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Japan to Work With France on Future Fast-Breeder Atomic Reactor

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Japan to Work With France on Future Fast-Breeder Atomic Reactor

By Tara Patel and Gregory Viscusi May 6, 2014 1:47 AM GMT+0200

Japan will join a French research effort to develop a new nuclear reactor that promoters say will use fuel more efficiently and produce less atomic waste.

Japanese Prime Minister Shinzo Abe and French President Francois Hollande agreed to “intensify their civil nuclear research,” according to a joint statement yesterday following a meeting between the two leaders in Paris.

As part of Abe’s state visit, the Japanese ministries of economy and science and France’s atomic research institute Commissariat a l’Energie Atomique et aux Energies Alternatives signed an accord to cooperate on a project for a so-called fourth generation fast-breeder reactor called Astrid. Fast-breeder generators are designed to produce, or “breed,” more fuel than they consume for reuse in nuclear fission.

The research deal comes as both countries’ nuclear-power industries are at a crossroads. Operators in Japan are still reeling from the 2011 atomic meltdown at Fukushima after which the country shut its reactors because of earthquake damage, maintenance or safety checks.

Japan’s Nuclear Regulation Authority said in March that it would expedite safety checks on two of Kyushu Electric Power Co.’s reactors, raising the prospect that some nuclear capacity may be restored ahead of peak power demand in summer.

In France, Hollande has vowed to lower dependence on nuclear power to 50 percent of all electricity produced by around 2025. It currently relies on the 58 reactors operated by Electricite de France SA for about three-quarters of its electricity, a greater proportion that any other country in the world. His plan is scheduled to be clarified in a long-delayed energy law.

Astrid Prototype

In 2011, before Hollande was elected, France earmarked 652 million euros ($905 million) to develop a 600-megawatt Astrid prototype by around 2020 with a plan to deploy a fleet starting in 2040. Astrid stands for Advanced Sodium Technological Reactor for Industrial Demonstration.

The generator is said to be of the fourth generation because it would come after a model being built now in France, Finland and China called the EPR, which is considered third generation. France's CEA research institute is working on the Astrid project with EDF and French reactor developer Areva SA. (AREVA)

Future reactors like Astrid would be able to produce as much as 100 times more power using the same quantity of uranium FUEL, according to documents on the CEA's website. They would also burn long-life radioactive waste.

Even with its nuclear industry hobbled by the aftermath of Fukushima, the Abe government has been actively marketing Japanese nuclear technology around the world. Mitsubishi Heavy Industries Ltd. and Areva signed a $22 billion agreement in May 2013 to build a nuclear power plant in Turkey, the first major order for Japan since the Fukushima disaster in 2011.

EDF last year signed a deal to develop EPRs in the U.K.

France decided to close its Superphenix fast-breeder reactor in 1998 following radioactive leaks. Japan's Monju reactor is idled and has been plagued by challenges including a sodium leak. India has its own fast-breeder reactor program.

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