



**European Nuclear Society**  
e-news Issue 11 Winter 2006

## In this issue

According to that most venerable of institutions, the Oxford English Dictionary, the definition of the word January is: “*The first month of the year. Derived from the Latin ‘Januaris mensis,’ meaning ‘month of Janus.’*” As we all know, Janus was the Roman god of gates and doors, of beginnings and endings. He was depicted on coins and in art as having one head but two faces, one facing backwards to survey the past and the other looking forwards into the future. For many people, January is a time to pause and take stock; to reflect upon what has been and upon what the future might hold; to look forwards with optimism while surveying the past with newly-acquired wisdom.

For ENS, too, this is a January time. I am delighted to welcome a new ENS President on board, Frank Deconinck of SCK-CEN. Frank, former Vice President of ENS, was elected in December 2005 to succeed Bertrand Barré, who continues as Honorary Vice President. Under Bertrand’s excellent stewardship ENS carried on the good work of his predecessor, Andrej Stritar, during the transitional period during which the Society moved from Berne to Brussels. Together with the support of the three new Vice Presidents (Bertrand Barré, David Bonser and Peter Leister) and new ENS Board members, Frank will build upon the solid foundations laid by Bertrand and help ENS to grow from strength to strength. I am sure that all readers will join me in wishing Frank the very best of luck in his new position.

As *ENS NEWS* emerges blurry-eyed from the New Year’s festivities, Issue N°11 is in a reflective mood too. As the nuclear renaissance continues to gather pace across the world and more and more doubters are won over by climate change and security of supply considerations, optimism about the future of our industry is greater this month of Janus than it has been for some time. And yet, while looking forward optimistically to 2006, *ENS NEWS* also looks back on some of the highlights of last year and pays its respects, with sadness, to much-valued friends and colleagues who passed away in 2005. They won’t take part in a bright new nuclear tomorrow, but their contributions helped make that tomorrow possible. As one era ends, another begins. More than anything, January is a time for renewal.

Another symptom of “januaryitis” is man’s fondness for celebrating anniversaries. It’s another example of his desire to never quite let go of the past. Well, I’m sure that it won’t have escaped your attention that 2006 will mark the 20<sup>th</sup> anniversary of the Chernobyl accident. While in no way wanting to minimize the seriousness of the tragedy, I would simply like to point out that, as the subsequent IAE/WHO report on the health consequences of the accident recently confirmed, the loss of life and the extent of the healthcare problems associated with Chernobyl have proved to be less dramatic than originally predicted. Terrible as the accident was – every life lost is a tragedy - it proved to be an important watershed for our industry. Since 1986, when

the Chernobyl accident occurred, our industry has worked tirelessly to ensure that nuclear power plants across Europe and beyond now conform to the very strictest possible safety standards. Our safety record is now second to none. The lessons of the past have been learned and the future seems bright.

Issue N°11 of ENS NEWS kicks off with an introduction to the new President of ENS, Frank Deconinck. It also introduces the new ENS Board. The focus then switches to European research policy, as we report on a recent FORATOM Workshop during which the recently-appointed Director General of the European Commission's Joint Research Centre (JRC), Roland Schenkel, gave an overview of current and future EU energy research policy.

Andrew Teller, in his regular column "Tapping Unusual Quarters," uses basic mathematical analysis to expose the weaknesses in the arguments of non-nuclear NGOs.

The **ENS Events section** turns the spotlight onto the ETRAP conference that took place in November 2005, the latest information on PIME 2006, which will take place in Vienna, from 12 -16 February, and ENA 2006 (in Brussels on 28 and 29 March).

In the **Member Societies and Corporate Members section**, we get another perspective on the important subject of radiological protection and training, this time from our colleagues in Romania. We also reflect upon the sad passing away of two former friends and colleagues in 2005, Professor Carlo Salvetti and Dr. Armen Abagyan and upon the legacy that they have left.

The significant changes among senior management at the top of the European Commission that were announced last December prompted the **European Institutions section** of ENS NEWS to focus, in particular, on the two new Director Generals who took over at the beginning of January, Matthias Ruete (DG TREN) and José Silva Rodriguez (DG RTD). We will continue to watch closely what impact they will have on the future of EU energy and energy research policy – and especially on our industry. Also on the EU front, ENS NEWS summarises the energy policy priorities of the Austrian Presidency.

The **World News section** puts the spotlight firmly on the recent climate change talks that took place just before Christmas, in Montreal, under the aegis of the United Nations Framework Convention on Climate Change (UNFCCC), which were marked by the eleventh-hour agreement reached with the US government on the post-Kyoto strategy for combating climate change. Could the US finally join the Kyoto fold? That remains to be seen.

The **NucNet News** section provides a summary of the recent "gas crisis" between Russia and Ukraine, an event that caused considerable media frenzy and highlighted clearly the crucial importance of ensuring security of energy supply. It also helped to underline the decisive role that nuclear energy can play in ensuring a clean and affordable supply of electricity to meet growing energy demand.

A new year, new people at the top at the European Commission, a new ENS President and Board, the first 2006 issue of ENS NEWS and a new Editor-in-Chief of ENS NEWS, Mark O'Donovan (e-mail: [mark.odonovan@foratom.org](mailto:mark.odonovan@foratom.org)), who takes over from Andrew Teller – there really is no escaping Janus, the god of beginnings.

My best wishes to all our readers. I hope that 2006 will bring you and your families good health, happiness and prosperity.

Sincerely



Peter Haug  
Secretary General



Mark O'Donovan  
Editor-in-Chief

<http://www.euronuclear.org/e-news/e-news-11/ens-president.htm>

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## Frank Deconinck: A profile of the new man at the ENS helm.

Following the ENS Board and General Assembly that took place in December last year, ENS has a new President. He is Frank Deconinck, a Belgian from the Flemish city of Gent. **ENS NEWS** is delighted to welcome Frank on board and would like to present to readers – especially those of you who might not know him too well - this brief portrait of the new man at the ENS helm.



Frank Deconinck  
ENS President

Frank is currently Chairman of the Board of Governors of SCK-CEN (the Belgian Nuclear Research Centre), Vice President of the Board of Belgonucléaire NV (a company specializing in the manufacturing of mixed-oxide fuel) and a professor of physics at the “Vrije Universiteit Brussel” (VUB). He was President of the Belgian Nuclear Society from 2002-2003, before taking over as Vice president of ENS.

After such a long and impressive career in industry, teaching and research it's difficult to know where to start. But here are some of the highlights:

Frank has held a number of senior positions, including 7 years as President of Belgoprocess (active in the processing and storage of radioactive waste), 11 years as Vice Chairman of Belgium's Governmental Agency for the Non-Proliferation of

Atomic Weapons and 15 years as Vice Chairman and Acting Chairman of Belgium's National Agency for Radioactive Waste Management.

Frank is a leading academic with a close association with the VUB that goes back over 35 years. After graduating from the VUB with a bachelor's degree, a master's degree and a PhD in physics, he began lecturing at the university's Faculty of Medicine in 1981. His major area of academic expertise is in the field of image processing in nuclear medicine. He performed several expert missions for the IAEA's nuclear medicine division. He is the author of numerous academic books, articles and communications on research and has presented his work at several international congresses and symposia.



ENS Board, from left to right: Gaston Meskens, Dr. Peter Leister, Bernard Bonin, Miroslaw Kawalec, David R. Bonser, Milena Cernilogar-Radež, Prof. Philip Beeley, Frank Deconinck, Martin Luthander, Kim Dahlbacka, Dr. Krassimira Ilieva

Outside the world of nuclear science, Frank has a number of interests. Since 1986, he has been Chairman of the non profit-making organization "Feeling," which is dedicated to promoting art for the visually handicapped, and Vice President (since 1994) of "Very Special Arts, Belgium." From 1989 to 1999, he has organized an international exhibition entitled Tactile Graphic Art and his work in this field led him to being awarded, together with his wife Michèle, the Honorary Tech-art Prize for Blind People (1988).

ENS is extremely fortunate to have such a talented, experienced and dedicated professional as its new President. Once he has been in the job for a while, ENS NEWS will give Frank the opportunity to talk to readers about what he thinks are the major challenges facing him during his mandate.

In the meantime, I am sure that all readers will want to join me in wishing Frank the very best of luck in his new position.

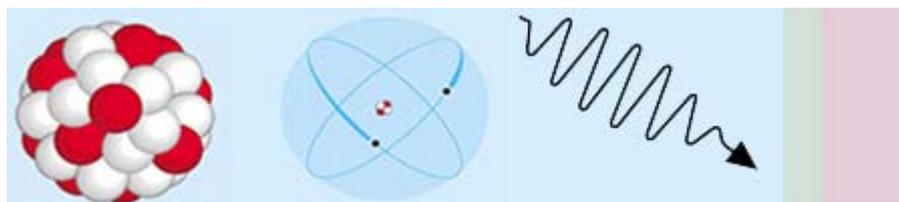
Peter Haug

[link to the ENS Board](#)

<http://www.euronuclear.org/e-news/e-news-11/listening.htm>

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## TAPPING UNUSUAL QUARTERS



### How to fit four elephants into a small car

There is an old joke that goes “How do you get four elephants in a small car?”. In case you haven’t heard this one before, the answer is: “Very simple, two in the front and two in the back”. I am reminded of this joke each time I stumble across a proposal for future energy policies coming from anti-nuclear quarters. I have in front of me an example of such a prospective study commissioned by a well-known anti-nuclear NGO. This one is dated September 2005, but it does not differ from many other similar, older analyses. It provides figures according to which, between 2010 and 2050, a moderately decreasing EU population would be consuming 31% less energy but generating 66% less carbon dioxide. In addition, during this period of time, the EU Gross Domestic Product (GDP) per capita would nevertheless increase by 148%.

