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As U.S. Moves Ahead with Nuclear Power, No Solution for Radioactive Waste

A pair of legal actions against the Nuclear Regulatory Commission raises fresh questions over how and where to store the nation's growing nuclear waste

By Abby Luby

Mar 3, 2011



Image: Jayme Frye

President Obama has won wide bipartisan support for his determination to revive American nuclear power — a low-carbon energy solution that electric utilities and conservatives can support.

But a pair of legal actions last month could complicate matters for Washington by forcing the **Nuclear Regulatory Commission (NRC)** to address a longstanding and almost intractable problem: How and where to store the highly radioactive waste.

For many, the separate suits by state attorneys general and environmental groups raise fresh

questions over why America is pouring billions into a nuclear renaissance with no long-term strategy for handling waste from the nation's existing facilities.

"The waste problem is the Achilles heel of the nuclear industry," said Daniel Hirsch, president of the **Committee to Bridge the Gap**, a California-based nuclear watchdog.

On average, each of the nation's 104 nuclear reactors produces 2,000 metric tons of spent nuclear fuel annually — equivalent to the size and weight of 2,000 SUVs. The toxic brew is radioactive for eons. Plutonium-239, for instance, one of the industry's byproducts, has a half-life of about 24,000 years, according to NRC data.

"The one way to go is to ignore it," Hirsch said of the waste conundrum in an interview. "We'll get the electricity right now, and hope that several generations down the road someone else will figure out where to store [the waste]."

For now, at least, the attorneys general of New York and Vermont, and Connecticut's assistant attorney general, want environmental impact assessments conducted for waste that is stored on-site at nuclear power plants.

AG Lawsuit: Lack of Environmental Analysis Is Illegal

The trio filed a lawsuit on Feb. 16 suit against NRC, charging the agency with violating federal laws by not properly analyzing potential health, safety and environmental threats of the buried waste. The suit targets NRC's recently updated "Waste Confidence Rule."

In December 2010, NRC changed the rule, doubling the amount of time that waste can be stored on-site from 30 years after a plant goes out of service to 60 years. Now, it appears the agency might double that again.

In an interview with SolveClimate News, NRC spokesperson Neil Sheehan said a plan was underway to allow the high-level waste to be stored on-site for over 120 years.

New York Attorney General Eric Schneiderman, who announced the lawsuit just miles from the Indian Point Nuclear Power Plant in Westchester, N.Y., said citizens deserve to know if these rule changes carry risks.

"Our communities deserve a thorough review of the environmental, public health, and safety risks such a move would present," said **Schneiderman**. "This is not just a safety and environmental issue, but also one that could affect property values."

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Entergy: 'No Evidence' Storage is Unsafe

At Indian Point, one of the oldest reactors in the country, 30 tons of enriched uranium radioactive waste is produced every 18 months, most of which is crammed into 40-foot deep pools at each of the two reactors.

Currently, each pool holds about 1,000 tons of radioactive waste. An additional 1,500 tons are stored in 15 dry casks on an open tarmac surrounded by barbed wire and a surveillance tower.

Across the country, 50,000 metric tons of waste was produced through the end of 2003, according to a 2005 report by the National Research Council. The nonprofit [Union of Concerned Scientists](#) predicts that by 2015 there will be over 75,000 metric tons of radioactive waste stored at temporary sites.

Indian Point will close in 2035, if it gets relicensed. Under the new waste storage rule, spent fuel would be stored there until 2095, and could remain on-site well into the 22nd century if the rule extends to 120 years.

Jerry Nappi of New Orleans-based Entergy, the company that owns Indian Point, told SolveClimate News that the waste is stored "in enormously strong and long-lasting steel and concrete containers in accordance with federal regulations.

"There is no reason or evidence to suggest they are unsafe."

The agency insists that its Waste Confidence Rule is legally sound and says safety issues have been evaluated.

"The NRC has carried out numerous studies on the safety of storing spent nuclear fuel at U.S. power reactor sites. These include a complete reexamination of spent fuel pool safety and security issues following the 9/11 attacks," the agency said in response to the lawsuit.

