



Issue No.3 – WINTER
(January 2004)

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HAPPY NEW YEAR!

This winter issue of ENS News, coming out at the end of January, gives us a last opportunity to wish you a very happy New Year. 2004 heralds change and celebration, as pointed out in the statement by Bertrand Barré, our new president, who is now heading the society.

Andrej Stritar, our past president, has also contributed to this issue. His reflections on his two-year presidency of the ENS are featured, along with his statement originally published in the American Nuclear Society (ANS) publication, Nuclear News, to mark the 50th anniversary of 'Atoms for Peace'.

The column, *'Listening To Others'*, this time focuses on the much-debated question of nuclear energy's competitiveness, but attempts to approach the subject from an unusual angle. The *'ENS Events'* section, which follows, features announcements about upcoming ENS conferences.

Regarding the life of our member societies, we are especially pleased to include articles on the activities of the Belgian Nuclear Society (BNS) and the Romanian Nuclear Energy Association (AREN). They seem to have set the ball rolling in terms of sending us much wanted contributions for publication. Hopefully, other ENS members will follow suit!

Under the heading *'European Institutions'*, there are two main reports: one on the European Nuclear Education Network (ENEN) and one providing an overview of the latest developments concerning the European Commission's proposed legislation, the so-called 'nuclear package'.

Peter Haug

Secretary General

Andrew Teller

Editor-in-Chief

2004 Will Be A Milestone, Says ENS President



Bertrand Barré, ENS President

2004 will be a very important milestone for Europe: in May, 10 additional countries will join the European Union. In June we shall celebrate the 50th anniversary of

the first significant electricity generation from a nuclear reactor, in Obninsk, in the Russian Federation. What a difference those 50 years have brought to the European landscape! The Iron Curtain, the Cold War, and even Détente now appear to be so far away as to seem surrealistic; so does a world without nuclear power.

Having only been around for five decades, nuclear power is extremely young for an energy technology. Today it supplies more than 6% of the world's primary energy consumption. If we hope to supply enough energy during this century to allow 9 billion human beings to live a decent life without irreversibly damaging our

planet's climate, this share must increase. Nuclear power is not *the* answer to this tremendous challenge, but there is no credible answer without it.

Today, nuclear energy is almost uniquely devoted to electricity generation. Tomorrow, new applications will develop for water desalination, district heating, process heat, hydrogen production, and so on. The nuclear adventure is still in its infancy and we in the European Nuclear Society are proud to be participating in it.

Bertrand Barré, Paris, 30 January 2004

Brief Thoughts about Where We Stand with the ENS Today

by Andrej Stritar, Outgoing ENS President

As my two-year term as president of the European Nuclear Society (ENS) has now come to an end, I have tried to create a clear picture of where we stand at this moment. When I was elected in May 2001 in Stockholm, the situation was far from simple. At that time, we were looking for a new secretary general for our secretariat in Bern and the Society was faced with very serious financial pressures. Our major projects: the publication, *Nuclear Europe Worldscan*, and the European Nuclear Congress 2002, were jeopardised and we had to find an effective solution quickly.

In autumn 2001, while still under the presidency of Agneta Rising, we decided to move the secretariat to Brussels and share it with FORATOM, the European Atomic Forum. Accordingly, at the spring General

Assembly of the ENS, in 2002, we dissolved the ENS headquartered in Switzerland and created a new one, based in Belgium. So, for several months, I had the unusual honour of being the president of two European Nuclear Societies – one being liquidated in Switzerland and another one being put together in Belgium.

This transition from one society to the other was also an interesting challenge and a test for the ENS. Each member society was free to decide if it still wanted to remain a member. Most of our major members immediately renewed their membership and there were only a few which, due to some procedural matters, had to join later.

I am glad to report that, at the end of 2003, the Nuclear Society of Russia was once again a member and the Yugoslav Nuclear Society is again seeking to join – after being out of the

picture for a year or two. At this moment, the only major society that used to be a member but is still missing is the Ukrainian one. Unfortunately, we have been unable to establish contact with it over the past few years.

In October 2002, the new secretariat successfully organised the European Nuclear Congress (ENC) in Lille, France. Although it did not quite come up to the same standard as previous ENCs, at least we managed to pull it off without the ENS experiencing financial problems. The other major ENS service to member societies unfortunately could not survive. 2002 was the last year that *Nuclear Europe Worldscan* was published. I feel that this is possibly one of the biggest losses to the society ever, because I always considered it to be the strongest cohesive force for all the members.

In the dynamic, transitional year of 2002 the ENS Board had to seriously rethink and redirect the society's activities. We set the following major tasks for the ENS:

- * maintaining a comprehensive and useful home page;
- * replacing the *Nuclear Europe Worldscan*;
- * the High Scientific Council;
- * Young Generation Network activities;
- * establishing and maintaining a relationship with the EU; and
- * conferences.

I am glad to see how things have gradually stabilised. The society is now running with a substantially lower budget than it had before in Switzerland. The new secretariat was successful in taking over the running of the society and the organisation of the traditional ENS conferences on nuclear public information in practice, known as PIME, and on Research Reactor Fuel Management (RRFM). The ENS Programme Committee is successfully co-ordinating nuclear conferences at European level. The High Scientific Council is successful in creating position statements; however, we all have to do more about their dissemination. The ENS has a new

home page which is regularly maintained. We have decided to continue with the European Nuclear Conferences every second year, purely as scientific conferences. The next one is to take place in 2005.

