European Nuclear Society
e-news Issue 10 Autumn 2005

In this issue

Autumn is traditionally a time of rich harvests and spectacular fertility, when Mother Nature shows off her seasonal wares in a kaleidoscope of colour. And yet in recent months Mother Nature has increasingly shown her darker side, one that is anything but nurturing and maternal. So far, this autumn has hardly been the season of *mists and mellow fruitfulness* that the poet John Keats famously wrote about. Hurricanes, tsunamis, floods and earthquakes have repeatedly battered several parts of the world, leaving a trail of death and destruction in their wake. Such catastrophes used to be once-in-a-lifetime events that most people only read about in history books. Today, as whole cities and regions feel the devastating force of nature with increasing regularity, the history books are being rewritten - and it doesn't make good reading. The apocalyptic pictures of the dead and dying that are so often plastered across our TV screens and newspaper front pages, although unpalatable, have become part of our daily news diet. When what used to be the exception becomes the norm, you know that you're in trouble.

Today, few people genuinely believe that these tragic events are random and inexplicable, or simple acts of divine retribution. We instinctively search for a more rational and scientific explanation and the most commonly accepted one is that climate change, which is regularly described as the greatest threat facing our planet today, is the real culprit. The terrible irony is that it is mankind's poor stewardship of the environment, his unhealthy dependency upon CO_2-emitting fossil fuels that has, to a great extent, caused the climactic upheaval that we are experiencing today. In short, man has sewn the wind and is now reaping the storm. His suffering is largely self-inflicted

Not quite the harvest that we usually associate with autumn, is it? Issue N° 10 of ***ENS NEWS*** focuses, among other things, on this key issue of climate change and on how nuclear energy can - and is – playing a central role in combating it. The real challenge for our industry is to show those who still doubt whether climate change is really to blame that they need to wake up quickly and smell the coffee. Of all available energy sources, it is non-CO_2-emitting nuclear energy that can help most to appease the forces of nature.

In the **ENS NEWS section** President Bertrand Barré casts his scientific eye over the results of a recent ***Eurobarometer*** survey on nuclear waste. This survey - the first of its kind to be carried out in EU-25 - canvassed over 24,000 European citizens' views on the sensitive issue of radioactive waste management and on nuclear energy in general.
A number of key statistics emerged from the survey, including that more than 60% of

those interviewed believe that nuclear energy helps countries to diversify their energy mix, to reduce their dependency on oil and to emit no greenhouse gases, unlike oil and coal.

Bertrand also uses the survey results as a starting point for analyzing the general level of public acceptance in the EU for nuclear energy and highlights the lessons to be learned.

The **Events** section of ***ENS NEWS*** highlights two remaining conferences in 2005: ETRAP 2005 (Brussels, 23-25 November), which focuses on education and training in radiological protection, and the European Nuclear Conference (Versailles, France, 11-14 December). ENC is a major event for the scientific and technical community and provides a panoramic view of what is going on in the world of nuclear. Also under the spotlight are the many events already scheduled for 2006, about which more details will emerge in due course.

In the **Member Societies** section there are three reports. Firstly, Peter Leister, Vice President of the Swiss Nuclear Society and a member of the Board of Directors of ENS, writes about the potential applications of hydrogen power and the global impact that it could have on the world energy scene. In the second report our colleagues from the Finnish Nuclear Society give a detailed analysis of the decision to go ahead with the construction of Olkiluoto 3. This report highlights how the EPR project was born, how competitive it is, what its development goals are and how its new design offers state-of-the-art safety standards and levels of radiation protection. Finally, our friends from Young Generation Nuclear (YGN) mark the tenth anniversary of their association with a review of its objectives, activities and future plans to attract a new generation of talented scientists to invest in a career in the nuclear industry.

The **European Institutions** section of *ENS News* puts the news spotlight on the UK Presidency of the EU. It analyzes a speech that British Prime Minister, Tony Blair, recently gave recently to the European parliament in Strasbourg. In his speech he emphasized that it was “time that we (the EU) developed a common European energy policy.” Mr. Blair also stated that the EU should “develop a common position on nuclear energy,” – a subject that is very much back on the political agenda in the UK

Finally, the **ENS World News** section turns the spotlight onto the hot topic of climate change. First up, there is an article about the recent FORATOM seminar on climate change, *Nuclear energy: Meeting the challenge of climate change,* which was attended by senior officials from the European Commission, MEPs, industry leaders and environmentalists. An MEP Declaration advocating nuclear energy as the best energy option for combating climate change was signed by a cross-party group of 25 MEPs and presented during the seminar. It was later presented to the media and subsequent press coverage was extensive.

The second article on climate change focuses on the adoption by the European Parliament’s Committee on the Environment, Public Health and Food Safety (ENVI) of Swedish MEP Anders Wijkman's (EPP-ED) own-initiative Draft Report on the Commission's February 2005 Communication *Winning the Battle Against Global Climate Change*. The Communication presents the European Commission’s vision of the EU's climate change policy beyond 2012.

Finally, Andrew Teller writes a thought-provoking article about how people exercise their democratic rights using heuristic shortcuts rather than spending much time

studying the issues at stake. He looks at the relationship of trust that must be established between providers of information (e.g. politicians) and receivers of information (voters) if these shortcuts are to be effective. He concludes that, in the case of nuclear issues, better information of the public, although ultimately highly desirable, is not necessarily the immediate goal to be aimed at.

The **ENS Members** section reminds readers of important events coming up in 2006 and provides details about how ENS NEWS readers can register now for PIME 2006, which takes place in Vienna, from 12-16 February. Additional information is also given about the next RRFM conference, which will take place in Sofia, Bulgaria, from 30 April – 3 May.

Enjoy your autumn edition of **ENS NEWS**!

Peter Haug
Secretary General

Andrew Teller
Editor-in-Chief

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http://www.euronuclear.org/e-news/e-news-10/presidents-contribution.htm

ENS NEWS

ENS President's contributions

A side look at EUROBAROMETER 277

Bertrand Barré, President European Nuclear Society, October 2005

The European Commission has published this summer the results of an opinion poll carried out in February-March 2005, among 24708 citizens in the 25 Member States of the union, and devoted to radioactive waste. This “EUROBAROMETER 277” is well worth reading in details, but I have chosen not to focus on the waste issue, but rather on the general picture of the public acceptance of nuclear power in EU25.

Pollsters do not read into the souls of the people they interview, they can only tick the bullets of their questionnaire. Polls vary from week to week (witness many recent elections across Europe) and the context of a given poll is far from irrelevant: had the

EUROBAROMETER been about energy security or oil prices, rather than radioactive waste, many answers to the same questions might have been significantly different.

In that respect, the poor overall score of nuclear power in the Union (37% in favour, 55 against and 8% undecided) may not be very significant, all the more since there was no weighing by the respective population of each state. Still, the results are interesting in relative if not in absolute terms.

The first feature to emerge is the wide heterogeneity of the Member States where nuclear power is concerned, from a hefty 65% support in Hungary to an almost incredibly low 8% in Austria, just across the inner border of the old Habsburg Empire.

10 countries, Hungary, Sweden, the Czech Republic, Lithuania, Finland, Slovakia, France, the Netherlands, Belgium and the United Kingdom, have more nuclear supporters than opponents. Not too surprisingly, all these 10 countries are among the 13 countries which operate nuclear power plants in EU25. On the other hand, Spain, where nuclear power supplies 23% of the electricity, has only 16% of the voices in favour.

There is more to this heterogeneity than meets the eye: one could argue that in Canada, for instance, British Columbia (all hydro) and Manitoba (all fossil) have less enthusiasm for nuclear power than Ontario does. But I do not believe that the citizens of British Columbia want to kill nuclear power in Ontario…

There are other lessons for us, in ENS, to be drawn from this EUROBAROMETER.

