Sustainable Nuclear Energy Technology Platform

www.snetp.eu

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A few words from the Chair

Launched just over ten months ago, the Sustainable Nuclear Energy Technology Platform is undoubtedly moving ahead to construct the European Research Area for nuclear fission. This first newsletter, which I am pleased to share with all SNE-TP members and beyond, gives an overview of the activity of the platform, and the wider context of energy policy and research.

The Governing Board was set up on the 30th October 2007 and elected me as its Chair, together with Bernd Güthoff (E.ON Kernkraft) and Frantisek Pazdera (UJV Rez) as Vice-Chairs. Information about the structure and organisation of SNE-TP may be found on the website, http://www.snetp.eu/home/liblocal/docs/SNETP_Organisation_version7.5.pdf. The Board has now met twice, and overseen the set up of three Working Groups:

- The Strategic Research Agenda WG is currently drafting road-maps to support research, development and demonstration for current and future nuclear power plants;
- The Deployment Strategy WG will propose a strategy for implementing the research road-maps;
- The Education, Training and Knowledge Management WG, will make concrete proposals to strengthen Europe's nuclear education and training network while also addressing knowledge management issues.

I am also pleased to announce that the SNE-TP is attracting new members, with today over 60 organisations from 17 European countries, representing industry, research, academia, technical safety organisations and also non-governmental organisations. The SNE-TP will continue to welcome any organisation wishing to contribute to the objectives of the platform, as explained in the application procedure, http://www.snetp.eu/home/liblocal/docs/SNETP_howtojoinFinal.doc.

The political scene has also been very active these past months. In November 2007, the European Commission published its communication on the Strategic Energy Technology (SET) Plan, which was endorsed by the Energy Council in February 2008. The SET Plan identifies nuclear fission as one of the key energy technologies able to address the three challenges that are (1) security of energy supply, (2) reduction of greenhouse gas emissions and (3) competitiveness. The SET Plan also calls for a European Industrial Initiative for the development of Generation IV technologies, and the SNE-TP is currently preparing the bases for such an initiative.

Signs of increasing support for nuclear energy are multiplying. A few days ago the European Parliament approved with an overwhelming majority the report of MEP Buzek, rapporteur of the SET Plan. The last Eurobarometer survey shows a very significant increase in public support for nuclear energy. I believe now more than ever that Europe can maintain through research and innovations its leading position as a provider of safe, competitive and environmentally-friendly nuclear energy, and I look forward to welcoming you soon in Brussels for the 1st General Assembly of SNE-TP, http://www.snetp.eu/home/liblocal/docs/GA_RegistrationForm2.doc

Philippe Pradel, Chair of SNE-TP, Director of CEA Nuclear Energy Division

2nd Governing Board Meeting, Prague, May 29th 2008

The 2nd Governing Board meeting took place recently in Prague, at the invitation of UJV's former Director General and Vice-President of SNE-TP, Frantisek Pazdera.

At this meeting, the Board took note of the progress of the different Working Groups, approved the preparation of a European Industrial Initiative for Generation IV, and asked the Executive Committee to set up a Working Group on Funding Mechanisms, and to establish the Member State Mirror Group. The Board also agreed to strengthen the relation with the European Nuclear Energy Forum.

Secretariat SNE-TP

MEP Forum debates the Sustainable Nuclear Energy Technology Platform (SNE-TP)

On 19 June the MEP Forum for the Future of Nuclear Energy met in Strasbourg, chaired as usual by Mrs. Edit Herczog, and featured a presentation on SNE-TP by members of the SNE-TP Governing Board. The guest speakers were Mr. Philippe Pradel, SNE-TP Chairman and also Director of Nuclear Research at the French Commissariat à l'Energie Atomique (CEA) and Mr. Bernd Güthoff, Managing Director of E.ON Kernkraft, who is also one of the two Vice-Chairmen of SNE-TP. The excellent turnout of 16 MEPs included two former Prime Ministers – Jerzy Buzek of Poland and Michel Rocard of France. Mr. Buzek is also the Parliament's rapporteur on the Commission's Strategic Energy Technology Plan (see below). The slides presented by Messrs Pradel and Güthoff explained why research is necessary to enable nuclear reactors to produce electricity more sustainably in the longer term. This will be achieved principally through the introduction of fast reactors, with uranium and plutonium recycle (closed fuel cycle) plus 'transmutation' of the longer-lived radionuclides in high level radioactive waste. The Platform also encompasses the development of high temperature reactors for applications such as hydrogen production or desalination. In the debate following the presentation, MEPs raised the issue of competition for resources between fission and fusion, education and training of young researchers, the timing of the introduction of commercial fast reactors, and the possible sources of funding for demonstration reactors. It was encouraging to hear from Mr. Güthoff that the number of young people in Germany studying nuclear science and engineering was actually on the increase in spite of the prevailing political situation. There was a strong feeling from the MEPs present that EU nuclear research funding needs to be increased to keep pace with developments in the rest of the world.