It has to be said that we have been less successful in re-launching Nuclear Europe Worldscan or its replacement. There were discussions between the German and French Nuclear Societies and the British Nuclear Energy Society about combining their journals and, at the same time, creating something for the ENS, but these proposals did not develop much further from first ideas. So we are now bridging the gap created by the lack of printed material with the electronic bulletin. Encouragingly, there has been a new development: the French, German and Spanish Nuclear Societies have agreed to produce a section common to their three journals and to offer it to other ENS societies. It now seems that, even before mid 2004, we might get the first issue!

All in all, I have the feeling that the ENS has survived its dynamic/transition period which has spanned several years, and that we are now entering a new kind of stable situation. It is, of course, up to us all to make the ENS even better in the

future. In order to make this possible, everybody is invited to come up with ideas.

Finally, let me stress that being the president of the ENS was a great honour for me personally. It will certainly remain one of the highlights of my professional career. Thank you to everybody who contributed to the activities of the ENS in this period: Agneta Rising as the past president, Bertrand Barré as the vice-president and the incoming president; members of the Board: Wolf-Dieter Krebs, Frank Deconinck, Peter Leister, and the treasurer, André Versteegh; chairman of the Programme Committee, Gaston Meskens; chairman of the Nuclear Information Committee Europe, NICE, Torsten Bohl, and, of course, to our professional secretariat staff: secretary general, Peter Haug, and his assistants, Gunnar Wickström and Andrew Teller. Also, thank you to all the other friends who contributed either to the work of the General Assemblies or otherwise.

I wish all the ENS members a happy and successful 2004. Furthermore, I wish Bertrand Barré a smooth road ahead and a fruitful presidency of the ENS as a prosperous society. We all have to help him in achieving that goal.

Six Nuclear Presidents Meet Up and Exchange Views

At what was, in all likelihood, a unique gathering of six presidents of nuclear organisations, ENS outgoing president, Andrej Stritar was delighted to participate in an informal exchange of views with some of his counterparts.

The occasion was a lunchtime 'mini nuclear summit' organised by Larry Foulke, president of the American Nuclear Society (ANS). Larry had seized the opportunity to bring together a 20-strong group of leading



Caption ◆

lights in the nuclear community during the September 2003 General Conference of the International Atomic Energy Agency (IAEA) in Vienna.

"The names of the guests and the event had been kept a well-guarded secret," says Andrej who was attending the IAEA conference as a member of the Slovenian delegation.

"It only sank in after we'd all got there that six presidents assembled at once was really significant. That, plus there being no protests and no tight security, came as a delightful surprise!"

◆ The six presidents at the lunchtime 'mini nuclear summit' were (from left to right): Jorge Spitalnik of the International Nuclear Societies

Council (INSC), Annick Carnino of Women in Nuclear (WIN), John Matter of the Institute of Nuclear Materials Management (INMM), Andrej Stritar of the European Nuclear Society (ENS), Jerry Barton, chair of the Austria Local section of the American Nuclear Society (ANS) and Larry Foulke of the ANS.

Listening to Others: A Personal View by Andrew Teller, ENS Society Manager

"Nuclear energy is too expensive," they say. So what should one make of this?

"Pit nuclear energy against other energy sources and it loses out on cost." This criticism – going back 25 years at least – has become a firm favourite of nuclear energy's opponents. Bent on crunching out numbers supporting their respective position, supporters and opponents alike have produced plenty of analyses in all this time.

The debate is doomed to remain inconclusive to the uncommitted bystander, however. Arriving at so many euro or US cents (or whatever) per kWh means relying upon quite a few assumptions that are rarely detailed in press articles dealing with the subject. Even if more explanation were given, the non-specialist would probably see these assumptions as arbitrary (which they are, to some extent) and certainly difficult to assess.

Taking the impact on the environment (external costs) into account would complicate matters further. There is no universally accepted method for determining boundaries between those factors considered a consequence of energy use and those that are not.

All of this leaves laymen – by definition, those unwilling to devote

hours to weighing up conflicting views – condemned to rely on indirect clues in reaching their own conclusion. Hardly a comforting outcome!

However, we supporters of nuclear energy have been focusing so narrowly on the cost question that we have not devoted enough attention to the second half of our opponents' message. This is what they are actually saying: "Nuclear energy is not competitive *and this is yet another reason for getting rid of it.*" It is on the last part of the previous sentence that I would like to concentrate. Before starting, let me make it clear that I do belong to the group of individuals who are convinced that nuclear energy can be competitive in today's market.¹ For argument's sake, however, I would like to investigate the issue from a different angle and prove the hypothesis that follows.

Assuming that nuclear energy isn't competitive (we know it is), this still does not provide the economic grounds for slashing its share of the world's energy mix to zero.

Let me explain. At a micro-economic level – the level at which individual investment decisions are made – opting for one energy source for a particular project will not impact the price of those using other sources. Rejecting nuclear on this scale has

few, if any, repercussions. The trouble is: those holding this reasoning wish everyone to follow it. If all investors obliged, the outcome would eventually be macro-economic in proportion. In such a context, the respective costs of the different energy sources would not remain independent from each other.

If nuclear were to gradually exit from the world scene, this would trigger a rising demand for all other fuels - in particular, gas. As a result, the rise in the demand for the other fuels would increase their prices. Moreover, there are good reasons (more on this later) to believe that the extent of these cost increases would be sufficient to restore the competitiveness of nuclear energy.

