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BURNETT & STEVENSON: Lessons from Japan on nuclear waste

Safe storage solutions are available - if Congress will act

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The nuclear crisis in Fukushima, [Japan](#), has shown, beyond a doubt, the time has come to deal with the United States' supply of used nuclear fuel rods - commonly, but erroneously, called "waste." The most immediate potential hazard in the Fukushima crisis stems from the loss of water cooling the plants stored spent fuel.

Unnecessarily, in the United States we currently store spent nuclear fuel rods, in many instances, at power plants in above-ground facilities just like the one in [Japan](#) now troubling the world.

Indeed, there are currently about 71,000 metric tons of spent fuel and high-level radioactive waste stored at 121 nuclear power plants and nonmilitary government sites. While this may seem like a lot, the entire 50 years worth of spent fuel could be stored in a space the size of one football field piled 41 feet high. Waste grows at a rate of 2,000 metric tons a year.

Three options have existed for years - but politics has prevented us from availing ourselves of them.

In 1982, [Congress](#) passed the Nuclear Waste Policy Act requiring the federal government to provide a high-security, permanent, underground storage site and began charging a fee of one-tenth of a cent on every kilowatt-hour of nuclear power produced to pay for it. According to the [Department of Energy](#), the [Nuclear Waste Fund](#) totals \$25 billion and is increasing by \$750 million a year in payments and \$1 billion a year in interest.

The act required the [Department of Energy](#) to develop and maintain an underground storage facility for nuclear waste. The site had to meet strict criteria, including the ability to safely contain 77,000 metric tons of material for up to 10,000 years, and the material had to be accessible for 50 years in the event fuel recycling was allowed. The [Energy Department](#) determined that Yucca Mountain, Nevada, was uniquely suited to serve as a safe storage place. After 26 years and more than \$13.5 billion spent, the initial facility is complete and ready to accept up to 70,000 metric tons of waste and only requires final licensing. The storage capacity of Yucca Mountain could be tripled.

However, despite scientific evidence that Yucca Mountain is safe, political wrangling has prevented opening the facility. In an executive order, the Obama administration zeroed out spending on it.

Absent Yucca Mountain, we have a second storage option: the Waste Isolation Pilot Plant (WIPP) located 25 miles east of Carlsbad, N.M., used to store military-grade nuclear waste. It is already open and more than 100,000 containers of radioactive material have been stored in a massive, bedded (layered) salt deposit. Only a small portion of the available space has been used. The salt in the formation is self-sealing: It flows like sand to fill in, or seal, the disposal chambers completely.

WIPP has been extensively monitored for human health and environmental risks for 15 years with the Carlsbad Environmental Monitoring and Research Center at New Mexico State University reporting that there has been no evidence of an increase in contaminants in the ground, air or water near WIPP. Indeed, radiation levels have not exceeded the baseline measured before the operation began.

The main impediment to using WIPP to store spent nuclear fuel rods is the legal requirement that waste be retrievable for up to 50 years. Once waste is stored in WIPP, it isn't coming out again. Congressional legislation should allow immediate use of WIPP for civilian waste starting with the most at-risk waste unless or until Yucca Mountain is opened.

The third option - recycling spent fuel - offers two benefits: It provides an almost unlimited supply of fuel for the nation's existing nuclear fleet and it would reduce the overall amount of waste that would have to be stored. One kilogram of

natural uranium contains as much energy as 38.5 tons of coal, but only about 3 percent of that energy is utilized in conventional reactors. Reprocessing this fuel as is done in other countries would provide a virtually unlimited supply of nuclear fuel. France, for example, which gets more than 75 percent of its electricity from nuclear plants, reprocesses its uranium. Even if another nuclear power plant is never built in the United States, currently operating plants are not going to be shuttered anytime soon, thus recycling spent fuel provides additional fuel without the mining. It also reduces the waste stream that needs to be stored - a win, win for the environment.

[Congress](#) should act now and embrace one or all of the available options for handling and storing the nation's nuclear waste. We can store it safely, so why should [Congress](#) allow it to sit around at 121 locations waiting for a crisis (however unlikely) to occur here? Let's have some positive fallout from the Japanese nuclear crisis. In the words of Benjamin Franklin, "an ounce of prevention is worth a pound of cure."

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