

Sustainable Energy Systems and the Euratom Research Programme

*S. Webster*¹

*European Commission, Research Directorate-General, Directorate J – Energy (Euratom),
Brussels, BE*

Abstract

We are at a turning point in European research. With the launch of the EU's 7th Framework Programme, committing some €53 billion of public funds to the European research effort over the next 7 years, Europe has finally woken up to the importance of R&D in the realisation of the most fundamental objectives defining the Union: growth, competitiveness, and knowledge. At the same time, and with strong links to growth and competitiveness but also to environmental protection, the Union is in the throws of an intense debate on future energy policy and climate change. Part of the research budget, some would say too small a part, is earmarked for energy – in particular the technological aspects of low carbon systems such renewables. This effort, together with measures to improve the EU's security and independence of supply, are essential if Europe is to respond effectively to solve the future energy conundrum. But where does nuclear fit in all this? What will the Union be doing in the area of nuclear research? Indeed, does nuclear figure at all in the long-term plans of the Union? Through the Euratom part of the Framework Programme, the EU is maintaining important support to up-stream research in the area of advanced reactor technologies. This effort is being coordinated at the global level through Euratom's membership of the Generation-IV International Forum. Though EU research in this field still has its critics among the Member States, and despite the relatively small sums currently committed, the leverage effect of current actions is significant and this is set to grow in the future. The imminent setting up of a Strategic Energy Technology Plan, as part of the European Commission's on-going activities in the field of energy policy, and the feedback from independent experts in the Advisory Group on Energy and the Euratom Scientific and Technical Committee all point to the following conclusions: EU support for research on advanced nuclear fission technology is justified as part of a broad portfolio approach to R&D on new energy systems and carriers, this technology is extremely promising as part of the answer to our long-term energy problems, and the current level of R&D support is insufficient in view of the challenges faced.

1. Introduction

There are currently important developments in the area of energy policy and strategy at the European and global level that could have profound significance for all of us. Furthermore, in the field of energy research, initiatives are being launched that could herald major changes to our energy supply and usage in the future. This is equally true of research in the nuclear field. The fact that we are now seeing so much interest and activity in energy and associated research comes as no surprise, except that this should maybe have occurred much sooner. In the EU, the current initiatives coincide with the launch of EU's 7th research Framework Programme, marking a significant increase in the overall EU R&D funding for energy (even though not all sectors have been treated alike) and the raising of the status of research in

¹ The views expressed in this paper are those of the author and do not necessarily reflect those of the EC

general. Indeed, our political masters have at long last recognised the important role that research plays in the EU's overall socio-economic and political strategy: the Lisbon agenda, growth, jobs, development of the knowledge-based society, competitiveness and so on.

In section 2, the EU's initiatives in the areas of energy policy will be presented. This will set the scene for the presentation, in section 3, of the status of R&D on advanced (or sustainable) nuclear energy systems supported through the Euratom FP.

2. Developments in EU energy policy

On 08/03/2006 the European Commission (EC) published a Green Paper entitled "*A European Strategy for Sustainable, Competitive and Secure Energy*"² that kicked off a major programme of policy initiatives in the area of energy supply and security as well as greenhouse gas (GHG) emissions and climate change. This culminated in the adoption by the EC on 10/01/2007 of the "*energy package*" containing a number of important documents on energy issues and climate change under the banner "*Energy for a Changing World*". The initiatives put forward by the EC in this package were a major topic of discussion by the Member States at the spring summit in Brussels on 18-19 March, and led to the formal adoption of a number of key policies in the area of energy / climate change as well as commitments on use of renewables, biofuels and GHG reduction targets. These must now be developed further by the European Institutions, leading possibly to the introduction of new EU legislation over the coming months. Though not the focus of the majority of these documents and measures, nuclear energy features at several points and is clearly implicated in a number of the areas. Let's examine this in more detail.

