



Japanese Government Should Halt Construction of Plutonium Extraction and Fuel Fabrication Plant

For immediate release 27 September 2001

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JOINT PRESS RELEASE

Japanese Government Should Halt Construction of Plutonium Extraction and Fuel Fabrication Plant, Say Two Independent Groups in Japan and the U.S.

Most Expensive Nuclear Fuel in the World Would Exacerbate Proliferation Problems

U.S. Should Learn from Japan's Mistake, Abandon Plans to Reprocess and to Use Plutonium-Fueled Reactors

Two independent research organizations are calling on the government of Japan to abandon the Rokkasho Nuclear Processing Plant, currently under construction in Japan's Aomori Prefecture. The groups, one based in Japan and the other in the U.S., say the plant is clearly uneconomic and poses unacceptable safety and proliferation risks.

"The [plutonium](#) fuel from this plant would be the most expensive in the world, by far. Abandoning the Rokkasho plant right now would economically be the wise thing to do," said Arjun Makhijani, president of the Institute for Energy and Environmental Research, a nonprofit organization based in Takoma Park, Maryland, USA.

IEER estimates that nuclear fuel produced from [plutonium](#) extracted at Rokkasho will be at least 20 times more expensive than low enriched uranium, or [LEU](#), fuel. Plutonium fuel, also known as mixed oxide or "[MOX](#)" fuel, made in France is about five times more expensive than [LEU](#) fuel. IEER also estimates that electricity generated from Rokkasho's [MOX](#) fuel will cost at least 11 cents per kilowatt-hour, whereas that from LEU fuel costs 4.5 to 6 cents per kilowatt-hour. The average electricity cost from the reactor will be kept down only because two-thirds of the fuel used would continue to be LEU fuel and only one-third of the core would be loaded with MOX fuel.

The Rokkasho plant is currently being built by Japan Nuclear Fuel Ltd. (JNFL) with financing from major Japanese electric power companies and the nuclear industry for the purpose of processing spent fuel from Japanese light water reactors and manufacturing it into MOX fuel.

Rokkasho's completion date has been postponed and its projected cost has increased several times since



its inception. The latest official estimate for completion is July 2005, and construction costs are now projected to be three times the original estimate.

“The plutonium fuel program in Japan is in deep trouble because of poor management, enormous cost, and safety issues,” said Baku Nishio, co-director of Citizens’ Nuclear Information Center. “Instead of admitting failure, like any sensible businessperson would do, Rokkasho’s promoters are expected to pour more than 2.1 trillion yen (about US\$20 billion) into a large-scale plutonium boondoggle that can never be economical.”

“Even worse, if the plant is completed Japan will likely end up holding almost as much surplus plutonium as does the U.S. or Russia – with no specific plans for its use,” said Mr. Nishio. Japan has already accumulated a huge surplus of plutonium because of repeated delays in its plutonium fuel plans. (One of those delays was due to the fabrication of MOX fuel quality control data by the British company BNFL.) This surplus is expected to grow over the next decade, even without the plutonium that would be extracted at Rokkasho, because of [reprocessing](#) contracts that Japan has with BNFL and the French [reprocessing](#) company Cogéma.

“Plutonium, whether of commercial or military provenance, can be relatively easily processed for use in nuclear weapons and therefore poses serious proliferation risks,” stated Dr. Makhijani.

Safety has been undermined due at least in part to economic strains. “Rokkasho’s skyrocketing construction costs prompted JNFL to alter the plant blueprints, which is partly to blame for the blueprints being mistranscribed,” said

Mr. Nishio. “This caused tanks used for storing liquid radioactive waste to get faulty parts, or be missing parts altogether. Also as a cost-cutting measure, JNFL used diluted concrete, which was the likely cause of cracks forming in some of the plant’s buildings.”

Other safety problems have plagued Rokkasho. Last year, the cooling system of its spent nuclear fuel storage pool temporarily failed. The ventilation system in the fuel storage building had problems. Last month, the fuel pool, which at that point contained more than 1,000 nuclear fuel assemblies, leaked coolant from a loose valve; it took workers more than 15 hours to identify and fix the problem.

“These incidents indicate that JNFL cannot properly operate the nuclear fuel storage pool,” said Mr. Nishio. “JNFL’s incompetence regarding quality control is clear, and it is possible that there are problems with other parts of the plant. In addition, because plutonium is involved with MOX fuel manufacturing, protecting the public and workers from radiation exposure will pose a considerable challenge. We have serious doubts that the Rokkasho plutonium processing complex can be constructed and operated safely.”

“After all, the Japanese people are sensitive to nuclear safety issues,” observed Mr. Nishio. “Still fresh in our minds is the 1999 criticality accident at the JCO Tokaimura uranium fuel processing plant,” which claimed two lives, exposed local resident to neutrons and forced residents within a 350 meter radius of the plant to evacuate.

Despite the promotion of the nuclear fuel cycle policy by the Japanese government and the nuclear



industry, plans to use MOX fuel are reaching a dead end in Japan. Due to strong local opposition and the MOX fuel data falsification scandal by BNFL, none of the MOX fuel transported to Japan since mid-1999 has been used, and no utilities have fixed dates for loading it. Local officials and other people have recently rejected the use of MOX fuel after the recent safety and data fabrication scandals. The most recent referendum on the issue was in Kariwa village, where a majority voted against using MOX at a nuclear plant located at the border of the Village and Kashiwazaki City.

“We are calling on the Japanese government to order a halt to the construction of the Rokkasho complex and abandon the project,” said Mr. Nishio. “In terms of cost, safety, and security, the benefits of doing so are clear and compelling.”

“The Rokkasho plant should be a lesson to the United States that reprocessing and plutonium fuel programs are losing economic propositions,” said Dr. Makhijani. “Not only that, commercial plutonium programs — which are suggested in the Bush/Cheney energy plan — would throw overboard long-standing U.S. non-proliferation policy.”

CNIC recently launched a campaign to urge Japan’s Prime Minister Koizumi to halt the construction of the reprocessing plant. Information on the campaign can be accessed via the CNIC website, <http://www.cnic.or.jp/>.

More information on Rokkasho and its problems is provided in “Rokkasho: A Troubled Nuclear Fuel Cycle Complex,” an article by CNIC staff member Masako Sawai, published in the [August issue of IEER’s newsletter Science for Democratic Action](#) and on CNIC’s web site (Japanese language version).

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Citizens’ Nuclear Information Center is a public interest organization based in Tokyo that provides reliable information and public education on nuclear power issues to the media, citizens’ groups, policy makers, and the general public. CNIC’s web site is <http://www.cnic.jp/english/>.

The Institute for Energy and Environmental Research is a nonprofit organization in Takoma Park, Maryland that provides the public and policy-makers with clear, thoughtful studies on a variety of energy and environmental issues.