SNETP released the Strategic Research and Innovation Agenda (SRIA) 2013

On the occasion of the EC Symposium held in February, SNETP released the new version of its Strategic Research and Innovation Agenda. It results from the SNETP Governing Board’s decision at its meeting in March 2012 to prepare a revision of the SRA by February 2013.

Through this document, the authors assessed the achievements and progress made since the previous release in 2009, including the conclusions of the works of the ad hoc task force set up to identify the research areas in response to the Fukushima accident.

The new SRIA highlights the developments made by the different SNETP Working Groups in completing the scope and identifying the priorities of their R&D programmes. It also covers the way they adapted to the present vision of nuclear research, making more explicit both the role of safety on all aspects of nuclear R&D programmes, and the principle of enhanced sustainability by minimising waste and optimising the use of available resources, while maintaining competitiveness.

The document features new and updated content: a summary on the conclusions of the Fukushima Task Force has been included and the evolution of the role of nuclear energy in strategic roadmaps, in particular concerning new activities that have raised interest among the R&D community in the nuclear field, is described.

This revised version relies on contributions from the Working Groups of the three main pillars – ESNII, NUGENIA and NC2I – as well as the education & training group (ETKM) and the Fukushima Task Force, in coordination with the Deployment Strategy WG. It is therefore the result of the contribution of nearly 100 scientists and engineers from SNETP’s member organisations under the chairmanship of Dr Enrique Gonzalez of CIEMAT. This was followed by a public consultation, during which the Editorial Board received 219 individual comments; each of them has been answered, treated and included whenever possible in the final document.

The European Commission was invited in the editorial process, as well as other groups such as ETSO N, FORATOM, EERA, which have contributed to the update.

The Strategic Research and Innovation Agenda 2013 is available for download on www.snetp.eu.

Enrique Gonzalez,
CIEMAT- Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas

for information: secretariat@snetp.eu
Governing Board renewed

The SNETP Governing Board has been recently renewed for two years. It comprises 32 organisations, of which 11 come from industry, 13 from R&D and 8 from other organisations. The election of the Chair and Vice-Chairs took place during the 11th SNETP Governing Board hosted by LGI Consulting in Paris on 12 February. Frantisek Pazdera was re-elected as Chairman while Martha Crawford-Heitzmann (AREVA) and Hamid Aït Abderrahim (SCK-CEN) were elected as Vice-Chairs. Download the full list of Board members.

Technical criteria

- Objectives and mission
- Technological readiness
  - Design status
  - Required R&D
  - Required fuel qualification
  - Waste reduction capability
  - Availability of codes & standards
- Safety demonstration
  - Compliance to WENRA requirements
  - Resistance to Fukushima initiators
- Synergies and potential spin-offs

Stakeholders

- Existing and committed R&D capabilities
- Framework for industrial participation
- Involvement level of industry (utilities / vendors / engineering firms)
- Member States support
- Status of international collaboration (including involvement in GIF)

Siting

- Existence of host country/-ies
- Licensability

Financial & legal

- Status of committed financing
- Eligibility to EU financing instruments
- Eligibility to EU legal instruments
- Implementation plan 2012-2014
- Preparedness of legal schemes

Market

- Expected market
- Time to market

ESNII (Europe’s Sustainable Nuclear Industrial Initiative)

Since its launch in 2010, the European Sustainable Nuclear Industrial Initiative (ESNII) has grown: 24 organisations (12 from research and 12 from industry) are members today. The initiative carried out a Technology Review in 2012 and identified some criteria to assess the 4 projects: ASTRID, MYRRHA, ALFRED and ALLEGRO. The criteria are listed here.

ESNII has provided into SETIS (the EC’s SET-Plan Information System) its Implementation Plan 2013-2015.

The “ESNII+” proposal, submitted under the last Euratom Fission Call is currently under negotiation with the EC. The ESNII+ project will work on the preparatory phase designed to support the development of a federating body to ensure efficient EU coordinated research on reactor safety for the next generation of nuclear systems.
NUGENIA: enhancing collaboration by gatherings and the web

NUGENIA, created in 2012, counts more than 70 members from 20 countries including major public and private stakeholders in the nuclear power generation sector. Various other organisations expressed interest in becoming Honorary Members, demonstrating the early success of this unique initiative that aims to provide a single framework for collaborative research and development regarding Generation II and III nuclear reactors.

