



## Heading Off the Plutonium Peril

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The United States is about to throw away one of the most important keys to its leadership on nuclear non-proliferation. Fashioned during two decades of bipartisan agreement, U.S. policy forswore the use of [plutonium](#) as an energy source to prevent a black market in the deadly material from emerging. In the next few days, the Department of Energy will announce its plan for management of surplus military plutonium from dismantled nuclear warheads in the form of an environmental impact statement. This statement will open the door to government subsidies for use of much of the surplus military plutonium as a fuel in nuclear reactors. The apparent rationale: Russia will use its plutonium in this way anyway, so the U.S. also should do it to maintain symmetry and cooperation on nuclear issues.

The timing for such a decision hardly could be worse. The danger of a black market in plutonium is especially acute today because of the enormous economic distress in Russia, epitomized by the suicide of the director of Chelyabinsk-70, one of Russia's leading nuclear labs, reportedly because lab personnel had not been paid their meager \$50 salaries for months. Writing about the lab director's funeral, Grigory Yavlinsky, leader of Russia's Yabloko Party, noted that "no one can guarantee the security of [Russia's] thermonuclear programs."

At the nearby nuclear weapons industrial facility known as Chelyabinsk-65, more than 60,000 pounds of plutonium are stored in 12,000 stainless steel bottles the size of thermos bottles. Two or three of them contain enough plutonium to make a nuclear bomb hundreds of the times more powerful than the bomb that destroyed the Alfred P. Murrah Federal Building in Oklahoma City.

Moreover, Russia continues to separate more plutonium from used nuclear-reactor fuel in a chemical-processing facility (called a [reprocessing plant](#)). The Russian nuclear establishment proclaims plutonium to be a national energy treasure but is not yet using it as a reactor fuel. The one thing that Russia is missing to perpetuate its current plutonium policies is a plant to fabricate plutonium into a reactor fuel by mixing it with uranium oxide and molding it into pellets (called a "mixed oxide" or MOX plant). If Russia builds such a plant, presumably with foreign aid, it could not only use it to make surplus weapons plutonium into fuel, it also could use it to make [MOX fuel](#) out of commercial plutonium. This would encourage Russia to go on operating its reprocessing plant and keep on separating more plutonium, creating greater risks of diversion. Instead of encouraging Russia to stop the production and accumulation of weapons-usable plutonium, a U.S. policy favoring MOX fuel would help to perpetuate it.

Russian attachment to plutonium is not a matter of sound economics or energy policy. Independent studies have concluded that making plutonium fuel is more costly than uranium fuel and will remain so for decades. My discussions with officials and representatives of public interest groups in Russia during a recent visit revealed that a major underlying reason for the official Russian attachment to plutonium is a concern about jobs.

There is another way, compatible with security, for Russia and the United States to deal with surplus plutonium and address the concerns about jobs. First, carefully account for and improve the storage of all plutonium, both military and commercial, at a level of effort far greater than the current bilateral program.



Second, mix plutonium with molten glass and other materials (a process called “vitrification”) so that it is difficult to re-extract, and store it in highly radioactive containers so that its is next to impossible to steal.

The United States should declare vitrification to be the sole approach it will use for all its surplus plutonium and encourage Russia and other countries to do the same. If one day plutonium becomes a necessary and economical energy source, it can be re-extracted from the glass for such use by mutual U.S.-Russian agreement and under international safeguards to prevent diversion. Providing that assurance could be the key to getting the Russians to agree to vitrification and stop their expensive and risky reprocessing program.

Of all the nuclear powers, only the United States has adopted a prudent non-proliferation and economic policy on the use of plutonium as an energy source. As a result it is the only country that is in a position to lead on this issue. Instead, the Energy Department is proposing to follow Russia down a road that would increase nuclear dangers by entrenching pork-barrel interests in plutonium in Russia and creating them anew in the United States.

Today, plutonium is one of the most serious security threats facing the world. It should be vitrified and further production stopped. Only President Clinton can now change the unfortunate course down which the Energy Department is leading the country and the world. He must act soon and rule out the use of plutonium as a nuclear-reactor fuel.

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For more information about the disposition of surplus weapons plutonium, see IEER’s report, [Fissile Materials in a Glass, Darkly](#).