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The Strategic Energy Technology (SET) Plan

The SET Plan is a communication from the Commission published in November 2007, and endorsed by the Council in March 2008 (http://ec.europa.eu/energy/res/setplan/communication_2007_en.htm). It identifies nuclear fission as one of the key technologies to address the 2020 objectives of 20% reduction in greenhouse gas emissions (compared to the 1990 levels). It also calls for research into several energy technologies including Generation IV "sustainable fission" technologies, and proposes

the set up of so-called European Industrial Initiatives (EII) to accelerate research, development and demonstration.

- In July 2008, the European Parliament voted massively in favour of a new report, drafted by MEP Buzek, rapporteur of the SET Plan, with 596 votes in favour, 85 against and 14 abstentions. The report "*strongly supports the proposed EIIs on wind, solar, bio-energy, CO2 capture, transport and storage, electricity grids and nuclear fission*".
- The SNE-TP is organising itself to prepare a EII for sustainable nuclear fission, focused on the development of Gen. IV fast neutron reactor technologies with closed fuel cycle.

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Who are the members of SNE-TP? The NGO "Sauvons le Climat" (Let's Save the Climate) and the energy challenges.

"Sauvons le Climat" was created in December 2005 by a group of scientists cognizant of the climate and energy problems, who, at the same time, wanted to express their views as citizens. They were appalled by the predominantly ideological debates on issues which deserve factual and rational approaches. This initiative has been widely supported by the French speaking scientific community, with a sponsoring committee that includes three Nobel Prizes and numerous members of the Science and the Technology academies. Before the "Grenelle de l'Environnement", where neither scientific academies nor professional societies were invited, we held a colloquium with several organizations, including the French "Académie des Sciences" and "Académie des Technologies", the French Physical Society (SFP) and the French Nuclear Energy Society (SFEN).

We believe that it is urgent to free mankind, as early as possible, of its reliance on fossil fuels. Concerning electricity production it is imperative, and possible, to resort to low carbon emission production like hydroelectricity and nuclear energy. As a temporary measure Carbon dioxide capture and storage has to be considered. On the long term recourse to breeder reactors seems inevitable. Wind and solar electricity suffer both from relatively high costs and, worse, from their intermittency which will limit their share as long as satisfactory and inexpensive electricity storage is not available. The availability of "carbon-free" electricity will allow more extensive use of electricity both in transportation and heat production and decrease the use of fossil fuels in these sectors.

Quite generally it is very important that GHG emissions be mitigated at minimum cost. We believe that the standard by which low carbon energy policies should be assessed is *the cost incurred in avoiding the emission of a ton of carbon dioxide*. These ideas are developed on our sites: http://www.sauvonsleclimat.org and http://www.savetheclimate.org

We hope that NGOs sharing similar objective approaches will be in a position to collaborate within Europe.

Hervé Nifenecker, founder of Sauvons le Climat, contact@sauvonsleclimat.org

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The Strategic Research Agenda Working Group:

The Strategic Research Agenda group is mandated by the SNE-TP Governing Board to write the SRA document of the SNE technological platform based on the preliminary roadmap sketched in the Vision Document issued at the occasion of the launch of the platform in September 2007. The first draft of the SRA report is expected for mid-November 2008. The SRA group is organised into 5 sub-groups covering specific topics and 4 sub-groups covering cross-cutting research activities that are more generic and applicable to many if not all of the specific topics.

