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Nuclear power generation, 2017: Outlook and Issues

<Executive Summary>

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<Domestic 1: Regulatory standards conformity assessments and the restarting of reactors/approval of operational life extensions>

1. Unit 1 of Kyushu Electric Power Company's Sendai Plant was subjected to the very first routine review under the new regulatory standards in October 2016, and resumed commercial operations on January 6, 2017.. As of January 2017, in addition to the five reactors that the Nuclear Regulation Authority (NRA) has determined conform to the regulatory standards, there are 20 existing reactors and one new reactor (at Ōma Nuclear Power Plant) that are currently undergoing conformity assessments. We hope that the Nuclear Regulation Authority's assessments will be even more streamlined, rapid, and efficient in 2017.
2. Operational life extension assessments are being carried out on reactors that have been in operation for close to 40 years, and on June 20, 2016, Kansai Electric Power Company received permission to extend the operational life of Takahama Plant's Units 1 and 2, and this was followed by permission to extend the operational life of Mihama Plant's Unit 3 on November 16, 2016. Decisions by electric utilities regarding whether or not to apply for permission to extend operation of existing reactors that will reach their 40th year of operation in 2018/2019 (Unit 2 of Japan Atomic Power Company's Tokai Plant and Unit 1 of Kansai Electric Power Company's Ōi Plant) are expected to receive close attention.
3. On the other hand, court rulings have come to the fore as a new business risk for electric utilities following an injunction from the Otsu District Court ordering the temporary suspension of operations of Takahama Plant's Units 3 and 4. A ruling by the Osaka High Court on the injunction imposed by the Otsu District Court is

expected around February 2017 with December 26 set as the deadline for the claims of both parties. This is an issue that affects not only the Takahama Plant but every nuclear power utility in Japan, and developments in the case will therefore continue to attract considerable attention.

<Domestic 2: Rethinking the fast reactor development strategy>

4. In September 2016 a decision was made at a ministerial meeting on nuclear power to conduct a fundamental review of the future of the fast breeder reactor prototype “Monju” with the potential decommissioning of the reactor also to be given consideration. Based on this decision, a draft proposal on future fast reactor development was presented following three Ministry of Economy, Trade and Industry advisory body meetings on fast breeder reactor development held before November 2016 with potential decommissioning included as a possibility, and a policy of maintaining and developing Japan’s technologies in the field through proactive involvement in France’s experimental reactor development program and in international projects was presented. A roadmap for future fast reactor development may be presented in 2017, and the response of electric utilities, particularly those power companies that made substantial contributions to the operation and maintenance of the Monju reactor, will be closely watched.

International topics: Chinese and Russian progress with global expansion of their nuclear power-related activities

5. The pace of construction and commissioning of new reactors in China continues to be rapid. As of January 2011, China possessed facilities providing a total generation capacity of 10.84 million kW ranking it 10th globally. Between January 2011 and November 2016, however, 22 additional reactors were constructed in China, bringing total generation capacity to 33.493 million kW (as of November 2016), raising its global ranking to 4th. By March 2018 it is projected to reach a capacity of 43.273 million kW, meaning it will outstrip Japan to rank 3rd in the world, by which time China will no longer be considered a “developing country” in the field of nuclear power.
6. China is currently working to strengthen its global presence by concluding a large number of international cooperation agreements. In 2016, China concluded cooperation agreements with Argentina, Saudi Arabia, Indonesia, and other countries, invested in the new Hinkley Point C construction project in the U.K.,

and is also working to enhance its relationship with France from year to year. The breadth and depth of China's progress with its global expansion will continue to be a focus of interest in 2017.

7. Russia, a traditional nuclear power, is also working proactively on global expansion efforts. At the "Nuclear Industry Summit Latin America" hosted by an international organization in Buenos Aires in 2016, Russia indicated its proactive stance on introducing nuclear technologies to countries in Central and South America. There are countries in Central and South America such as Venezuela that are reluctant to cooperate with the United States, and Russia may become an important partner for such countries. Russia's actions henceforth and the stance of emerging markets in response to those actions will continue to be a focus of interest.
8. Pursuing nuclear power-related plans in emerging markets is not an easy task as the necessary infrastructure and systems need to be created from scratch. A new nuclear power plant construction plan in Vietnam in which Japan was involved was scrapped by Vietnam's national assembly on November 22. Countries such as China and Russia, which are strengthening their presence in emerging markets, work to accurately ascertain the conditions and needs of the target countries and provide cooperation that is tailored to meet these. Japan's nuclear industry needs to be cognizant of this fact and remain conscious of the need to compete with its rivals while reconfiguring its future emerging market business strategy with focus on strengthening its overall competitiveness.

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