It is all well and good to announce such favourable developments. But how likely are they to happen? To analyse the prognosis, it is useful to recall *Kaya’s identity*. This too-little-known formula<sup>1</sup> links the level of CO<sub>2</sub> emissions (C) to the main parameters that impact upon it. It goes as follows:

$$C = \frac{C}{E} \times \frac{E}{G} \times \frac{G}{P} \times P \quad (1)$$

E, G and P stand for energy consumption, GDP and population respectively. Since this equation reduces to C = C after all simplifications have been performed, nobody can question its validity. Relation (1) fulfils two useful tasks. First, it introduces the parameters – in addition to population – that are actually relevant here: the carbon content of energy (C/E), the energy content of GDP (E/G) and the GDP per capita (G/P). Please note that the relation is applicable globally either to the whole world, to a town, a country or a group of countries. Second, it helps highlight the fact that the meaningful parameters cannot be acted upon independently. To see how this is true, the identity must be adapted to account for small variations in the above factors. With the help of a little maths one can transform it into the following relation:

$$\frac{\delta C}{C} = \frac{\delta(C/E)}{C/E} + \frac{\delta(E/G)}{E/G} + \frac{\delta(G/P)}{G/P} + \frac{\delta P}{P} \quad (2)$$

In plain English, the relative (%) changes in CO<sub>2</sub> emissions are constrained by the

relative changes in carbon content of energy, energy content of GDP, GDP per capita and population. It is worthwhile observing that the rate of population change is imposed but not known accurately when applied to periods of time exceeding one generation (25 years). GDP growth is, similarly, not well under control, but it is clearly desirable to maintain it at a healthy level (say, not below 2%). At the end of the day, the only parameters which we can hope to influence are carbon intensity (C/E) and energy intensity (E/G).

Let us now apply relation (2) to the EU figures. The target of reducing CO<sub>2</sub> emissions by 70% by 2050 translates into a yearly reduction of 2.64%. Hence:

$$\frac{\delta C}{C} = -2.64\%$$

The EU population in the above-mentioned study is assumed to peak at around 2010 and then decrease slightly over the next forty years. Over the latter period, this corresponds to a yearly decrease of 0.2%.

$$\frac{\delta P}{P} = -0.2\%$$

Finally, a 2.3 % yearly growth rate of GDP per capita is assumed. Applying these figures to relation (2) yields the following:

$$\frac{\delta(C/E)}{C/E} + \frac{\delta(E/G)}{E/G} = -4.74\%$$

In other words, reducing CO<sub>2</sub> emissions by 70% while allowing the EU population to enjoy a 2.3% yearly increase in GDP, implies that the combined decrease of carbon content of energy and the energy content of GDP is maintained close to 5% per year. There is no escape clause: if the latter conditions are not fulfilled, the former objectives cannot be met<sup>2</sup>.

The above relation and the ensuing considerations shed useful light on the CO<sub>2</sub> reduction debate. I shall restrict myself to the following observations:

- Starting with sets of figures describing the evolution of C, E, G and P over time will automatically satisfy relation (2) since it is an identity, but this won't help. To serve any purpose, *Kaya's identity* must be used in conjunction with independent estimates of what would be achievable in terms of decrease in energy content of GDP and carbon content of energy. Once these estimates have been obtained, they should be used as input to relation (2) to see if they balance out and used to fine-tune the target rates if they don't.
- Technical and financial constraints are factors to be taken into account when performing the independent assessments mentioned above: availability of (renewable) resources, technical integration of those resources in an overall energy generation system and cost of implementation. One would be hard-pressed to find any analysis of these factors in any anti-nuclear report.
- Based on recent trends, the European Commission expects a 1.6% yearly decrease in energy intensity over the next thirty years. The figures found in the

above-mentioned anti-nuclear study lead to 3.16% per year, almost double the EC value. It remains to be explained, therefore, precisely what would permit such a quantum leap in energy efficiency to occur. Should the EC be proven right, and assuming that the rate of decrease of carbon content and the same population change are applicable, *Kaya's identity* tells us that GDP growth in the EU would *have to be limited to 0.74%* ( $2.3\% - 3.16\% + 1.6\%$ ) in order to stick to the initial CO<sub>2</sub> reduction objective. Few would consider this a rosy prospect.

To produce papers stating that we can achieve yearly decreases in carbon content and energy content close to 5% is one thing. The devil being in the detail, it is also necessary to be extremely concrete about how this is going to happen and why it will happen in the future - all the more so when the evidence available does not support the objective submitted. Failing that, any report that draws a roadmap to a carbon-poor future will be about as useful as advice about how to fit four elephants in a small car.

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<sup>1</sup> First published in 1989, Kaya's identity is recalled only in pro-nuclear or neutral literature. It is as though its inescapable logic was seen by the anti-nuclear camp more as a hindrance than as a tool for analysis, which it is in fact.

<sup>2</sup> If the whole world had been considered, the conditions would have been even more stringent: the population rate of change would have jumped from -0.1% to +0.85% (almost a 1% increase) and some emerging countries seem all set to exceed the 2.3% yearly increase in GDP.

<sup>3</sup> This is already fairly optimistic since the past 30 years to 2000 indicate a rate of roughly 1.3%. See Annex 3 of the EC's Green Paper on Energy Efficiency 'How to do more with less' document COM(2005) 265 final of 22 June 2005.

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## European Nuclear Society

e-news Issue 11 Winter 2006

<http://www.euronuclear.org/e-news/e-news-11/etrap.htm>

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3rd international conference on  
**Education and Training  
in Radiological Protection**

Brussels, Belgium, 23-25 November 2005

From 23 to 25 November 2005, **ETRAP2005**, the 3<sup>rd</sup> International conference on Education and Training in Radiological Protection, took place in Brussels. From 25 countries, the conference brought together 150 practitioners and policy makers from the medical and nuclear engineering sector, research institutions and the non-nuclear industry, alongside social scientists, safety experts, regulators, and representatives of national authorities and key international organisations.

**ETRAP2005** aimed to reinforce the contacts between various organisations and individuals dealing with education and training in radiological protection. The conference provided a platform for exchange of experiences and views on education and training policy and questioned issues related to harmonisation of training practice

and of skills recognition. Special attention was paid to the education and training programmes and policy networks currently emerging at the European and global level.

The spectrum of applications and possible impacts of ionising radiation is very wide, covering specific practices and intervention situations. Although working with a variety of responsibilities and specific professional aims, practitioners and interventionists have a triple common need:

- a basic education and training providing the required level of understanding of the physics of radiation and the theory and practice of radiological protection,
- a standard for the recognition of skills and experience,
- an opportunity to fine-tune and test acquired knowledge on a regular basis.

In addition, complying with specific European directives concerning the implementation of a coherent approach to RP E&T becomes crucial in a world of dynamic markets and increasing workers' mobility. The enlargement of the EU by 10 new member states has to be considered as an additional challenge regarding the fulfilment of these requirements.

In this spirit, **ETRAP2005** showed a common readiness to provide a coherent answer to the above mentioned triple need. Discussions during a special plenary session resulted in a conference declaration that was put forward to national and international policy makers at the end of the conference. The declaration identifies 4 elements of key importance :

## **Clarification**

Starting from existing international definitions and guidelines, clarification of the terminology and of the responsibilities of each relevant category of addressee is the main prerequisite for ensuring mutual understanding of the issues at stake.

## **Harmonisation**

Qualifications, the related requirements and methods for assessing them should be harmonised as much as possible, taking into account the need for continuous education and training and the diversity of national approaches. Within this context, confidence building across institutional and national borders is a prerequisite for mutual recognition. One tool that can help build up this confidence is a process of reciprocal peer-reviewing of expertise.

## **Broadening the perspective**

The theory and practice of radiological protection should be embedded within an overall governance of health and safety, and its focus should be widened by including trans-disciplinary aspects such as risk assessment and involvement of stakeholders. An integrated approach to education and training, in this sense, will enable professionals to gain more confidence in their work and to maintain credibility towards stakeholders and the general public.

## International cooperation

International organisations should continue to initiate and foster projects and networks relating to education and training in radiological protection. They are urged to ensure synergy between ongoing and new initiatives by establishing the co-ordination of efforts on an international level. With the aid and support of Member States, they should explore conditions to guarantee the sustainability of successful projects and networks beyond their initial support phase. Finally, they are called upon to further develop common standards and requirements in order to ensure an integrated and harmonised approach to education and training in radiological protection.

The full text of the declaration and all papers that were presented during the conference can be found on [www.etrp.net](http://www.etrp.net). This website will also cover all future **ETRAP** conferences and related activities.

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<http://www.euronuclear.org/e-news/e-news-11/pime2006.htm>

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## Pime 2006



**There is still time to register to PIME, so do so without delay!**

**Updated Preliminary Programme and registration form on [www.pime2006.org](http://www.pime2006.org)**

### **DON'T MISS OUT ON:**

- A key event on the nuclear communications calendar bringing together 170 international professionals
- A quality programme with eminent speakers, putting communications excellence centre stage
- Unrivalled opportunities for the exchange of experiences and expertise
- Quality time in Vienna, city of romantic nostalgia

**PROGRAMME HIGHLIGHTS INCLUDE:**

**Chernobyl:** The conclusive UN study on the scale of the 1986 incident

**Nuclear neighbours:** Cross-border relations between nuclear and non-nuclear neighbours

**Meet the media:** What journalists think about nuclear communications

**An environmentalist's view:** Bruno Comby, founder of Environmentalists for Nuclear Energy

**Public perception:** Recent studies conducted by the European Commission, Nuclear Energy Institute (USA), and National Centre for Scientific Research (France)

**Nuclear prospects in Europe:** The policy analysis of King's College (UK)

**Global nuclear future:** Fatih Birol, Chief Economist of the OECD/IEA, on the global energy package; and Burton Richter, Stanford University Professor and Nobel Prize Laureate, on the key issues that will shape the nuclear future

**INFORMATION EXHIBITION:**

Let's get to know one another better! Do you wish to present the work of your organisation to a wider audience? Prepare an information display (website, poster...) for the PIME Information Exhibition. Please contact the Conference Secretariat by 3 February at [pime2006@euronuclear.org](mailto:pime2006@euronuclear.org).

