and ensure that opinion leaders in politics and administration only learn from the mouth of the affluent nuclear experts and hardly from the counterpart of renewable industries and the like**
- ❑ **The list of conferences is breathtaking – more than 60 worldwide in 2005 only**

Closeness to European Parliament often suggested with aligned events

- **EUROPEAN NUCLEAR ASSEMBLY 2004**
"Nuclear energy: An essential option for Europe"
First bi-annual conference
25-26 November 2004, Brussels, Belgium
- The "ENA focuses on political, economic and strategic energy issues. This high-level meeting point of the nuclear industry and the European Institutions will be a unique opportunity to network with fellow top executives and EU officials, and to share experiences, views and other information at first hand. The invited speakers will represent the full scope of the activities of the nuclear industry, both in Europe and world-wide, and of the regulatory processes within the European Institutions."
- **Conference President:**
Dr Gert Maichel, CEO of RWE Power, Past President of the German Atomic Forum
- **The confirmed speakers include:**
- **Anne Lauvergeon**, Chairman of the Executive Board of AREVA
Claude Cambus, Member of the European Economic and Social Committee
Giles Chichester, Member of the European Parliament
Christian Waeterloos, Director for Nuclear Energy, European Commission
Terry Wynn, Member of the European Parliament
- **Panel discussions on:**
Nuclear energy: Dawn of a new era
Is nuclear an environmental issue?
Nuclear: A persuasive economic option
Nuclear safety: A pan-European approach

How many heads for Nuclear lobbying in Brussels?

Only estimates are possible

A brief analysis of the accreditation list of the European Parliament discloses the following figures for some companies and associations:

<input type="checkbox"/>	AREVA	4	lobbyists
<input type="checkbox"/>	GE	4	
<input type="checkbox"/>	Foratom	4	
<input type="checkbox"/>	E.ON		8
<input type="checkbox"/>	VDEW	3	
<input type="checkbox"/>	EDF		4
<input type="checkbox"/>	Eurelectric		5
<input type="checkbox"/>	RWE		4
<input type="checkbox"/>	Siemens	5	
		41	registered

Support by very special Pro Nuclear NGOs

- ❑ **Environmentalists For Nuclear Energy (EFN) (since 1996)**
 - ❑ **Which describes itself as "*independent environmental, non-profit organization which aims at :***
 - ❑ ***- providing complete and straightforward information to the public on energy and the environment***
 - ❑ ***- promoting the benefits of nuclear energy for a cleaner world***
 - ❑ ***- uniting people in favour of clean nuclear energy"***
 - ❑ **EFN has, according to its web page 6 381 members, supporters, and local correspondents in over 50 countries, on 5 continents.**
 - ❑ **President: Bruno Comby**
 - ❑ In June 1999, the French Nuclear Energy Society (SFEN) and the French Atomic Forum (FAF) recognised Bruno Comby's efforts, by awarding him the annual SFEN/FAF Prize for his action associating nuclear energy and the environment.
 - ❑ Headquartered in Paris
- Equally based in Paris:
- ❑ **The World Council of Nuclear Workers "WONUC" (Conseil Mondial des Travailleurs du Nucléaire)**
 - ❑ WONUC is an "association of Trade Unions or/and other organized bodies of the employees and professionals of the nuclear related industry and science"

Call for coordinated approach and demystification

- ❑ Clear analysis needed in Europe on kwh support for Renewable energies and for Nuclear energy
- ❑ Support for a Subsidy Watch
- ❑ Strategy discussion with MEP in all political parties to
- ❑ Open to phase out of Euratom and to let Nuclear face market conditions
- ❑ Balancing of spending according to support per kWh during the last 15 years and projected to the coming 15 years

Call for coordinated approach and demystification (II)

- Development of Short Argument Cards and clear messages for Renewables, used on different levels by different partners

Short Argument Cards - Example

- ❑ **No terrorism with renewable energies – But “Nuclear terrorism – a serious threat”**

- ❑ According to one of the biggest reinsurance companies in the world, Swiss REs:

“Starting in the mid-nineties, reports began to appear in the specialist press on the possibility of future non-conventional wars – so-called low intensity conflicts – and new, related forms of civil war and terrorism. One particular issue concerned threat scenarios dealing with nuclear terrorism. These reports were based on the suspicion that nuclear material had disappeared in various former Eastern Bloc countries during the protracted and confused dissolution of the Soviet Union, and that it would therefore be possible to buy “ready-to-use” nuclear weapons, eg nuclear “suitcase bombs”, in certain countries.

It became clear that several terrorist organisations are likely to have the technical, organisational and financial means to trigger, for example, a bomb containing nuclear material with a conventional ignition mechanism anywhere in the world.

- ❑ **And the Conclusion of the Insurer?? Eliminate gaps in reinsurance**

Short Argument Cards - Example

- ❑ **Solar and PV cells can easily and safely be treated after end of life time, there is no big deal to dismantle wind power or biomass plants**
- but NUCLEAR???**
- ❑ **OECD:**
- ❑ **“No operational repository for long-term disposal of high-level radioactive waste exists anywhere in the world.”
(Energy Policies of IEA Countries - The United States 2002 Review, page 95)**
- ❑ **On the other hand**
- ❑ **“About 44 000 tU of irradiated nuclear fuel are stored in the US pending the availability of an approved and licensed geological repository. In general, this highly radioactive irradiated fuel is kept in storage pools at the plant site.”**
- ❑ **Final disposal plan in repository in Yucca Mountain - still not established since many years of research and preparation. But Yucca Mountain programme has cost US\$ 5 660 million to date. (OECD report page 93)**

Short Argument Cards - Example

- Phasing out of Euratom and phasing in of market rules and democratic budget planning for research for energy technologies
- With clear kWh balance and inclusion of formerly paid huge amounts of support for nuclear

Short Argument Cards - Example

- European Energy Policy must follow sustainability, market economy and fair principle of level playing field and competition rules
- ExternE programme review of Commission necessary: all externalities for nuclear (waste treatment, waste disposal costs and liability etc.) have to be included

Allied Market Forces Approach

- ❑ This is not a Sunday stroll but a quite demanding and not un- risky undertaking
- ❑ The only chance to counterweight is the use of
- ❑ Strong strategic arguments
- ❑ Strong allies in industry, media and politics, science
- ❑ We need to convince also prominent even conservative industrialists to speak up for a liberal energy market with necessary abandoning of EURATOM and of any promotional task with financial and political decision, combined with huge financial means in the hands of publicly funded organism such as IAEA or EU Commission. IAEA may control use of uranium etc, waste, dual use danger, terrorism, but must stop from actively promoting Nuclear energy; statutes have to be changed