

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

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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 of the Rokkasho Reprocessing Plant and MOX Fuel Fabrication Plant (for FY2024-FY2028) in February, this year, and the electric power companies and JAEA announced their Utilization Plans (for FY2024-FY2026) subsequently.

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 FY2024

(1) Japan's plutonium stockpile at the end of FY2023

As of February 2024, the following four units are in operation as pluthermal<sup>1</sup> 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). In FY2023, since approx. 0.6 tons of plutonium were consumed at Unit 3 of Takahama Power Station and no additional plutonium was recovered in Japan, the total amount of plutonium stockpile at the end of FY2023 (March 31, 2024) will be approx. 44.5 tons<sup>2</sup>.

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<sup>1</sup> The term "pluthermal" stands for the use of MOX fuel assemblies containing plutonium in thermal reactors.

<sup>2</sup> The estimated amount of stockpile obtained by subtracting approx. 0.6 tons consumed at Kansai Electric Power's Takahama Power Station Unit 3 at the end of FY2023 from the total Japanese stockpile of approx. 45.1 tons at the end of FY2022. The Utilization Plan published by the Federation of Electric Power Companies of Japan estimates that the amount of plutonium stockpile will decrease by approx. 0.7 tons, due to the consumption of approx. 631 kg of plutonium at the Takahama Power Plant Unit 3 as well as a nuclear loss of plutonium.

## (2) Expected consumption and recovery of plutonium in FY2024

With respect to electric power companies, even four pluthermal reactors will be in operation during FY2024, they do not consume any plutonium since none of them possess MOX fuel assemblies.

Although the construction of Rokkasho Reprocessing Plant will be completed in the first half of FY 2024 (as early as possible), no additional plutonium is expected to be recovered in Japan as the plant will not be in operation during FY2024.

As for JAEA, the plutonium will neither be consumed nor recovered in FY2024 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) Validity of Utilization Plan for FY2024

Based on the above, the total amount of plutonium stockpile of Japan in FY2024 will be approx. 44.5 tons<sup>3</sup>, remaining the same as the previous year, since neither additional plutonium will be recovered nor consumed.

The Commission believes that the Utilization Plan for FY2024 is appropriate at this point, based on the operation plan of pluthermal reactors, the operational prospect 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 FY2025 and FY2026

The Commission makes provisional comments on the Utilization Plan for FY2025 and FY2026 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, by fabricating plutonium held abroad into MOX fuel assemblies and loading it into the power station.

On the other hand, according to JNFL, 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 FY2025 and approx. 1.4 tons in FY2026.

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<sup>3</sup> The estimated amount of stockpile at the end of FY2024 will 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 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 FY2025 and FY2026

According to the Utilization Plans of the electric power companies and JAEA, the total amount of Japan's plutonium stockpile in FY2025 and FY2026 will be approx. 45.1 tons<sup>4</sup> and approx. 45.8 tons<sup>5</sup> at maximum, respectively, which have slightly increased from the estimated amount at the end of FY2023.

According to the electric power companies, the plutonium to be recovered at the JNFL's Rokkasho Reprocessing Plant will not be consumed immediately in pluthermal reactors. Subsequently, approx. 0.6 tons of plutonium recovered in FY2025 will be fabricated into MOX fuel assemblies at the MOX Fuel Fabrication Plant (hereinafter referred to as "J-MOX Plant") and consumed in pluthermal reactors after FY2027, and MOX loading reactors will be specified hereafter. Considering the period from reprocessing to irradiation in the pluthermal reactor, the estimated plutonium stockpiles will increase temporarily 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.

Thus, taking account of the operational status of the pluthermal reactors after FY2027, it is difficult to verify the details of the Utilization Plans for FY2025 and FY2026 and to evaluate their appropriateness due to many uncertainties.

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.

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<sup>4</sup> The estimated amount of stockpile calculated by adding the maximum amount recoverable in FY2025 (approx. 0.6 tons) to the estimated total stockpile in Japan of approx. 44.5 tons at the end of FY2024.

<sup>5</sup> The estimated amount of stockpile calculated by adding the maximum amount recoverable in FY2026 (approx. 1.4 tons) to the estimated total stockpile in Japan of approx. 45.1 tons at the end of FY2025 and subtracting the estimated consumption at the Kansai Electric Power Company's Takahama Power Station (approx. 0.7 tons).