Green Paper

The Green Paper clearly stated that an EU energy policy should respond to three main objectives: sustainability, competitiveness and security of supply. In this context it considered six priority areas:

1. Energy for growth and jobs in Europe: completing the internal European electricity and gas markets
2. An Internal Energy Market that guarantees security of supply: solidarity between Member States
3. Tackling security and competitiveness of energy supply: towards a more sustainable, efficient and diverse energy mix
4. An integrated approach to tackling climate change
5. Encouraging innovation: a strategic European energy technology plan
6. Towards a coherent external energy policy

Though much of the document refers to energy in general, without distinction, and there are sections devoted entirely to energy efficiency and renewables, there are nonetheless important references to nuclear. The following extracts are taken from the text under priority area 3 mentioned above:

² COM(2006) 105 final 08/03/2006 (available on <http://eur-lex.europa.eu/en/prep/index.htm>)

“Decisions by Member States relating to nuclear energy can also have very significant consequences on other Member States in terms of the EU’s dependence on imported fossil fuels and CO₂ emissions.”

*“The **Strategic EU Energy Review** would offer a clear European framework for national decisions on the energy mix. It should analyse all the advantages and drawbacks of different sources of energy, from indigenous renewable energy sources such as wind, biomass and biofuels, small hydro and energy efficiency to coal and nuclear, and the knock-on effects of these changes for the EU as a whole. This could be based on a standard methodology.”*

“The Review should also allow a transparent and objective debate on the future role of nuclear energy in the EU, for those Member States concerned. Nuclear power, at present, contributes roughly one-third of the EU’s electricity production and, whilst careful attention needs to be given to the issues of nuclear waste and safety, represents at present the largest source of largely carbon free energy in Europe. The EU can play a useful role in ensuring that all costs, advantages and drawbacks of nuclear power are identified for a well-informed, objective and transparent debate.”

In addition, under priority area 5, it was stated:

“The 7th Framework Programme recognises that there is no single solution to our energy problems, but deals with a wide portfolio of technologies: renewable energy technologies, making clean coal and carbon capture and sequestration an industrial reality, developing economically viable biofuels for transports, new energy vectors such as hydrogen and environmentally friendly energy usage (e.g. fuel cells) and energy efficiency; as well as advanced nuclear fission and the development of fusion through the implementation of the ITER Agreement.”

In conclusion, the Green Paper puts forward a number of concrete proposals to meet the three objectives:

- The EU needs to complete the internal gas and electricity markets
- The EU needs to ensure that its internal energy market guarantees security of supply and solidarity between Member States
- The Community needs a real Community-wide debate on the different energy sources
- Europe needs to deal with the challenges of climate change in a manner compatible with its Lisbon objectives
- A strategic energy technology plan
- A common external energy policy.

Energy Package of 10/01/2007

The EC is proposing an integrated energy and climate change package to cut emissions for the 21st Century, increase the EU’s independence and security of supply and boost competitiveness. The package includes supporting documents on energy efficiency, zero emission coal, renewables, use of biofuels, the gas and electricity markets, nuclear energy and the Strategic Energy Technology Plan.

An overarching Communication entitled “*An Energy Policy for Europe*”³ (EPE) addresses all the challenges and issues. On the subject of nuclear, it recognises the important contribution that nuclear power makes in limiting GHG emissions and in Europe’s security and independence of supply. However, it reiterates that individual Member States must decide whether or not to resort to this form of energy, at the same time endorsing further expansion of nuclear generation providing the highest standards of safety, security and non-proliferation are maintained, as required by the Euratom Treaty. Detailed information on the nuclear sector is presented in the “*PINC*”⁴, or Illustrative Nuclear Programme, that was last published in 1997 and on this occasion is included as the supporting document on nuclear in the energy package. The PINC is foreseen under Article 40 of the Euratom Treaty as a means of presenting a programme of investments and developments in the civil nuclear sector, though on this occasion serves more as a status report on the sector as a whole.

