



**of the European Atomic Energy Community (Euratom)
for nuclear research and training activities (2007-2011)**

Collaborative Project

<i>CP-ESFR</i>

Project title:	Collaborative Project on European Sodium Fast Reactor
Project number:	232658
Project coordinator:	Commissariat à l'Energie Atomique CEA, Paris, France
HZDR participant:	Institute of Safety Research
Starting date:	01.01.2009
Duration (months):	54

Summary

The suggested Collaborative Project (CP) addresses key viability and performance issues to support the development of a fourth generation European Sodium Fast Reactor (ESFR). This innovative system is mainly developed for competitive electricity generation and offer interesting potential characteristics in term of safety, environmental impact, resource utilization and waste minimization (e.g. potential for Minor Actinides management).

The objectives of the CP-ESFR look for the improvement, vis-à-vis of current nuclear systems, of the safety level, the guarantee of a financial risk comparable to that of the other means of energy production and a flexible and robust management of the nuclear materials. The corresponding technical requirements in terms of System's performance; Operation, maintenance and procedures; Safety design & analysis and licensing issues, Physical protection & proliferation resistance; Functional requirements for provisions; Fuel cycle constructability; Decommissioning; System's economy are based – among others – upon the results of the 6th FP Specific Support Action EISO FAR (Roadmap for a European Innovative Sodium cooled FAST Reactor).

The schedule for this four years project fit with the principle for an industrial deployment of ESFR technology around 2040 with the preliminary deployment of a demonstrator by 2020-2025. Following the requirements above, and considering the context as it is described, the Collaborative Project is tentatively structured into six main technical sub-projects (SPs): 1)Consistency and assessment & international relationships; 2)Fuel, fuel element, core & fuel cycle; 3)Safety and security; 4)Energy conversion system components & materials; 5)Reactor system (including handling); 6)Education & training. A specific management activity will insure the whole consistency.