You have until 20 January 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](mailto:pime2006@euronuclear.org).

***PIME 2006 will take place from 12 to 16 February in Vienna, hosted by the IAEA and sponsored by the OECD/NEA and FORATOM.***

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**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-11/rrfm2006.htm>

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## RRFM 2006



## The Preliminary Programme is now on-line!

[www.rrfm2006.org](http://www.rrfm2006.org)

The preliminary programme covers issues of specific interest to all members of the research reactor community, in particular:

- Progress in the new very-high density fuels (U-Mo) development, both monolithic and dispersed. Various methods and attempts to explain the observed swelling of the dispersed fuel and how to avoid it
- International initiatives to address proliferation concerns: Update on GTRI and the new US GAP materials program
- Overview of global TRIGA activities
- Fuel management for research reactors
- Innovative methods in research reactor analysis
- Progress on reconstruction of the IRT research reactor in Sofia

*RRFM 2006 will take place from 30 April to 4 May 2006 in Sofia, Bulgaria.*

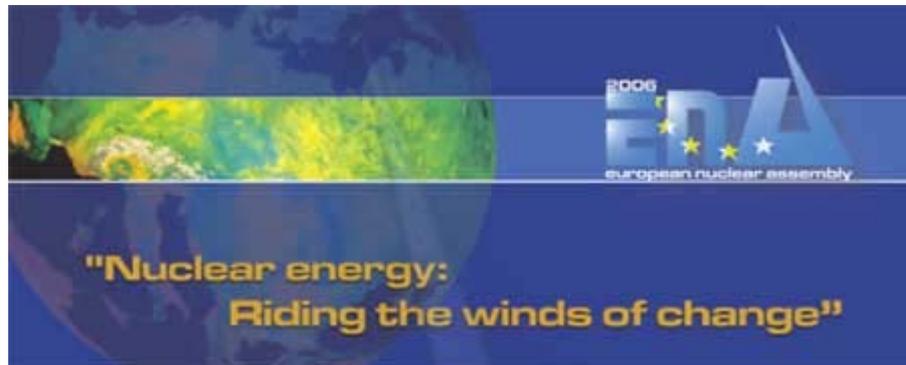
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**Research Reactor Fuel Management (RRFM):**  
*The key event for the international research reactor community*

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<http://www.euronuclear.org/e-news/e-news-11/ena.htm>

ENS EVENTS  
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## **Second bi-annual conference on 28-29 March 2006 Mariott Hotel, Brussels Belgium**

Rising oil and gas prices are unsustainable. Climate change continues to threaten the environment. Energy demand continues to spiral. The current energy mix cannot adequately meet that demand, so the specter of power cuts and black-outs could return to haunt us.

The scenario is a familiar one. The economic and environmental challenges remain the same. But the energy debate has a new sense of direction and impetus. Economists, scientists, politicians and environmentalists are increasingly recognizing that nuclear energy is the only major energy source that can provide a secure supply of affordable and environmentally-friendly electricity. The time is ripe for the nuclear community to seize the initiative.

The European Nuclear Assembly (ENA), a biannual conference organized by FORATOM, provides an ideal opportunity for politicians, industry experts, scientists and stakeholder representatives from around the world to discuss the nuclear issues that really count and to focus not on problems, but on solutions. It also provides the nuclear community with a platform for stating the nuclear case loud and clear and for communicating to policy-makers and the public the message that nuclear energy is a central part of the solution.

Note down the dates in your diary now and make sure that you are part of the debate on the present and the future of the nuclear industry.

### **Who should attend**

**MEPs - officials from the European Commission - Permanent Representatives from the Member States - journalists - the CEOs, directors and managers of nuclear power-generating companies - energy and business policy-makers.**

## Conference President

**Mike Parker, CEO of the British Nuclear Fuels plc.**

## Conference Venue

**Mariott Hotel**

## Media

**Journalists are welcome to attend the ENA, during which a press conference will also take place.**

 [download programme](#)



<http://www.euronuclear.org/e-news/e-news-11/romanian.htm>

MEMBER SOCIETIES  
MEMBER SOCIETIES

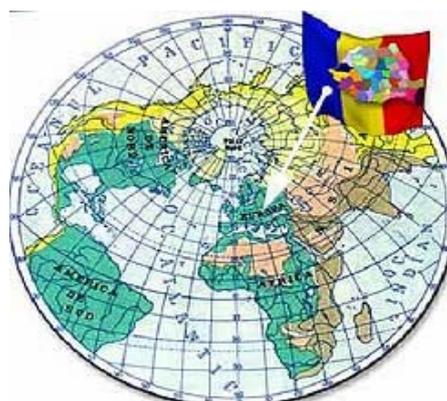
# MODERNIZING ROMANIAN NUCLEAR EDUCATION AND TRAINING SYSTEMS

**Mihail Ceclan**

Programmes Department Head – Romanian Nuclear Society (AREN)

Romania, as a candidate country, is waiting for the final report of the European Commission's concerning the achievement of integration criteria in April 2006.

The second round of EU expansion is scheduled on January 1, 2007. However, the Romanian nuclear family has long been ahead of that curve and has already been thinking and acting European for several years.



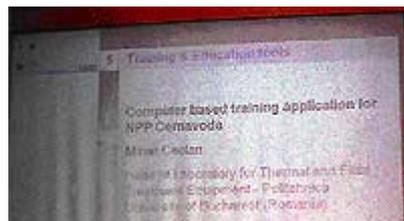
## Modernizing nuclear education and training systems

The emphasis put on modernizing Romanian nuclear Education & Training (E&T) system was discussed during a session dedicated to nuclear E&T at SIEN 2005 (International Symposium on Nuclear Energy) – organized by AREN (Romanian Nuclear Society) and ROMATOM (Romanian Atomic Forum).

In the context of improving nuclear E&T systems, the Romanian National Consortium (RNC) for Training and Education in Nuclear Sciences Platform (TENSP) was created. RNC is based on a partnership between public and private sectors, bringing together the most important stakeholders involved in Romanian Nuclear Sciences E&T: 4 universities, 2 research institutes, 6 professional associations, 2 industrial companies and 2 NGOs, being led by a Directory Council.

RNC is currently working to become a member of EU networks & platforms as well as to participate in future FP-7 projects.

In line with the European point of view regarding the nuclear European Higher Education Area creation, several representatives of RNC attended in November 2005 the ETRAP Conference, in Bussels.



## ETRAP Conference aspects

An original software tool, the e-Learning platform called CBTCenter, already implemented at the training facilities of Cernavoda NPP, was presented.

The main features of CBTCenter are:

- a) Internet/Intranet web application;
- b) online reading;
- c) learning activities assessment, class management;
- d) communication facilities: e-mail, chat, forum;
- e) system administration tool.

## Creating the Knowledge Society Training System

According to the Lisbon strategy, Europe should become "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" by 2010.

This implies creating a Knowledge Society E&T System. But what does that mean? Essentially, it entails the transition from the traditional school to the virtual school as one can see in table 1.

Table 1

### Transition from traditional to virtual school

<b>E&amp;T features</b>	<b>Traditional school</b>	<b>Virtual school</b>
Professor-student interaction	face-to-face	remote interaction
Communication outside the classroom	little to none	Online
Course materials	on paper	electronic support-computer used for reading
Assessment type	subjective	objective - computer used for testing

Certain features of the traditional school should be changed or removed. For example, the main classroom actors (the professor and the student) will no longer interact face-to-face but rather remotely, through the computer.

The virtual school is a paperless school, the course materials on paper being replaced by electronic documents. This way, the computer becomes the main instrument supporting learning. That's why the Computer Based Training or e-Learning concept was introduced.

For some time the two systems (traditional / virtual) should continue to co-exist symbiotically.

In this stage of the process it is necessary to accelerate changes according to the following priorities:

- Developing a public-private partnership;
- ICT integration in E&T
- Creating the infrastructure for a Knowledge Society E&T Systems
- CBT courses and materials
- Assessment of nuclear training needs and capabilities in Romania
- Recognition of competencies and diplomas in light of the EU integration

### Creating the infrastructure of Knowledge Society E&T Systems

The most urgent task of modernizing Romanian nuclear E&T systems is the achievement of a suitable infrastructure, meaning: hardware infrastructure, e-Learning and CBT tools / CBT courses and materials for at least high schools and universities.

CBT and e-Learning always mean two things: a software platform and content authoring. Ideally a software platform should be able to import any type of flat documentation and integrate it into a structured database which keeps track of pedagogically meaningful information like the student's progress in studying

materials, test and quiz results etc. In the same time, the materials, the study and the tests have to be organized around certain objectives which play the role of guidelines during the entire educational activity.

One of the successful Romanian products is *CBTCenter* software platform, achieved at the Laboratory for Fluid Treatment and Thermal Equipment, University Politehnica Bucharest.

Some examples of CBT courses which have been successfully integrated into *CBTCenter* are shown in the table 2.