On the occasion of the association’s first year, two major gatherings took place in March 2013: the second General Assembly on 6 March 2013 in Paris followed by the second edition of the annual NUGENIA Forum from 18-20 March in Budapest.

2013 will also see the publication of the NUGENIA Roadmap, aiming to identify key challenges and research topics. This document is the result of a one-year effort that will shape the strategic goals of the association. The NUGENIA project portfolio presentation and discussions on building new projects took place at the NUGENIA Forum 2013. This is extended with the recent opening of NUGENIA’s web-based Open Innovation Platform, which allows members to suggest, join and co-develop new projects.

To learn more on how to become a member and have the opportunity to follow closely all NUGENIA activities, you can visit www.nugenia.org and subscribe to the NUGENIA e-Newsletter.

NC2I TF (Nuclear Cogeneration Industrial Initiative)

Since summer 2012, the NC2I Task Force has focused its efforts on enhancing its communication. A dedicated webpage was released in October 2012 and several presentations were given at the international HTR Conference in Tokyo from 29 October-1 November 2012 to present EU developments in nuclear cogeneration.

The progress status was reported to the French Association for Research Centres in Energy in December 2012, to the expert meeting on non-electric applications of nuclear energy at the IAEA in December 2012, as well as in a dedicated workshop at the OECD in April 2013, on “technical and economic assessment of non-electric applications of nuclear energy”.

Interactions are pursued with the US NGNP Industry Alliance, which received funding from the US Department of Energy to carry out economic and commercial analyses on HTRs. A joint workshop in Washington DC is under preparation. Contacts are established with the Korean side as well.
The Joint Programme for Nuclear Materials (JPNM)

The Joint Programme for Nuclear Materials, as part of the European Energy Research Alliance (EERA), has reached its maturity since its launch in 2010.

At present 16 research associations (CEA, CIEMAT, CNR, CNRS, CVR, ENEA, HZDR, INR, JRC-IE, KIT, KTH, NRG, PSI, SCKCEN, UKERC, VTT) participate in the JPNM. 5 universities (MPA, POLITO, UA, ULB, UPC), 3 research associations (IFE, IMDEA Materials, NNL) and 2 industrials (CSM, EDF) are associated to the JPNM.

The programme has launched 12 pilot projects, which address specific items identified within the four sub-programmes.

As the next step, the Steering Committee of JPNM has decided to include R&D&I activities on innovative fuel including transmutation purposes. They will be integrated into two sub-programmes, where one will address the fundamental understanding of fuel behaviour and the second will be devoted to advanced fuel development.

Figure 1 shows the new potential structure of JPNM: the four technical areas indicated should highlight possible synergies among the different scientific experts.

Finally, the participants and associates of JPNM have been engaged to submit a project proposal to answer the 2012 EURATOM FP7 Call. This proposal has been prepared with the objective to define a management and governance structure as well as intellectual property right rules and financial schemes such as to navigate JPNM into an Integrated Research Programme Structure. The same project proposal contains technical work that is defined on the basis of priority items identified in the sub-programmes and specified within the pilot projects.

Coordinator of JPNM: Concetta Fazio
JPNM Office: Verena Wittmann
EERA Secretariat: Holger Ihssen

Conclusions of the Symposium on "Benefits and limitations of Nuclear Fission for a Low Carbon Economy"

On 26-27 February 2013 a symposium on the benefits and limitations of nuclear fission for a low carbon economy was held in Brussels. It was organised by the EC and the European Economic and Social Committee, at the request of the EU Council as part of the political agreement of 28 June 2011 on the Euratom Framework Programme (2012–13).

The symposium was prepared by two different studies, one from a multidisciplinary group of experts and the other by the European Group on Ethics. About 350 participants attended the Symposium from industry, government, politics, science and civil society. It aimed to discuss the benefits and limitations of nuclear fission for a low carbon economy with an open debate on all its aspects, taking into account the huge energy challenge that Europe is facing. Special emphasis was given to research needs for a sustainable, secure, reliable and competitive energy mix, including nuclear fission.

