

Nuclear Policy Challenges for 2025
—New developments surrounding the use of nuclear power—
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Developments surrounding nuclear power in recent years

1. In recent years, with various countries establishing ambitious targets for reducing greenhouse gas emissions, several analyses have been published that highlight the potential role of nuclear power as a zero-emission baseload power source.
2. Moreover, due to soaring fossil fuel prices since 2021 and the impact of Russia's aggression toward Ukraine, it has increasingly been pointed out that nuclear power is a valuable power source from the perspectives of energy security and stable supply. Expectations of nuclear power are also growing due to the need to meet electricity demand as a result of the expansion of generative AI and data centers.

Notable global trends since 2024

3. Although the construction of new large-scale light water reactors in the United States, France, and Finland had been significantly delayed, these were completed in 2023 and 2024. The United States has since been exporting light water reactors (AP1000) to Bulgaria, Ukraine, and Poland. France is moving ahead with plans to build an optimized version of the European Pressurized Water Reactors (EPR2) at three sites where existing reactors are located, with the goal of building at least six new reactors (up to a maximum of 14 reactors) in the country. In the Czech Republic, a Korean company won the right of first refusal in negotiations for bidding on nuclear power expansion plans. It will be important for American and French manufacturers to learn from the causes of the delays and apply them to subsequent projects. It will also be necessary to pay attention to the impact of political trends in the United States, France, and South Korea.
4. A notable new trend in the United States is the movement toward restarting the operation of closed reactors. The Palisades Nuclear Plant in Michigan (closed in May 2022) applied to the Nuclear Regulatory Commission (NRC) in October 2023 for

permission to restart operations, and it has been revealed that Unit 1 of the Three Mile Island (TMI) Nuclear Station in Pennsylvania (closed in September 2019) also plans to restart operations to supply electricity to Microsoft. However, as restarting operations become more difficult the further the decommissioning process progresses, it is unlikely that many more closed reactors will aim to restart operations in the future.

5. In addition, there are also moves by IT companies in the United States to utilize nuclear power. Apart from the TMI Unit 1 mentioned above, an Amazon subsidiary, AWS, has acquired a data center directly connected to the Susquehanna Steam Electric Station (Pennsylvania), and both Google and Amazon have established cooperative relationships with companies developing fourth-generation reactors. However, the Federal Energy Regulatory Commission (FERC) has decided not to approve the expansion of the contract for supplying electricity by Susquehanna to AWS due to issues such as the cost burden associated with grid services. It is noteworthy to see how the treatment of such "co-located loads" that are directly connected to power generation facilities will be organized going forward.

Outlook and notable trends in Japan

6. Based on the operation plans announced by Japanese electricity utilities and the movement toward restarting nuclear power plants, the amount of electricity generated by nuclear power plants in Japan in 2025 is estimated to be around 97 to 110 TWh (varies depending on the expected progress in restarting the operation of nuclear power plants).
7. With regard to domestic policy trends, the first notable trend is the debate over the Strategic Energy Plan. In discussions within the Strategic Policy Committee, many opinions were raised concerning energy security and the possibility of increased electricity demand. The draft plan released in December 2024 clearly set forth a policy that emphasizes the role of nuclear power, and also presented an outlook for an increase in the amount of nuclear power generation by about 20% from the FY2030 target, toward FY2040. It is important to pay close attention to the direction of specific policy measures going forward.
8. In late 2024, the boiling water reactors (BWRs), Onagawa-2 and Shimane-2 were restarted. Progress has also been made in reviews surrounding the Tomari Nuclear Power Plant, including discussions based on the assumption of natural disasters. On the other hand, the Nuclear Regulation Authority decided not to approve the permit for Tsuruga-2, citing the failure of its operators to explain that there are no concerns about active faults. While there are only three remaining reactors that have obtained permission for the modification of their installation, nine are still undergoing review

for the same approval. It will be even more important in the future to proceed with the review efficiently while leveraging the knowledge gained so far.

9. In terms of trends related to the backend, in May 2024, Genkai Town in Saga Prefecture announced that it would accept the first stage (literature review) of the selection process for a geological repository for the high-level radioactive waste. In November, literature review reports from Suttso Town and Kamoenai Village of Hokkaido were submitted to the respective local governments. Attention is focused on whether these two local governments will proceed to the second stage (preliminary investigation), and whether the discussion will spread to other local communities.
10. The planned completion date for the reprocessing facility in Rokkasho Village, Aomori Prefecture, has been further postponed. As the Strategic Energy Plan also places emphasis on making maximum use of nuclear power, progress on the completion of this reprocessing facility is expected going forward. On the other hand, the interim storage facility for spent fuel in Mutsu City, Aomori Prefecture, commenced operation in November 2024, and a certain degree of progress has been made in addressing the issue of storage capacity shortages.

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