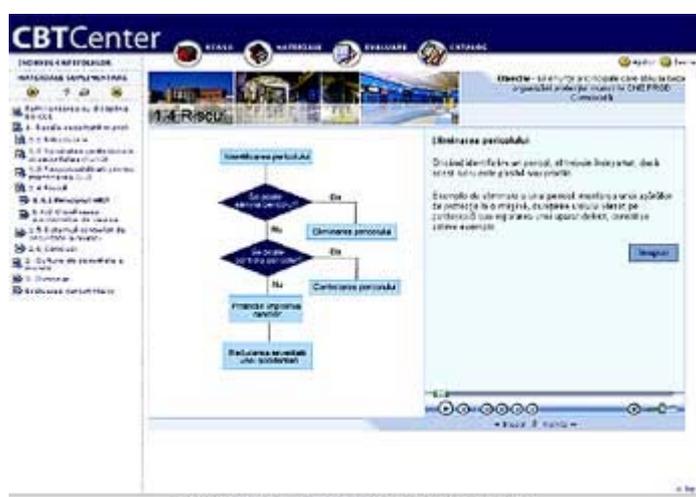
Table 2

### Disciplines / (CBT objects) name

Pos.	Course / CBT object
1	“CBT Center” User Guide
2	NPP emplacement acquaintance
3	NPP- CANDU
4	Work safety
5	Chemical safety
6	Thermodynamics

A typical study screen of *CBTCenter* is shown in figure 1. The first step a trainee has to do after registering into platform is to become familiar with the new training environment, as natural and enjoyable as possible for the new trainee. The courses are structured around objectives and followed by an evaluation test. The trainee is guided towards completing the objectives and assimilating knowledge, by means of text, multimedia elements, narration and quizzes (figure 1). The multimedia elements include figures, flash animations, Java applets and MP3 sound files. All these elements are synchronized for creating a useful and enjoyable interaction.

Each of the actions the student performs during the online study sessions is tracked to allow the instructor to evaluate the student’s level of comprehension. The navigation through the course complies with the current e-Learning and CBT standards. It provides the overview of all documents all the time through the dynamic menu on the left side of the screen. It is important for a trainee not to get lost in the course so that he keeps his level of interest and self-esteem at high levels.

Figure 1: Typical *CBTCenter* study screen

## Conclusions

The Romanian National Consortium (RNC) for Training and Education in Nuclear Sciences Platform (TENSP) is an important achievement of the year 2005 for the Romanian nuclear family and definitely a helpful instrument for an easier EU joining of Romanian stakeholders in E&T fields.

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<http://www.euronuclear.org/e-news/e-news-11/italian-nuclear-society.htm>

MEMBER SOCIETIES  
MEMBER SOCIETIES

## In Memoriam: Professor Carlo Salvetti (1919 – 2005)

In February last year, the European nuclear community lost one of its most respected and distinguished friends. Professor Carlo Salvetti sadly passed away on 11 February, aged 86, while still serving as Vice President of the Italian Nuclear Society (AIN – Associazione Italiana Nucleare). ENS NEWS would like to pay tribute to the inestimable contribution that Carlo made during a lifetime spent furthering the cause of nuclear science and the nuclear industry in Italy. The best possible way of paying tribute to Carlo, his contribution and his legacy, is to give the final word to those who knew him best. Enrico Mainardi and Ugo Spezia, two members of AIN and ENS, take an affectionate look back at the life and times of one of Italy's leading nuclear pioneers and a redoubtable supporter of the nuclear industry.



Professor Carlo Salvetti

Their story begins in 1945, the day after the first nuclear bombs were dropped on Hiroshima and Nagasaki. Enrico and Ugo take up the story.....

“The day after the first nuclear bombs were dropped on Japan, Girogio Valerio and Vittorio De Basi - President and Managing Director of Edison - asked Mario Silvestri to investigate the possible future development of nuclear energy. Silvestri was joined by Professor Giuseppe Bolla and his two young assistants, Giorgio Salvini and a 27-year old researcher called Carlo Salvetti. In the spring of 1946, Salvini and Salvetti proposed a three-step research programme. The first step was to create a group of research experts. The next step was to build a zero-power atomic battery, like the one CP-1 developed by Fermi, in Chicago, in 1942. The final step was to build a mini reactor, “made in Italy.”

At that time, the peace treaty that put a final end to World War II was being finalized in Paris. In September 1946, Bolla, Silvestri, Salvini and Salvetti set off for Paris to find out whether, among the numerous clauses of the peace treaty there was anything that prohibited the development – for peaceful purposes - of nuclear. The four colleagues had no official mandate for being there and didn't know who to speak to. Silvestri decided, for want of a better alternative, to contact a journalist he knew at the Italian daily *Corriere della Sera*, which was accredited to the official Italian delegation to the Paris peace treaty negotiations. The journalist put them into contact with a member of the Italian delegation, Ivanoe Bonomi, the ex-Prime Minister of Italy. The 'group of four' visited Bonomi. Although Bonomi knew very little about what they were talking, he gave them a copy of the draft peace treaty. The treaty revealed that the Belgian delegation had insisted that a clause forbidding the military use of nuclear be included. The four Italian researchers told Bonomi to adopt a low profile on this point and only to discuss it if the intention was to forbid nuclear was extended to include peaceful applications of nuclear energy.

Once back in Italy, our four intrepid researchers lobbied the management of Edisonvolta and persuaded them that investing in nuclear would be a good business move. As a result, a special research company called CISE (Center for Information, Study and Experimentation) was formed, in Milan, in November 1946. Carlo Salvetti later recalled "I thought at the time that it was better not to reveal too much about what we were doing."

The creation of CISE was the first step in the development a nuclear industry in Italy and it was private industry that started the ball rolling. Originally, three private companies were involved in creating the fledgling industry, Edisonvolta, FIAT and Cogne. Four more companies later joined the enterprise, Montecatini, the power generating company SADE (Societa Adriatica d'Elettricit ), Pirelli and Falck.

From the outset, CISE was able to enlist the support of eminent physicists like Edoardo Amaldi (part of a Roman team led by Fermi), Gilberto Bernardini and Bruno Ferretti. Amaldi, Bernardini, Ferretti were joined on the Board of Directors of the newly-formed CISE by De Biasi and Gustavo Colonetti, president of the CNR (National research Centre). Unfortunately, the CNR were not able to support the venture with funds for research. The final piece in the CISE jigsaw puzzle was the hiring of Felice Ippolito, a geologist who specialized in minerals. Ippolito brought with him the support of the steel company Terni, which was chaired by his father, and of the power generating company SME (Societa Meridionale d'Elettricit ).

In 1952, the CNRN (the National Committee for Nuclear Research) was created. The CNRN then became known as the CNEN (the National Committee for Nuclear Energy). Finally, the CNEN became known as ENEA (Ente per le Nuove Tecnologie, l'Energia e l'Ambiente). Prior to 1952, CISE was the only Italian research institute dedicated to the advancement of nuclear technologies and to the development of a genuinely independent nuclear research programme.

In 1957, anticipating the lack of funding that was inevitably going to affect CISE and limit its chances of developing nuclear technology, Carlo Salvetti decided to join the CNRN. Carlo was responsible for developing the Ispra Nuclear Centre and became its first Director General. Ispra later became part of Euratom and remains today one of the European Commission's Joint Research Centre facilities. Carlo was against the move from the start and strongly criticized the "handing over" of Ispra to Euratom.



In 1959, Carlo was named Director of Research and Laboratories at the UN's International Atomic Energy Agency (IAEA), in Vienna. From 1962-1970, he was Governor of the Italian delegation to the IAEA and President of the Governors' Council from 1963-1964.

Carlo Salvetti was then elected Vice president of the CNEN and entrusted with the job of rebuilding the organization. From 1963-1980, Carlo worked tirelessly at the CNEN. The President of the CNEN was also the Italian government's Minister for Industry. Italy invested strongly in nuclear energy and these were undoubtedly the halcyon days of the Italian nuclear industry.

Professor Carlo Salvetti devoted sixty years of his life to the cause of nuclear research and to the development of the Italian nuclear industry and was still active when he died, in February last year. Thanks to his enormous contribution, a whole generation of physicists and nuclear engineers has been nurtured and trained. This is part of his enduring legacy. His pioneering spirit, enthusiasm and dedication made him a unique figure in post-war Italian research.

Before he died, Carlo learnt that the current Italian Prime Minister, Silvio Berlusconi, had advised that the nuclear debate in Italy should be reopened after years of stagnation following the Chernobyl-inspired moratorium on nuclear energy. He must have thought "about time too...too little too late." To say that Carlo will be sorely missed is an understatement of nuclear proportions.

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<http://www.euronuclear.org/e-news/e-news-11/abagyan.htm>

MEMBER SOCIETIES

## European nuclear community mourns loss of Armen Abagyan.

In November 2005, the nuclear community was hit by the tragic news that an old colleague and friend, Dr. Armen Artavazdanovich Abagyan had died in Moscow. His death at the age of 72 (his wife also perished in the fire) was a real shock not just to his family, but also to his many friends and partners in science across Europe. Indeed, one month earlier he had met spoken to many of those friends in Budapest, where he received the WANO (World Association of Nuclear Operators) Nuclear Excellence Award. The award was a fitting recognition of an illustrious career in the nuclear industry that spanned over fifty years.



Armen Abagyan

Armen, an Armenian, was born in 1933, in the Nagorny Karabakh region of the Soviet Union. After graduating from Moscow's University of Engineering and Physics, in 1956, he started working for the Institute of Physical and Power Engineering, in Obninsk. He left the Institute in 1976, to begin working at the Russian Institute for Nuclear Power Plant Operations, VNIIAES. His was specialized in the field of radiation safety and power plant operations. That year, Armen was nominated Deputy Director General of Rosenergoatom (the state-owned company that operates all nuclear power plants in Russia) a position that he held until his death.

