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ASTRID reactor: design overview and main innovative options for Basic Design

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Abstract FR 17

Track 1. Innovative Fast Reactor Designs
ASTRID reactor: design overview and main innovative options for Basic Design

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Sodium-cooled Fast Reactors (SFR) is one of the Generation IV reactor concepts selected to secure the nuclear fuel resources and to manage radioactive wastes. In the frame of the June 2006 French act on sustainable management of radioactive materials and wastes, French Government entrusted CEA (French Commission for Atomic Energy and Alternative Energy) to conduct design studies of ASTRID (Advanced Sodium Technological Reactor for Industrial Demonstration) prototype in collaboration with industrial partners.
The ambitious objectives of ASTRID reactor are to fulfil the GEN IV requirements. It has led to the implementation of innovative technological solutions which go beyond the current feedbacks. Necessarily, these innovations will have to be consolidated within the framework of Research & Development actions and qualification programs.

In its Basic Design stage, ASTRID has built a coherent conceptual design configuration with innovative techniques and systems across all domains: core, fuel assembly technology, nuclear island, civil engineering, energy conversion system, plant layout, ISI&R, fabricability, … and even in the project management.

The object of this document is to provide an overview of the significant innovations under consideration on ASTRID. It will also allow to present the partners contribution to this seek for innovations for better performances and/or enhanced safety.

Country/Int. Organization

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