The Plutonium Utilization Plan

February 26, 2021
The Federation of Electric Power Companies of Japan

The 9 major utilities (excluding the Okinawa Electric Power), the Japan Atomic Power Company, and Electric Power Development Co., Ltd. (J-Power) have created a Plutonium Utilization Plan as shown in the attachment.

In resource-poor Japan, establishing a nuclear fuel cycle domestically is a critical part of securing a stable supply of energy in the long-term. The importance of pluthermal power generation remains unchanged even as circumstances surrounding nuclear power generation continue to change after the accident at TEPCO's Fukushima Daiichi Nuclear Power Station.

The 11 power companies, in its new Pluthermal Program published on December 17, 2020, have indicated their intent to speedily introduce pluthermal power generation in as many plants as possible and have laid out specific goals to that end which include having at least 12 reactors running on pluthermal energy by FY2030.

This Plutonium Utilization Plan outlines specific plants in which plutonium will be used and the amounts of plutonium to be used based on the operation plans of the Rokkasho Reprocessing Plant and MOX Fuel Fabrication Plant.

Under the national government's policy of not possessing plutonium without a specific purpose, we will do our utmost to promote pluthermal program to steadily use up all plutonium including those stored abroad and plutonium collected by the Rokkasho Reprocessing Plant through these initiatives.

END

February 26, 2021
The Federation of Electric Power Companies of Japan

Plutonium Utilization Plan

Owner	Amount stockpiled (ton(s) of Put)*1 (forecast as of the end of FY2020)	Purpose (to use as light water reactor fuel)					(Reference) Amount of spent fuel currently stored (tU) (As of the end of FY2019)
		Reactors running on pluthermal and reactors that will be running on pluthermal conditional on the understanding of the local community *2	Amount used (ton Put)*1,*3,*4			Estimated amount of annual usage*5 (ton Put/year)	
			FY2021	FY2022	FY2023		
Hokkaido EPCO	0.3	Tomari Nuclear Power Station Unit 3	—	—	—	Approx.0.5	510
Tohoku EPCO	0.7	Onagawa Nuclear Power Station Unit 3	—	—	—	Approx.0.4	680
TEPCO HD	13.7	One of TEPCO HD's reactors assuming that TEPCO will work to regain the trust of the siting region for restart, and also steadily use up plutonium.	—	—	—	—	7,040
Chubu EPCO	4.0	Hamaoka Nuclear Power Station Unit 4	—	—	—	Approx.0.6	1,380
Hokuriku EPCO	0.3	Shika Nuclear Power Station Unit 1	—	—	—	Approx.0.1	170
Kansai EPCO	12.6	Takahama Nuclear Power Station Units 3, 4	0.0	0.7	1.4	Approx.1.1	4,190
		Ohi Nuclear Power Station Units 1, 2	—	—	—	Approx.0.5～1.1	
Chugoku EPCO	1.4	Shimane Nuclear Power Station Unit 2 *7	—	—	—	Approx.0.4	590
Shikoku EPCO	1.5	Ikata Nuclear Power Station Unit 3	0.2 *8	0.0	0.0	Approx.0.5	890
Kyushu EPCO	2.2	Genkai Nuclear Power Station Unit 3	0.0	0.0	0.0	Approx.0.5	2,410
Japan Atomic Power Company	5.0	Tsuruga Nuclear Power Station Unit 2	—	—	—	Approx.0.5	1,180
		Tokai Daini Nuclear Power Station	—	—	—	Approx.0.3	
Electric Power Development Company (J-Power)	Necessary amounts handed over from other operators *6	Ohma Nuclear Power Station	—	—	—	Approx.1.7	
Total	41.7		0.2 *8	0.7	1.4		19,040
Amount of plutonium recovered through reprocessing (ton Put)*9			—	0	0.6		
Total amount stockpiled (ton Put)			41.5 *8	40.8 *8	40.0 *8		

This plan will become more detailed as plants restart and the pluthermal program progress, and as the MOX Fuel Fabrication Plant starts its operation.
The amounts to be used from FY2021 to FY2023 are based on the operation plans of each operator (as of January 2021).
Operators' operation plans for FY2024 and onwards have yet to be determined but preliminary projections as of now for amounts to be used at the time are given below to provide plutonium use projections for after the Rokkasho Reprocessing Plant starts operation.

Projections for the amounts of plutonium to be used from FY2024 and onwards (total of all operators)

- ・FY2024: 0.7 ton Put
- ・FY2025: 1.4～2.8 ton Put *10
- ・FY2026～2030: ～ approx. 6.6 ton Put/year *11

*1 Total amount of plutonium (Put). (The total may not match the sum of the amount stored by each utility as figures were rounded off at the second decimal place.)

*2 Location according to the existing plan. This may change following future study.

*3 Use of domestic MOX fuel are projected to start in FY2026 or later.

*4 0.0: When MOX fuel can be used
－: When MOX fuel cannot be used

*5 "Estimated amount of annual usage" is the annualized amount of plutonium contained in MOX fuel that will be loaded onto plants specified in the pluthermal plans formulated by each utility.

*6 Utilities are planning to hand off some of the plutonium collected in France to Electric Power Development Company. (A total of approx. 1.3 tons of fissile plutonium, of which approx. 0.1 tons will come from Tohoku EPCO, approx. 0.7 tons from TEPCO HD, approx. 0.1 tons from Chubu EPCO, approx. 0.1 tons from Hokuriku EPCO, approx. 0.2 tons from the Chugoku EPCO, approx. 0.0 tons from Shikoku EPCO, approx. 0.1 tons from Kyushu EPCO, will be handed over.)

*7 Because there is currently no operation plan, there is no set date on when MOX fuel will be introduced. We will start to use MOX fuel with the consent of those in the siting region after restart. (Approx. 0.3 ton Put)

*8 These values are provisional. The operation plan is not yet fixed as a result of the injunction issued by Hiroshima High Court to temporarily halt operation of Ikata Nuclear Power Station Unit 3, revoking a decision by the lower court.

*9 Amount of plutonium projected to be collected as indicated in the "Rokkasho Reprocessing Plant and MOX Fuel Fabrication Plant Operation Plan" (JNFL, December 16, 2020).

*10 Will be exploring all options to use up the plutonium stored overseas, cooperating among utilities, on the basic assumption that each utility will use up the plutonium that they have, in their plutonium-thermal reactor.

*11 Will be gradually raising the annual usage amount starting in FY2026 so that by FY2030, 6.6 tons Put to be collected when reprocessing 800 ton U can be used.