In 1986, he was among the first specialists to arrive on the scene at Chernobyl, following the accident that occurred on that fateful April day. The papers that he wrote about the Chernobyl accident contributed greatly to industry's understanding of what were the root causes of the accident. His pioneering work on nuclear safety helped to develop scientific and technical safety measures that should prevent accidents like the one at Chernobyl from ever happening again.

Armen Abagyan continued to work in the nuclear safety field, developing full-scale simulators that are still used today to train power plant personnel. He was a founder member (and later a member of the Board of Governors) of the World Association of Nuclear Operators (WANO), which was created in the aftermath of the Chernobyl disaster. Other positions that he held during his career included being a member of the Nuclear Energy Commission of the Russian Academy of Sciences, a member of the European Nuclear Council (ENC) and a member of the IAEA's INSAG, International Nuclear Safety Advisory Group.

In addition to being an accomplished scientist and one of the world's greatest authorities in his field, Armen was also a wise, friendly and accommodating man with a great sense of humour and humanity. One man who knew him well was Ales John of CEZ, who is Business development Manager at FORATOM. So, let's leave the last word about Armen to Ales:

*I collaborated with Dr. Armen Abagyan in WANO for many years. Armen Artavazdanovich, as I called him, was a friendly man who like good company and enjoyed a good meal with his friends. He was also a devoted family man. One thing that I particularly remember about Armen was his ability to explain complicated issues very simply and clearly. Many times I also asked him advice regarding sensitive Russian issues because of his deep knowledge and love of Russian culture and his understanding of the country's soul and customs. He always gave me sound advice. Last time I met him, at the presentation of his WANO Nuclear Excellence award he said how very proud he was to have received it.*

*It is the great pity that he passed away. You cannot get much better than him.*

<http://www.euronuclear.org/e-news/e-news-11/dg-tren+rtd.htm>

EUROPEAN INSTITUTIONS

## New Director Generals at DG TREN and DG RTD

A major reshuffle of senior officials at the Commission took place last month as part of a standard procedure for periodically rotating senior posts within the European institutions. Here are the changes that affect DG TREN and DG RTD:

### Matthias Ruete is the new Director General of DG TREN



Matthias Ruete  
Director General

Matthias Ruete is the new Director General for Energy and Transport. He is a lawyer by training and a very experienced European official, with 20 years service. He was previously Director of Directorate A, "*Coordination of Competitiveness*," DG Enterprise. He speaks French and has an excellent reputation for efficiency and output. He was

previously Commissioner Günter Verheugen's right-hand man at DG Enlargement with responsibility for coordination and the drafting of strategic documents. Like Mr. Verheugen, he has German Social Democrat (SPD) political leanings. Matthias Ruete was very active on the Turkish dossier in 2004. According to one former colleague, "*He is a man of compromise.*"

Earlier in his career, he was attached to the old DG III, Industry, where he served as Deputy Head of Cabinet in Edith Cresson's Cabinet (François Lamoureux was the Head of Cabinet). He also worked in the old DG VII, Transport, where he was in charge of the Trans-European Networks TENs).

With regards to experience of nuclear energy matters, Matthias Ruete worked in the field of radiation protection, in Luxembourg, in the late 80's, in particular on the formulation of post-Chernobyl legislation (the restriction of contaminated foodstuffs from Central and Eastern Europe).

Here is a copy of his CV.

Nationality:	German
Education:	1984: Dr. Juris, University of Giessen, Law faculty 1978-1979: LLM (Lon), University of London 1975-1978: Assessor Juris (Second State Exam in Law), Government of Hessen 1968-1975: Law degree and bar studies, university of Marburg, Köln, Berlin, Giessen

Professional experience in the European Institutions:	<p><i>2006-date:</i> Director General DG « Energy and Transports »</p> <p><i>2005:</i> Director DG « Enterprise and Industry », « Coordination for Competitiveness »</p> <p><i>July 2003-December 2004:</i> Director DG « Enlargement », « Bulgaria, Romania, Turkey and coordination »</p> <p><i>May 2000-July 2003:</i> Director DG « Enlargement », « Coordination of negotiations, pre-accession and financial instruments »</p> <p><i>1998-2000:</i> Director DG « Energy and Transport », « International relations, trans-European transport and infrastructure networks »</p> <p><i>1995-1998:</i> member, afterwards deputy head of cabinet – Cabinet of the Commissioner for Research, Innovation and Education.</p> <p><i>1993-1995:</i> Head of Unit DG «Industry » «Industrial co-operation »</p> <p><i>1987-1993:</i> Administrator, afterwards assistant to Director general DG « Internal Market and industrial Affairs »</p> <p><i>1986-1987:</i> Administrator DG « Social Affairs »</p>
Professional experience before joining the European Institutions:	<p><i>1982-1985:</i> Visiting Lecturer in Law, University of Warwick, Coventry, UK</p> <p><i>1979-1982:</i> Scientific Collaborator/Assistant/lecturer at the two Institutes for Public Law (Constitutional; European; International Public Law)</p>

## Other changes within DG TREN:

Prior to the reshuffle, DG TREN had two Deputy Director Generals. One was Hungarian Zoltan Kazatsay, who was given responsibility, one year ago, for coordinating the work of the three directorates responsible for transport activities: TREN.E “*Inland Transport*”, TREN.F “*Air Transport*” and TREN.G “*Maritime and River Transport; Intermodality*”. The other Deputy Director General is Fernando de Esteban, who is responsible for the coordination of nuclear activities in Luxembourg. He is in charge of two Directorates: TREN.H “*Nuclear Energy*” and TREN.I “*Nuclear Safeguards*.” Mr. de Esteban will retire next August.

In addition, President Barroso has decided to create a third post of Deputy Director General at DG.TREN. The new Deputy Director General will be responsible for energy activities covering Directorates TREN.C *Conventional Sources of Energy* and TREN.D *New & Renewable Sources of Energy, Demand Management & Sustainable Development*, in Brussels. This new post has been entrusted to Fabrizio Barbaso, who was acting Director General for Enlargement since 2003. Fabrizio Barbaso previously worked for several Italian Commissioners, including Carlo Ripa di Meana (Environment) and for many Directorate Generals (Industry, External Relations and Agriculture. He will be the key figure in the field of non-nuclear energy policy within DG.TREN.

The other significant changes that have been made to the DG’s organization chart are as follows:

- Three new Assistants to the Director General have been nominated. They are Christine Berg, Filip Cornelis and Eddy Liégeois (Eddy Liegois was a member of the previous team)
- At Directorate D *New and Renewable Sources of Energy, Demand Management and Sustainable Development*, Gonzalo Molina Igartua has been replaced as Advisor to the Director by the Austrian Karl Kellner, who was previously Head of Unit D.2 *Management of RTD Energy Programmes* (in

2000 he was Head of Unit for nuclear energy in 2000). Gonzalo Molina Igartua replaces Karl Kellner as Head of Unit, D.2.

- At Directorate F Air Transport, Unit F.4 *Air Transport Agreements* now also covers policy relating to *Modernisation of Air Traffic Control*.
- At Directorate G *Maritime and River Transport; Intermodality*, Unit G.2 *Inland Navigation and Ports* is no longer in charge of the Short Sea Shipping file.

It is worth noting that no changes have yet been announced with regard to Directorates TREN.H Nuclear Energy, TREN.I Nuclear Safeguards and TREN.J Security - Protection of Persons, of the Assets and the Facilities.

For full details of the new DG TREN Organisation Chart visit the DG' website on:

 [download](#)

## **José Manuel Silva Rodriguez is the new Director General of DG RTD**



José Manuel Silva Rodriguez  
Director General

The new Director General for Research (DG RTD) is the Spaniard José Manuel Silva Rodriguez, who was previously Director General for Agriculture. His successor in his former post is Frenchman Jean-Luc Demarty, who was previously Deputy Director General at DG Agriculture with responsibility for agricultural legislation, resources management and auditing of farming expenditure. Mr. Silva Rodriguez is an agricultural engineer. Like Matthias Ruete, he too has 20 years of experience at the European Commission.

Here is his CV.

### **José Manuel SILVA RODRIGUEZ**

Born in Chantada (Spain) 25/10/1949

Married – 2 children

Studies :

- Agricultural engineer (ETSI AGRONOMOS – Madrid) - 1973
- Degree in External trade (CEU-Madrid) - 1977
- Diploma in European Communities (CEPADE-Madrid) - 1983

### **Previous positions**

From 1971 until he joined SOIVRE (Servicio Oficial de Inspección, Vigilancia y

Regulación de las Exportaciones – the Spanish Customs Inspection Service), as an inspector in the Ministry of Economy and Trade, he was a professor at the School of Agricultural Engineers in Madrid and worked in the private sector in export companies as well as on animal food projects.

### **Ministry of Economy and Trade (Madrid)**

Employed in the Directorate general of Internal Trade and in the Directorate General for Trade Policy.

1979-1982

### **Secreteria de estado (Madrid)**

Counsellor in agricultural affairs and member of the delegation for the Spanish accession negotiations.

1983-1986

### **European Commission**

Since 1986, he has worked in the following posts :

- Member of the Cabinet of Vice-President Manuel Marin - 1986
- Head of unit for processed fruit and vegetables division - 1987-1990
- Head of unit, Tobacco division - 1990
- Head of unit, wine, spirits and derived products division - 1991-1993
- Chief advisor of the Directorate General for Agriculture and Director of the Common Market Organisation for Vegetable Products - 1993-1997
- Deputy Director General of Agriculture responsible for rural development - 1997
- Director General for Agriculture and Rural Development - 1999-2005
- Director General for Research - Jan. 2006

At Directorate RTD.J “*Energy*,” which is headed by the Spaniard Pablo Fernandez Ruiz, the main organizational change announced is in the area of thermo-nuclear fusion. In addition to Unit 5 “*Joint Development of Fusion*” and Unit 6 “*Fusion Association Agreements*,” a new unit (Unit 8) “*Implementation of the European Legal Entity for ITER*,” has been created. It is headed by the Greek official Stavros Chatzipanagiotou.