Another of the energy package initiatives of direct relevance to nuclear concerns the Strategic Energy Technology (SET) Plan. The supporting document – *Towards an Energy SET Plan*⁵ – presents the initiative in more details and makes it clear that nuclear technology must be considered along with all other energy technologies. The inclusion of this document in the energy package is a clear indication of the vital importance that energy technology can play in resolving the EU’s energy problems. The SET-Plan will be the principal vehicle for identifying where action by the EU and Member States can accelerate the development and market insertion of key technologies capable of responding to the challenges of GHG emissions, sustainability, security and independence of supply. This introductory document to the SET-Plan refers to the excellent work carried out by the experts in the EC’s Advisory Group on Energy (AGE) over the previous 2-3 years and reported by the EC⁶. These reports are a fair and objective presentation of the pros and cons of the various energy technologies, including nuclear Gen-III and Gen-IV systems.

Conclusions to the European Council Summit, 08-09/03/2007

In the Council Presidency’s conclusions to the summit⁷, the Member States approve the development of a SET-Plan, to be presented at the spring Council in 2008, and make the following remarks on nuclear technology:

“Recalling that the EPE will fully respect Member States’ choice of energy mix, the European Council:

- notes the Commission’s assessment of the contribution of nuclear energy in meeting the growing concerns about safety of energy supply and CO2 emissions reductions while ensuring that nuclear safety and security are paramount in the decision-making process;*
- confirms that it is for each and every Member State to decide whether or not to rely on nuclear energy and stresses that this has to be done while further*

³ COM(2007) 1 final 10/01/2007 (available on <http://eur-lex.europa.eu/en/prep/index.htm>)

⁴ COM(2006) 844 final 10/01/2007 (available on <http://eur-lex.europa.eu/en/prep/index.htm>)

⁵ COM(2006) 847 final 10/01/2007 (available on <http://eur-lex.europa.eu/en/prep/index.htm>)

⁶ “Future Tasks for Future European Energy R&D” Eur22395, ISSN 1018-5593, 2006 (AGE report) & “Transition to a Sustainable Energy System for Europe: The R&D Perspective”, Eur22394, ISSN 1018-5593, 2006 (AGE report)

⁷ 7224/07, CONCL 1, 9/3/07

improving nuclear safety and the management of radioactive waste, and to that effect it:

- *supports R & D on waste management, particularly under the 7th Framework Research Programme;*
 - *can envisage the creation of a high-level group on nuclear safety and waste management.*
- *suggests that broad discussion takes place among all relevant stakeholders on the opportunities and risks of nuclear energy.”*

Hence there are three initiatives that concern the nuclear sector. The first, in the area of technology, involve the drawing up of the first version of the SET-Plan. The second is the establishing of the high-level group on nuclear safety and waste management referred to above. The third will be the creation of a “nuclear forum” to respond to the request in the last bullet point. This nuclear forum must be set up in close consultation with the nuclear sector, in particular industry, though at the time of writing no precise details are available. The high-level group will undoubtedly be coordinated by the EC’s Directorate-General for Energy and Transport in close collaboration with the national nuclear regulatory authorities, and is a natural outcome from the two years of discussions in Council following the unsuccessful attempts by the EC in 2003-4 to introduce binding legislation in the areas of radioactive waste management and nuclear safety (the so-called “nuclear package”). Only time will tell as to the exact composition, mandate and ultimate success of these political initiatives. Furthermore, there must be careful demarcation of roles and responsibilities, including with initiatives in the technical field (in particular, the proposed Technology Platform, see Section 3).

The SET-Plan

This is perhaps the most interesting initiative emerging from the debate on energy policy at EU level, and already the process of preparing the first version of the plan has started in earnest, and includes all the technologies with a potential role to play in the future energy supply of the EU. During the months March to May, the EC services organised a series of hearings with key actors in the respective areas, which drew heavily on the existing, and (in the case of nuclear fission) “embryonic”, technology platforms (see Section 3). Each hearing followed a similar format, concentrating on the responses to a series of generic questions (submitted to all energy areas) and more specific sector-related questions. The EC services were helped in the hearing process by experts from the AGE and, in the case of the hearings on nuclear fusion and fission, the Euratom Scientific and Technical Committee (STC). This expertise will also be used subsequently in the drafting of summary reports and the preparation of the SET-Plan itself. The EC Joint Research Centre provided the secretariat for all hearings and is responsible for drafting the first versions of the hearing reports. Other inputs to the SET-Plan process include the respective technology and capacities maps for each of the R&D sectors that are being produced via a separate contract with an external service provider.