We are therefore presented with a paradox: get rid of nuclear and it becomes competitive. This is not surprising. A principle derived at, at the micro-economic level has been blindly carried over to the macro-economic level.

So what are 'the good reasons' for my conviction that costs will rise? Some technical details are needed to answer this. The mathematical problem is to determine, in a macro-economic context, the optimal energy mix – i.e. that which minimises the overall cost of power generation, subject to a number of constraints. The constraints are: the

need for supplying a certain level of energy and for having an installed capacity sufficient to meet a certain peak demand.

As already pointed out, fuel costs cannot be expected to remain constant – oblivious to the quantities of each fuel consumed. On a global scale, changes in the demand for a given commodity lead to variations in its price. In other words, fuel prices cease to be exogenous variables. Making them endogenous requires factoring each fuel cost's dependency on its consumption level into the model.

The mathematical structure of this optimisation problem is such that one can predict the following with confidence:

- * all energies will appear in the energy mix because this minimises the total cost; and
- * the share of each energy source will decrease as its price goes up in the energy mix considered.

Considering the above, where does nuclear stand with respect to other energy sources?

Among all nuclear's critics, those who are serious acknowledge that the cost of nuclear is not vastly different from that of fossil fuels. The difference is small enough for the discount factor used in economic

analyses to tip the scale one way or the other.² So if nuclear is currently more expensive than, say, gas, it will not be by a big margin. Given these circumstances, the solution to the optimisation model would inevitably feature a fair share of nuclear, even when assuming that it is more expensive. This outcome is nothing less than a mathematical translation of the 'energy mix' concept promoted by utilities around the world.

You might object that it would be very hard to figure out realistic laws linking the cost of a fuel to its consumption level. This might well be true. In the absence of witnessing such an achievement, one could spare oneself a lot of trouble and venture an educated guess: let each energy source take a share inversely proportional to its expected cost, externalities included.³ This approach might not be very accurate but it would at least constitute a reasonable approximation. Instead of that, nuclear's opponents claim that nuclear should be totally excluded from the energy mix.

Once again, we have a paradox: Even if we cannot solve the optimisation problem described above with full accuracy, of one thing we can be sure: *the optimal energy mix is not the one recommended by opponents of nuclear energy!*

This last observation confirms what I suspected all along about those who are anti-nuclear.

The environmentalists are not interested in economics. When they invoke cost considerations, it is not out of genuine concern for cost-efficiency. They do not share the principles they are advocating to industry and the business world. What this amounts to is nothing less than a conspicuous example of big spenders telling the thrifty that they are not saving enough. The sad thing is, too many thrifty people fall into the trap of paying attention to their recommendations.

¹*The recent Finnish decision to order a fifth reactor was backed by a thorough examination of all factors involved.*

²*Malcolm C. Grimston & Peter Beck, 'Double or Quits? The Global Future of Civil Nuclear Energy', Earthscan Publications Ltd, London 2002. See Table 3.1, p 65: a 5% discount rate ensures that nuclear is competitive in most countries; a discount rate of 10% would make it non-competitive in many countries.*

³*The difficulties mentioned earlier regarding externalities are not impossible to overcome in this case. What is important is to have them computed for each energy source following a consistent methodology. Such an exercise has been undertaken under the aegis of the European Commission (the ExternE project: see <http://externe.jrc.es>).*

ENS Past President's Reflections on 'Atoms for Peace' Speech

In December 2003, fifty years had passed since the famous 'Atoms for Peace' speech by US President Eisenhower at the UN General Assembly. Looking back on that day, 8 December 1953, it is abundantly evident that, at that time, the speech encompassed a visionary decision, which paved the way for the peaceful use of nuclear energy worldwide.

Within the nuclear community, numerous commemorations marked this 50th anniversary. The American Nuclear Society (ANS) invited the top representatives of major nuclear organisations to prepare short statements which were published in the November 2003 issue of their journal, *Nuclear News*. As the president of the ENS, Andrej Stritar

was also invited to prepare a statement for *Nuclear News*. It is republished on the page which follows.

Great promises, fast expansion, slowdown

The decision made by the American government in 1953 to offer to mankind the use of fissile material for peaceful purposes was an incredible step forward during the tense political situation of that period. It is worth noting how quickly that initiative was adopted by other nations, and how things have really developed in the direction envisioned by President Eisenhower. It is amusing for us baby-boomers to see how enormous the enthusiasm was for anything atomic that was presented in the books and articles during that period. Almost everything was planned to be powered by the atom: ships, planes, rockets, trains ...

But, as the decades have passed, the enthusiasm has diminished. In 1979, Three Mile Island happened, and in 1986, Chernobyl – and almost as suddenly the word 'atom' changed from something most promising to something most threatening. For years, politicians didn't want to speak about it, and most of the population simply wanted to forget it. Nobody wants to mention all the benefits that we had – and still have – from the atom. That is, except for us enthusiastic professionals, who are sure that harnessing of the atom is making the world better.

As I see it, scientists and engineers were successful much too quickly 50 years ago. We had to recognize that it also takes other, softer knowledge

and skills to properly master technologies that are as complex and potentially dangerous as is the use of the atom. As a consequence, in the last few decades we have been putting more and more emphasis on mastering the human aspects of using the atom by trying to prevent the inherent sloppiness of us humans from causing any harmful effects.