- Andrew Teller found an interesting correlation (Figure) between the level of information about nuclear power and its degree of acceptance in a given country. We still have a lot to do to disseminate accurate and balanced information to the European public.

- All across the Union, the typical supporter of nuclear power can be schematized as male, middle aged, educated and right wing. I do not believe we can do much about political preferences, but we definitely need to address better the young and the women. ENS must do more to support YGN and WIN.

- More than 60% of the people interviewed agreed with the following statements :

1. The use of nuclear energy enables European countries to diversify their energy sources.

2. We could reduce our dependence on oil if we use more nuclear energy.

3. An advantage of nuclear power is that it produces less greenhouse gas emissions than the other energy sources such as oil and coal.

Let me admit that I, myself, am not so convinced by statement #2, because oil is mostly used for transportation. Until we produce hydrogen by nuclear reactors, our impact on transports will remain quite limited, limited indeed to electric railroads. *Vive le TGV!* I would also have added natural gas to the end of statement #3, but then, I am sometimes politically incorrect.

But the fact that 62% of the polled agreed wit statement #3 is very important, especially so because a previous EUROBAROMETER (November 2001) had very different findings: 47% of the EU15 citizens interviewed in 2001 thought that "nuclear power contributes significantly to climate change and global warming", while a mere 28% knew the right answer. This growth in public awareness over the last 4 years allows me to end this editorial on a very optimistic note. We witness almost everywhere in the world some kind of nuclear upturn. I am confident that Europe shall not be left behind.

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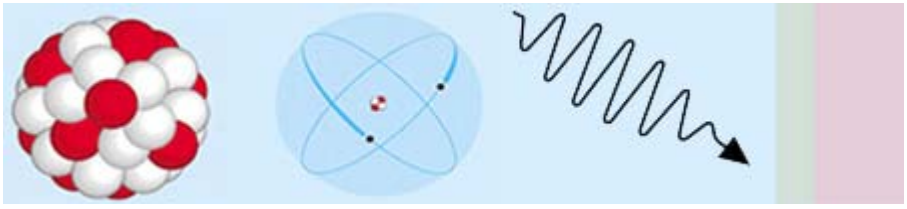
http://www.euronuclear.org/e-news/e-news-10/democracy.htm

ENS NEWS



Informing the Public

The European Commission published last June its 2005 edition of the ***Eurobarometer*** survey. The aim was to analyse the opinion of European Union citizens on the subject of nuclear energy, and radioactive waste in particular (see the ENS President's comments on it in this issue of ENS News). I would like in turn to use this study as a starting point for addressing the difficult problem of public information. Two observations found in the survey will provide the material needed. First, the level of information given to the public on radioactive waste is still very low, albeit improving. Second, to quote the report itself, "only a quarter of citizens of the European Union feel that they are well-informed about radioactive waste". I could jump at this opportunity and renew a call for increasing our efforts to provide quality information to the public. The incentive to do so would be all the stronger because the survey also indicates that, on the whole, better information on nuclear energy goes hand-in-hand with greater public acceptance. However, as I will try to explain, things are not quite so simple. Focusing on the need for receiving adequate information betrays a serious misconception about what the public is actually prepared to do.

The crux of the matter lies in the allocation of a scarce resource: time. There are simply too many issues competing for everybody's attention. As we all know from first-hand experience, we cannot afford to investigate personally all of them. In most cases, we resort to short-cuts to form our opinions. An insight into the mechanisms at play is provided by an examination of the workings of democracy. Barring the special case of referenda, the electorate does not vote on actual issues, it votes for politicians instead. Voters, therefore, replace a time-consuming problem (What should my stance on this issue be?), with a heuristic one that requires a much smaller time investment (Whom should I trust to tackle the issue on my behalf?). Why would such a heuristic procedure work at all? This question actually goes beyond the special case of ballots. It can be applied to all situations where people are influenced by others. Let us, therefore, call for greater generality. You have the "Speakers" - those (e.g. politicians) who influence - and the Principals (e.g. voters), who are influenced. Two social researchers,1 who have investigated the matter, claim that for the heuristic process to work satisfactorily, the following three conditions must be met:

- There is a verification process enabling the Principals to assess the quality of information dispensed by the Speakers
- The Speakers face a penalty if they lie
- The cost a Speaker is willing to incur to make his or her views known can be assessed by the Principals. This cost will be interpreted as an indication of the value attached by the Speaker to the outcome he is promoting, a high cost being interpreted as high personal interest

Such a context provides clues, which enable the Principals to decide for themselves whom they should trust. This context, however, is not created just by chance. Institutional measures are needed to make it happen. A concrete example of an institutional framework designed to solve the problem of trust is that of a judicial court. The Principals (the jury) do not know the Speakers (the parties), nor were the Principals present during the events that gave rise to the trial. The latter can, nevertheless, form their own educated opinion based on the facts presented to them. This is because two of the three above-mentioned conditions are met, namely the legal process ensures that all statements made will be cross-examined (the verification process) and that penalties will be applied to anyone who is caught lying.

Now, let's apply the same analysis to the pro and anti-nuclear debate and see how each side of the argument scores in terms of trust rating. Reading the daily news over an extended period of time has led me to deduce the following:

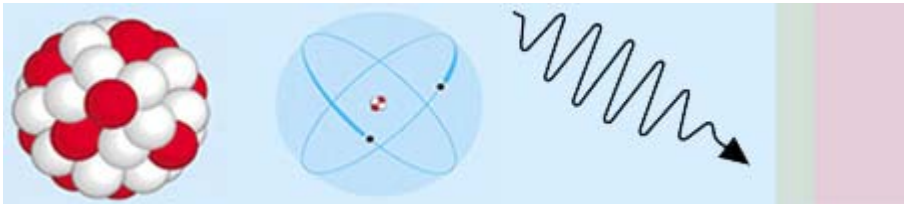
Condition	**Pro-Nuclear**	**Anti-Nuclear**
Level of verification	High	Low
Penalty for lying/being mistaken	High	Low
Cost of making public statements	High	Negative or nil

The above appraisal is based on the institutional factors at play in the nuclear debate: regulatory authorities and groups of sceptical scientists submit the nuclear industry to a high level of scrutiny, while the press is quick to condemn it for any error revealed. Conversely, the statements coming from the anti-nuclear camp are not subjected to any form of official vetting. Furthermore, it is a well known fact that the press tends to publish them without much regard for their appropriateness. Consequently, the positions of the pro and anti-nuclear camps appear to be completely asymmetrical:

- The pro-nuclear camp has a *strong incentive* to provide accurate information but does not look trustworthy

- The anti-nuclear camp has *little incentive* to provide accurate information but does look trustworthy

It so emerges that the Principals are applying a heuristic process to a situation where the conditions for its successful application are not met. Such a situation hardly qualifies as a satisfactory framework for debating any issue, not to mention one as important as the future of the planet. The answer lies in applying either of two equally unlikely options. Either the balance of the institutional framework in which the debate is taking place is restored or the danger of the heuristic route is removed thanks to much better informed Principals. On the institutional front, I cannot see how a Regulatory Authority could effectively impose fines on the anti-nuclear lobby each time it makes a statement that contradicts the facts. It seems also difficult to imagine a union of concerned scientists spending its time highlighting in the press fanciful claims about anything being OK for the planet provided it is not nuclear. On the information front, we have just seen that people are not prepared to invest much time in acquiring knowledge about energy matters. To reverse this situation, education would have to be somehow made compulsory. It could be decided for instance that a minimum level of knowledge would be required to enable people to participate in public consultations. This would constitute another type of institutional measure, but one that would certainly not be popular.



In conclusion, whatever the route one follows in practise, institutional measures will be first needed to ensure a more balanced and rational debate. The ideal development would be the emergence, only in a second phase, of a well-informed public that would not need any shortcuts to help it shape its opinions. Now that really would be a giant step forward for humanity.

