



EIB Consultation Paper on the Energy Sector Lending Policy

Position by SNETP, the European Sustainable Nuclear Energy Technology Platform

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Disclaimer: the present paper addresses solely the questions listed under point 4.7 of the EIB Consultation Paper, i.e. research, development and innovation. SNETP expresses its views on technological aspects, in complement to and in line with the more global position expressed by ENEF, the European Nuclear Energy Forum, on the role of nuclear fission in the energy mix.

This paper is a very synthetic view; for background information, readers are invited to consult SNETP's strategy papers available on www.snetp.eu.

4.7 RDI

Which are the key innovative energy technologies under development? The development of which key innovative low-carbon energy technologies should receive most financial support?

With the publication of a Vision Report, the Sustainable Nuclear Energy Technology Platform (SNETP) was launched in 2007. Today, approximately 110 members (from industry, research, safety organisations, academia and non-governmental organisations) constitute the platform, which has delivered a Strategic Research Agenda (SRA) in 2009 and a Deployment Strategy in 2010. An update of the SRA is being prepared and will be released in February 2013, taking stock of technological evolutions, R&D priorities, and lessons learned from the Fukushima accident and the 'stress tests' carried out since then.

The nuclear fission technologies which are considered as being most important for Europe, detailed in these documents, are structured around several technological tracks. Each is coordinated by a dedicated network gathering the key European actors involved:

- Generation II (current fleet) and III (new power plants under construction) technologies, essentially based on water-cooled reactors: this is coordinated by NUGENIA, the Nuclear Gen II & III Association, which is finalising a roadmap structured around 8 technical areas¹.

¹ www.nugenia.org; 8 technical areas: Plant safety and risk / Severe accidents / Core and reactor operation / System and component integrity / Fuel, waste and decommissioning / Innovative LWR design / Harmonisation / In-service inspection and NDE

- Generation IV technologies based on fast neutron reactors (FNR) with a closed fuel cycle for increased sustainability; this area is coordinated within ESNII, the European Sustainable Nuclear Industrial Initiative, officialised under the European SET-Plan in 2010. In 2012, ESNII has conducted a technology review which led to the prioritisation of the three FNR technologies: sodium-cooled FNR as reference technology (based on the ASTRID prototype), lead-cooled FNR (MYRRHA project and ALFRED demonstrator) as first alternative, and gas-cooled FNR (ALLEGRO demonstrator) as second alternative.
- Cogeneration of heat and power, based in particular on high temperature reactors; this is coordinated by the NC2I Task Force, structuring the Nuclear Cogeneration Industrial Initiative.
- Additionally, a number of research fields are considered as cross-cutting to several technologies, such as materials, nuclear fuel cycle, instrumentation, and so on.

SNETP has quantified the financial requirements for these priorities in a [position paper](#) available on its website².

Which barriers are hindering the deployment of innovative, low-carbon energy technologies most significantly?

The main barrier facing the development of advanced fission systems is the difficulty of financing for building demonstrators of new reactor types.

Over the 2010-2020 period, European funding needs for the RD&D effort of the ESNII initiative are estimated at 11 bn €₂₀₀₉ (a figure included in the SET-Plan), and for the NC2I initiative, at 4 bn €₂₀₀₉. These figures could be significantly reduced in case of international partnerships. The expected share of the cost is estimated at 80% from the public sector (national and EU) and 20% from industry. For ESNII projects, 650 M€ were already committed by France, and 400 M€ by Belgium.

Should financial support be spread across a large number of small research projects or be selective and concentrated on a few promising large research projects?

The effort for R&D on light water reactors (Generation II & III) can be spread over rather small (in the range 1-20 M€) individual projects, which address specific issues on the existing and new-build fleet.

On the other hand, innovative systems (fast neutron reactors and high temperature reactors), require large-scale demonstration programme which induce the need to focus the financing on a few key European programmes. A detailed study on the financing of ESNII, carried out by Deloitte in 2010, suggests that loans by the European Investment Bank could contribute to part of this financing.

² www.snetp.eu / Section Position Papers