

Latest Nuclear Energy Situations in Japan and Other Countries **<Summary¹>**

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Nuclear energy situation

1. As of January 1, 2022, global nuclear power generation capacity totaled about 407 gigawatts, slightly less than a year earlier. A capacity decline in Europe and the United States outdid an increase in China and other countries.
2. As countries have set ambitious greenhouse gas emission reduction goals in recent years, nuclear energy has attracted attention as a zero-emission baseload electricity source. Since 2021, global fossil fuel price spikes have led countries in the world to give priority to stable energy supply.
3. Furthermore, Russia's invasion into Ukraine in February 2022 prompted countries in the world to recognize the significance of energy self-sufficiency anew and take a new look at the importance of nuclear energy utilization.

European and U.S situations

4. The U.S. Biden administration has indicated its attitude of giving priority to nuclear energy. In April 2022, the federal government began to receive applications for the Civilian Nuclear Credit Program to support existing nuclear reactors on the brink of being shut down for economic reasons. The government has proactively supported the development of new nuclear reactors including small modular reactors.
5. In response to the Ukraine crisis, the United Kingdom has announced a new energy strategy including a plan to build up to eight new nuclear reactors by 2030. Under a new nuclear power generation support system, its government has indicated a plan to apply the Regulatory Asset Base model to a project to construct a Sizewell C reactor. In advanced reactor development, it plans to focus on a high temperature gas-cooled reactor. At the same time, a consortium including Rolls-Royce is developing a light-water small modular reactor.
6. In France, President Emmanuel Macron in February announced an energy policy to

¹ This summary is based on the information available as of July 2022.

reach carbon neutrality by 2050. He vowed to prolong the service life of existing nuclear reactors, construct six (with an option for another eight) new version of European pressurized water reactors by 2050 and build small modular reactors.

7. The Czech Republic and Romania are planning to expand nuclear energy utilization. Poland is trying to introduce nuclear power generation.
8. The European Union is discussing a plan to include nuclear energy and natural gas into the taxonomy system to certify sustainable economic activities. In July 2022, the European Parliament approved the plan.
9. In Canada, provincial governments and electric power utilities have indicated their high interest in small modular reactors. In December 2021, Ontario Power Generation named GE Hitachi Nuclear Energy as its technology partner for small modular reactor construction in Darlington.

Japanese situation

10. In Japan, a warning about a tighter electricity supply-demand balance was issued on March 22 for the first time ever. The balance tightened in late June as well. An even tighter balance is predicted for the coming winter. Prime Minister Fumio Kishida indicated that up to nine nuclear reactors would be in operation.
11. Latest government policy statements pointed out the importance of nuclear energy anew and emphasized priority given to the early restart of existing reactors and the development of new reactors. Government and industry sector initiatives regarding nuclear energy after July's House of Councillors election will attract attention.

Chinese and Russian Situations

12. China and Russia account for a large share of nuclear reactors under construction and planning, indicating their dominance in the current nuclear reactor market. Particularly, Russia boasts a low unit construction cost for nuclear reactors. Its state-run Rosatom provides integrated nuclear plant services covering construction, operation and fuel supply.
13. China and Russia are proactively developing fourth generation and small nuclear reactors and introducing some of such new reactors. China is constructing two CFR-600 demonstration fast reactors. In December 2021, it connected the HTR-PM demonstration high temperature gas-cooled reactor to the grid. China is also building the ACP100, also known as the Linglong One, demonstration light-water small modular reactor.
14. Russia is operating two fast reactors (BN-600 and BN-800) and is planning a larger fast reactor named BN-1200. In May 2020, a floating nuclear power plant named

Akademik Lomonosov started commercial operation in Pevek, the Far East. It is also planning to construct the RITM-200N ground-installed small modular reactor.

Russia's invasion into Ukraine and reactions from other countries

15. In response to Russia's invasion into Ukraine from February 2022, some countries have been moving to break away from their dependence on Russia in the nuclear energy field. Ukraine has agreed with Westinghouse of the United States to construct a total of nine AP1000 reactors.
16. On the other hand, Russian nuclear reactor construction has continued in China, Turkey, Bangladesh, Hungary and so on. We must closely watch how moves to break away from dependence on Russia in the nuclear energy field will develop.

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