Enviros: NRC Dangerously Vague on Post-Yucca Plans

But the states are not the only ones not taking NRC's word for it.

Less than a week after the attorneys general sued, environmental organizations petitioned the [U.S. Court of Appeals for the District of Columbia Circuit](#) to overturn two NRC rules that say storage and disposal of radioactive waste poses no significant safety or environmental concerns.

One petition was filed by the [Natural Resources Defense Council](#). The other was jointly filed by the [Blue Ridge Environmental Defense League](#), [Riverkeeper](#) and [Southern Alliance for Clean Energy](#).

The organizations' petitions have a different focus from the lawsuit filed by the states.

While the attorneys general challenged the legality of storing waste on-site without a proper environmental review, the green groups targeted NRC for being too vague about when, whether and how it plans to find a new repository for the nation's nuclear leftovers. This is causing particular concern in light of the Obama administration's decision to pull the plug on the Yucca Mountain nuclear waste project in Nevada.

Since 2002, the DOE has spent about \$9 billion to open a permanent repository for spent fuel at Yucca Mountain. Congress originally chose the site in 1987. For decades, environmental groups fought against the repository and ultimately succeeded in stopping the project.

In its 2012 budget, the Obama administration cut funding for the Yucca Mountain project. The DOE has yet to find a state willing to host the radioactive waste for the nation's nuclear plants

The NRC maintains its position that a repository "will be available when necessary." But the petitioning groups say that assumption is made without "foundation in the facts and history of the U.S. geologic repository program."

David Lochbaum, the director of the nuclear safety project for the [Union of Concerned Scientists](#), agrees that NRC's plan for a future repository is flawed.

"The NRC has confidence that a permanent disposal site will become available, and that spent fuel can be safely and securely stored on site until then," he told SolveClimate News. But the DOE's inability to do this so far "thoroughly undermines NRC's basis for concluding that challenge might someday be met."

Nearly CO2-Free, But What About the CFCs?

For decades, America's nuclear power industry has been at a standstill. That's about change, with the first new reactor in 30 years under construction in Georgia, and three others getting close to breaking ground in Maryland, Texas and South Carolina.

The resurgence comes largely from the global push to adopt more low-carbon energy sources like nuclear power. Reactors emit little or no greenhouse gases when producing electricity.

National Snow and Ice Data Center
National Science Foundation
NOAA Climate Service
NOAA Paleoclimatology
EPA's Climate Change Page
Global Change Research Program
Goddard Institute for Space Studies
Navy Task Force on Climate Change
USDA Climate Change Research Ctr
US Forest Service Publications
DOE: Office of Climate Change Policy

International

Intergov'tal Panel on Climate Change
UN Framework Convention (UNFCCC)
UN Environment Programme (UNEP)
Met Office: Hadley Centre (UK)
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Some observers have challenged the sector's clean energy claims, however, especially when considering the entire nuclear fuel cycle and its impact on global warming.

According to the [United States Enrichment Corporation \(USEC\)](#), which runs the only U.S.-owned uranium enrichment facility in Paducah, Kentucky, the enrichment cycle releases 300,000 pounds, or 150 tons, of ozone-depleting chlorofluorocarbons (CFCs) into the atmosphere yearly.

The radiative properties of CFCs make them a dangerous global warming agent — 1,500 times more potent than carbon dioxide, according to [EPA figures](#). Ozone-depleting CFCs have been banned in the U.S. except in the processing of uranium ore.

Further, the Paducah plant enriches the yellowcake, a lightly processed form of uranium ore, to produce uranium oxide and make nuclear fission from two 1,500-megawatt, 30-year-old coal plants, which release CO₂ and other environmental pollutants.

Group Says Subsidies Better Spent on Renewables

Criticism about nuclear's carbon footprint hasn't stopped the Obama administration from hawking it as clean power, however.

In his proposed budget for 2012, the president is seeking an additional \$36 billion in federal loan guarantees for nuclear power plant construction. That's on top of the \$18.5 billion the DOE is already permitted to deploy.

A new nuclear plant costs approximately \$6 billion to \$8 billion. The industry has been lobbying for an additional \$60 billion in loan guarantees for plants and enrichment facilities.

