Beyond Nuclear

working for a world free from nuclear power and nuclear weapons

The challenge: As of 2025, about 90,000 metric tons of highly radioactive and toxic nuclear waste (or "spent fuel") generated at commercial nuclear power reactors sit at U.S. reactor sites, waiting for a permanent disposal solution. Each year, an additional 2,000 more metric tons are generated.[1]

The worldwide, scientific consensus: *Nuclear waste cannot be stored safely on the Earth's surface for the millions of years it remains dangerous.* ***Deep geologic disposal is the most effective strategy for providing long-term protection of human health and the environment from contact with this extremely hazardous material.***

This conclusion was first reached by the U.S. National Academy of Sciences in 1957, and it was carried forward in the bipartisan Nuclear Waste Policy Act of 1982, as amended (NWPA) (42 U.S.C. § 10101 *et seq*.) and the findings of the President's Blue Ribbon Commission on America's Nuclear Future in 2012.[2]

The U.S. repository law: The NWPA sets federal policy and procedures for the siting and licensing of a federally-owned, permanent geologic repository for the disposal of highly radioactive nuclear waste. The NWPA requires reactor licensees to pay for construction and operation of the repository

[1]U.S. Department of Energy, *5 Fast Facts about Spent Nuclear Fuel* (Oct. 3, 2022), https://www.energy.gov/ne/articles/5-fast-facts-about-spent-nuclear-fuel.

[2]National Research Council, *The Disposal of Radioactive Waste on Land* (National Academies Press 1957), available at: https://doi.org/10.17226/10294; *Blue Ribbon Commission on America's Nuclear Future – Report to the Secretary of Energy* (Jan. 2012), available at: https://www.energy.gov/sites/prod/files/2013/04/f0/brc_finalreport_jan2012.pdf.

The Challenge of Effectively Isolating High-Level Radioactive Nuclear Waste

Will the U.S. take the road to development and siting of a permanent repository?

Or will it go down the dangerous dead-end detour of "consolidated 'interim' storage"?

(including costs of transporting nuclear waste) through a Nuclear Waste Fund, which has collected $40 billion of the $100 billion estimated needed to fund a repository.[3] Nuclear reactor licensees must retain ownership of and liability for the waste in their possession until the repository is operational. Under the NWPA, the U.S. Department of Energy (DOE) may not take ownership of the fuel until it is ready to be transported to the repository.[4]

Failure of Yucca Mountain: In 1987, after numerous failed efforts, Congress designated Yucca Mountain in Nevada as the sole site to be studied and considered for the first U.S. permanent geologic repository for highly radioactive nuclear waste.[5] Chosen without the consent of the State of Nevada or the Western Shoshone Indian Nation (whose claim to the Yucca Mountain region was recognized in the 1863 "Peace and Friendship" Treaty of Ruby Valley), the Yucca project was bitterly opposed. Not surprisingly, government attempts to force the project forward by tailoring environmental standards to fit the geologically unstable site also failed. After decades of delay, including a lack of Congressional appropriations and no DOE action on the project since 2010, the Yucca Mountain project has effectively been canceled.

[3]Nicole Feldman, *The Steep Costs of Nuclear Waste in the U.S.*, Stanford Doerr School of Sustainability (July 3, 2018), available at: https://sustainability.stanford.edu/news/steep-costs-nuclear-waste-us.

[4]*See* Nuclear Waste Policy Act of 1982 §§ 302(a)(5)(A); *see also Interim Storage Partners, L.L.C.*, 92 N.R.C. 463, 467 (2019).

[5]Nuclear Waste Policy Act of 1982 § 160.

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Stalled on the Road to a Repository

The NWPA does not provide for consideration of alternative sites, and thus no search for a new repository site is currently underway. And while the federal government has collected $40 billion of the estimated $100 billion needed to build a repository through the Nuclear Waste Fund, it has halted continued collection of the fees.[6] In 2012, under the Obama Administration, the President's Blue Ribbon Commission reaffirmed the need for permanent geologic disposal for highly radioactive nuclear waste. However, Congress has not amended the NWPA to lessen its commitment to build a permanent geologic repository.

Congress is at a crossroads where it must choose the best path for achieving its goal of a permanent geologic repository for nuclear waste.

Consolidated 'Interim' Storage: the dangerous dead-end detour.	Permanent Geologic Repository: sticking to the path of long-term protection of human health, the environment, and communities.
While consolidated storage is billed as an "interim" step on the path to a repository, *in fact it is a **dangerous dead-end detour**.* As Congress knew when it passed the NWPA with wide support across party lines, once the federal government takes ownership of nuclear waste and relieves the nuclear industry of all responsibility, momentum to site and license a permanent geologic repository will evaporate. Without this momentum, it is likely that nuclear waste will become stranded at these surface sites, without any hope of being transferred to a permanent geologic repository. Highly radioactive waste stored indefinitely at these sites on the earth's surface would pose a grave and unacceptable risk to human health and the environment.[7] Sending the U.S. government down this dead-end detour would not only be extremely dangerous but would also upend the NWPA that was enacted to avoid exactly this outcome.	The NWPA provides the strong framework needed to move the nation towards a permanent geologic repository, and its essential elements and structure should be preserved. **But,** Congress should heed the warnings from the failed Yucca Mountain project, and strengthen the NWPA by: • Establishing stringent, protective, and equitable scientific criteria and standards for repository siting and operation, that are in place *before* a repository site is chosen.[8] • Requiring meaningful consent-based siting and oversight by potential host communities, including express regulatory authority for state and tribal governments to set stricter-than-federal standards, similar to the authority provided by the Clean Air Act, Clean Water Act, and other environmental statutes.[9]

*"Before Congress takes any actions on nuclear waste . . . we must make sure we are not repeating our mistakes from the past. **If we don't, our country may well find itself 30 years from now in the same dead-end situation we face today. . . ."** -- Delaware Senator Tom Carper*

Opening Statement, Senate Committee on Environment and Public Works Hearing, May 1, 2019, https://www.epw.senate.gov/public/index.cfm/press-releases-democratic?ID=85347177-C0F3-4ECC-BBBB-E24E6C42F687.

[6] Feldman, *supra* note 3.

[7] *See* Declaration of Dr. Arjun Makhijani Regarding the Waste Confidence Proposed Rule and Draft Generic Environmental Impact Statement (Dec. 20, 2013), available at: https://www.nrc.gov/docs/ML1402/ML14024A296.pdf.

[8] A list of criteria is presented in *Beyond Nuclear, Stringent Criteria for a Highly Radioactive Waste Geologic Repository,* available at: http:///www.beyondnuclear.org/repositories/2020/5/26/stringent-criteria-for-a-highly-radioactive-waste-geologic-r.html. These criteria include legality under all state and federal statutes and treaties, consent by host communities, scientific suitability, environmental justice, regional equity, mitigation of transport risks, intergenerational equity, ensured non-proliferation, and prohibition of pre-disposal reprocessing.

[9] *See* Clean Air Act, 42 U.S.C. § 7416; Clean Water Act, 33 U.S.C. § 1370.

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