Provisional Translation

Japan Atomic Energy Commission's Views on Plutonium Utilization Plans Announced by Electric Power Companies and the Japan Atomic Energy Agency

March 4, 2025
Japan Atomic Energy Commission
Cabinet Office, Government of Japan

Regarding the use of nuclear energy, Japan has been upholding the principle of not possessing plutonium without specific purposes. Under this principle and from the viewpoint of enhancing transparency concerning peaceful use of nuclear energy, Japan Atomic Energy Commission (hereinafter referred to as "the Commission") has declared the policy to reduce the amount of Japan's plutonium stockpile in "The Basic Principles on Japan's Utilization of Plutonium" (hereinafter referred to as the "Basic Principles") published in July 2018. The Basic Principles have also requested the electric power companies and Japan Atomic Energy Agency (hereinafter referred to as "JAEA") to make public the plutonium utilization plan (hereinafter referred to as the "Utilization Plan") every fiscal year.

Under these circumstances, Japan Nuclear Fuel Limited (hereinafter referred to as "JNFL") announced the provisional operation plan (hereinafter referred to as the "Operation Plan") of the Rokkasho Reprocessing Plant and MOX Fuel Fabrication Plant (for FY2025-FY2029) in December, 2024. The electric power companies and JAEA announced their Utilization Plans (for FY2025-FY2027) in this February.

In response to these announcements and based on the Basic Principles, the Commission hereby presents its views on the Utilization Plans, taking into account the activities and plans of these companies and JAEA.

1. Utilization Plan for FY2025

(1) Japan's plutonium stockpile at the end of FY2024

As of February 2025, the following four units are in operation as pluthermal[1] reactors, i.e., Units 3 and 4 of Takahama Power Station (The Kansai Electric Power Company), Unit 3 of Ikata Power Station (Shikoku Electric Power Company) and Unit 3 of Genkai Nuclear Power Station (Kyushu Electric Power Company). According to JNFL's Operation Plan and the Utilization Plans of electric power companies and JAEA, the total amount of plutonium stockpile at the end of FY2024 (March 31, 2025) will be approx. 44.5 tons[2] , remaining the same as the previous year, since no plutonium will be further recovered or consumed in FY2024.

[1] The term "pluthermal" stands for the use of MOX fuel assemblies containing plutonium in thermal reactors.
[2] The estimated amount of stockpile at the end of FY2024 will be equal to that at the end of FY2023, since neither consumption nor recovery will be expected during this period.

(2) Expected consumption and recovery of plutonium in FY2025

With respect to electric power companies, even four pluthermal reactors will be in operation during FY2025. However, according to the Utilization Plan of electric power companies, they do not consume any plutonium in FY 2025, since none of them possess MOX fuel assemblies.

Although the construction of Rokkasho Reprocessing Plant will be completed in FY 2026. However, according to JNFL's Operation Plan, no additional plutonium is expected to be recovered in Japan in FY2025 as the plant will not be in operation during FY2025.

As for JAEA, according to their Utilization Plan, the plutonium will neither be consumed nor recovered in FY2025 since (1) the Experimental Fast Reactor "Joyo" is currently under review by the Nuclear Regulation Authority to obtain the approval of the design and construction method for confirming its compliance with the new regulatory standards, (2) their Tokai Reprocessing Plant is in decommissioning process.

(3) Utilization Plan for FY2025

Based on the above, the total amount of plutonium stockpile of Japan in FY2025 will be approx. 44.5 tons[3], remaining the same as the previous year, since neither additional plutonium will be recovered nor consumed.

The Commission believes that the Utilization Plan for FY2025 provides a reasonable outlook, taking into account the current constraints, based on the operation plans of pluthermal reactors, the operational prospects of the Rokkasho Reprocessing Plant as well as other related facilities, and the status of activities toward MOX fuel fabrication by using plutonium held abroad.

2. Utilization Plans for FY2026 and FY2027

The Commission makes provisional comments on the Utilization Plan for FY2026 and FY2027 based on the information currently available, as the situation may change significantly depending on the progress of various measures taken in the future.

(1) Expected consumption and recovery of plutonium by the electric power companies

According to the Utilization Plan of the electric power companies, either Unit 3 or Unit 4 of the Kansai Electric Power Company's Takahama Power Station is planned to consume approx. 0.7 tons of plutonium in FY2026 and approx. 0.7 tons of plutonium in FY2027, by fabricating plutonium held abroad into MOX fuel assemblies and loading it into the power station.

On the other hand, according to JNFL's Operation Plan, the annual maximum amounts of plutonium separated and recovered at the Rokkasho Reprocessing Plant during the same period are assumed to be approx. 0.6 tons in FY2027.

[3] The estimated amount of stockpile at the end of FY2025 will be equal to that at the end of FY2024, since neither consumption nor recovery will be expected during this period.

(2) Expected consumption and recovery of plutonium by JAEA

In JAEA's Utilization Plan, both plutonium consumption and recovery during the same period are set to be zero since the licensing review of the Experimental Fast Reactor "Joyo" by the regulatory body remains uncertain.

(3) Utilization Plans for FY2026 and FY2027

Based on the above, the total amount of Japan's plutonium stockpile in FY2026 and FY2027 will be approx. 43.8 tons[4] and approx. 43.7 tons[5] at maximum.

According to the electric power companies, Rokkasho MOX Fuel Fabrication Plant will be completed in FY 2027. However, according to JNFL's Operation Plan states that after completion, the quality verification tests will be conducted, and MOX fuel production will begin in fiscal year 2030. Considering the period from reprocessing to irradiation in the pluthermal reactor, it is expected that there will be a temporary increase in plutonium stockpiles in the early stage of operation of the Rokkasho Reprocessing Plant and J-MOX Plant, but it is important to show the prospect of a decrease in the stockpile in the future.

The Commission, therefore, strongly requests operators and other parties concerned to continuously make their utmost efforts based on The Basic Principles to steadily consume the plutonium recovered at home and operate the reprocessing and J-MOX plants properly taking account of the balance between demand and supply of plutonium.

At the same time, the Commission also strongly requests electric power companies to intensify their efforts to consume plutonium at home and to reduce stockpile stored abroad to comply with the Basic Principles.

JAEA is expected, in cooperation with the relevant parties, to continuously investigate the various ways being considered now, to further explore every possible way that will contribute to reducing its plutonium stockpile and to ensure transparency.

Lastly, in order to enhance the transparency of the use of plutonium in Japan, the Commission strongly requests the electric power companies and JAEA to make revised reports, of the Utilization Plans, in a timely and appropriate manner, in accordance with the progress made in specific initiatives.

---

[4] The estimated amount of stockpile at the end of FY2026 obtained by subtracting approx. 0.7 tons which Kansai Electric Power's Takahama Power Station will consume from the total Japanese stockpile of approx. 44.5 tons at the end of FY2025.

[5] The estimated amount of stockpile at the end of FY2027 obtained by adding the maximum amount recoverable in FY2027 (approx. 0.6 tons) to the estimated total stockpile in Japan of approx. 43.8 tons at the end of FY2026 and subtracting the estimated consumption at the Kansai Electric Power Company's Takahama Power Station (approx. 0.7 tons).