The SET-Plan will enable an objective comparison of the various energy technologies and what each can offer, and describe the steps that must be taken at EU and national level to ensure that full potential is reached and deployment accelerated. It should be stressed that the Plan is not simply following a “business as usual” strategy, rather it is investigating how the various research and market instruments, including possible legislation, can be used to help bring these technologies to the market. Though initially a technical roadmapping exercise,

later – when it is delivered to the Member States – it will take on a more political aspect. The challenge is currently for the R&D community, who must provide clear, well argued and rational messages that our political masters will find difficult to ignore (though only time will tell whether these messages are heeded). In this respect, it is essential for the nuclear sector to contribute to the process and clearly state, using incontrovertible facts and figures, why it believes nuclear should remain a part of the future energy landscape in the EU. The arguments need to extend beyond the development of Gen-IV technology and should also include R&D requirements related to maintaining a high level of nuclear safety, lifetime extension of existing plant and deployment of waste management options.

3. Initiatives in the area of research

At the end of 2006, the EC launched the 7th Framework Programme (FP7, 2007-2013) and the 7th Euratom Framework Programme (2007-2011). In total, some €53 billion of the EU budget over the next seven years will go on support to R&D; this represents a 40% increase in research funding compared with the 6th Framework Programme. Though this is in line with the spirit of the Barcelona objective requiring 3% of European GDP to be devoted to R&D, the EU as a whole is still well below this target and lags behind countries like the USA and Japan. Nonetheless, the increased importance placed on research is a recognition of the key role that it must play in one of the EU's principal strategic objectives of this decade, namely the Lisbon agenda of 2000 that sets the ambitious goal of making Europe the “world's most dynamic knowledge-based economy geared to growth by the year 2010”. FP7 should therefore be viewed as one of the key Community instruments in the overall Lisbon Agenda strategy.

FP7 will devote more than €2.3 billion to non-nuclear energy research and, through Euratom, another €1.95 billion will be made available to research on fusion energy (of which approximately half will be for ITER). Both these funding envelopes represent significant increases relative to the FP6, though in view of the perceived R&D challenges in areas such as renewables, fuel cells, photovoltaics and the like, this level of funding is still considered woefully inadequate by many. Regarding research in nuclear fission, some €287 million will be available, though this represents no increase over inflation relative to the previous programme. The reasons for this are essentially political; some Member States are opposed to nuclear power and therefore opposed to research on new nuclear (fission) technology. Furthermore, under the Euratom Treaty, the formal adoption of Community research programmes requires the unanimous support of the Member States. In this climate, it has proved very difficult to channel more Community funding into fission research.

Nonetheless, FP7 Euratom, as finally approved by the Member States⁸, still allows support to research on the potential of advanced nuclear systems. However, this field will be in competition with the other priority areas for funding covered by the programme, such as management of radioactive waste, nuclear installation safety and radiation protection. Funding will therefore be spread relatively thinly, and it will be crucial for the programme to spend its euros wisely and with the maximum leverage effect.

⁸ 2006/970/Euratom: Council Decision of 18 December 2006 Concerning the **Seventh Framework Programme of the European Atomic Energy Community (Euratom)** for nuclear research and training activities (2007 to 2011), OJ L 54 p.21 of 22/2/07

Generation-IV systems

Gen-IV technology represents a revolutionary development relative to current designs of nuclear reactors. It promises vastly improved resource sustainability through the development of fast reactors (prolonging uranium reserves by up to two orders of magnitude), even higher levels of safety than current designs (increased dependence on passive and intrinsic safety attributes), co-generation of electricity and heat for use in a variety of chemical or industrial processes, and full actinide recycling thereby greatly reducing quantities of long-lived waste for disposal and minimising the risk of nuclear proliferation. It is no wonder that many believe the only way to exploit the full potential of nuclear technology is by a widespread deployment of Gen-IV technology.

