

Sendai Nuclear Plant Effectively Passes Safety Tests toward Restarting in Autumn

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On July 16, the Nuclear Regulation Authority approved a draft safety test report describing the first and second reactors of Kyushu Electric Power Co.'s Sendai nuclear power plant in Kagoshima Prefecture as conforming to the new safety standards created in June 2013. The approval effectively authorized the nuclear power plant as passing the safety tests under the new standards.

The NRA launched safety tests on nuclear plants under the new standards in July 2013. Although the tests had initially been expected to take some six months, the tests have turned out to be very strict and prudent and have been prolonged far more than initially expected. At present, 19 reactors at 12 nuclear power plants are under safety tests based on the new standards. Among them, the two-reactor Sendai plant was approved by the NRA in March 2014 as meeting the earthquake and tsunami assumptions and has been given priority for intensive review. As a result, the plant received an effective safety test pass certificate on July 16, some one year after the test launch.

The NRA has confirmed that Kyushu Electric Power has substantially enhanced anti-earthquake and anti-tsunami measures by raising the assumed maximum earthquake strength from 540 gal to 620 gal and the assumed maximum tsunami height from 4 meters to 5 meters in applications for tests and by building a 10-meter-high protection wall, based on lessons learned from the March 2011 Fukushima Daiichi nuclear plant accident. It has also recognized the plan as conforming to the enhancement of design standards including those for all other natural disasters such as volcanic eruptions and tornadoes. Furthermore, the NRA has reaffirmed that core and containment vessel damage prevention measures as well as plans to address severe accidents including terrorist attacks conform to the new standards. The safety level of the Sendai nuclear plant is "close to the highest level in the world," NRA Chairman Shunichi Tanaka told a press conference on July 16.

The Sendai nuclear plant has thus taken one year to acquire the effective safety test pass certificate ahead of other nuclear plants in Japan. It is now about to make full preparations for restarting. First, the draft safety test report will be subject to public comments until August 15. Based on these comments, the NRA will finalize the report in late August. The finalization will represent the issuance of an official safety test pass certificate. Later, a process will be required for gaining local residents' agreement through briefings to them on the restart. Furthermore, the NRA will check

the detailed designs of equipment based on the safety test report and inspect the equipment at the plant. There will be some more procedures to be taken before the restart. With the amount of time required for clearing all of these procedures, the restart is widely expected to come in October or later. Until the restart, nuclear power generation will remain nonexistent in Japan. The electricity supply-demand balance in Japan will thus be very tight during the summer electricity demand peak this year, as has been the case in past years.

Nevertheless, the latest NRA approval on the draft safety test report is considered a key milestone for several reasons.

First, it is significant for the independent regulatory body to have issued an effective safety test pass certificate for a nuclear plant, although its strict, prudent examinations have taken much more time than initially expected. As seen in Western countries, a decision by an independent regulatory body has great weight. With public confidence having been lost in the safety of nuclear energy and in nuclear policy through the Fukushima accident, the conclusion given as a result of the strict tests by the NRA as an independent regulatory body may become the base for discussions on nuclear safety not only for residents living close to nuclear plants but also for all Japanese people.

Second, the safety tests and effective pass certificate for the Sendai nuclear plant may become a key model for reference for tests under the new standards. The test process might have been an unprecedented, difficult process for both the electric power utility applying for the tests and the NRA implementing them. As the nuclear safety problem has been a matter of national concern and a very sensitive social issue in Japan since the Fukushima accident, there might have been difficulties with the tests amid this maiden voyage in uncharted waters. Through the Sendai nuclear plant tests, however, the NRA and electric power utilities may be able to find out how to rationalize and streamline the process while maintaining the strictness of the tests. As a matter of fact, there are great uncertainties regarding tests for other nuclear power plants while various challenges exist to be solved before the Sendai plant restarts operation. As far as the first safety tests have turned a corner, however, attention will shift to how the first tests would influence the second and later tests.

Third, the safety test results may exert wide influence over energy policy beyond the safety of the Sendai plant alone, even though its restart is to come this autumn or later. Specifically, the results may influence discussions on Japan's future energy mix. The Basic Energy Plan, approved by the Cabinet in April, positioned nuclear energy as a key base-load power source, while falling short of coming up with a specific numerical target for nuclear energy's share of total power generation, like the target of 50% for 2030 as seen in the previous plan (approved by the Cabinet in June 2010). Since nuclear and other energy projects are planned, implemented and completed over a long time, it has been recognized in Japan that the people should share long-term numerical targets for the energy mix. The latest Cabinet decision for the Basic Energy Plan recognized the importance of long-term numerical targets and vowed to promptly indicate the target energy mix after discerning the progress

in restarting nuclear plants as well as the spread of renewable energy and international discussions on the climate change problem. In this respect, the latest development in the safety tests, as well as the second point given above, may be of great significance. It is important to pursue the simultaneous achievement of the three Es (energy security, environmental conservation and economic efficiency) and S (safety) in proceeding with discussions on the energy mix. From the viewpoint of safety, the latest NRA decision on the Sendai plant is of great significance.

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