[1] Arthur Lupia and Mathew D. Mccubins, The Institutional Foundations of Political Competence : How Citizens Learn What They Need to Know in Elements of Reason, edited by Arthur Lupia, Mathew D. Mccubins and Samuel L. Popkin, Cambridge University Press, 2000.

http://www.euronuclear.org/e-news/e-news-10/etrap.htm

ENS EVENTS

ETRAP 2005

It is not yet too late to register for ETRAP2005!

Join in debates on all aspects of education and training in radiological protection! The conference programme reflects the great diversity of issues and challenges facing professionals in this field, and highlights the wide range of skills and result-oriented tools at their disposal.

At ETRAP2005, participants will discuss following issues:

- International institutions' view and policy
- E&T needs (bottom-up view and national perspectives)
- International E&T initiatives
- Certification, accreditation and recognition
- Training and education tools
- Demos and displays of educational material

The updated conference programme and registration form are available on www.etrap.net.

For further information:
etrap2005@euronuclear.org
http://www.etrap.net

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http://www.euronuclear.org/e-news/e-news-10/ENC-2005.htm

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European Nuclear Conference 2005

11 - 14 December 2005 Versailles, France

It's not yet too late to register for ENC 2005!

This year's **European Nuclear Conference** will be a highlight in the world nuclear scientific and technical community. At a moment when new reactors are ordered, new scientific equipments are implemented, new concerted research programs appear, you are invited to come and meet your colleagues in Versailles, to improve your expertise, to benefit from the experience of the others. This congress offers a complete panorama on what is going on in nuclear power with oral and poster presentations, a large exhibition and exceptional visits of French nuclear sites.

For more information, including registration on-line, go to:
www.sfen.fr/enc2005/

http://www.euronuclear.org/e-news/e-news-10/pime2006.htm

ENS EVENTS

Pime 2006

Share your knowledge * Identify solutions * Invest your time in PIME

The Preliminary Programme is now on-line!
www.pime2006.org

REGISTER NOW!

Join in a high-level debate on key nuclear communications issues. Exchange your views and experiences with other communicators in one of the interactive workshops.

The presentations on the PIME programme reflect the great diversity of issues and challenges facing nuclear communicators today and highlight the range of communications skills and result-oriented tools at their disposal.

PIME AWARD FOR COMMUNICATIONS EXCELLENCE

There is still time to compete for the 2006 Award! Share the secret of your success with your fellow-communicators and send an example of a recent communications campaign that you have run to:
pime2006@euronuclear.org.

For further information:
pime2006@euronuclear.org
www.pime2006.org

Public Information Materials Exchange (PIME):

The focal point for nuclear communications specialists from around the world

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http://www.euronuclear.org/e-news/e-news-10/topnux2006.htm

ENS EVENTS

TOPNUX 2006

"Securing the Future – The Role of Nuclear Energy" is the theme for the three-day international TopNux conference being held from 21 to 23 March 2006 in London.

With the current level of international interest in nuclear new build, this is a fantastic opportunity to be involved with the cutting edge developments in the nuclear energy sector and network with leading players in the nuclear industry, as well as journalists, city financiers and energy policy makers.

High profile senior ministers and prominent environmentalists will present to the conference alongside leaders of global businesses and international organisations, and discuss topical issues such as:

- Future prospects for nuclear energy around the world
- The experience in various countries of demonstrating the safe and economic performance of nuclear power plants
- Policy options and resolutions of issues for new builds
- Long-term strategies for advanced reactors
- Showcasing reactor designs that are being deployed or near to deployment

The social events include a prestigious conference dinner at the London Science Museum and an elegant evening reception at Two Temple Place.

For more details, including **preliminary programme**, and **exhibition and sponsor opportunities**, visit **www.topnux2006.org** or contact the Conference Secretariat at topnux2006@euronuclear.org. The registration form will be available on-line in November 2005.

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http://www.euronuclear.org/e-news/e-news-10/rrfm2006.htm

ENS EVENTS

RRFM 2006

Dear Colleague,

Mark the 10th **Research Reactor Fuel Management Conference** (RRFM) in your agenda: **Sofia, Bulgaria, from 30 April to 3 May 2006**.

The RRFM programme includes **oral and poster presentations** on the following topics:

- Session 1: International topics
- Session 2: Fuel development, qualification, fabrication and licensing
- Session 3: Reactor operation, fuel safety and core conversion
- Session 4: Spent fuel management, back-end options and transportation
- Session 5: Innovative methods in research reactor analysis

Companies should take the opportunity to meet both old and new customers by participating in the RRFM exhibition. More details on www.rrfm2006.org.

The preliminary programme and registration form will be on-line by the end of November 2005.

For further information:
rrfm2006@euronuclear.org
http://www.rrfm2006.org

Research Reactor Fuel Management (RRFM):
The key event for the international research reactor community

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http://www.euronuclear.org/e-news/e-news-10/TOPSEAL2006.htm

TOPSEAL 2006

International topical meeting on

WASTE & DECOMMISSIONING

Further details will be available in December 2005.

Register your interest!

If you wish to be kept informed of TopSeal 2006 and wish to be added to the conference mailing list, please contact the Conference Secretariat:

European Nuclear Society

dionne.bosma@euronuclear.org

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http://www.euronuclear.org/e-news/e-news-10/TopFuel2006.htm

ENS EVENTS

TopFuel 2006

Mark your diary for TopFuel 2006!

Bringing together nuclear fuel professionals from around the world to share

experiences, exchange views and discuss the latest developments – that is the aim of **TopFuel**, the international meeting on **LWR Fuel Performance.** The next edition will be held from **22 to 26 October 2006** in **Salamanca**, one of the loveliest towns in Spain.

Call for Papers

Share your expertise and success with your nuclear fuel colleagues by presenting a paper on one of the following topics:

- Advances in fuel design and fabrication
- Fuel cycle strategies and core management
- Security of supply
- Fuel performance and operational experience
- Fuel analysis methods and models
- Fuel behaviour under off-normal conditions
- Logistics, containers and transportation
- Spent fuel management (including storage)
- Licensing and safety requirements
- Avanced fuel cycles

Please submit your abstract by 1 March 2006. The Call for Papers and abstract form can be downloaded from www.topfuel2006.org.

We hope you will join us in Salamanca next year!

Further information:
topfuel2006@euronuclear.org
http://www.topfuel2006.org

TopFuel - A reference for the nuclear fuel community

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http://www.euronuclear.org/e-news/e-news-10/hurricanes.htm

MEMBER SOCIETIES

Hurricanes Give a Boost to Hydrogen Economy

By Peter Leister, Vice President of Swiss Nuclear Society and Member of the Board of Directors of ENS

Nice names like Katrina, Rita and Stan are now associated with three different facts:

1. the climate change is perceived to be , well underway, the increasing numbers of disastrous hurricanes in the Caribic being one of its manifestations

2. the most vulnerable technical systems are - and will most likely also be in the future - oil platforms and large parts of the US oil refineries

3. oil prices will therefore climb earlier and reach much higher levels than expected, heralding the imminent decline of the era of black gold

Now is the right time to act globally.

Is there a chance to escape the inevitable repercussions of this decline? Yes there is, but the escape route is different from what we thought before.

Practically all industrial nations depend heavily on oil as energy source. Although visions and concepts exist of what our life would be without it, it is impossible to substitute it in the short term. Surprisingly, the global view of an environmentalist on our energy future does not differ much from that of a realistic engineer: *hydrogen economy* being the magic word. However, whereas the environmentalist envisages the global era of hydrogen production based on renewables only, the engineer, more familiar with the current efficiency figures of technical systems available maintains that renewables (solar, wind and biomass) will only be able to play a niche role in the future.

What can be done in the near future and who can do what?