Pre-conceptual design research on the six most promising innovative nuclear concepts is being coordinated at the global level by the Generation-IV International Forum (GIF). Euratom became a member of the GIF in May 2006 following approval granted by Council Decision in December 2005 (NB the article in the Euratom Treaty under which the Decision was promulgated requires the support of a qualified majority of Member States rather than unanimity), and other members include USA, Japan, Korea, Canada, France, UK and Switzerland, with China, Russia and S. Africa all set to join during 2007.

Current Community research in the area of advanced nuclear technology builds on a basis of past funding in this field spread over previous Euratom FPs. In recent years, FP6 Euratom has committed some €17 million to projects covering all six of the selected GIF reactor concepts. The details of these projects are given in Table 1 below.

Table 1: Overview of FP6 support to Gen-IV systems

For a presentation of all FP6 projects refer to <http://cordis.europa.eu/fp6-euratom/projects.htm>

Project acronym and title	Key areas of R&D	Coordinating organisation & no of partners*	Start date & duration	Total budget / EU contribution
RAPHAEL Reactor for Process Heat, Hydrogen & Electricity Generation www.raphael-project.org	Performance of fuel, materials and components of VHTR	<u>AREVA (FR)</u> 33 partners (from 10 countries)	15/04/2005 48 months	€19.8M / €9.0M
GCFR Gas-Cooled Fast Reactor www.gcfr.org	Conceptual design, direct coolant cycles, transmutation, safety, etc.	<u>NNC Ltd. (UK)</u> 9 partners (from 7 countries)	01/03/2005 48 months	€3.6M / €2.0M
HPLWR Phase 2 High Performance LWR – Phase 2	Critical issues and technical feasibility of SCWR	<u>FZK (DE)</u> 10 partners (from 8 countries)	01/09/2006 42 months	€4.65M / €2.5M

ELSY European Lead-Cooled System	Core design, PA, main components & systems, system integration, safety, etc.	<u>ANSALDO ENERGIA S.p.A. Nuclear (IT)</u> 20 partners (from 12 countries)	01/09/2006 36 months	€6.5M / €2.95M
ALISIA Assessment of Liquid Salts for Innovative Applications	Support action – preparation of future activities/proposals	<u>CEA (FR)</u> 15 partners (from 9 countries)	Jan. 07 1 year	€250k / €500k
EISOFAR Roadmap for a European Innovative Sodium-cooled Fast Reactor	Support action – preparation of future activities/proposals	<u>CEA (FR)</u> 14 partners (from 9 countries)	Jan. 07 1 year	€250k / €500k

*only partners from EU Member States and Euratom Associate Countries can receive EU funding

Following the formal accession of Euratom to the GIF, the above projects are a focal point for the Euratom contribution to the research conducted under GIF auspices. Note that the work being undertaken in the four major projects above is oriented around the corresponding GIF system research plans, thereby enabling the R&D carried out under the Euratom programme to be more readily slotted into the overall global effort.

In FP7 Euratom, the first annual call for proposals (deadline 2 May 2007) includes two further topics of relevance to Gen-IV systems: innovative fuels and claddings for Generation IV systems; materials for transmutation technologies and advanced reactors. Major collaborative projects are requested in both these topics, though at the time of writing it is too early to know whether any research proposals in these areas will be funded. Nonetheless, it is certain that advanced nuclear systems will continue to be an important area for support throughout FP7.