For full details of the new DG RTD Organisation Chart:

 [download](#)

<http://www.euronuclear.org/e-news/e-news-11/austrian-presidency.htm>

EUROPEAN INSTITUTIONS

## Austrian Presidency reveals its energy policy



For the next six months, Austria will be responsible for pushing through the policy programme of the EU. The Austrian Presidency has indicated that under its stewardship energy policy will be based upon the fundamental principle of sustainability. Its main aim is “to achieve an economically optimal supply of energy sources and raw materials, taking account of security of supply, cost-efficiency and environmental and social acceptability.”

The Austrians will seek to achieve their energy policy objective in three ways:

- By developing the statutory framework for energy and raw material supply
- By developing appropriate instruments in support of a forward-looking energy and raw material planning programme
- By maintaining the technical basis for energy and raw material supply, in particular to protect human life and health and people's living conditions

The focus of energy policy under the Austrian EU Presidency will, therefore, be:

- To increase energy efficiency
- To promote renewable energies
- To improve the functioning of the internal energy market

### Policy areas:

#### Trans-European energy networks (TENs)

Political agreement has already been reached on a common Council position with regard to TENs. It seems likely that agreement will be reached with the European Parliament at Second Reading. The final steps may occur during the Austrian Presidency.

The implementation of an open, fiercely competitive internal market for energy gives rise to the necessity to expand the required infrastructure for energy networks EU-wide. The European Parliament and the Council have therefore adopted guidelines for trans-European energy networks and identified projects for electricity and natural

gas pipelines of common European interest. As a result of the accession of 10 new Member States, these guidelines for trans-European networks need to be amended, taking particular account of the situation of the accession countries, and provision for financing projects of common European interest. The proposal for new guidelines contains projects of European interest whose implementation would make an important contribution to an efficient and appropriately structured energy network, and contribute to the security of supply for the whole of Europe, as well as the further development of the European internal market. Agreement now needs to be reached quickly with the European Parliament.

### **Promotion of electricity generation from renewable energy sources**

The European Commission will analyze the reports from the Member States and submit a summary report to the European Parliament and the Council by 31 December 2005 on the implementation of the directive in question.

The report will highlight progress in internalizing the external costs of electricity generated from non-renewable energy sources and the impact of public subsidies on electricity generation. It will also discuss Member States' prospects of achieving the national indicative targets set in the directive, the global indicative target and any unequal treatment of energy sources.

### **Progress in the creation of the internal market for electricity and natural gas**

The reports provided for in the directives mentioned above, which have to contain a detailed presentation of progress in creating the internal market for electricity and natural gas, have to be submitted by the European Commission to the European Parliament and the Council by 1 January 2006 at the latest.

### **Improvement of energy end-use efficiency**

Political agreement on a common position has already been reached. Efforts will be made to achieve an agreement with the European Parliament (EP) on second reading under the UK Presidency, but so far the positions of the Commission and the EP on the one hand and the Council on the other are widely divergent. Work on the proposed legal act may therefore continue into the Austrian Presidency.

### **Biomass action plan**

The Action Plan has been announced for the final quarter of 2005.

The European Commission's Biomass Action Plan (BAP) is intended to contribute to ensuring that the quantities of biomass required to achieve the EU's overall target for a doubling of the share of renewable energy sources in primary energy consumption, from the current approximately six per cent to twelve per cent by 2010, are actually mobilised.

The Biomass Action Plan will take the form of a Communication to the European Parliament and the Council and contain recommendations for measures to increase biomass use for energy purposes in the EU 25.

### **Green Paper on energy efficiency**

Official title: European Commission Green Paper on Energy Efficiency or Doing

more with less.

The Green Paper on energy efficiency was submitted by the Commission at the end of June 2005.

 [download Green Paper on energy efficiency](#)

## **Green Paper on security of supply**

In the framework of the EU's energy relations with non-member countries, the European Commission is expected to submit a Green Paper by the end of 2005 on security of supply, which will probably follow on from the issues in the 2000 Green Paper. The Commission is likely to place even greater emphasis in this paper on energy supply aspects in an overall European context, in particular cooperation with its most important supplier countries and regions, such as Russia and the Middle East.

## **South East Europe Energy Community**

The priorities in relation to external energy relations depend on progress made under the UK Presidency.

It is important to note, however, that Austria was granted both the temporary and permanent seat of the secretariat of this Community at the Ministerial Conference of the South East Europe Energy Community on 13 December 2004, chaired by the Federal Ministry of Economics and Labour (BMWA). The temporary secretariat has already taken up its duties. It will be transformed into a permanent body when an international treaty, which has already been negotiated, comes into effect as planned in 2006. This means that a fourth major international energy institution will be based in Vienna, alongside OPEC, the International Atomic Energy Agency and the Renewable Energy and Energy Efficiency Partnership (REEEP).

## **Austrian Conference Energy Paths - Horizon 2050**

The conference "Energy Paths - Horizon 2050" (in which the Federal Ministry for Transport, Innovation and Technology will participate) is scheduled to take place on 16 March 2006 in the Auersperg Palace in Vienna: at this event, options for sustainable energy supply within this time horizon will be advanced and discussed, with the focus on the necessary technology choices this implies.

Security of supply and environmental compatibility are key themes of European energy policy and also for the Austrian EU Presidency. The technology policy measures concerned include, in particular, the preparation of the Framework Programme of Research, Technological Development and Demonstration and its sub-programmes; the establishment of structures such as the technology platforms and joint technology initiatives.

Additional information on energy policy objectives can be found on the Austrian Presidency's official website at: [www.eu2006.at/en/](http://www.eu2006.at/en/). The website has no section specifically dedicated to R&D policy.

**ENS NEWS** will continue to report on the progress of energy policy under the current Presidency and report on all developments relating to research, including the 7th Framework Programme and the accession of Euratom to the GIF.

<http://www.euronuclear.org/e-news/e-news-11/cop-11.htm>

ENS WORLD NEWS

# COP 11 & COP/MOP 1

## Introduction:

The eleventh Conference of the Parties (COP 11) to the UN Framework Convention on Climate Change (UNFCCC) and the first Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol



(COP/MOP 1) took place in Montreal, Canada, from 28 November to 10 December 2005. The event drew 9500 participants, including 2800 government officials, over 5800 representatives of UN bodies and agencies, intergovernmental organisations and non-governmental organisations, and 817 accredited members of the media.

## Summary:

At COP/MOP 1, parties discussed and adopted decisions on the outstanding operational details of the Kyoto Protocol, including a package of decisions known as the “Marrakech Accords.” These decisions contain guidelines for how the Protocol will function, such as those relating to the “flexible mechanisms” intended to help parties reach their emissions targets in a cost-effective way, and a compliance mechanism. COP/MOP 1 also took decisions on a process for considering further commitments for post-2012, when the Protocol’s first commitment period ends. Various methodological, administrative, financial and institutional matters were also considered.

COP 11 addressed issues such as capacity building, technology development and transfer, the adverse effects of climate change on developing and least developed countries, and several financial and budget-related issues, including guidelines to the Global Environment Facility (GEF), which serves as the Convention’s financial mechanism. After lengthy negotiations, the COP also agreed on a process for considering future action beyond 2012 under the UNFCCC.

The COP and COP/MOP were assisted in their work by the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA), which met from 29 November to 6 December. There were also over a twenty contact groups formed to help advance discussions, and a large number of informal consultations.

A joint COP and COP/MOP high-level segment was held from 7-9 December. Over 120 ministers and other high-level government officials made statements, along with senior representatives of observer organisations, UN bodies, specialised agencies and other stakeholders. Over 140 “side events” were held on a range of climate change

topics, (reports can be found at [www.iisd.ca/climate/cop11/enbots/](http://www.iisd.ca/climate/cop11/enbots/)). There were also several major “parallel events” organised with assistance from the host government, as well as numerous other climate and energy-related exhibits, displays, launches and initiatives.

In his closing comments early in the morning on 10 December, COP President Stéphane Dion declared the meetings a success, expressing satisfaction that they had avoided so many potential pitfalls and achieved a consensus outcome. With the Kyoto Protocol now operational and a post-2012 path now envisaged, most participants agreed that COP 11 and COP/MOP 1 was an important milestone in moving the process forward.

Source: Earth Negotiations Bulletin (Vol. 12 No. 291)

## Significant Decisions

The negotiations in Montreal resulted in a total of 40 decisions being made. Here is a brief summary of the main outcomes:

- The parties to the Kyoto Protocol agreed to set up a working group to start discussions on fixing larger emission cuts by industrialised countries after 2012. The group will meet for the first time next May. Its brief is to ensure continuity during the 2008-12 commitment period and beyond. By announcing that emission reductions will continue after 2012, the agreement reaffirms the Kyoto Protocol as the central driving force behind global climate change policy. It also sends a strong signal that carbon emissions will continue to have a market value in the future
- The parties to the Protocol's parent climate change Convention have, in parallel, agreed to take part in a dialogue on the long-term actions required to tackle climate change and to report back to the next COP but one - in other words around the end of 2007
- The key significance of this “parallel negotiations track” is that it will include developing countries and “Kyoto-refusenik” nations, like the USA and Australia. It keeps open the future possibility of a broader global negotiations framework involving all parties
- The Marrakech Accords, or "Kyoto rule-book", were adopted, strengthening the legal framework for implementing the Protocol. Key elements of the rule book include agreements on a compliance regime to enforce the Protocol's rules, a stronger and better funded clean development mechanism (CDM) and the launch of a joint implementation (JI) process
- The parties also agreed to launch a process for reviewing the Kyoto Protocol. The process will kick-off at the next annual conference, in late 2006
- Under the Protocol's parent Convention, parties agreed a five-year work programme for identifying the impacts of climate change and adapting to it. A one-year process for defining how the Convention's adaptation fund will be operated was also launched. The parties reaffirmed the importance of technology development and transfer and agreed to start talks on possible support for forestation and reforestation

## Nuclear highlights

COP 11 & COP/MOP 1 marked the return of a large nuclear delegation to the international climate change negotiations for the first time since COP 7 in Marrakech, in 2001. Approximately 30 representatives from the world's nuclear industry participated, including a strong contingent from the European Nuclear Society Young Generation Network (ENS YGN) and the North American Young Generation in Nuclear (NA-YGN) network.