Large scale substitution of oil by hydrogen would imply abandoning the

corresponding infrastructure and building up the appropriate new one. This is a very costly process and experience shows that depending on the market penetration of the old technology, it may take several decades. If the transition to a hydrogen economy proves to be at all a viable proposition, the author ventures two assertions:

First: large industrial nations will go through a slow shift from oil to hydrogen economy and will depend on oil imports for another four to six decades.

Second: by contrast, smaller industrial nations depending on oil imports will have the opportunity to complete the transition earlier, let's say within two decades, but only in specific sectors of their energy consumption.

Using rather simple arguments, it can be shown that smaller countries thanks to a few distinct economic features have a chance to start the transition earlier. The characteristic features of those countries are:

- highly industrialized
- prospering small and medium sized enterprises
- less than 10 million inhabitants
- good university education
- high standard of living
- being a small country

Oil and gas consumption for private, public and industrial heating purposes should be a considerable part of primary energy import and production. Examples are countries like Austria, Belgium, Denmark, Latvia, Slovakia, Switzerland etc.

The sector of energy consumption which should be converted to hydrogen economy first is energy for heating.

How can that goal be reached?

The technological path into this future comprises three areas:

Heat production, transportation technology for hydrogen and hydrogen production.

The transition programs to be started by these countries are more or less similar.

In the area of heat production existing oil and gas burners will be replaced by stationary fuel cells. Stationary fuel cells are more advanced in their development compared to fuel cells for transport purposes. They are already on the market and their improvement is being carried out.

These fuel cells are dual purpose cells since they produce both electricity and heat. Heat is needed for households or buildings, whereas the electricity produced is fed into the electrical grid, thus forming at the end of the fuel cell installation program a certain part of decentralised energy production. A very welcome by-product of this technology is that due to the growing number of installed fuel cells the need for daily

expensive peak power will decrease, because the decentralised power producers will smooth the grid loads signifi-cantly.

The electricity produced by the fuel cells could be used instead to feed into the grid, too, for local hydrogen production. The decision will depend on detailed economic calculations according to an energy master plan of the individual country.

This area of the whole hydrogen economy booster program will pose neither intellectual nor technical problems to the countries.

As far as transportation and storage of fuel for the stationary fuel cells is concerned, viz., two different kinds of transportation have to be developed. On the one hand existing natural gas distribution pipelines will continue operation for a certain time with natural gas and later on they will be used to transport H_2, when the scale of hydrogen production has increased. Starting fuel cell operation with natural gas is only a question of extending CO_2 emission. This should be for a limited period only.

On the other hand fuel cells not connected to the gas pipeline must be fed by hydrogen and transported to the end-users by bowers.
Development of infrastructure is needed in this area. Fortunately, current development in transport of H_2 by trucks can be used for storage purposes, too. The most promising technology is the metal hydrate technology, although considerable effort is still required. It might take 5 to 10 years before the technology has reached market maturity.

The remaining third area of the total program is the industrial production of hydrogen.

Where will hydrogen come from?

To answer this question one has to look at the technologies offered on the market, promising the highest efficiency. As mentioned before, renewable energy sources are not seriously considered to produce hydrogen, since the territories of the countries will be too small to harvest electricity from wind, sun and biomass in the amounts required.

The only other reliable, sustainable and environmentally benign technology is via process heat production by nuclear High Temperature Reactors. The market has promised these inherently safe reactors to be mature within one decade. This sounds credible.
Even chemical processes required for cheap hydrogen production are available and based on well known chemistry. Electrolysis is not necessarily the best process due to its inefficiency. For improved efficiency the chemical processes need HTR's producing heat only.

A period of 10 to 15 years to switch from oil and gas economy to the hydrogen

economy is sufficient for heating purposes.

Since the small counties do not produce in most cases their own cars or have their own oil refineries for gasoline production, they are totally dependent on the global market for incorporating energy consumption for transportation into their own hydrogen economy conversion program. And this conversion will take more time than the replacement of oil/gas by hydrogen.

At the end of the first conversion period, the countries following this path and creating partly an hydrogen economy will certainly have spent a lot of money.

But what will they gain?

1. An enormous impetus onto their economy of manufacturing and installing fuel cells and development programs as well.

2. Substitution of oil/gas by hydrogen for heating purposes

3. Production prices for the energy carrier hydrogen below those for oil and gas in the future

4. A considerable part of energy consumption has become environmentally benign

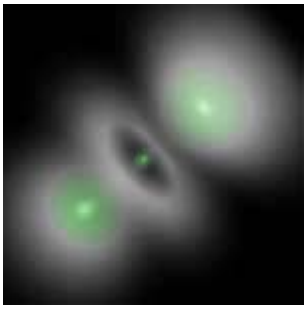
5. A knowledge base with a head start marketable to the late arrivers

6. Meeting Kyoto Protocol's commitments

7. Improving acceptance of nuclear energy

The investors and financial side of the story

The three different technological areas for the transition to hydrogen economy in the heating energy sector will need three different financing models.



As far as the fuel cell technology is concerned, incentives are necessary to find investors. Stationary fuel cells are not as cheap as oil heated boilers on the market. Therefore, initially low interest rate credits should be granted and investment costs should be partially subsidized by the government.

The consumption of H_2 has to be subsidized, too, by public hand. The principle should be that the difference between H_2 and oil/gas should be off-set by the government. In order to keep the management of this kind of financing easy, it can be regulated via the amount of electricity produced by the fuel cells and fed into the grid.

As far as H_2 transportation and storage is concerned, further developments of the

metal hydrate storage technology applicable for transportation and storage should be carried out by government funded research institutions and university, in the countries which have already started developing this technology. When maturity is achieved, there will be sufficient entrepreneurs investing in the H_2-bowser fleet as well as into the stationary H_2-storages.

Other countries with no own development program in this area have to wait until the metal hydrate storage technology is on the market.

For the remaining third technology area, hydrogen production, there is no financing model needed because the HTRs and chemical high temperature hydrogen production are well proven technologies. Their combination does not impose financing problems onto the booster and transition program for the hydrogen economy.

If the country has already nuclear power capacities, it will remarkably facilitate and accelerate the transition to hydrogen economy. Indeed the knowledge of how to operate nuclear reactors exists already and nuclear technology is already accepted.

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http://www.euronuclear.org/e-news/e-news-10/olkiluoto-3.htm

MEMBER SOCIETIES

Finnish Nuclear Society publishes a quarterly magazine ATS Ydintekniikka. ATS Ydintekniikka has been issued since 1972, and it is still the only regularly published magazine in Scandinavia covering nuclear engineering. The theme of ATS Ydintekniikka issue 3/2005, from which the following article has been extracted, was Olkiluoto 3 construction. More information: Chief Editor Kai Salminen, email: paatoimittaja@ats-fns.fi.

The EPR Becomes Reality at Finland's Olkiluoto 3

Background to Decision

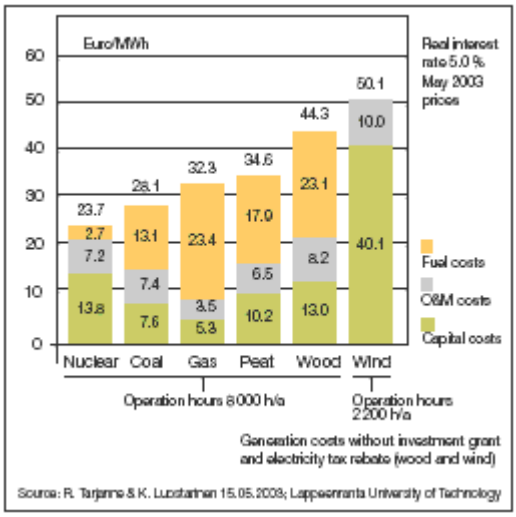
In 1998, the two Finnish nuclear plant operators – TVO and Fortum Power and Heat Oy – came to the conclusion that the growth in the demand for electricity of around 25% predicted to take place in Finland by the year 2015 could best be met by building a new nuclear power plant. This view was based on a number of studies, including one of the economics of different power-generating technologies which showed that a new nuclear pl

ant was the most cost-effective option. Another factor favoring nuclear power was that it would reduce the Finnish power market's dependence on power purchases, for the country presently imports more than 70% of its electricity. Furthermore, the use of nuclear energy – a carbon-dioxide-free energy source – would make it easier for

Finland to meet its commitments under the Kyoto Protocol.

