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Current status and future view of the fast reactor cycle technology development in Japan

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As stated in the “Fourth Strategic Energy Plan”, which was approved by the Cabinet in April 2014, Japan continues to position nuclear energy as a major base-load power source even after the TEPCO’s Fukushima Dai-ichi Nuclear Power Station accident. Its basic policy in the plan is to promote nuclear fuel cycle in terms of the efficient use of resources and reduction in volume and toxic level of high-level waste, and carry out fast reactor (FR) cycle R&D for the commercialization, taking advantage of international cooperation.

For the commercialization of FR cycle, Japan Atomic Energy Agency (JAEA) is conducting several R&D activities primarily focusing on 1) the reduction in volume and toxic level of radioactive waste and 2) the improvement of the safety of FRs and FBRs, as mentioned in the Fourth Strategic Energy Plan, in parallel with R&D utilizing international cooperation with bilateral frameworks such as ASTRID program with France and multilateral frameworks such as the Generation IV International Forum (GIF). In the nuclear fuel cycle R&D, SmART cycle project to conduct small-scale minor actinide (MA) recycling using existing facilities is in progress.

The prototype FBR Monju will be subject to a fundamental review, and the government’s official policy on Monju together with FR development in concrete terms will be presented by the end of this year. As for the experimental FR Joyo, JAEA completed the upper core structure (UCS) replacement work and is preparing to make an application for earlier restart under the new regulatory requirements.

Country/Int. Organization

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