The Sustainable Nuclear Energy Technology Platform

Within the context of European research, the strive to establish a true European Research Area (a “single market” for research in Europe) and the important links with Lisbon agenda and Barcelona objectives, “technology platforms” have increasingly been promoted as a means of fostering enhanced integration in research and especially the increased involvement of industrial partners. As a result, a number of platforms have been established in a variety of scientific and technical disciplines.

Essentially a technology platform brings together all the key research stakeholders in a particular sector – industry, academia, regulatory authorities, research community, national research coordinators. This “forum” will then be responsible for the planning of the future research agenda in this field and then – crucially – implementing this agenda. The R&D stakeholders must decide collectively how best to conduct future research and bring their own research programmes under the control of platform. Indeed, the original idea behind such platforms was that they should enable more private industry funding to be brought to key areas of research, in an attempt to reach the Barcelona 3% objective. However, the platform concept has turned out to be a much more flexible mechanism than first imagined, being

readily adaptable to the peculiarities of different sectors. Clearly, though, well-defined ground rules need to be defined and high-level participation from the partner organisations is essential, especially when committing these organisations to follow the platform's agenda. Above all, the stakeholders need to have a shared vision regarding the direction in which the research should go and be willing to collaborate in order to further the platform's agenda.

A technology platform is not an EU funding instrument per se. Indeed, since it is not a legal entity it cannot receive direct funding, though if the conditions were right and the motivation sufficient one could imagine (parts of) a platform evolving into a sort of joint venture company with its own legal status, especially for the industrial deployment of a particular technology. The EC can be instrumental in providing the initial impetus and high-level political support needed to start up a platform, and once the "strategic research agenda" has been agreed it would be a simple matter for the EC to orient the FP calls for proposals to fit in with this agenda. In this way, the EU can bring a significant degree of support to the platform's activities, though it must be stressed that a platform is not a lobby group to obtain EU funding, each of the stakeholder organisations must contribute its own research effort if success is to be assured.

So far, some 30 technology platforms have been launched in Europe, several within the energy field (Hydrogen and Fuel Cells, Smartgrids, Zero Emissions Platform, Photovoltaics, Wind Energy, Biofuels). It is too early to say whether all will ultimately be successful, but they are nonetheless a focal point for R&D integration and activities in their respective fields. Until now, no platforms have been established in the nuclear area, though projects launched under FP6 have been investigating this possibility and have gathered together key organisations with a shared vision. This began with the ENF-TP project⁹ and was built upon by SNF-TP which is still on-going¹⁰ and is being implemented by a consortium of some 23 key nuclear R&D stakeholders, including national research labs and organisations, industry, academia, etc. The coordinator of both these projects is the French CEA, and the momentum and interest created by these initiatives is such that the first technology platform in the field of nuclear fission – the *Sustainable Nuclear Energy Technology Platform (SNE-TP)* – will be formally launched on 21/09/2007 at a major conference to take place in Brussels under the auspices of the EC and with the political support of the EC Commissioner for Research, Janez Potočnik.

The scope of SNE-TP covers nuclear installation safety and nuclear systems (including P&T and the fuel cycle), related research infrastructures and human resources. It will be built around three "pillars": the safety of current generations of nuclear installations; the development of next generation fast reactors with closed fuel cycles and full actinide recycling; V/HTR reactors for the cogeneration of both electricity and process heat for industrial applications. As such, the platform will be the key technical forum in Europe for the development of next generation fission systems, and must ensure effective interaction with the GIF and other global initiatives such as GNEP (not to mention the political and strategic initiatives described in section 2).

Current efforts are being devoted to the drafting of the platform's all-important vision document and preparing the formal launch event in September. In this respect it should be stressed that the stakeholder base of the platform itself will extend beyond that of the current

⁹ http://ec.europa.eu/research/energy/fi/fi_cpa/other/article_3867_en.htm

¹⁰ <http://cordis.europa.eu/fp6- Euratom/projects.htm> (then click on "Other Activities ..."; projects are listed in acronym alphabetical order)

FP6 project SNF-TP. Though the SNF-TP consortium represents a broad cross-section of the fission R&D community, the technology platform is not a closed shop and should embrace the greatest possible representation of stakeholders who can endorse the shared vision and objectives of the platform. For this reason, the current drafting of the vision document is also incorporating comments from the Technical Safety Organisations (TSOs) and the launch event may include participation from stakeholders such as major industrial electricity users, with the organising committee including representative from the ENS (European Nuclear Society) and Foratom.

