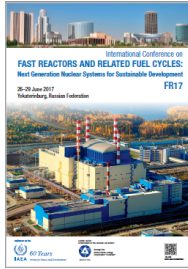


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## Status of ASTRID Nuclear Island Design and Future Trends

*Monday, June 26, 2017 4:10 PM (20 minutes)*

In the frame of the French ASTRID project led by CEA, AREVA NP is in charge of the design studies of the whole Nuclear Island. The conceptual design was completed end of December 2015 with the issuance of a large amount of engineering files (few thousands).

The design of ASTRID intends to cope with GEN IV objectives regarding the new reactor concepts and includes ambitious performances to deal with concerning safety and availability for instance.

Thus, numerous technical challenges were faced and successfully managed by AREVA NP during the conceptual design phase dealing with:

- Deployment of design process based on System Engineering standards,
- Selection of adequate architectures and design justification (at the conceptual level stage) for the various main systems and components: primary circuit, secondary loops, decay heat removal systems, fuel handling and component handling systems, I&C platforms, electrical systems, general layout of nuclear island building etc.

Throughout the design progress, AREVA NP experimented new approaches in terms of management of innovations, advanced numerical simulations, management of large CAD models and the related interfaces with the other industrial partners, introduction of Virtual Reality tools to enhance the complexity mastering of the layout.

In addition, this paper describes the main technical achievements regarding the NI and main systems or component definition at the end of the conceptual design phase.

Future trends for the design of the NI are presented in terms of evolution of the technical configuration and enhancement of the engineering tools.

### Country/Int. Organization

FRANCE - AREVA NP

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