The results of our work are clear: nuclear energy is producing about 16 percent of the world's electricity, and it is still the fastest growing primary energy sector. It will have to remain an important part of the energy mix also in the future. Where else could we get the energy for all the billions of people who would like to move from poverty to a decent life?

Source: NUCLEAR NEWS, November 2003 - Andrej Stritar's statement has been republished with permission.

ENS EVENTS

ENS Winter 2003 General Assembly in Overview

The ENS held its usual winter General Assembly (GA) in Brussels on 12 December 2003. Fourteen Member Societies were represented. Please refer to the main article by ENS's outgoing president for a summary of the most important matters discussed: status of ENS membership, 2003 events and prospects for a new *European Nuclear Journal*.

The ENS members who wish to have a full account of the GA can turn to the minutes that have been posted in the members' pages of the ENS website.

This was the last GA for Andrej Stritar as chair (he remains a member of the ENS Board as vice-president) and for Wolf-Dieter Krebs as German representative. Both are heartily thanked here for their respective

unstinting contributions to the life of the ENS.

A special thank you goes to the Belgian Nuclear Society (BNS) which hosted the traditional Belgian pre-GA dinner as well as the technical tour, lunch and museum visit which followed.

ENS PIME 2004 Nuclear Communicators' Conference Starts 8 February

ENS PIME 2004, the conference for international nuclear communicators, is only days away - on 8-12 February in Barcelona to be exact. The detailed line-up is featured in the final programme now available on the ENS website.

PIME 2004's wide-ranging programme will include major topics such as nuclear as a European political issue, new shifts in European public opinion on energy-related issues, possible new communication strategies and the future of nuclear energy.

Adhering to its proven formula, the conference will, once again, offer a mix of presentations and Q&A sessions, combined with workshops and round-tables geared towards finding practical solutions to current and anticipated challenges.

Among the key themes which will also be addressed are: public acceptance, stakeholder dialogue, nuclear safety, sustainable development and corporate social responsibility as well as crisis communications and media relations.

Over the years, PIME has earned a reputation as the annual meeting place for nuclear communicators to be inspired and to network with their counterparts. In February, it looks set to build on this.

You can still register for PIME! The registration form can be downloaded from <http://www.pime2004.org>. If you have any questions about PIME, please contact us by email: pime2004@euronuclear.org or telephone: +32 2 505 32 23.

ENS Topical Meeting: Research Reactor Fuel Management 2004

Join Us to Celebrate the FRM-II Nuclear Start-up

Registration Deadline: 12 February 2004

Celebrating the start-up of Bavaria's FRM-II reactor - and the boost it will give to international leading-edge neutron beam research - will be a major highlight of the 2004 annual ENS topical meeting on Research Reactor Fuel Management (RRFM).

This year's RRFM - taking place from **21 to 24 March at the Forum Hotel in Munich** - draws inspiration from FRM-II to offer a very special programme with international appeal. Kicking off the meeting will be an impressive line-up of invited speakers who will focus on **FRM-II** as well as the significance of research reactors to **Generation IV** and the **European 6th Framework Programme (FP6)**.

Speakers include:

- * **the FRM-II Team from the Technical University of Munich, Germany**, members of which will speak on 'Neutron Research and Applications at FRM-II';
- * **Hans Forsström of DG Research at the European Commission**, who will address 'The Euratom Framework Programme and European Nuclear Research Infrastructures';
- * **Mitchell K. Meyer of the Argonne National Laboratory, Idaho Falls, USA**, who will focus on 'The Role of Research Reactors in Support of the Development of the

Generation IV Nuclear Systems'; and

- * representing the **French Atomic Energy Commission, CEA/SACLAY**, will be **Frank Carré, Pascal Anzieu, Philippe Billot, Philippe Brossard and Gian-Luigi Florini**, who will present 'An Overview of the CEA R&D Programme on Generation IV Nuclear Energy'.

The RRFM 2004 conference programme, presented on 22-23 March, will bring together European expertise not only from France but also Austria, Belgium, Bulgaria, Finland, Germany, Great Britain, the Netherlands and Serbia. From further a field, there will be speakers from leading institutes and organisations in Argentina, Australia, Indonesia, Japan, the Republic of Korea and the Russian Federation. Organised into sessions addressing all the significant aspects of the nuclear fuel cycle, the conference promises to provide a forum for very stimulating information exchanges.

The Preliminary Programme can be downloaded from the RRFM section of the ENS website now. Please do

check the ENS website in mid February, for the Final Programme.

If all of this sparks your interest and you want to join us, please bear in mind that **12 February is the deadline for registrations**. A very good reason for registering right away, however, is the exceptional RRFM 2004 post-conference technical tour, to FRM-II on the Garching research campus near Munich. FRM-II, a high flux reactor for neutron research and application, is expected to become fully operational later this year. This visit, granted to us with special permission, has limited places. Conference participants can only be accommodated on a first come, first served basis.

Book your place without delay – by downloading your registration form from the RRFM section of the ENS website:

<http://www.euronuclear.org>

Interested in Exhibiting at RRFM 2004?

As is tradition for RRFM Topical Meetings, this year's event will feature an exhibition. Organised alongside the conference, this offers a perfect opportunity to reach a targeted audience. Information on exhibiting is available under RRFM 2004 at: <http://www.euronuclear.org>.