The nuclear industry manned two exhibition stands during the conference. One was located at the official UN venue and the other in a nearby site hosted by the Canadian government. Both stands were staffed by members of the NA-YGN. They provided visitors with general information about nuclear energy and its contribution to mitigating climate change, as well as with an opportunity to ask any questions on the subject. The stands proved popular, with plenty of visitors passing by. The stand at the UN venue was also popular with the international media.

In addition to the exhibition stands, the ENS YGN & NA-YGN organised an official evening side event, on 5 December. The event, which was entitled *Let's Take a Fresh Look at Nuclear as Part of the Solution*, was organised to present the facts and to highlight the main concerns that will underpin a constructive debate on deciding what criteria and values should be applied when determining nuclear energy's role in addressing environmental and economic issues. At the event, a presentation was given by Dr. Patrick Moore (the former founder of Greenpeace, well-known environmentalist and advocate of nuclear energy) who expressed his views on how nuclear energy must be a central part of the solution to the problem of global warming. The event attracted approximately 120 participants and the ensuing debate was very lively. Unfortunately, the views expressed proved just how polarised the nuclear debate still is.

In addition to the ENS YGN & NA-YGN side event, the Japan Atomic Industrial Forum (JAIF) also organised a side event, on 29 November, called *Clean Energy Technology Transfer in Asia Pacific*. It focused upon the energy situation in Asia-Pacific partner countries, potential clean energy technology transfers and how to remove barriers to such transfers.

On 2 December, the International Atomic Energy Agency (IAEA) and the OECD Nuclear Energy Agency (OECD/NEA) organised an event called *Global Status and Outlook for Nuclear Power*. The event reviewed recent forecasts and national plans, put the spotlight on evolving markets and underlined the impact of greenhouse gas constraints.

On the flip side, the Heinrich Boll Foundation (HBF) organised a panel discussion, on 7 December called *Nuclear Energy - No Solution to Climate Change*. This event sought to counter the growing acceptance around the world of nuclear energy's frontline role in the fight against climate change. A paper attempting to downgrade nuclear energy's contribution was presented by the Heinrich Böll Foundation, a

think-tank affiliated to the German Green party. It gave an overview of nuclear power in the energy sector and tried to undermine nuclear energy's effectiveness. Among the speakers were Rebecca Harms, a German MEP from the Green Party. The event was well-attended by representatives of the nuclear industry. This was particularly noticeable when it came to the questions and answers session. A majority of the questions and comments came from the nuclear industry lobbyists, who attempted to rebuff many of the panellists' assertions and eventually placed a cloud of doubt over the statements that the panellists made. Once again, the polarised nature of the debate was clear for all to see.

On 7 December, the nuclear industry organised a special reception celebrating the 11<sup>th</sup> anniversary of the forming of the Convention of the Parties and the achievements of nuclear energy in addressing climate change. The reception brought together government officials, national and regional legislators and industry leaders to informally discuss nuclear energy's climate change credentials and its role in a future global climate change regime. The event was co-sponsored by the Canadian Nuclear Association (CNA), FORATOM, the European Nuclear Society (ENS), the Japan Industrial Atomic Forum (JAIF), the Nuclear Energy Institute (NEI) and the World Nuclear Association (WNA). Around 50 delegates attended.

Here are some useful links:

[UNFCCC](#)

[COP 11 & COP/MOP 1 web pages](#)

[Closing UNFCCC press release](#)

[Decisions adopted by COP 11 and COP/MOP 1](#)

Reactions and statements from EU Environment Commissioner, Stavros Dimas:

[8 December](#)

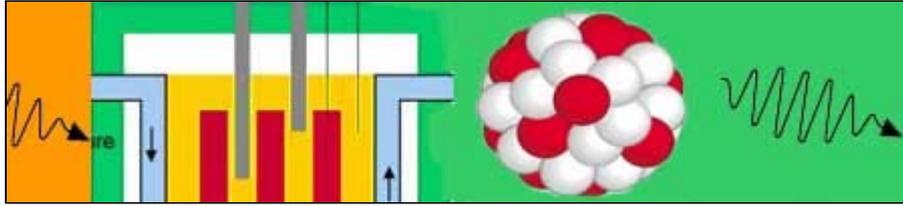
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WORLD News

## Country profile: Bulgaria



### Executive Summary:

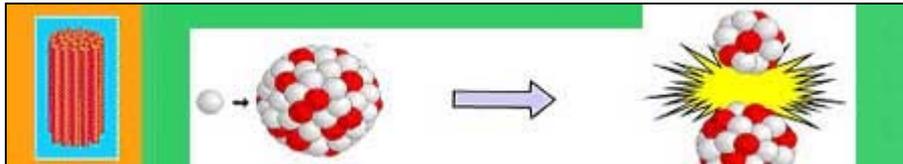
Although Bulgaria has very few energy resources of its own and imports almost all its oil and gas (90%), the country is the leading energy provider in the region. The main energy sources used to produce electricity are coal and nuclear energy. The country covers 60% of the power deficit in South East Europe. Units 3 and 4 of the Kozloduy nuclear power plant (NPP) must be shut down at the beginning of 2007 as a precondition to joining the European Union, although they have been modernised and are now as safe as any Western-type NPP. Units 1 and 2 were closed at the end of 2002 and a modernization plan is being implemented for units 5 and 6. The safety level of Kozloduy NPP has been recognized as satisfactory by the European Parliament (EP). The EP has also expressed its concern that the premature closure of units 3 and 4 could threaten energy security of supply in South East Europe. Bulgaria operates only one NPP, but is planning to build a 2000-megawatt unit in Belene by 2011. According to Bulgaria's Energy Strategy, the building of a new NPP is mandatory to maintain the country's energy balance and to ensure security of supply in South East Europe after the closure of Kozloduy's units 3 and 4. The EU safety assessment studies conducted there were declared satisfactory. Moreover, nuclear power in Bulgaria helps the country meet the targets of the Kyoto protocol, which it ratified in 2002. Public opinion strongly supports nuclear energy. 90% of the Bulgarians insist that the government should renegotiate the closure of Kozloduy NPP units 3 and 4 and 70% back the project to build a second NPP in Belene.

### Security of supply:

Bulgaria has very few energy resources. Proven oil and gas reserves for the country have declined for a number of years and are only about 5 million tons of oil equivalents; in other words, less than 6 months of normal hydrocarbon consumption in Bulgaria. Hydro capacity accounts for about 23.4% of the country's total installed generating capacity. The country has significant but very low-grade coal reserves. They amount to about 2.2 billion tons - mainly lignite. Bulgaria imports almost all its oil and gas (90%) since its domestic production is negligible. The main energy sources used to produce electricity are coal and nuclear energy. The nuclear share of total electricity generated in 2004 was 41%.

Bulgaria is the leading energy provider in the Balkan region. The country covers 60% of the power deficit in southeast Europe and exported around 5.8 billion Kwh of electricity in 2004. In 2005, exports are expected to be close to 7 billion kwh,

according to the chief engineer of Bulgaria's monopoly power exporter, NETC. In December 2003, Bulgaria signed the Athens Memorandum, which seeks to create regional electricity and gas markets in southeast Europe on the basis of the principles of the internal energy market. Partner countries are currently developing this Memorandum in order to facilitate the setting up of a legally-binding Energy Community in southeast Europe. Except for Turkey, all the other countries in the Balkan region will sign it. It is likely to strengthen Bulgaria's position as an "energy leader" in the region. Two agreements on building power lines between Bulgaria and Macedonia were signed in November 2003. In December 2003, a power line linking Bulgaria and Turkey was commissioned and interconnection with Albania and Greece is under development.



## Decommissioning

Bulgaria operates the Kozloduy nuclear power plant (NPP). The country is required to shut down Kozloduy's units 3 and 4 as a precondition for entering the EU. Therefore, these units will not be operated until the end of their designated lifetime, which is 30 years. The closure of the units is a precondition to Bulgaria's accession. Units 1 and 2 were closed at the end of 2002. EU financial assistance in support of the decommissioning efforts under the Special Phare Programme amounts to €50 million for the period 2000-2009. The Kozloduy International Decommissioning Support Fund (KIDSF), managed by the European Bank for Reconstruction and Development (EBRD), is the main channel for assistance granted under the Special Phare Programme. The premature closure of units 3 and 4 could have the following negative consequences:

- **Economic impact:** Bulgaria has invested a large amount of money in the modernisation of these units. They are now as safe as any Western-type NPP. That investment would be wasted. Early decommissioning will prevent the accumulation of adequate decommissioning and radioactive waste (RAW) management funds. Meanwhile, units 5 and 6 will have to bear a heavy economic burden in the near future – the cost of the Modernisation Program for these units and the cost of the future decommissioning of units 1-4. There are several assessments of the cost of decommissioning units 1-4. According to the IAEA's Integrated Comparative Economic Assessment, it will cost at least € 868.8 million between 2007 and 2013; and according to a Bulgarian independent assessment, the losses due to the early closure of units 1-4 will amount to more than €8 billion.
- **Impact on the security of supply in southeast Europe:** In April 2005, the European Parliament (EP) adopted the van Orden report<sup>1</sup>, in which the EP congratulated Bulgaria for the steps it had taken to ensure a high level of safety at the Kozloduy NPP. At the same time, the EP expressed its concern that once units 3 and 4 at Kozloduy shut down at the end of 2006 a general decrease in the region's generating capacity is likely to occur by 2010-2012.
- **Social impact:** Kozloduy NPP employs over 5500 people in a region where the unemployment rate is high. The premature closure will result in increased

unemployment and increased social security expenditure.

