



**SNETP Position Paper
on the EU Energy Roadmap 2050**

3 February 2012

Introduction

The **Sustainable Nuclear Energy Technology Platform (SNETP)**, created in 2007, gathers European stakeholders involved in the Research & Innovation and in the demonstration and deployment of nuclear fission reactors and fuel cycle facilities, and the associated education and training. More than 100 members from industry, research & technology organisations, universities, technical safety organisations, service providers, non-governmental organisations and associations share a common vision on the role of nuclear energy and on the needs for a safe and efficient use of nuclear fission technology.

Building on this shared vision a **Strategic Research Agenda and a Deployment Strategy** were published and are being implemented: the recently launched NUGENIA Association is mandated to coordinate the work on Generation II (in operation) and III (under construction) nuclear reactors; the European Sustainable Nuclear Industrial Initiative (ESNII) , officially launched in November 2010 under the SET Plan, prepares the Generation IV reactors with an objective of resources preservation and the minimization of the burden of radioactive waste; and the Nuclear Cogeneration Industrial Initiative (NC2I) , under preparation, targets to deliver CO2 free heat for process industry. Needless to say, nuclear safety is the first priority of all activities, as being a mandatory condition and an underlying objective.

SNETP thus represents the research and innovation ‘branch’ of the EU’s new nuclear governance, with ENEF¹ and ENSREG² representing the stakeholders at large and the safety authorities, respectively.

Role of nuclear energy in Europe

SNETP welcomes the publication of the Energy Roadmap 2050 which gives a unique opportunity to discuss the evolution of the European energy mix with a long term perspective and with regard to the European energy policy goals (sustainability, security of supply, and competitiveness – all three being of equal importance and to be assessed from diverse perspectives: ia the **affordability of reliable electricity supply to the final consumer**).

This communication recognizes the importance of nuclear energy’s contribution in Europe today. With approx. 30% of the electricity generation (produced by more than 140 reactors located in 14 countries), nuclear fission represents the **largest low-carbon energy source in Europe** (2/3 of the decarbonized electricity with nearly 600 million tons of CO2 avoided each year).

For the future, **SNETP is ready to face the key challenges** identified during the preparation of the SET Plan in order to meet the 2020 targets - *“Maintain competitiveness in fission technologies, together with long-term waste management solutions”*- and to meet the 2050 vision of a carbon free economy

¹ European Nuclear Energy Forum (http://ec.europa.eu/energy/nuclear/forum/forum_en.htm)

² European Nuclear Safety Regulators Group (www.ensreg.eu)

“Complete the preparations for the demonstration of a new generation (Gen-IV) of fission reactors for increased sustainability”.

In addressing these challenges, SNETP considers **nuclear safety** as the prime priority and responsibility in front of the European citizens.

One of the outcomes of the Energy Roadmap 2050 decarbonisation scenarios highlights the **huge increase of the electricity demand** (doubling the electricity share in the primary energy mix by 2050). It is mainly the consequence of the industrial and transportation sectors switching from fossil fuel to electricity. It will put more pressure on the availability and efficiency of all the technologies able to generate carbon free electricity in a reliable and stable way – including nuclear energy.

SNETP is therefore convinced that nuclear energy will remain a major technology for the decarbonisation of the economy if all objectives of the EU energy policy are equally considered, including security of supply and competitiveness.

Technology development to support the roadmap 2050

SNETP supports therefore the objectives of the Energy Roadmap 2050 and will contribute to develop the relevant nuclear technologies. It will also contribute to maintaining and developing European leadership in these technologies, which in turn is a necessary condition for promoting the highest safety levels throughout the world.

More precisely, for the current reactor technology and for the deployment of “Generation III” reactors under construction, SNETP considers that:

- Europe needs to keep its current reactor fleet operating with a high level of safety and competitiveness
- Development must be maintained to continuously improve the competitiveness and also the safety margins of the Gen III design

SNETP considers that the consequences of the scenarios presented in the Energy Roadmap 2050 are not assessed in terms of technology challenges (i.a. technology barriers, times for deployment...) and thus in terms of necessary support for research and innovation in Europe. SNETP considers that it is a crucial issue that needs to be addressed, if the roadmap conclusions are to be considered practicable.

SNETP strongly recommends that all the low carbon technologies for electricity generation, including nuclear fission technologies, be equitably supported in the coming policy initiatives contemplated for the implementation of the 2050 vision of carbon free economy³.

The further industrial deployment of these technologies shall be then based on market rules, with, inter alia, a reliable Emissions Trading System (ETS) mechanism to give clear cost signal to investors.

³ On this topic read the SNETP Position Paper on the EC proposal for a Multiannual Financial Framework 2014-2020 (available at www.snetp.eu)

SNETP has observed that advanced Generation IV nuclear technology is not taken into account in the Energy Roadmap 2050, which is not problematic for the given time horizon: the deployment of Generation IV nuclear fission reactors are indeed not expected at large scale before that time. But SNETP wants to recall the necessity to proceed to the design and demonstration of the technology (whose development is streamlined within the European Industrial Initiative ESNII of the SET Plan) in the coming two decades, in order to ensure its availability for commercial deployment for 2040/2050.

For this to happen in the Energy Roadmap 2050 and SET-Plan perspectives, nuclear fission research and innovation needs to be supported by the European Union budget at a level commensurate with the challenges and with the appropriate Public-Private partnerships in the following domains:

- The continuous improvement in the Gen II/III reactor and fuel cycle safety,
- ESNII: a European initiative to speed up the development of sustainable Gen IV ‘fast neutron reactors’ (FNR) deployable by 2040,
- The cogeneration projects with nuclear energy as a substitute for fossil fuels for process industry.

SNETP is committed with all its members to mobilize its innovation capabilities in order to make the vision of a decarbonized economy a reality -- with both security of supply and competitiveness for the benefit of European citizens and European industry, keeping nuclear safety as the underlying priority

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