The specific topics are:

- GEN II and III, III+ incl. Advanced LWR
- Advanced Fuel Cycle for waste minimisation & resource optimisation
- GEN IV Fast Systems (SFR, LFR, GFR, ADS)
- GEN IV (V) HTR / Other applications
- New nuclear large research infrastructures

The cross-cutting topics are:

- Structural material research,

- Modelling, simulation & methods including physical data and tools and means for qualification and validation,
- Reactor safety including severe accidents and human factor;
- Advanced Driver and Minor Actinide Fuels: science & properties

Every sub-group is driven by one or two leaders assisted by various collaborators from the R&D institutions, industry and academic organisations. The contents of each topic listed above as well as the leading persons and their affiliation can be found on the SNE-TP Web site www.snetp.eu

SRA Chairman, Hamid Aït Abderrahim (SCK•CEN), haitabde@sckcen.be

The Deployment Strategy Working Group:

The Deployment Strategy group is mandated by the SNE-TP Governing Board to identify the key actions necessary to implement the Strategic Research Agenda, overcome the technical and non-technical barriers, deliver its results, and communicate to decision makers and general public on its benefits and impact.

The working group addresses more specifically topics such as:

- market opportunities and technologies to be deployed to meet the demand for a sustainable nuclear energy,
- costs, feasibility and overall timeframes of the technologies consistent with the SRA scope,
- EU strengths and weaknesses from both technical and socio-economic points of view,
- financial and human resources to carry out effectively the research of SRA and deploy the results,
- communication on benefits to decision makers and public with estimates of the economic, social and environmental impacts of deployment,
- International vision by identifying the links with other EU or worldwide initiatives in the field of sustainable nuclear energy.

The first draft of the DS document is expected for mid-November 2008. The DS group consists of a core team in charge of drafting the document, and a larger team in charge of reviewing the document. The DS working group includes stakeholders from utilities, manufacturers, academics and TSO, and is still open to new members from the Platform.

Olivier Marchand and Patrick Morilhat (EDF), DS Chairmen, Olivier.marchand@edf.fr and Patrick.morilhat@edf.fr

The Education, Training and Knowledge Management Working Group:

The Education, Training and Knowledge Management Working Group (ETKM WG) is mandated by the SNE-TP Governing Board to facilitate the strengthening of nuclear engineering and science education and training and its role in knowledge management in support of the recommendations in the Vision Report. In undertaking this requirement the ETKM draws on the education and training infrastructure consolidated across Europe in the European Nuclear Education Network (ENEN), comprising 41 organisations, as well as the additional support of 10 R&D institutions and 7 major industrial organisations. Valuable advice is also provided by trade, skills and learned society organisations. The ETKM WG is organised into 5 sub working groups, each comprising a sub group leader and 3-4 members. Joint academia and industry chairmanship of this group will ensure the correct focus to meet the requirements of the SRA and DS. The sub groups are organised as follows:

1. Human resources, human factors and knowledge management
2. Coordination with SRA, DS and ENF-E&T working groups
3. Education and training courses to support research and industry
4. Facilities to support the education and training requirements for R&D
5. Training placements and work experience, including international activities

The ETKM WG is developing work breakdown structures to conduct data capture, gap analysis and the identification of new activities, as necessary, to meet its mandate. This work will be reported in the ETKM document expected for mid November 2008.

Phil Beeley, ETKM WG Chairman, Beeleypa@aol.com

7th Euratom Framework Projects:

ACSEPT Collaborative Project:

Actinide recycling by separation and transmutation is considered worldwide and particularly in several European countries as one of the most promising strategies to reduce the inventory of radioactive waste, thus contributing to make nuclear energy sustainable. Coordinated by CEA and joining 34 partners in a multi-disciplinary consortium composed of European universities, nuclear research bodies and major industrial players, the FP7 Collaborative Project ACSEPT (2008-2012) will provide a structured R&D framework to develop chemical separation processes compatible with fuel fabrication techniques consistently with potentially viable recycling strategies.
Considering technically mature aqueous separation processes, ACSEPT will optimise and select the most promising ones dedicated either to actinide partitioning or to group actinide separation. Concerning pyrochemical separation processes, ACSEPT will contribute to develop them beyond the current state-of-the-art, as an alternative option, for a longer term. All experimental results will be integrated by carrying out engineering and systems studies on hydro and pyro processes to prepare for future demonstration at a pilot level. However ACSEPT does not intend to deliver a picture of what could be a preliminary design of a future demonstrator. In addition, a training and education programme will also be implemented to share the knowledge among partitioning community and present and future generations of researchers.

