

Proposal Readied on R&D for FBR

On August 17, the subcommittee on nuclear R&D's working group on nuclear R&D – under the Science Council of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) – held its 15th meeting. The purpose of the meeting was to deliver a draft of a report dealing with policy on R&D on the fast breeder reactor (FBR) cycle, focusing on a response to the final report on the second phase of an investigation into and research on a strategy for commercializing the cycle. The subcommittee will issue the final report in October. The recent meeting was the first time that the secretariat could present a draft of the full report based on all previous deliberations.

The draft report is divided into three parts: (1) an easy-to-understand explanation of current and future circumstances, aimed at gaining broad support from the public; (2) a technical evaluation of the report on Phase II; and (3) technical discussions, R&D planning to 2015, and other points to be noted.

The technical evaluation of Part II suggests that a combination of a sodium-cooled FBR (MOX fuel), advanced wet reprocessing technology, and simplified pellet fuel production (oxide fuel) would be suitable as the main R&D concept from now on, based on multiple considerations such as technological feasibility and the possibility of its becoming the standard global technology for FBR. It also says that a combination of a sodium-cooled FBR (metallic fuel), metal electrolysis reprocessing, and injection-molding fuel production would be suitable as a complementary concept.

The subcommittee then recognized that Japan's technology for the main-concept reactor system could be internationally competitive if it offered high quality, adding that the fuel cycle system – also with a high potential – is still very much at the laboratory stage at this point, requiring R&D at the engineering level as soon as possible, and more detailed comparisons with similar technologies. In addition, the subcommittee identified 13 innovative technological issues involving the reactor system, along with 12 others involving the fuel cycle (under the main concept). It said that a clear outlook for the commercialization of the reactor system and fuel cycle would likely be obtained in five years.

Part III presents an R&D plan for the period to 2015, based on the 25 innovative technological points mentioned in the previous paragraph. With the intention of expediting R&D on technology focused on commercialization, the design work on a demonstration reactor (with an electrical output of 750 MW) would start around 2010, with operation to begin around 2025. The report also consolidates the subcommittee's views on how to proceed with such matters as R&D, safety assurance, international cooperation, the R&D system, the evaluation system, getting R&D resources, and enhancing accountability.

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