If you have any questions about attending or exhibiting at ENS RRFM 2004, please contact our conference co-ordinator, Dionne Bosma, by email: rrfm2004@euronuclear.org or telephone: +32 2 505 30 54

European Nuclear Assembly 2004 - High-level Meeting in Brussels

The first European Nuclear Assembly (ENA) – embodying a new concept in high level conferences for CEOs and top executives from the nuclear energy sector – will be taking place in Brussels on 25-26 November this year.

ENA, endorsed by the European Nuclear Council at its Prague meeting in October last year, will be organised by the FORATOM branch of the ENS

joint secretariat. The new conferences will be oriented to political, strategic and economic issues. They will, thus, complement the ENS biennial European Nuclear Conferences (ENCs) for CEOs, which will focus on scientific and technological subjects.

The ENA conference, taking place every other year, will be essentially a Brussels event. Involving high-ranking European Commission

officials, Members of the European Parliament and other senior EU officials, these events will offer the nuclear industry's CEOs, top executives and senior managers valuable opportunities to gain insights and to network.

If you are interested in ENA 2004, please telephone Laurent Furedi at: +32 2 505 3220 or email him: laurent.furedi@foratom.org.

Summer General Assembly - Please Note Date Change

The ENS summer General Assembly will take place on 25 June in St. Petersburg, in the Russian Federation. Hosted by the Nuclear Society of Russia, it will be preceded by the Board

Meeting on 24 June and followed by a technical visit on 26 June.

Originally, it had been proposed that the Board and General Assembly be held on 1-2 July. However, this would

have coincided with the IAEA International Conference in Obninsk.

ENS members will be informed of all details closer to the time of the meetings.

ENS MEMBER SOCIETIES

SPOTLIGHT ON:

The Romanian Nuclear Energy Association (AREN)

ENS Member, the Romanian Nuclear Energy Association (AREN) seized the opportunities presented by the 'Romanian Nuclear Energy Days' – from 22 October to 20 November last year – to promote the future development of nuclear energy both nationally and internationally.



Joining forces with the Romanian Nuclear Forum (ROMATOM), AREN organised a number of events during this period. The highlights of these were the International Symposium on Nuclear Energy – SIEN '03 – in Bucharest on 22-25 October, and a children's art competition which demonstrated Romanian youth's keen interest in nuclear energy.

SIEN '03 - New Challenges for Nuclear Power

SIEN '03 – whose main aim was analysing the new challenges facing nuclear power in the near future, in the context of sustainable development - was a great success. Attracting some 125 participants – ranging from the nuclear expert community to those who are generally interested in current trends in nuclear power – the symposium had also, as organiser, the University 'Politehnica' of Bucharest, and the ENS as sponsor.

Such was the interest in the event that a total of 95 papers were presented at its five sessions. These sessions focused on: the prospects of nuclear power, its operation, nuclear engineering and research, the young generation in the context of nuclear knowledge management, and public acceptance.

In his welcoming address, Teodor Chirica, an executive director and former president of AREN, who is also ROMATOM's current secretary

general, had set the tone for SIEN '03's success. Expressing his optimism about the symposium's outcomes, Mr Chirica stressed nuclear's role "in the plans for improving future lives, not only in our country, but also in the European community and at a global level."

Looking to the future in the Romanian context, he emphasised that the aim was to grow nuclear's current 10 percent share of electricity generation to 25 percent from 2011 to 2015. "We supply a safe, non-polluting and competitive energy," said Mr Chirica. "All this is not only due to the efforts of the company operating the Cernavoda NPP, but also to the support of the educational, design and research infrastructure. And, last but not least, it is attributable to the industrial infrastructure."

Providing the symposium with a truly international flavour and one of its highlights was Adrian Collings, director of policy development at the World Nuclear Association (WNA),

who spoke on 'The World Nuclear University (WNU) and its Role in the Future Development of Nuclear Energy'. Mr Collings, who also wrapped up the symposium with concluding remarks, heaped praise on the Romanian nuclear industry.

"I have been struck forcibly over the past days by the extent to which the nuclear industry in Romania is outward-looking, by its strong international orientation and the willing openness to new ideas," he stated. "I leave the symposium with one lasting impression. It is of an industry with a real sense of purpose and direction, and an industry that is fully committed to, and confident about, its future."

Peter Haug of the joint ENS/FORATOM secretariat was represented by Sami Tulonen. Dr Haug had submitted the paper 'Nuclear Energy's Status and Its Prospects in an Enlarged European Union (EU)'. "The audience's enthusiasm for EU-accession related issues was very gratifying," says Mr Tulonen who presented the paper.

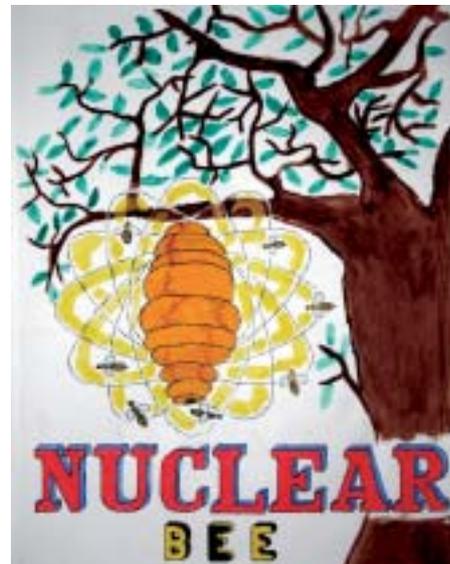
Romanian Children's National Palace Art Exhibition - Proof of Children's Interest in Nuclear Energy



The ninth annual contest and exhibition of art by children aged 6-17, hosted by the Children's National Palace in Budapest, and organised by AREN and ROMATOM, attracted entries from all over Romania.