- Environmental impact: Kozloduy NPP's units 3 and 4 generate around 12% of Bulgaria's total electricity production. To replace the energy produced by the units, more coal will have to be burnt in thermal power plants, which will increase the emissions of greenhouse gases. It will be more difficult for Bulgaria to meet its Kyoto requirements.
- Economic consequences for EU countries: If the closure of Kozloduy's units 3 and 4 is postponed until the new NPP in Belene enters into operation, the financial help granted by the EU for the early decommissioning of units 3 and 4 will be saved. Meanwhile, Bulgaria will be able to accumulate the necessary funds needed to manage radioactive waste and spend fuel treatment.

## Safety

The first two units, which are typical WWER 440/230 models, were built and entered into service in 1970s. The second pair of reactors was completed and connected to the grid in 1980 and 1982 respectively. By then the 230 model had evolved into the 213 model. This is why units 3 and 4 incorporate many of the safety characteristics of the 213's. Between 1991 and 2002, Bulgaria invested \$ 311 million in the modernisation of these four units. To comply with the pre-accession requirements, Bulgaria limited the modernisation of units 1 and 2. They then shut down in December 2002. Units 3 and 4 have been regularly modernised and have now reached an acceptable safety level. They have been reclassified as being comparable to the more advanced B-230M model.

A further increase in the demand of electricity resulted in the construction of two additional 1000MW units - each one was a WWER-1000/320 model. The most recently built units, 5 and 6, are the most advanced types of soviet reactor and are being upgraded. A Modernization Programme is being implemented. The main objective of the Modernization Programme of units 5 and 6 is to implement the improvements that are needed to meet all international requirements with regards to safety and reliability. Meeting these requirements will lead to a lifetime extension of 15 years. The Modernization Programme is expected to be completed by the end of 2006.

The National Regulatory Authority (NRA) for the safe use of nuclear energy is the competent safety authority in Bulgaria. In 2003, the NRA issued licences to Kozloduy NPP based on the results of the new safety analysis report on the operation of units 3 and 4, which covers 8-year and a10-year periods respectively. Over 80 independent reports have assessed positively the safety level of units 3 and 4.

In 2002, the IAEA concluded that "the operational, seismic and design safety at Kozloduy corresponds to the level of improvements seen at other plants of similar vintage elsewhere." Bulgaria has continued to implement the recommendations contained in the June 2001 Council Report on Nuclear Safety within the context of enlargement. A Peer Review Expert mission was carried out in November 2003 under the auspices of the Council. It concluded that all the necessary recommendations had already been implemented and that further supervision of these units was not necessary.

## **New Build**

Bulgaria plans to build a 2000 megawatt NPP in Belene and launched a call for tender for its construction on 10 May 2005 . It is estimated that the Belene project will cost between €2.5 billion and €4 billion. It is Bulgaria's largest development project for 20 years. The first unit of the new plant should begin operating in 2011, with a second reactor starting up in 2013. Construction of the Belene facility began in 1987 but was suspended in 1991 following pressure from environmental groups. The state will retain 51% of the Belene power station. Other states from the region that will be using the power produced in Bulgaria's second NPP may play a part in the construction project through the involvement of public-private partnerships, president Georgi Parvanov said at a nuclear conference organised by Bulatom on 15 June 2005, in Varna. The new plant will generate power for domestic consumption and secure the country's position as a regional power exporter.

## **Waste management**

A state-owned radioactive waste management company was created in February 2004, following the requirements of the Law on the Safe Use of Nuclear Energy, which came into force in July 2002. The company is responsible for setting up a radioactive waste management strategy and for the collection, transport, treatment and conditioning, storage and disposal of radioactive waste. The spent fuel (SF) removed from the reactors is stored in pools situated close to the reactors and the low and intermediate level radioactive waste is stored in auxiliary buildings.

In 1990, the construction of a pool type spent fuel storage facility (SFSF) on the site of Kozloduy NPP was finished. Meanwhile, Bulgaria is still returning spent fuel from units 1 to 4 that had been reprocessed in Russia based on a commercial contract. After 3-5 years storage in the near reactor pools, the SF is transported to the SFSF. The construction of the treatment and storage facility for long-lived radioactive waste at the Kozloduy NPP has been completed and is now in operation. Westinghouse delivered the main equipment and technology. The first funds allocated by the EU and the EBRD are partly destined for the decommissioning of units 1 and 2 (€7 million out of €100 million). Eight contracts have already been signed. The main one is with RWE NUKUM contract for the construction of dry storage facilities for spent fuel at Kozloduy NPP.

## **Climate Change**

In 2002, Bulgaria ratified the Kyoto protocol. The Kozloduy NPP does not emit any greenhouse gases and therefore contributes to the reduction of greenhouse gas emissions. Annual electricity production from the nuclear power plant has contributed to the avoidance of the emission of more than 29 million tons of the harmful carbon dioxide that causes climate change. In June 2002, Kozloduy NPP was rewarded by Bulgaria's Ministry of Environment and Water for the significant contribution it has made to the protection of environment and natural resources. The closure of Kozloduy's units 3 and 4 in 2007 will increase Bulgaria's CO<sub>2</sub> emissions, since thermal power plants will have to be built to compensate for the loss of power. In order to meet the Kyoto requirements, the government proposed to extend the lifetime of Kozloduy NPP until 2011, by which time the construction of the Belene NPP will have been completed.

## Public Opinion

The Bulgarian public largely supports nuclear energy, as an opinion poll held from 17 to 24 April 2005 shows. The poll asked the question whether the closure of Kozloduy units 3 and 4 should be re-negotiated. Over 500 000 Bulgarians took part in the poll and some 90% insisted that the government reconsider the closure of the two units in order to avoid an energy price rise. Nearly 70% of Bulgarians back the project to build a second NPP in Belene. The government promised to renegotiate the closure of units 3 and 4 in 2007 based on preliminary individual discussions with all the EU members.

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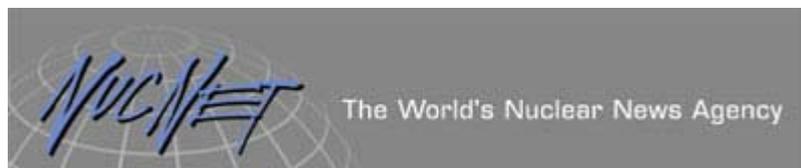
<sup>1</sup> You can have access to the van Orden report at: [link](#)

<sup>2</sup> You can have access to official reports concerning Bulgaria's Nuclear Energy Policy on the website of the Ministry of Energy and Energy Resources: [www.doe.bg](http://www.doe.bg)

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<http://www.euronuclear.org/e-news/e-news-11/nucnet-news.htm>

ENS WORLD NEWS



## NUCNET NEWS

### THE WORLD'S NUCLEAR NEWS AGENCY

**4 January: EU energy commissioner Andris Piebalgs said today that proposals for a common European energy policy would be presented to EU member states before the end of 2006**

Mr Piebalgs' announcement came as the EU welcomed an agreement for the resumption of gas supplies from Russia to Ukraine following a dispute which led to the suspension of Russian gas deliveries to Ukraine on 1 January 2006 and reductions in deliveries to some EU member states.

“It is clear that Europe needs a clearer and more collective and cohesive policy on security of energy supply,” Mr Piebalgs said. “To date, the issue of security of energy supply is only really considered at national member state level, but in reality we need a much greater European-wide approach on this issue.”

Mr Piebalgs said the issue had been raised at an informal summit of EU leaders in the UK in October 2005 and that he would “issue a first communication on a new European energy policy in spring, drawing final conclusions and proposals before the end of the year”.

In Germany, economics minister Michael Glos said on 2 January 2006 that the gas supply dispute showed how important it was to have a “wide and well-balanced energy mix”. He said the issue would be open for further discussion at a German national energy summit to be held early in 2006, as announced towards the end of 2005 by Chancellor Angela Merkel.

Mrs Merkel’s new coalition government agreed on a pact in November 2005 that acknowledged “differences” between the coalition partners on the use of nuclear energy for power production. The government said for this reason, an existing law requiring a gradual phase-out of nuclear power plants in Germany passed by the former government – and a contract with energy supply enterprises – could not be changed.

However, the coalition pact acknowledged that a “sound overall energy policy concept must be based on a balanced energy mix”.

In an interview published in December 2005 in Germany’s Frankfurter Allgemeine Sonntagszeitung newspaper, Mr Glos was quoted as saying of nuclear power: “We should not turn our backs on a technology of the future... But I hope that the last word has not been spoken.”

Meanwhile, a member of the executive board of the Federation of German Industries (BDI) called for an “ideology free” debate about extending the lifetimes of Germany’s nuclear power plants. Carsten Kreklau, responding to the Russia-Ukraine dispute, said Germany needed the broadest possible energy mix, including nuclear power, which he said continued to be “the most important” provider of baseload energy supply.

Thirteen out of the 25 EU member states produce nuclear power and nuclear energy is the EU’s largest single energy source for electricity generation – currently about 32%.

Source: NucNet  
Editor: John Shepherd

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<http://www.euronuclear.org/e-news/e-news-11/Member-Societies.htm>

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### Member Societies

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