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Status and perspectives of industrial supply chain for Fast Reactors

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Fast reactors, selected at European level as next generation Nuclear Energy Systems, pose undeniable challenges from a technological point of view. In order to support the foreseen deployment strategy, a survey of the existing industrial supply chain have been thoroughly carried out in terms of its capabilities and potentialities with respect to Fast Reactors needs.
The main challenges found to potentially affect the deployment strategy of Fast reactors have been found to be related to the maintaining the current supply chain capabilities, defining specifications of critical components, developing new materials and fabrication/inspection techniques, ensuring the necessary accreditation and quality.
The main critical components of Fast Reactor concepts have characteristics and requirements that will require further investments on R&D and qualification. This will represent a stimulus for the supply chain and, in perspective, considered a good market and a business opportunity for industry.
Implementation of requirements for Fast Reactors into the nuclear codes and standards is still a key aspect. The nuclear industry is country-specific and different efforts aimed at international harmonization of codes and standards have not been very successful up to now. Top-level initiatives should be encouraged, as far as possible, for the ESNII concepts. A challenge for fast reactor development in the long term is to minimize or avoid code/country-related barriers, in order to assure the suppliers a larger, open and attractive market.
The analysis also covers the capacities and technologies that the EU industry will need to maintain in the medium to long terms to develop and build fast reactor projects. Any identified shortfall or weakness represents an opportunity for improvement, by strengthening the involvement of industry in the European sustainable nuclear program.

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