The symposium took note of the interdisciplinary study on nuclear energy and the opinion of the European Group on Ethics, and highlighted the major societal challenges Europe has to address, not only the current economic crisis, but also security of energy supply, protection of the environment including climate change, and social welfare. It reinforced the view that European nuclear fission research must be seen as a joint endeavour involving stronger links between science, civil society, industry and policy makers, with consequences on the way research associations and technology platforms interact with the general public.

One of the main conclusions was that, following Fukushima, future Euratom research cannot be "business as usual" and its orientation should be on safety, risk-mitigation, safeguards and security, as well as waste management and decommissioning. Scientific support to policy on nuclear safety should notably be further developed, including the harmonisation of national standards and the establishment of a permanent EU Nuclear Safety Laboratory.

On the other hand, Europe, through the Euratom programme, should keep its competences at the highest level to allow all citizens to benefit from publicly-financed, transparent, independent knowledge in nuclear fission safety. Skills have to stay up to date, supported by continuous strengthening of the human resource base. Finally, in line with the changing research and innovation scene worldwide, Euratom should take full part in international discussions, forming partnerships to promote the highest safety standards.

Hervé Péro
Former Head of Unit Fission in EC DG RTD
The European Economic and Social Committee (EESC), as a consultative body of the European institutions in helping to ensure that European policies and legislation tie in better with economic, social and civic circumstances, adopted in 2012 an opinion on "European Technology Platforms and Industrial Change". The document was produced in the frame of the current talks at EU institutional level on the future of Technology Platforms.

In the Opinion, EESC recommends the European Commission to continue to back the activities of existing ETPs and improve exchanges both among themselves and with relevant European institutions. By mentioning the SET-Plan and the European industrial initiatives active in this framework, the document reports, among the general strengths of the current 36 active ETPs, that all stakeholders necessary for the boost in industrial change are generally represented in technology platforms. Further, the fact that ETPs are industry-driven may legitimise this “existing powerful tool”, representing a “concrete solution for innovation and deployment of the industrial policy.” On the other hand, ETPs should think strategically and avoid becoming a narrow lobby group, losing focus, as this approach potentially leads to duplication or excessive fragmentation of activity. More effort is needed for the EESC to include actors other than industry, research organisations, universities and associations, generating an increased multi-sectorial perspective.

The role of ETPs in the EESC Opinion is expected to be maintained in the future, with technology platforms already providing information and proposals to the ongoing work on the establishment of Horizon 2020. More information on the EESC Opinion can be found at: http://www.eesc.europa.eu/?i=portal.en.events-and-activities-etp. In 2013, the EC is issuing a strategy paper on ETPs which takes stock of the EESC opinion.

ETSON starts publishing safety assessment guidelines

The European Technical Safety Organisations Network (ETSON), created in 2006, gathers TSOs from European countries and non-European associated TSOs. The main objective of ETSON is to share good practice in safety assessment as well as safety research and competence development.

The sharing of longstanding safety assessment experience is now being turned into guidelines that have been published at the beginning of 2013: a general safety assessment guide (SAG) and technical safety assessment guides (TSAG).

The SAG describes the general process to perform nuclear safety evaluations; this methodology is independent from the regulatory background but helps to comply with safety objectives.

The first three TSAGs in the series are dedicated to specific technical issues:

- Event review and precursor analysis
- Deterministic severe accidents analysis
- Human and organisational factors in nuclear facilities design and modification process

Now, all ETSON members are in the position to take account of the harmonised methods described in the TSAGs and to apply them in their countries for their own safety assessment studies.

More TSAGs are planned to be published, each one dedicated to a special technical domain: mechanical systems, electrical systems, safety systems, PSA analyses, lifetime management, thermal hydraulics analyses, safety concepts and defence in depth application, core behaviour, emergency preparedness…

The ETSON team looks forward to the publication of the next TSAGs of the series.
Who are the members of SNETP?

University of Cantabria

T he University of Cantabria (UC) is a young, modern public institution whose main purpose is to contribute to social progress through a firm commitment to teaching and scientific excellence. In order to achieve its goals, it strives to constantly improve the quality of its work through a process that revises and improves its teaching, research and administrative activities. The application of this process has made UC outstanding among Spanish universities due to its quality and scientific productivity.

The University of Cantabria offers a wide range of degrees and programmes. Its commitment to academic excellence is one of the main characteristics of a teaching offer guaranteed by the scientific prestige of the academic staff and monitored by the quality controls established by the institution itself.