In November, about 100 drawings, inspired by topics such as 'Nuclear Energy Saves the Environment', 'What Do We Know about Energy?', 'The Atom – Our Friend' and 'The Energy of the Future', were exhibited. AREN announced the best drawings on 4 November. The special prize for the best drawing went to a work entitled: 'In the Beginning

There Was the Atom', and was presented by ROMATOM.





For more information on AREN, please visit its website at:
<http://www.aren.ro>

Fact Billboard - The Romanian Nuclear Energy Association (AREN)

- * Established in 1990.
- * 250 Individual members and over 10 'collective' members representing the national nuclear industry.
- * Co-operation agreements with similar organisations in Bulgaria, France, the USA and Canada.



AREN's mission:

- * informing officials, local administration and the general public about nuclear power and its development;
- * promoting modern technologies within the national nuclear industry; and
- * providing support for the national nuclear power programme.



ENS Sponsored Czech Nuclear Society Topical Meeting is in October

'VVER - 2004, Experience and Perspectives' - a follow-on from the Czech Nuclear Society's 2000 conference on VVER NPPs - is taking place in Prague, from 19 to 22 October this year.

The ENS, together with the International Economic Association (INTERATOMENERGO), is sponsoring the event, which will comprise the following sessions:

- * Experience with Construction and Commissioning VVER NPPs;
- * Experience with NPPs Having VVER Reactors;
- * Perspectives on NPPs for 2010 – 2030;
- * VVERs and Safety Regulation; and
- * NPPs in the Liberalised Market.

For conference details in English, please go to:
<http://www.csvts.cz/cns> and click the link at the top of the home page. You can also email teris@teris.cz.

Former Chief UN Weapons Inspector Speaks at BNS Symposium

Hans Blix, former Chief UN Weapons Inspector, honoured the Belgian Nuclear Society's November 2003 symposium on civil nuclear energy with his presence and concluded it with his personal highlights. The symposium – announced in our previous issue of ENS News – explored civil nuclear energy's potential contribution to water, energy, non-proliferation and disarmament.

Questions raised by nuclear phase-out were tackled during the Society's previous annual symposium, which focused on the different European perspectives on the issue. When divergence and contradiction surrounded the debate on the economic impact of the Belgian phase-out law, BNS prepared a

CD-Rom for all interested parties. This featured the most representative papers on the issue.

From space odysseys to weapons inspections, the BNS's monthly evening lectures concentrate on current nuclear issues and have become a veritable nuclear institution in Belgium.

The spectrum of subjects covered by BNS lectures given over the past 13 months have included:

- * Nuclear Imaging in the Medical Imaging Context
- * 2002, A Space Odyssey - Nuclear Applications in Space
- * Nuclear Safety in the Countries of Central and Eastern Europe and in the New Independent States

- * Raising the Kursk
- * Nuclear in Finland
- * Nuclear Energy in Switzerland: Yes Please!
- * Adventures Experienced During UN-IAEA Inspections in Iraq.

Having some 400 members, the BNS is an academic society for the advancement of science and engineering relating to the atomic nucleus. Next year, it celebrates its 25th anniversary. The Society is a founding member of the ENS and an affiliate member of the American Nuclear Society (ANS).

For more information on BNS, please visit: <http://www.bns-org.be>

European Commission

The European Nuclear Education Network (ENEN) Forms Assoc. - Galvanising Its Bid to Tackle Nuclear Competence Shortfalls

Beset by a worrying fall off in the numbers of students of nuclear science and technology, the future of Europe's nuclear industry and research – characterised by ageing competence – could be severely compromised in mere decades from now. The repercussions would jeopardise not only nuclear's future in the energy mix but also the assurance of existing installations' safety standards.

A flicker of light is becoming a ray of hope at European Union (EU) level, however. The bearer of the torch is the European Nuclear Education Network (ENEN).

Under the European Commission's 5th Framework Programme (FP5), the ENEN – charged with the overarching tasks of preserving and further developing European nuclear expertise – crystallised into a non-profit making association in September last year.

Setting up an official association was, indeed, a milestone for the ENEN, now legally headquartered at the French Atomic Energy Commission / National Institute for Nuclear Sciences and Technology (CEA/INSTN) in Saclay, France. The seeds for its development had been sown when, in 2000, the Consultative Committee of Euratom had submitted recommendations to

retain competence not only in reactor technology, but also radioactive waste management, the nuclear fuel cycle and radiological sciences.

Thus the Network was born, and had been taking shape – involving 20 university partners and three research centres – since January 2002. And nothing has been holding back its momentum!

This fact was underscored when delegates to ENEN's first general assembly in November last year were called upon to appoint the Association's Board of Governors. It was also keenly observed by Dominique Gentile, director of CEA/INSTN and president of the

Association – in his welcome to the chairman, Michel Giot, vice-president of the Board of Governors of the Nuclear Research Centre in Mol, Belgium, and to the assembly.

Coining the Association's 2002-2003 start-up phase: "a step forward towards the creation of a European higher education space," Prof. Gentile drew attention to the ENEN's achievements. He outlined how these had focused on - among other related objectives – preparing the groundwork for the future delivery of a European Master of Science Degree in Nuclear Engineering (EMSNE).