In November 2000, TVO applied to the Finnish Ministry of Trade and Industry for a decision in principle according to the Finnish Nuclear Energy Act. This had been preceded by environmental impact assessments prepared for the two candidate sites – Olkiluoto in southwestern Finland and Loviisa on the south coast – and reviewed by the Ministry. In January 2002, after an extensive official consultation procedure, the Finnish Government's Council of State reached its decision in principle in favor of a new nuclear unit. The decision was ratified by Parliament in May of that year.

Affordable climate protection: the EPR (foreground) will become a reality at Olkiluoto in Finland in 2009.



Power generating costs of new nuclear power plants according to Professor Risto Tarjanne, Lappeenranta University of Technology.

International Competition

In October 2002, four months after ratification by Parliament, TVO issued a request for proposals for Finland's fifth nuclear unit, which called for a PWR or a boiling water reactor (BWR) with a rated capacity of between 1000 and 1600 MW.

On March 31, 2003, TVO received proposals from various vendors, including Framatome ANP that had formed a consortium with Siemens. After carefully evaluating these proposals and clarifying further technical aspects with all of the bidders, TVO announced on October 18, 2003 that the Framatome ANP/Siemens Consortium was the preferred bidder. TVO had concluded that, in terms of future power generating costs, the EPR represented the most cost-effective solution. At the same time, it was announced that the new power plant unit would be built at the Olkiluoto site.

On December 18, 2003, the contract was signed in Helsinki. It officially came into effect on January 1, 2004. In parallel with this, the documentation required for obtaining a construction license under the Finnish Nuclear Energy Act was submitted

to the Finnish Radiation and Nuclear Safety Authority (STUK) and initial preparation of the construction site was commenced. After reviewing these documents, STUK concluded in its preliminary safety assessment for the Finnish Ministry of Trade and Industry that it did not see any safety-related issues opposing issuance of the nuclear construction license. STUK emphasized that the evolutionary design of the EPR had been further improved by AREVA compared to the previous product lines. This led to the Finnish Government granting the construction license on February 17, 2005.

Project Organization

Framatome ANP's scope of supply and services encompasses the nuclear island, including the design, procurement and delivery of all of its mechanical and electrical equipment, installation and initial startup, the fuel assemblies for the first core and an EPR simulator. Furthermore, the company is responsible for overall project coordination as well as for functional and technical integration of the overall plant, and is also head of the consortium.

Siemens is responsible for supplying the conventional island, including the design, procurement and supply of all of its electrical and mechanical equipment, as well as the turbine and generator protection and control systems, and installation and initial startup of the turbine generator set.

A significant proportion of the engineering, construction and erection work, as well as the supply of mechanical and electrical equipment, will be placed with subcontractors after an international bidding process. Of course, Finnish companies will also be able to participate in this bidding. If their proposals should prove to be competitive at an international level they will likewise be given consideration during the proposal evaluation phase so that a large portion of the supplies and services for the project could be remaining in the country. Quite appreciable work packages have already been contracted out to Finnish companies. They are also profiting from the fact that orders awarded to companies outside Finland lead, in turn, to work being placed with Finnish subcontractors so that, in the end, a substantial portion of the total project value will be remaining with Finnish industry. Further requests for proposals are scheduled to be issued in the course of this year as well as at the beginning of the next year.

Current Project Status

Following completion of the excavation work that had been carried out by Finnish contractors employed by the customer, the Framatome ANP/Siemens Consortium took over the site on February 1, 2005.

Early in the summer of 2004, the consortium had already placed several major orders with Finnish companies. These orders covered the concrete mixing plant and the detailed design of the base slab of the reactor building complex as well as construction of the common raft foundation. In addition to this, supplies for the site infrastructure (office building and canteen, etc.) were also ordered from Finnish companies. The concrete mixing plant, which was erected directly on site, will have supplied a total of around 250,000 cubic meters of concrete via permanently installed pipelines and concrete mixer trucks by the time construction is finished. It was placed in operation in the spring of 2005 so that work could be started on pouring the leveling concrete.

In 2004, an order was also placed for a heavy-lift crane with a load-carrying capacity

of 1600 metric tons required for the construction and erection work.

The largest single orders for construction work went to companies based in France and Germany. However, significant portions of these volumes of work will be coming back again to Finnish contractors.

Summer 2005: Situation on site looking at the basemat of the reactor building

On July 15, the first sections of metallic liner for the inside of the reactor containment building arrived by the sea at the Olkiluoto 3 construction site.

Birth of the EPR and its Development Goals

Framatome of France and Germany's Siemens began developing the EPR in 1992 on behalf of and with significant support from the French national utility Electricité de France (EDF) and leading German utilities. The project was closely monitored and supported by licensing authorities and independent inspection agencies in both countries to ensure the EPR's licensability in France and Germany. Through the Olkiluoto 3 project, the EPR is now being fully licensed for the first time by the Finnish authorities.

The EPR builds on proven technologies deployed in the two countries' most recently built nuclear power plants – the French N4-series units and the German Konvoi-series plants – and constitutes an evolutionary concept based on these designs. This enables full use to be made of all of the reactor construction and operating experience gained not only in France and Germany – with their total of 2070 reactor operating hours – but also worldwide. Guiding principles in the design process included the requirements elaborated by European and US electric utilities for future nuclear power plants, as well as joint recommendations of the French and German licensing authorities.

The key development goals were:

- To further increase safety and, at the same time,
- To further improve economic performance.

Even Greater Safety

Safety levels at nuclear power plants have been constantly improved in the past. The EPR, a nuclear reactor of the third generation, represents yet another step forward in terms of safety technology, offering in particular the following features:

- Improved accident prevention, to reduce the probability of core damage even further,
- Improved accident control, to ensure that – in the extremely unlikely event of a core melt accident – the radioactivity is retained inside the containment and the

consequences of such an accident remain restricted to the plant itself,

- Improved protection against aircraft crash, including large commercial jetliners.

Measures providing superior accident prevention capability include a larger water inventory in the reactor coolant system and the steam generators, a lower core power density, and high safety-system reliability thanks to quadruple redundancy and strict physical separation of all four safety system trains. The plant design also incorporates state-of-the-art digital instrumentation & control (I&C) systems along with optimized man-machine interfaces.

If a core melt accident should occur despite all of the accident prevention measures deployed, the molten core material (corium) will be collected and cooled in a specially designed corium spreading area located underneath the reactor pressure vessel but still inside the containment. The extremely robust double-walled containment will reliably keep any radioactivity confined inside the building.

Probabilistic safety analyses were incorporated from the outset into the design process in order to determine those accident sequences capable of leading to severe core damage or significant releases of radioactivity, to evaluate their probability of occurrence and to implement design features that would further reduce their contribution to the overall risk.

Enhanced Competitiveness

The following factors contribute towards making the EPR's power generating costs even lower than those of the most recently built nuclear power plants currently in operation:

- Larger net electric output of around 1600 MW: this leads to lower specific construction costs
- Higher secondary-side pressure of 78 bar: this in conjunction with an optimized turbine design results in an efficiency of more than 37% under Finnish conditions – the highest efficiency of any light water reactor plant in the world
- Shorter construction period of 48 months
- Extended design plant service life of 60 years
- Higher fuel utilization with a discharge burnup of more than 60 GWd/t: this means reduced uranium consumption and lower spent fuel management costs
- Greater ease of maintenance thanks to improved accessibility and standardization, with preventive maintenance being possible while the plant is on line
- Shorter refueling outages leading to higher plant availability.