Coordinator:
Stephane.bourg@cea.fr,
website: http://www.acsept.org

More information on FP7 projects may be found on the platform's website:
http://www.snetp.eu/scripts/home/publigen/content/templates/show.asp?P=122&L=EN&ITEMID=7)

Research Infrastructures:

The Jules Horowitz Reactor (JHR) Programme

Material Testing Reactors (MTRs) are indispensable for the development and the qualification of materials and nuclear fuel used in the nuclear industry. The related studies contribute to the safety and to the optimization of existing nuclear plants and to the development of the future reactors.
Most of the European irradiation facilities used by industry are more than 40 years old and will soon need to be replaced. The Jules Horowitz Reactor (JHR) project is the result of the consensus that Europe's industry and research communities need a new MTR to support existing and future reactor technologies, and that this MTR should have a clear European dimension. The European dimension is further underlined by the presence of JHR in the ESFRI road-map of major European research infrastructures (ftp://ftp.cordis.europa.eu/pub/esfri/docs/esfri-roadmap-report-26092006_en.pdf). A consortium was set up (and open for further enlargement), now consisting of French (CEA, EDF, AREVA), Belgium (SCK•CEN), Spanish (CIEMAT-led consortium), Finnish (VTT), Czech (UJV) and Swedish (Vattenfall) stakeholders. The European Commission also committed to contributing to the funding of the construction, which is now on-going.

The floor of the future nuclear reactor unit, dug into the rock (300000m3 removed).

JHR programme director Daniel.iracane@cea.fr,
JHR website:
http://www.cad.cea.fr/rjh/index.html

Other news from the secretariat:

Contacting the secretariat: at the following email address: secretariat@snetp.eu.

Access to the **internal workspace** of the platform (members only): https://extranet.snetp.eu. If you do not have a login and password, contact the secretariat at the above address.

1st General Assembly of SNE-TP, Brussels, 26th November 2008: registration for this event is open, http://www.snetp.eu/home/liblocal/docs/GA_RegistrationForm2.doc

Latest **Eurobarometer survey** "Attitudes towards radioactive waste", published on July 2008, shows a significant increase in public support for nuclear power compared to the 2005 survey, with now the same percentage of citizens in favour of nuclear energy (44%) than against (45%). In 2007, the figures were 37% in favour and 55% against.
http://ec.europa.eu/public_opinion/archives/ebs/ebs_297_en.pdf

The **European Nuclear Energy Forum** "Prague/Bratislava" met for the 2nd time, on May 22nd and 23rd to discuss further the opportunities, the risks and the transparency issues related to nuclear energy. The next meeting of the ENEF will be in Bratislava on the 3rd and 4th November 2008. http://ec.europa.eu/energy/nuclear/forum/bratislava_prague/index_en.htm.

FISA-2009, the conference focused on Euratom FP-funded research for nuclear reactors and fuel cycle, will take place in Prague on June 22-26 2009. Check the CORDIS FP7 Euratom site for regular update on this conference: http://cordis.europa.eu/fp7/euratom-fission/events_en.html

And for those who want more information about the SNE-TP, go to the website www.snetp.eu. The **Vision Report** of the platform can be downloaded from:
http://www.snetp.eu/home/liblocal/docs/sne-tp_vision_report_eur22842_en.pdf

A logo for SNE-TP? No logo has yet been chosen to represent the Sustainable Nuclear Energy Technology Platform, and the call for proposals is now open. Please address your suggestion to secretariat@snetp.eu before the 30th September 2008.

SNE-TP
Sustainable Nuclear Energy Technology Platform
example of logo for SNE-TP

What do you think of this logo? Email secretariat@snetp.eu to give your opinion!

Young researchers' corner: training courses, summer schools and list of opportunities for PhDs, post-docs and internships:

Members of SNE-TP may advertise research positions in this section.

The ENEN website also provides information about scholarships, fellowships, post-doc positions, etc.
http://www.enen-assoc.org/en/opportunities.html.

Jules Horowitz Reactor Programme: Several research positions (PhD, post-doc) are open, covering topics such as thermal-hydraulics, neutronics, instrumentation, safety assessment, etc. Contact daniel.iracane@cea.fr for information about these offers.

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