Particularly exciting elements of the project, co-ordinated by Frans Moons of the Mol research facility, were the pilot sessions. Aimed at demonstrating the feasibility of quintessentially European nuclear engineering education schemes, these simultaneously involved up to 10 of the 17 European countries in

which the ENEN has been active. One such course, 'the Eugene Wigner Course on Reactor Physics Experiments' was conducted over the same three-week period in Bratislava, Vienna, Budapest and Prague in April and May 2003. Twenty postgraduate students participated.

In its statutes, the ENEN Association's global strategies for tackling both quantitative and qualitative issues in nuclear education encompass: promoting PhD studies, mutual recognition, student and teacher mobility, as well as boosting student numbers through incentives and making the nuclear domain more appealing.

So how does the Association propose moving forward in the near future?

- * In March this year, at its second general assembly, the Association will set up five management committees to steer its projects.

- * Under the European Commission's FP5, the focus was on bringing academic institutions into the network. In 2004-2005, under Joseph Safieh of CEA/INSTN as co-ordinator, the emphasis will be placed on incorporating the nuclear industry and regulatory bodies. This will be achieved in terms of the 'Nuclear European Platform of Training and University Organisations' ('NEPTUNO') project, under the Commission's 6th Framework Programme (FP6).

The ENEN Association's members comprise universities. It also welcomes nuclear enterprises, regulators, research centres and learned societies as associate members.

More information about the ENEN Association is available at: <http://www3.sckcen.be/enen/>

Commission Establishes European Hydrogen & Fuel Cell Technology Platform

The European Commission is now establishing a European Hydrogen and Fuel Cell Technology Platform (HFCTP), aimed at accelerating the development and deployment of these key energy technologies in Europe.

The HFCTP will have an open and accessible structure allowing the participation of all active stakeholders. The European nuclear industry will be taking part in this initiative.

At a debate in Brussels organised by the Friends of Europe late last year, industry representatives and NGOs

had the opportunity to hear from Commission experts about what the European Union (EU) has in mind for the future development of the hydrogen economy.

The debate touched on all the challenges and opportunities of a strategy to promote a hydrogen-based economy. These are the development timeframe and the measures to be taken during the transitional period; the role of carbon-based or renewable energy sources in hydrogen production; safety, transport and infrastructure development; and – last but not least – the potential use of nuclear technology to produce hydrogen.

Industry and NGO representatives agreed with Commission experts that public acceptance of hydrogen would be one of the key elements in a future strategy to develop a hydrogen economy. But a note of caution was sounded: hydrogen is no better than the source that produces it. Nuclear energy as a source and hydrogen as an energy carrier together offer many attractive features. Taking that into consideration, it is vital that the European nuclear industry consolidate its position on the issue of the hydrogen economy.

European Parliament

European Parliament January Vote on 'Nuclear Package' Legislative Proposals

The European Parliament (EP) has given a mostly prudent and constructive response to plans for new European Union (EU) nuclear legislation. However, the parliament has not taken adequate cognisance of the European nuclear industry's position on one of the most controversial topics of the package: the financing of plant decommissioning. These are the views of Peter Haug, who heads up ENS's joint secretariat with FORATOM, the European Atomic Forum. He was reacting to the latest developments on the proposed EU legislation known as the 'nuclear package', which covers the future use of nuclear energy in the enlarged European Community.

On Tuesday, 13 January, in a series of votes at the European parliamentary plenary session in Strasbourg, France, the EP gave its assessment of the European Commission's proposals for the 'nuclear package'. These proposals involve the application of nuclear safety standards, the decommissioning of nuclear installations and the disposal of radioactive waste.

"Overall, the parliament has not set out to undermine the 'nuclear package'," Dr Haug elaborated in Brussels on 14 January. "However, from the outset of the debate, the European nuclear industry has made clear its opposition to the concept of a unique system being imposed on EU member states for the financing of nuclear decommissioning. It is this kind of system that the parliament supported. This is despite the industry's consistent argument that EU member states should have the

flexibility to determine their own methods for financing this kind of work – in line with the prevailing situation in each EU member state."

"We hope that any final decisions taken by the European Council will ultimately enable members to continue to exercise flexibility in respect of the financing of decommissioning," he added.

There is still disagreement between individual EU member states over what form the so-called 'nuclear package' should take. Some favour non-binding provisions, while others are against the idea. Due to these differences, it now seems highly unlikely that the package will come into being before EU enlargement takes place in May - a target the European Commission has been aiming to achieve.

The views given by the parliament on 13 January are expected to have some influence on the ongoing debate between the EU member states.

According to the parliament:

- * the European Commission should not interfere with the powers of national nuclear regulators.
- * existing high levels of nuclear safety should be maintained, with member states carrying out the strict application of safety standards.
- * monitoring of rules related to the new legislation should be carried out by a peer review mechanism involving national safety authorities and not

through checks made directly by the European Commission.

- * EU member states should also have the flexibility to set their own timetables for the disposal of radioactive waste, taking into account their own national circumstances. Members of the European Parliament (MEPs) rejected the idea of strict implementation deadlines being imposed by Brussels.

Also on the issue of finance for plant decommissioning work, the parliament stated that such resources should be separate, monitored and used only for decommissioning purposes. As has been previously mentioned, this view is not supported by the nuclear industry at large.