Factors aimed at ensuring the longest possible periods of uninterrupted power operation with minimal downtime comprise:

- Fuel operating cycles of up to 24 months
- Short refueling outages, even when extensive maintenance work is necessary
- Plant availability ratings of more than 90%.

The EPR Design

The reactor building, two of the four adjacent safeguard buildings and the fuel building will be of double-walled design to enable them to withstand the loads induced by natural and external man-made hazards (particularly aircraft crash).

The EPR has a slightly higher reactor thermal output than other PWRs currently in operation. The deployment of steam generators with economizer sections along with an advanced steam turbine design will lead to higher efficiency. In addition, core coolant flow has been maximized based on operating experience.

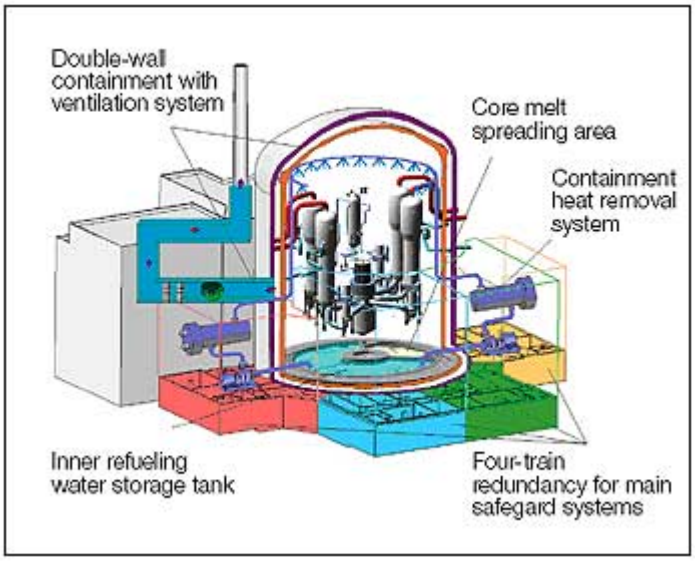
Safety systems directly connected to the reactor coolant system which serve to inject coolant into the system in the event of a loss-of-coolant accident (LOCA) are designed with quadruple redundancy.

The emergency core cooling systems comprise four passive accumulators as well as four low- and intermediate-pressure safety injection systems.

In addition to the systems for residual heat removal that are connected directly to the reactor coolant system, a further system designed to assure heat removal in the event of loss of normal feedwater supply is connected to the secondary system. This consists of a four-train emergency feedwater system that supplies water to each steam generator. The emergency feedwater system on the secondary side is equipped with electric-motor-driven pumps that can be powered, if necessary, by the unit's four large emergency diesel generators. In addition, the plant is also equipped with small, separate diesel generators to ensure that feedwater supply to the steam generators is guaranteed even in the event of simultaneous failure of all four of the large emergency diesels.

In the steam generators, the heat generated in the reactor is used to produce steam for driving the turbine. This steam is then condensed in the turbine condenser. If the condenser should be unavailable due to loss of the main heat sink, the excess steam can be directly discharged to the atmosphere from the steam generators.

The in-containment refueling water storage tank serves to store water for emergency core cooling and accommodates any leakage water discharged via a pipe break in the reactor coolant system.



Major safety features of the EPR.

TECHNICAL DATA	
Reactor thermal output:	4300 MW
Net electric output:	approx. 1600 MW
Main steam pressure:	78 bar
Main steam temperature:	290°C
Reactor pressure vessel height:	13 m
Reactor core height:	4.2 m
Number of fuel assemblies:	241
Uranium inventory in reactor:	128 t UO_2
Number of control rods:	89
Containment height:	63 m
Containment inside width:	49 m
Outer Containment wall thickness:	2 m

Enhanced Safeguards

To meet the requirements of the nuclear safety authorities, additional provisions for preventing beyond-design events were incorporated right from the start into the EPR design. These comprise, in particular, backup functions deployed on a systematic basis to further enhance safeguards for accident prevention. If an entire accident control function should fail, diverse actions will be implemented to achieve the same safety objective. What does this mean in concrete terms? For example, if all four redundant intermediate-pressure safety injection trains should be lost after a small-break LOCA, the residual heat from the reactor core can alternatively be removed via the secondary system, and the pressure reduced to a level at which the passive accumulators and low-pressure safety injection pumps can feed emergency coolant into the reactor. Hence, even in the extremely unlikely event of complete loss of all four redundant subsystems, the accident can still be controlled in such a way that destruction of the core is ruled out.

The safety authorities require that, despite all enhancements incorporated into the EPR design for accident prevention, provisions nevertheless be made to control all events that could possibly lead to melting of the core following a postulated loss of

all safety systems, the aim of this being to prevent catastrophic impacts on the environment. In the case of the EPR this primarily meant providing engineered safeguards that would prevent destruction of the containment in the event of a postulated (hypothetical) core melt accident. These safeguards comprise, in particular, reactor coolant system depressurization, a special reactor pit design, core melt stabilization, the design of the containment, containment heat removal and hydrogen reduction.

Better Radiation Protection for Personnel

In the course of designing the EPR, improvements were also made to the protection of operating and maintenance personnel against radiation. The target is a collective radiation dose of less than 0.4 person-Sieverts (pSv) per reactor unit and year (by way of comparison: up until now the limit in the West has been 1 pSv).

Nuclear Power Has a Future

The construction of Olkiluoto 3 in Finland has sparked off discussions about new construction projects in other European countries as well. The decision made by the private investor TVO to build a new nuclear power plant underscores the fact that nuclear technology plays an important role in liberalized power markets as an economical solution for CO2-free base-load power generation. The French utility Electricité de France (EDF) likewise decided – in October 2004 – to construct an EPR at Flamanville in Normandy. The key concern in France is to ensure the availability of a reliable energy technology in the long term: the project at Flamanville is to serve as a basis for a new series of nuclear units to replace French plants reaching the ends of their service lives from 2020 onwards.

The USA is following a similar strategy and has made a long-term commitment to nuclear energy. The service lives of many of its nuclear power plants are currently being extended and in addition the Bush Administration, together with the US utilities, is actively pursuing plans to launch the construction of a new nuclear unit before the end of this decade. In Asia, too, nuclear energy's share of the power-generating market is being deliberately expanded: China alone is planning to construct more than 30 GW of additional nuclear-based power-generating capacity by the year 2020, which means around 20 new state-of-the-art reactors.

Energy experts predict that the demand for new and replacement generating capacity in the Central and Western European power plant market will reach 400,000 MW by 2020, with the demand for new capacity set to reach similar levels in Eastern Europe. A significant proportion of this additional capacity will be needed for base-load service. Thanks to its economic efficiency, climate-friendliness and long-term reliability, nuclear power will continue to play a crucial role in the energy mix.

With the EPR, AREVA is in an excellent position to meet the needs of this large market, just as the Finnish contract – won in the face of stiff international competition – has demonstrated.

Rüdiger Leverenz,
Framatome ANP GmbH,
AREVA Group
ruediger.leverenz@framatome-anp.com

Dr. Ulrich Giese
Framatome ANP GmbH,
AREVA Group,
ulrich.giese@framatome-anp.com

http://www.euronuclear.org/e-news/e-news-10/ygn-germany10.htm

MEMBER SOCIETIES

10th Anniversary of German YGN

The Young Generation Network of the German Nuclear Society (KTG) celebrated its tenth birthday in Berlin on October 16 and 17, 2005. Already in 1991 Mrs. Elfriede Precker (from meanwhile decommissioned NPP Obrigheim), the first female member on the KTG board, had initiated the first meetings on public opinion aspects in Germany especially focused on students and young professionals in nuclear technology. It took four more years until a specific young generation section of KTG got formally established.

