

# International Conference on Fast Reactors and Related Fuel Cycles: Next Generation Nuclear Systems for Sustainable Development (FR17)



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## Status of Sodium Cooled Fast Reactor Development Program in Korea

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The Korea Atomic Energy Commission (KAEC) authorized the R&D action plan for the Advanced SFR (sodium-cooled fast reactor) and the pyro-process to provide a consistent direction to long-term R&D activities in December, 2008. This long-term advanced SFR R&D plan was revised by KAEC in November 2011 in order to refine the plan and to consider the available budget for SFR. The revised milestones include specific design of a prototype SFR by 2017, specific design approval by 2020, and construction of a prototype SFR by 2028.

The prototype SFR program includes the overall system engineering for SFR system (NSSS and BOP) design and optimization, integral V&V tests, and major components development. Based upon the experiences gained during the development of the conceptual designs for KALIMER, the conceptual design of SFR prototype plant (PGSFR) had been carried out in 2012 and has been performing a preliminary design since 2013.

The first phase of the development of PGSFR has been completed at the end of February 2016 and now going toward the second design phase in 2016. All the design concepts of systems, structures and components (SSCs) have been determined and incorporated into the preliminary safety information document (PSID), which includes basic design requirements, system and component descriptions, the results of safety analysis for the representative accident scenarios. The PSID will be a base material for a pre-review of the PGSFR safety.

The target of the second phase of PGSFR design is to prepare a specific design safety analysis report (SDSAR) by the end of 2017. The specific safety analysis report is equivalent to the conventional preliminary safety analysis report (PSAR) but without the specific site information of the plant. The design activities are being carried out to freeze the design details of PGSFR by the end of 2016.

To support the design, various R&D activities are being performed in parallel with design activities, including V&Vs of design codes and system performance tests. The details on the design status and plan will be presented in the conference

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