The European Commission launched the 'nuclear package' on 6 November 2002. In a memo issued by the Commission's Directorate-General for Energy and Transport at that time, the Commission made clear its rationale for the legislative proposals. This document concludes: "On the eve of an unprecedented enlargement" of the EU "at a time when there are vital nuclear safety issues at stake, it is time for the Community to shoulder its responsibilities with regard to the safety of nuclear installations and adopt legally binding rules."

The 'nuclear package' was adopted by the European Economic and Social Committee (EESC, also known as EcoSoc), by an overwhelming majority in March 2003 - however, again, with a warning about too rigid financial regulation.

The 'package' comprises the following legislative proposals:

- * a draft Proposal for a framework European Directive defining the basic obligations and general principles concerning the safety of nuclear installations during operation and decommissioning;
- * a draft Proposal for a Directive on radioactive waste; and
- * a draft decision authorising the European Commission to negotiate an agreement between the European Atomic Energy Community (Euratom) and the Russian Federation, on trade in nuclear materials.

For more information on the 'nuclear package' and links to key documents, please go to the ENS website:
<http://www.euronuclear.org>

Council of the European Union

ITER Site Decision Delayed to February - *Meanwhile the US Backs Rokkasho & Canada Quits*

A decision on where to build the International Thermonuclear Experimental Reactor (ITER) is now likely to be made at a ministerial-level meeting in mid February. This follows the failure to reach consensus on the part of ministers negotiating ITER's construction in December last year – and their call for candidate host parties to answer, by the end of January, additional questions they had tabled.

In the meanwhile, January has seen two further developments on ITER. The United States announced, on

13 January, that it is backing the Japanese bid for siting the reactor at Rokkasho. Canada formally confirmed its withdrawal from both the negotiations and the transitional arrangements for the project on 14 January, thus making it official that its candidate site, Clarington, is no longer a contender. This now leaves only the European Union (EU) candidate site, Cadarache (France), and Rokkasho as serious contenders. Although Canada only went public with its decision in January, this had already been stated in a letter dated 23 December.

In it, Canada's minister for natural resources, John Efford said that owing to "present priorities and other demands," the country "is not in a position to table a competitive package that would lead to Canada becoming the host to the ITER project."

The specific details regarding the funding of ITER depend on which site is eventually chosen. A number of scenarios have been posted on the ITER website (<http://www.iter.org>).

Source: NucNet / ITER

ENS WORLD NEWS

IEA Launches 'Energy to 2050 (2003) - Scenarios for a Sustainable Future'

'Energy to 2050 - Scenarios for a Sustainable Future' has recently been launched by the International Energy Agency (IEA). In analysing the interaction between energy and climate change up to fifty years ahead, this volume - as its title suggests - uses scenarios in its exploration of options for the future.

Different types of scenarios are introduced and evaluations are given of how these can be used to analyse specific aspects of the interaction between energy and the environment. The 'exploratory scenarios' in the volume are based on different expectations of the technical and/or policy developments over the next five decades. While the 'normative scenarios' use as their basis a set of desirable features or

'norms' that the future world should possess.

These long-term scenarios complement the IEA's World Energy Outlook which focuses on the mid-term.

224 pages, ISBN 92-64-01904-9. For a more comprehensive review and to order, please go to: <http://www.iea.org/books>.

LIST OF 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

E-mail: manolova@inrne.bas.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

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The Israel Nuclear Society

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Polish Nuclear Society

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Nuclear Society of Russia

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Slovak Nuclear Society

<http://www.snus.sk>

Nuclear Society of Slovenia

<http://www.drustvo-js.si>

Spanish Nuclear Society

<http://www.sne.es>

Swedish Nuclear Society

<http://www.karnteknik.se>

Swiss Nuclear Society

<http://www.kernfachleute.ch>

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Aare-Tessin AG (ATEL)

<http://www.atel.ch>

Alexandrov Research Institute of Technology (NITI)

<http://www.niti.ru>

Ansaldo Nucleare - Divisione di Ansaldo Energia SpA

<http://www.ansaldonucleare.it>

Advanced Measurement Technology Inc.

<http://www.ortec-online.com>

Andritz AG

<http://www.andritz.com>

SPE Atomtex

<http://www.atomtex.com>

Barsebäck Kraft AB

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BKW FMB Energie AG

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British Energy plc

<http://www.british-energy.com>

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<http://www.belgatom.com>

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<http://www.cae.com>

Centralschweizerische Kraftwerke (CKW)

<http://www.ckw.ch>

Chubu Electric Power Co.

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Comisión Chilena de Energía Nuclear

<http://www.cchen.cl>

Cybernetix Group

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CCI AG (formerly Sulzer Thermo Tec Ltd)

<http://www.ccivalve.com>

Colenco Power Engineering AG, Nuclear Technology Department

<http://www.colenco.ch>

Commissariat à l'Énergie Atomique (CEA), Nuclear Energy Division

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EnBW Kraftwerke AG

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<http://www.empre.es>

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Paks Nuclear Power Plant Ltd

<http://www.npp.hu>

Polimaster Ltd

<http://www.polimaster.com>

Paul Scherrer Institute

<http://nes.web.psi.ch>

RADOS Technology Oy

<http://www.rados.com>

RWE NUKEM GmbH

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World Nuclear Association (WNA)
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Westinghouse Electric Europe
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World Association of Nuclear Operators (WANO)
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Entrance of the FRM II at Garching near Munich – the destination for the RRFM 2004 technical tour.

Source: FRM II

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