Today the KTG-YGN has three main objectives:

1. Promotion of nuclear energy in public opinion

2. Establishing/maintaining a national network of young people up to 35 years in nuclear technology and research with international cooperation

3. Know-how transfer to the young generation

YGN-Germany Board 2005: Thomas Schöße, Carsten George, Christoph Mertens, Ingo Kleinhietpaß, Cora Fischer, Stefan Opel, Tim Büscher

The main activities are:

1. Two annual meetings for students and young professionals, one in southern, one in northern Germany, e.g. in 2005
   Nov.3-5 “Nuclear Energy – does it split Germany?” at NPP Isar
   Nov.24-26 “Climate Change – chance for nuclear energy?” at NPP Kruemmel

2. Campus for regional high school students during the annual KTG conference on nuclear technology (different location in Germany each year) in order to promote interest in a later university study in nuclear science and technology related matters

3. Sponsoring of university student excursions to nuclear facilities via a

competition between faculties

4. Dialogue on energy policy with young Members of Parliament

5. Promotion of participation of YGN members in professional conferences and meetings

An article on the first 10 years of the KTG-YGN is under preparation by the YGN speakers and will be published in the next or overnext issue of the European Nuclear Features.

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http://www.euronuclear.org/e-news/e-news-10/european-energy-policy.htm

EUROPEAN INSTITUTIONS

British Prime Minister advocates a common European Energy Policy

On 26 October 2005, the UK Prime Minister, Tony Blair, gave a speech to the European Parliament in Strasbourg. He put an emphasis on energy policy stating that “it is time that we developed a common European energy policy”. He also said that the European Union should develop a common position on the development of nuclear power. He added that it is an area "into which we need to be putting future work". Meanwhile an academic report commissioned by the UK presidency and published this week suggests having a “Europe wide licensing regime, to modernize EU nuclear legislation and to create the conditions which minimize the cost of the inevitable regulatory burden. A nuclear task force that would identify barriers and areas for improved cooperation across Europe would be timely.”

Tony Blairs speech to the EU Parliament in Strasbourg

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http://www.euronuclear.org/e-news/e-news-10/climate-change.htm

ENS WORLD NEWS

Nuclear in frontline of climate change battle: 25 MEPs lend their support

On 19 October 2005, a seminar entitled Nuclear Energy: Meeting the challenge of climate change, took place at the European Parliament. Over 150 people, including parliamentarians, officials from the European Commission and the Council, industry representatives, NGOs and academics attended. It was organized by FORATOM and chaired by Finnish MEP, Eija-Riitta Korhola (EPP-ED), who is a member of the Committee on the Environment, Public Health and Food Safety. The seminar focused on global and EU climate change policies and on nuclear energy's role in a post-2012 international climate change framework. During the seminar, a cross-party group of twenty-five MEPs signed a joint *Declaration on climate change and nuclear energy*. This initiative adds political weight to the shared conviction among an increasing number of MEPs, as well as national politicians, scientists and NGOs, that nuclear energy can help the EU to meet its Kyoto Protocol CO_2-reduction commitments and mitigate the effects of climate change.

Here is a blow-by-blow account of what was discussed at the seminar.

In his opening address, FORATOM President, Eduardo Gonzales Gomez, stated that climate change is "a massive challenge to face….and the number of MEPs, European Commission's officials, industry representatives, journalists and environmentalists here today reflects how seriously that challenge is viewed." Public opinion is also increasingly aware of this challenge and of the contribution that nuclear energy can make to the fight against climate change. As *FLASH* reported last month, the recent Eurobarometer survey on waste showed that 62% of Europe's citizens now believe that nuclear energy produces less CO_2 than coal and gas.

Eiija-Riita Korhola then described her "journey into reality". She emphasized that she was not born with "a nuclear flag in my hand". As a member of the Environment Committee, she initially opposed nuclear power on safety and waste management grounds. However, the debate in Finland about whether to build a fifth nuclear power plant made her realize that climate change poses a much greater threat than nuclear accidents or radioactive waste. She added that Europe's dependence upon Russian

imports of fossil fuels can affect the EU's human rights policy. According to Mrs. Korhola, "atmosphere is not equipped with ideological filters" and unfounded fears must be challenged in order to develop a sensible viewpoint. Changing views among politicians, scientists and even some environmentalists imply that Mrs. Korhola is not the only one to have made that "journey into reality."

MEP Terry Wynn, (PSE, UK), Chairman of the MEP Forum for the Future of Nuclear Energy and a long time pro-nuclear campaigner, presented the *MEP Declaration on Climate Change and Nuclear Energy*, which he had signed along with 24 other MEPs.
He passionately advocates the role of nuclear in fighting climate change: "We can't have a debate on climate change without discussing nuclear energy, and while I encourage renewable energy sources, let's get real, none of them will ever run the Brussels metro system." The central theme of Terry Wynn's speech was that "the problems and the solutions for nuclear power are neither technical nor environmental, but political ones." The solutions exist for managing waste effectively and safely, like underground storage and retrievability – the real solution is a matter of political will. The signing of the MEP Declaration is a manifestation of that political will.

The seminar's morning session was entitled "*EU Energy and Climate Change Policies*". The key speakers who introduced the debate were: Dr Joachim Ehrenberg, Policy Officer, DG Enterprise and Industry, European Commission, who presented the EU's Lisbon Strategy and Climate Change Policy and spoke about the Emission Trading Scheme that aims to promote competitiveness and reduce greenhouse gas emissions; Eiija-Riita Korhola, urged that what is needed to fight climate change effectively is a completely new way of thinking which instead of being based upon fossil fuels is based upon energy efficiency and savings, renewables and non/low CO_2-emitting sources of energy. She concluded by saying: "…climate change will not be met by nuclear alone, but in the meantime nuclear energy should be used to its fullest potential."

Juha Poikola, Vice-President, Communications, Bioenergy Strategies, Pohjolan Voima Oy, then presented the Finnish energy model. He explained that Finland has 10 years of experience in liberalising the energy market and can exploit efficiently the electricity capacity of Nordic countries. Finland's decision to build a fifth nuclear power plant was made to encourage competitive electricity prices, to help reduce CO_2 emissions and to promote the increased use of biomass.

The next speaker was Chris Horner, Director of External Relations, European Enterprise Institute. He questioned the efficiency of the Kyoto protocol and the emission trading scheme (ETS). He stated that: "Kyoto strangely prohibits its adherents from using nuclear power to reduce greenhouse gas emissions." Instead of the emissions trading scheme, Chris Horner advocated the use of taxation as a means of "encouraging" industries and households to reduce their emissions.

Finally, Jean-Yves Caneill, Environment and Sustainable Development, EDF Group, stated that there is no simple energy solution in the fight against climate change, since politicians must take into account what primary energy sources are domestically available. However, given that it is possible to produce electricity

without emitting greenhouse gases, non-emitting sources should be prioritised such as nuclear and renewables. Jean-Yves Caneill concluded by saying that it is also necessary to control energy demand.

During the lively debate that followed, Mark Johnston of Greenpeace gave an NGO perspective. He asked why the speakers appeared against the ETS when, in his view the nuclear industry should be for it. He also questioned the decision of the US to invest in nuclear new-build and the overall competitiveness of nuclear power. Mrs. Korhola replied that she merely considered that the ETS has not achieved good results so far. Eduardo Gonzales Gomez, FORATOM President, said that the US decision to invest in nuclear power plants was made in order to fight climate change.