This university provides students with a wide variety of resources, enabling them to acquire a well-rounded education. Within this context, its study programmes seek the right balance between practice and theory, which students can choose to complement with internship programmes, language courses, access to new technologies, exchange programmes with foreign universities, orientation and tutorial activities etc.

Campus life also offers a unique opportunity to enjoy an ample array of cultural and sport activities, to develop projects through student associations or to participate in defining and governing the institution through its representative bodies.

Research at the University of Cantabria

Research is one of the most important features of the University. Projects carried out by its research groups cover the most varied aspects of Arts and Sciences in both basic and applied research. UC provides society with a wide range of scientific and technological research, which is guaranteed by the qualifications and international recognition of its investigators. Several comparative studies analysing general and specific aspects of research in Spain rank the University among the most outstanding Spanish R&D&I institutions both for its productivity and its scientific quality.

R&D groups maintain close and permanent links with companies, public administrations and institutions to collaborate in the development of varied projects and studies that require a high level of specialisation and competence.

One of the most significant research groups of the University is the Laboratory of Materials Science and Engineering Division (LADICIM), which has a wide experience in the nuclear sector. This group has participated in a number of research collaborative projects with the Spanish nuclear industry (e.g. CUPRIVA), provided many technical services to this sector and participated in several European networks (e.g. ATHENA). Its facilities allow a variety of mechanical testing to be performed, especially those related with the main areas of expertise of this group, which are structural integrity and failure mechanisms.

This has allowed the group to stabilise several nuclear-related research lines, such as:

- Fracture toughness characterisation of nuclear steels along the ductile-to-brittle transition zone, using both standardised and reconstituted specimens
- Irradiation effects on fracture properties and its consequences on structural integrity
- Structural integrity assessment of nuclear components subjected to critical and/or subcritical processes. This includes fracture (from brittle to ductile), plastic collapse, mechanical and environmental fatigue, stress corrosion cracking, erosion, etc.
- Monitoring systems and stress range calculations for fatigue analysis
- Environmental factors and their consequences on fatigue life and structural integrity
- Failure analysis of nuclear components

More on the University of Cantabria website: www.unican.es/en

Prof. Dr. Sergio Cicero
sicero@unican.es
0034 942201705
A new collaborative project

PASSAM

The new PASSAM collaborative project was launched on 1 January 2013 under the 7th Framework Programme of the European Commission. Coordinated by IRSN, this four-year project (2013-2016) involves eight partners from six countries with strong experience in severe accidents on nuclear reactors: IRSN and EDF (France), CIEMAT and CSIC (Spain), PSI (Switzerland), RSE (Italy), VTT (Finland) and AREVA NP GmbH (Germany). It represents a total effort of 390 persons-months and an associated total cost of more than €5 million.

It focuses on mitigation systems in case of a severe accident, and more specifically, on Filtered Containment Venting Systems intended for reducing potential radioactive atmospheric releases into the environment. Indeed in case of a severe accident in a Nuclear Power Plant (NPP), fission products released from the degraded fuel might reach the environment if the containment building is damaged and/or bypassed. Given the high radio-toxicity of fission products for the environment and population, it is absolutely necessary to avoid - or to drastically reduce - their release.

This highlights the importance of relying on efficient mitigation systems capable of reducing any accidental release as much as possible. This overall statement becomes even stronger after the accident of March 2011 at the Fukushima Daiichi NPP.

The PASSAM project is of an R&D experimental nature aiming at:

- exploring potential enhancement of existing source term mitigation devices
- demonstrating the ability of innovative systems to achieve even larger source term attenuation

The work will begin with drafting a state-of-the-art report on mitigation systems used (pool scrubbing; sand filters plus metallic pre-filters), or potentially usable (agglomerators to be mounted upstream a filtration system; electrostatic precipitators; improved zeolites; combination of several systems…) for source term mitigation of severe accidents.

As a result of this work, lacks of knowledge will be clearly identified on the above systems and tests to be performed will be precisely defined for each type of system to be studied. The experimental work that will then be carried out in the partners’ facilities will represent the major part of the project.

The conditions to be tested will be those anticipated in relevant severe accident scenarios under which systems performance is presently unknown or not sufficiently known (e.g.: degraded conditions of operation; efficiency regarding other potential source term compositions than those originally considered (i.e. beyond aerosols and inorganic iodine); long term behaviour of the trapped elements).