Opponents say it's time for the industry to stand on its own.

According to a [new analysis](#) by the Union of Concerned Scientists, nuclear power is still not economically viable without subsidies. Since the cost of building subsidized power plants is so high, the authors say that government handouts increase the price of kilowatts, with the financial burden falling on taxpayers and ratepayers.

The [Nuclear Energy Institute \(NEI\)](#), a trade group in Washington, [estimates](#) that the nation would need to build 45 new reactors by 2030 to meet projected increases in electricity demand and reduce greenhouse gases.

Hirsch of the Committee to Bridge the Gap said the subsidies would be better spent on other alternative-energy technologies like solar power or cellulosic biofuels.

"It's like dumping huge amounts of money down a rat's hole," he said, adding that by the time nuclear power plants actually get built, it could be too late to avoid the consequences of dangerous climate change. "What would have an immediate effect on climate change is the stuff you can do fast and cheap like weather proofing, changing light bulbs, building wind farms and solar panels," said Hirsch.

When you toss the waste dilemma into the mix, he continued, nuclear power becomes counterintuitive. "Without a place to dump the waste, the industry cannot be allowed to move forward."

That is a point not lost on the Obama administration.

The president has set up a [Blue Ribbon Commission on America's Nuclear Future](#) to find a long-term storage solution for America's growing nuclear waste. The commission is scheduled to submit a draft report to Energy Secretary Steven Chu in July 2011 and a final report in January 2012.

See Also

[U.S. Nuclear Industry Will Remain Ward of the State, as in France, Report Warns](#)

[UK Government Approves Eight Sites for New Nuclear Power Stations](#)

[Duke Considering First New U.S. Nuclear Plant in 30 Years](#)

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Storage

Submitted by [harrywr2](#) (not verified) on March 3, 2011 - 4:47pm.

We are going to end up recycling the waste.

We are currently recycling nuclear bombs.

About 50% of the fuel in US nuclear reactors are recycled nuclear bombs.

Once the bombs are recycled the various recycling facilities will need a new product to sell.

[reply](#)

[I see we're doing scare](#)

Submitted by [Ormond Otvos](#) (not verified) on March 3, 2011 - 4:28pm.

I see we're doing scare stories, unbalanced, without a review of the very active movement to convert so-called "nuclear waste" to carbon-free electricity and heat.

Kinda stupid, but so much like the climate change deniers. Do you ever consider how silly it looks to rail against AGW deniers while you're pretending solutions to the waste problem are quite feasible, except for innumerate ideologues?

Go, and sin no more!

[reply](#)

[Nuclear wastes safe storage solution](#)

Submitted by [Gregory Cragg](#) (not verified) on March 3, 2011 - 12:48pm.

The US DoE, has knowledge of a simple way to safely store all types of nuclear wastes!!

[reply](#)

[Nuclear Era Being Wasted?](#)

Submitted by [kandiyohi](#) (not verified) on March 3, 2011 - 12:43pm.

The United States ushered in the nuclear era.

Due to widespread misinformation, we have squandered the beautiful potential of this cleaner, safer, and virtually carbon-free technology that can be harnessed on a grand scale.

Please read the link <http://jia.sipa.columbia.edu/nuclear-power-and-sustainable-development>

or the summary:

- 1) Reprocessing nuclear fuel will eliminate 90% of the storage needed for high-level nuclear waste.
- 2) Nations can purchase fuel from the international nuclear fuel bank, limiting the potential for weapons production.

- 3) Very harmful and more radiation is "legally" released by fossil fuel combustion, which is currently our only large-scale source of energy.

Nuclear power will:

- A) provide safer and cleaner energy,
- B) create jobs,
- C) keep our trade deficit more balanced, and,
- D) put more foreign policy decisions back in our hands with every kW we make in the USA.

<http://jia.sipa.columbia.edu/nuclear-power-and-sustainable-development>

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[Storage?? How about like the](#)

Submitted by [Anonymous](#) (not verified) on March 3, 2011 - 12:28pm.

Storage?? How about like the Chinese we start developing LFTR. The storage isnt an issue as we can burn just about ALL of it! There are other forms of producing power using nuclear.

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