R&D in geological disposal of radioactive waste is not included in the scope of SNE-TP and would be covered by a second technology platform currently being investigated by another FP6 project called CARD¹¹, bringing together in particular the national waste management agencies. The reasons for this segregation are two-fold. Firstly, the R&D disciplines in geological disposal are quite specific and distinct from those within SNE-TP. Secondly, and more importantly, the national waste management agencies need to retain a certain separation from the rest of the nuclear sector in order to maximise their independence and therefore credibility in the eyes of the local populations around potential host sites for geological disposal facilities. The CARD project will report back towards the end of 2007, at which time the proposal for establishing a technology platform in this field will be presented.

4. Conclusions

We're at a crucial point in the development of an energy policy for the EU, and in the defining of the role nuclear will play in this policy. The stakes could not be higher.

The EC acknowledges the important role played by nuclear power and the potential it has to respond to the serious energy challenges faced by Europe. The Council endorses this view, at the same time recognising that each Member State must decide for itself whether to develop nuclear power. It also reiterates the importance of safety and waste management, proposes that a high level group of regulators be established in this field, and believes a forum to discuss the merits of nuclear in general should be set up.

However, these initiatives need to be well coordinated with those in the area of R&D. The principal development in research is represented by the launch of FP7 Euratom. The fission programme, though not benefiting from the same increase in funding witnessed in the fusion and non-nuclear energy sectors, nonetheless will continue to support important Community research in the area of advanced nuclear technology and to stimulate and structure the research effort across Europe in this field.

FP6 Euratom, mainly thanks to the new funding instruments such as the Integrated Project and Network of Excellence, has successfully restructured European research in the fission sector. However, this progress must be reinforced by the establishing of technology platforms thereby better integrating contributions from national – and industrial – programmes and enabling the effectiveness of future Euratom funding to be maximised. In this regard, the Sustainable Nuclear Energy Technology Platform is a very promising initiative that is attracting widespread support, and should enable the available resources in this field to be better utilised. The next five years will mark a crucial period in nuclear research during which

¹¹ <http://cordis.europa.eu/fp6-euratom/projects.htm> (then click on “Management of radioactive waste”; projects are listed in acronym alphabetical order)

the viability of the various Gen-IV systems will continue to be investigated, culminating in decisions on pilot/demonstration facilities to take this technology through to industrial deployment. SNE-TP will play a key role in this process.

The Strategic Energy Technology Plan is a bold and challenging initiative. The first draft of the SET-Plan will be prepared during 2007 for discussion by the Member States at the spring 2008 Council and will cover a broad range of energy technologies. It must remain an objective and technically oriented exercise, and leave the political posturing for the resulting debate by Member States. It is too early to predict exactly what form the Plan will take, but the EC will oversee the process and, with help from a range of experts, ensure that technology issues remain paramount and are presented equitably. In this regard, it is worth reiterating the words of the Commissioner for Research, Janez Potočnik, from a speech delivered in 2005:

“The EC believes that the answers to the EU’s energy problems lie in developing a diverse mix of options supported by appropriate strategies and policies. That is why we are funding, through the FPs, a comprehensive research effort looking at a broad range of energy technologies; from renewables, through clean coal, to nuclear fusion and fission. Many questions are currently being asked in all these areas and society as a whole is not yet in a position to provide adequate responses. A well-focussed and effective Community research programme is helping to deliver these urgently needed answers ... Ultimately, the decision whether or not to use nuclear power – just like any other energy source – is a political and societal one taken at the national level. However, this should be a decision based on knowledge, not one taken in ignorance. Research can and must supply this knowledge”