The project’s outcomes will be a valuable database that may be strategic for helping utilities on the decision to implement and/or enhance mitigation systems on their reactors and for improving severe accident management.

The understanding of major retention phenomena, for each type of mitigation system studied in PASSAM, will lead to the determination of correlations and models. Once implemented in accident analysis codes, as ASTEC or others, these models should allow enhancing the capability of simulating severe accident scenarios and consequently developing improved management guidelines.

For an efficient dissemination of knowledge, the state-of-the-art report will be a public document and an associated workshop will be organised in February 2014 at CIEMAT (Madrid, Spain), which will be widely open to interested stakeholders.

In 2016 the final synthesis report of the project will be a public document and an open final workshop will be organised to disseminate the major outcomes of the PASSAM project. Furthermore, several scientific papers will be written and published in scientific journals all along the project, and will be presented at conferences and at the two workshops mentioned above.

Reference: New studies on passive and active systems towards enhanced severe accident source term mitigation – The PASSAM Project

Thierry ALBIOL – PASSAM Coordinator
IRSN/PSN-RES/SEREX – Bât 327 BP 313115 St Paul Lez Durance Cedex
tel: 04 42 19 97 94
e-mail : thierry.albiol@irsn.fr

For more information, please visit: https://gforge.irsn.fr/gf/project/passam/
SNETP related events

SNETP at ENC 2012 in Manchester
SNETP participated in the European Nuclear Conference 2012 in Manchester, UK. The conference, one of the largest events of its kind at European level, gathers the main actors in the nuclear industry.

During the conference, SNETP raised much interest among the more than 200 participants.

SNETP at FR 2013 in Paris
The SNETP stand was deployed at the International Conference on Fast Reactors and Related Fuel Cycles: Safe Technologies and Sustainable Scenarios (FR 2013) from 4 to 7 March. The conference provided a forum to exchange information on national and international programmes, and more generally new developments and experience, in the field of fast reactors and related fuel cycle technologies.

International events

Nuclear Training and Simulation China Forum 2013
- 20-21 June 2013, Beijing, China
More information at http://nrg-events.com/program/nrg-china/program-day-1-china/

International Conference on Nuclear Security: Enhancing Global Efforts
- 1-5 July 2013, Vienna, Austria

MATTER International School on Design Rules for Gen IV reactors and Innovative reactors (DERIVIN)
- 1-5 July 2013, Saclay, Paris, France

ASME Pressure Vessels & Piping Conference
- 14-18 July, Paris, France
More information at http://www.asmeconferences.org/pvp2013/

SMIRT-22
- 18-23 August 2013, San Francisco, USA
More information at http://www.smirt22.org/

ICEM2013 21st International Conference on Environmental Remediation and Radioactive Waste Management Economy 2013
- 8-12 September 2013 in Brussels, Belgium.
More information at http://asmeconferences.org/icsm2013/

NEN-E22nd International Conference Nuclear Energy for New Europe
- 9-12 September 2013 in Bled, Slovenia

GLOBAL 2013: International Nuclear Fuel Cycle Conference
- 29 September- 3 October 2013, Salt Lake City, US
More information at http://www.global13.org/2013/06/01/main/

10th International Conference on Non Destructive Evaluation
- 1-3 October 2013 in Cannes, France

FISA 2013, 8th European conference on Euratom research and training in reactor systems,
- 14-17 October 2013, Vilnius, Lithuania

Joint International Conference on Supercomputing in Nuclear Applications + Monte Carlo
- 27-31 October 2013, Paris, France

4th International Thorium Energy Conference, THEC13
- 27-31 October 2013, Geneva (Switzerland)
More information at http://indico.cern.ch/conferenceDisplay.py?confId=222140

NEStet 2013 - Nuclear Education and Training
- 17-21 November 2013, Madrid, Spain

NUGENIA Annual Forum
- 7-9 April 2014, Madrid
More information at www.nugenia.org

Contact information:
SNETP secretariat: secretariat@snetp.eu - SNETP website: http://www.snetp.eu
SNETP internal workspace (members only): https://extranet.snetp.eu - Contact the secretariat to be given a login and a password.

Events
SNETP related events