



## **Japan's Plutonium Plans vis-a-vis the Tokai Incident**

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*PRESS RELEASE*

### **Japan's Plan for Plutonium Fueled Reactors is "Needlessly Risky"**

#### **Tokai Nuclear Accident Shows Regulatory, Emergency Response Weakness**

**Independent Institute Calls on Japanese Government to "Abandon Plutonium Fuel Plans and Move to Safer, Cheaper Offshore Wind Energy"**

**WASHINGTON, DC, October 5, 1999:** Last week's accidental nuclear chain reaction at the Tokaimura fuel processing plant demonstrates that "Japan's nuclear regulatory system is far too lax to permit a change to plutonium from uranium fuel," according to the Institute for Energy and Environmental Research (IEER), a U.S based center which has studied the Japanese energy production system.

Japan plans to load plutonium fuel (a mixture of plutonium and uranium known as MOX) into some of its commercial reactors in the near future, most likely well before a thorough independent investigation of the Tokaimura accident can be completed. At the time of the Tokaimura accident, ships from Britain and France carrying [MOX fuel](#) were docking at Okuma, less than a hundred miles away.

"Japan's regulatory authorities reportedly accepted word of a private company, JCO, Inc., that a criticality accident at its Tokaimura uranium fuel processing plant was impossible, but allowed medium enriched fuel to be processed there," said Dr. Arjun Makhijani, IEER's president. "This flies in the face of elementary nuclear engineering." IEER noted other regulatory lapses, such as the lack of an effective alarm system to warn workers and nearby residents of very high radiation levels, operating manuals that permitted bypassing of an essential safety system, and lack of an emergency evacuation plan.

"Japan's regulatory system needs to be subjected to intense scrutiny," said Hisham Zerriffi, Project Scientist at IEER. "In its rush to maximize production and minimize costs, JCO had been using inexperienced workers and illegal procedures. There was no effective inspection system in place to detect these violations. Moreover, Japan's Science and Technology Agency should never have permitted such a plant in a residential neighborhood. Given these serious regulatory lapses, it would be irresponsible to introduce MOX fuel into commercial reactors at this stage."

Nuclear power plants, which now use uranium fuel, supply about a third of Japan's electricity requirements. IEER noted that the [use of plutonium fuel in nuclear reactors](#) requires a greater number of control elements than uranium fuel. Without adequate regulatory oversight to ensure that the reactors had been modified or had sufficient control already installed, the risks of an accident could increase. While the design of Japan's commercial reactors is different from that of the Chernobyl reactor, a catastrophic



accident that would release a comparable amount of radioactivity is still possible.

IEER noted that the consequences of the Tokaimura accident were localized because only about 16 kilograms of medium enriched fuel, equivalent to about 80 kilograms of the type of low-enriched [uranium](#) used in a commercial reactor, was used. A large operating commercial reactor of the type typical in Japan and elsewhere contains almost 1,000 times as much fuel.

The accident at Tokaimura generated fission products for less than one day. Dangerous releases from a severe accident at a commercial nuclear power plant could be tens of thousands of times greater because normal reactor operations produce enormous amounts of radioactivity. Further, unlike the Tokaimura accident, an accident at a MOX fueled nuclear power plant could also release large amounts of plutonium and other transuranic radionuclides. A large portion of the East Asian region, which includes Japan, North and South Korea, large parts of China and parts of Russia, could experience high levels of fallout, depending on the weather. IEER noted that a severe accident on the scale of Chernobyl could wind up contaminating agricultural land that feeds millions of people.

The use of MOX fuel in Japan has already been plagued by controversy because of the transport of material that could be relatively easily processed for use in nuclear weapons. Moreover, one of the two shipments of MOX now being readied for use in Japan is from the British company BNFL, which has admitted fabricating quality control data in some of its MOX fuel manufacture. Fuel that does not meet specifications could raise additional safety issues for reactor operation. BNFL denied that improperly inspected MOX fuel was shipped to Japan, a claim that has been met with some skepticism. Quality control at BNFL's MOX fabrication operation is being investigated by Britain's regulatory agency, known as the Nuclear Installations Inspectorate.

“It is time for Japan to take a step back from its commitment to plutonium fuel. Our work at IEER has shown that Japan has a far safer and more economical alternative to plutonium that is available right now — [offshore wind energy](#),” said Dr. Makhijani. Earlier this year, IEER issued a report concluding that using offshore wind to meet a portion of Japan's energy needs was 40 percent cheaper than MOX fuel and more than twice as economical as breeder reactors. The accident at Tokaimura occurred while preparing fuel for use in Japan's experimental breeder reactor, Joyo.

After IEER's report was issued, Japan initiated a small, offshore wind power program. “We applaud Japan's initiative, but it is clearly insufficient, said Dr. Makhijani. “A much larger effort on offshore wind energy explicitly directed at replacing the electricity that would be derived from MOX fuel is needed right now. It would be unconscionable for the country that suffered the bombings of Hiroshima and Nagasaki to subject its own people and those of the entire region to the needless risk of plutonium fuel, when a safe and more economical alternative is available right now.”