In the afternoon, delegates switched their attention to "*Nuclear energy's role in a post-2012 International Climate Change Framework"*. Jean-Eudes Moncomble, Secretary General, French Member Committee/ World Energy Council (WEC), presented the results of the WEC study on energy and climate change. WEC is keen to find solutions to fight climate change while ensuring better access to energy supply for all. It strongly advocates improving energy efficiency, using all the non-emitting technologies - including nuclear power and renewables - and increasing investments in R&D.

Mark Johnston then threw down the gauntlet by presenting Greenpeace's position on nuclear power, which is based upon the view that it should be phased-out, "…not only because of the risk of accidents, the threat of proliferation and the waste issue, but also because it is "not competitive on account of the liabilities issue." He dismissed the Finnish model, saying that the company was granted an unrealistically preferential interest rate to build the fifth plant. Finally, he presented an alternative scenario for filling the gap left by the phase-out of nuclear power called *Energy Revolution: a sustainable pathway to a clean energy future for Europe*, which has been developed by Greenpeace Europe and the Institute of Technical Thermodynamics at the German Aerospace Center (DLR).

Prof. Risto Tarjanne, Professor of Energy Economics, Lappeenranta University of Technology, presented the project of Olkoluoto 3 and reassured Mark Johnston on the competitiveness of Finland's power sector.

Dr. Alejo Vidal-Quadras Roca, MEP (EPP-ED, Spain), First Vice-President of the European Parliament, responded by saying that: "Nuclear energy makes a valuable contribution towards achieving Europe's economic, energy supply and environmental objectives. The nuclear energy option should be kept open and nuclear expertise retained".

Alain Bucaille, Special Adviser to the Chairman of AREVA, said that while the world is facing the challenge of climate change, energy demand is bound to increase: "We must, therefore, use the technologies that are available now to face up to climate change, namely nuclear power and renewable energy, and we must also improve energy efficiency."

Dr. Harmut Pamme, Vice-President, Nuclear Power Plants, RWE Power AG, pointed out that nuclear power is the only energy that meets the three "crucial criteria": "….it's CO_2-free, it's competitive and it ensures security of supply."

During the debate, Derek Taylor, Advisor, European Commission (DG TREN), refuted Johnston's argument about the interest rate, declaring that according to the

European Commission, Olkiluoto 3 was not granted any preferential interest rate.

In her closing remarks, Eiija-Riita Korhola reasserted that: “No single source should be ruled out or prioritized for ideological or political reasons. However, we strongly believe that the increased use of nuclear energy, as the largest single contributor to the fight against climate change, is essential.”

The seminar was followed by a press conference on the MEP Declaration. 13 journalists and the Europe by Satellite TV channel covered the press conference. Subsequent press coverage has been extensive. Here is the text of the MEP Declaration, which has now been signed by 27 MEPs.

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http://www.euronuclear.org/e-news/e-news-10/winning-the-battle.htm

ENS WORLD NEWS

Winning the battle against global climate change

On 11 October 2005, the European Parliament’s Committee on the Environment, Public Health and Food Safety (ENVI) adopted Anders Wijkman's (EPP-ED, Sweden) own-initiative Draft Report on the Commission's February 2005 Communication *Winning the Battle Against Global Climate Change*. The February Communication presents the European Commission’s vision of the EU's climate change policy for the post-2012 period.

Unfortunately, a rather anti-nuclear compromise amendment was tabled at the last minute by Anders Wijkman, Gyula Hegyi, Rebecca Harms, Caroline Lucas, Kartika Tamara Liotard, Roberto Musacchio and Johannes Blokland. The amendment was voted through. Oddly enough, the compromise amendment was supported by the EPP-ED (European Conservative Group) - at least according to their voting list.

The amendment reads:

“….recognises that delayed action will increase the risk of adverse environmental effects and greater costs; further maintains that reducing global emissions must not lead to other threats; reiterates its opinion that CDM/JI (clean development mechanism/joint implementation) or similar credits must continue to exclude nuclear activities."

Between when the Draft Report that was adopted by the Parliament’s ENVI

Committee and the release of this edition of the FLASH, FORATOM's Secretariat has been working to remove the anti-nuclear reference. There are two options for getting a new amendment put forward at the Parliament's Plenary Session, either:

1. Lobby for a political party to put forward an amendment deleting the third sentence "reiterates its opinion that CDM/JI or similar credits must continue to exclude nuclear activities,"

   Or

2. Lobby for at least 32 MEPs – regardless of their political affiliation - to co-sign an amendment deleting the third sentence. However, without the political backing by a major party, such as the EPP-ED, the chances of convincing the majority of the remaining 700 MEPs is rather unlikely.

Under the first option, the only political party likely to support such an amendment would be the EPP-ED party itself. In view of the fact that the EPP-ED had originally supported the amendment at the environment committee vote stage, and bearing in mind that the Draft Report's Rapporteur, Anders Wijkman, is himself an EPP-ED Member and one of the anti-nuclear amendment's co-authors, the likelihood that the EPP-ED would "force" Anders Wijkman to change his position on this amendment is practically zero. The only way the EPP-ED would support removing the anti-nuclear amendment would be if Anders Wijkman himself were to do so. The chances of that happening are very remote.

The second option is no easy task either, but it's not impossible. Over the past two weeks, FORATOM's Secretariat successfully obtained the 32 MEP signatures needed to table an amendment at the upcoming November Plenary Session. In fact, it secured over 50 MEP signatures during a two-day visit to Strasbourg for the Parliament's October Plenary Session – with the lobbying support of some Brussels-based nuclear representatives.

Getting the 32 MEP signatures was the easy part of the process. A Motion for a Resolution (non-binding) on the Commission's Communication will be voted upon at the Parliament's next Plenary Session, on 16 November. The more difficult part, however, is getting a majority of the 732 MEPs to support the amendment during the vote.

After speaking to key senior MEPs from the EPP-ED party, it became clear that the amendment's best chance of succeeding was if the EPP-ED party was to allow a "free vote" on this particular amendment. This means, EPP-ED Members would be free to vote whichever way they wanted without having to follow official party lines. A meeting of the EPP-ED will be held on 9 November to prepare their voting positions for the following Plenary Session. In answer to a request from FORATOM's Secretariat, key EPP-ED MEPs will insist upon a free vote on the amendment. The Secretariat will also see if the same procedure could be adopted by the PSE (the socialist group).

Furthermore, FORATOM's Secretariat will continue to urge MEPs to support this amendment by, for example, urging them to speak to their colleagues, right up until the vote takes place in November. The Secretariat will also help organize meetings

with key MEPs to discuss the matter further. Whatever the outcome, everything possible will have been done to get the amendment accepted. The results of the vote will be published in the December edition of the FLASH.

For a more detailed look at the Draft Report check the following web link.

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http://www.euronuclear.org/e-news/e-news-10/Member-Societies.htm

MEMBER SOCIETIES

Member Societies

Links to Member Societies

Austrian Nuclear Society E-mail: boeck@ati.ac.at	**Belgian Nuclear Society** http://www.bns-org.be
British Nuclear Energy Society http://www.bnes.org.uk	**Bulgarian Nuclear Society** http://www.bgns.bg
Croatian Nuclear Society http://www.fer.hr/HND/	**Republic Czech Nuclear Society** http://www.csvts.cz/cns
Danish Nuclear Society (DKS) http://www.ida.dk	**Finnish Nuclear Society** http://www.ats-fns.fi
French Nuclear Energy Society (SFEN) http://www.sfen.org	**German Nuclear Society (KTG)** http://www.ktg.org
Hungarian Nuclear Society http://www.kfki.hu/~hnucsoc/hns.htm	**The Israel Nuclear Society** E-mail: meins@tx.technion.ac.il
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Peter Leister (ENS)
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Graphic Designer:

Marion Brünglinghaus

Rue de la Loi 57, BE-1040 Brussels
Phone +32 2 505 30 50 - Fax: +32 2 502 39 02
E-mail: ens@euronuclear.org - http://www.euronuclear.org