

**Nuclear Policy Challenges for 2024**  
**—Continue Discussions from a Long-term Viewpoint—**  
**<Summary>**

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Recent situation regarding nuclear energy

1. As countries have set ambitious greenhouse gas emission reduction targets in recent years, nuclear energy as a zero-emission baseload power source has been attracting attention.
2. Furthermore, fossil fuel prices have soared globally since 2021, leading countries to give priority to securing a stable energy supply including electricity. This trend has intensified as Russia's invasion of Ukraine has destabilized international energy markets. In this way, the contribution of nuclear energy to energy self-sufficiency and its characteristics as a stable baseload power source has been increasingly recognized. At the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change, known as COP28, the United States and 21 other countries issued a multilateral declaration to triple nuclear power generation capacity by 2050.

Global focuses of attention in 2024 and beyond

3. In the United States, large-scale nuclear support measures have been enacted, including the Civil Nuclear Credit (CNC) program and tax credits under the Inflation Reduction Act. In addition, the process of exporting large light-water reactors to Bulgaria and Poland is underway. France is selecting new nuclear power plant sites and has taken other various nuclear policy measures, such as the nationalization of Electricité de France (EDF) and the development of legislation to simplify the procedure for new construction in the vicinity of existing nuclear facilities. The effects of these policies and initiatives will be closely watched from the perspective of Japan's nuclear energy policy.
4. In addition to the United States and France, many countries have positioned nuclear power promotion as part of their climate change countermeasures and energy security, proceeding with their nuclear energy plans (including those related to new reactors).

They include not only developed countries in Europe and North America, but also several emerging countries, indicating that the number of countries using nuclear energy is gradually expanding. However, nuclear energy projects launched in 2023 were domestic nuclear power plant construction and exports by China and Russia, making their dominance of the global nuclear energy market more remarkable. It is important to continue to pay attention to the balance of power in the global nuclear market.

5. In November 2023, it was announced in the United States that NuScale and a Utah consortium would cancel their small modular reactor (SMR) project. As SMR trends have attracted global interest, the fate of the other SMR projects will be closely watched hereafter.

#### Japan's nuclear energy outlook and focuses of attention

6. If nuclear power plant operation and restart plans published by Japanese electric utilities are realized, nuclear power generation is expected to increase by about 30 TWh in FY2024 due to the restart. However, the risk of protracted safety review and construction works for safety improvement cannot be ignored.
7. In 2023, Units 1 and 2 of the Takahama nuclear power station were restarted in August and September, respectively. Construction work plans for Unit 2 of the Shimane nuclear power station were approved in August. In November, the service life for Units 1 and 2 of the Sendai nuclear power station in Kyushu was extended to 60 years. Important progress was thus made towards the restart and prolonged operation of existing reactors. While ensuring safety is a major premise, it is expected that existing reactors will continue to be used effectively as highly economical decarbonized power sources.
8. In May 2023, the GX Decarbonization Power Supply Act was enacted, including the revision of the nuclear reactor service life system. The act will allow nuclear power plant operators to extend the deadline for the termination of a nuclear reactor's operation by the length of time required for operation suspensions for such purposes as inspections and lawsuits. The rules for the extension should be clarified and detailed before the enforcement of the Act in 2025. From the viewpoint of ensuring nuclear safety, it is necessary to pay attention to the fact that reactors age even during their shutdown periods, although radiation embrittlement does not occur during such periods. It will become more important than ever to assess the aging of each piece of equipment and take anti-ageing measures in a fine-tuned manner according to the age of each piece of equipment. In October 2023, the Nuclear Regulation Authority (NRA) began accepting advanced applications for the assessment of anti-ageing

measures based on a new system. Attention should be paid to how many electric power companies will apply in 2024.

9. In August 2023, ALPS (Advanced Liquid Processing System) treated water accumulated at the Fukushima Daiichi Nuclear Power Station began to be discharged. Regarding the backend of the nuclear fuel cycle, the Tsushima city assembly in the same month adopted a petition for the first stage of the process for selecting a final disposal site for high-level radioactive waste, but the Tsushima mayor decided not to accept it the following month. In August, Kaminoseki Town in Yamaguchi Prefecture announced that it would accept a survey on the establishment of an interim storage facility for spent nuclear fuel.
10. Overall, Japan made some progress in 2023 regarding many issues related to nuclear energy. It will be important whether this trend will continue in 2024 and beyond. In particular, discussions on the next Strategic Energy Plan are expected to advance in 2024. The government may have to reclarify the role of nuclear energy in 2050 in the new plan. It may also have to consider policy measures according to the role and relevant timetable. Since the effective use of existing reactors is an important challenge for Japan, the government should consider streamlining screening procedures for idled reactors towards their restart.

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