

What about nuclear waste?

Most of the nuclear waste in the U.S. comes not from nuclear power plants, but rather from the arms race. The biggest environmental cleanup in history has been underway for decades to isolate that waste and to remediate contaminated sites.

- Nuclear warheads and bombs from the Cold War are being converted into fuel. Ten percent of our electricity comes from it.
- Spent nuclear fuel is safely stored in pools and thick concrete cylinders at nuclear plants around the U.S.
- All the spent nuclear fuel from power plants and other sources since the beginning of nuclear power in the US 50 years ago is so small in volume that it could all fit in a single Costco stacked to a depth of 9 feet. All the spent fuel generated in the annual operation of a single power plant reactor would fit in the bed of a standard pickup truck.
- If an American got all his or her lifetime electricity solely from nuclear power, that person's total share of the waste would fit into one soda can. Of that, only a trace is long-lived. In France, where nuclear fuel is recycled, waste is drastically reduced, so that the lifetime total for a family of four would fit in a single coffee cup.
- Half of our electricity comes from burning coal. If an American got all his or her electricity from coal over a lifespan of 77 years, that person's mountain of solid waste would weigh 68.5 tons and would fit into six 12-ton railroad cars. That person's share of carbon dioxide from coal emissions would come to 77 tons.
- The annual solid residues of coal combustion in the U.S. come to 890 pounds per American: enough to fill one million railroad coal cars.
- Coal waste contains hazardous substances: arsenic, mercury, lead, and other toxic heavy metals. But coal waste is exempt from regulations for hazardous waste. It is released into the environment as fly ash or as invisible gases. Coal waste pollutes water tables and the air; it causes acid rain and ocean acidification; it is a major contributor to smog and catastrophic global warming.
- Pollutants from coal-fired plants cause 24,000 premature deaths a year in the U.S. alone and hundreds of thousands of cases of lung and heart disease. In China, coal combustion kills 400,000 a year.
- Coal-fired plants concentrate uranium, thorium, and radium during combustion and therefore emit 100 to 400 times more radiation than nuclear plants. Annually U.S. coal-fired plants concentrate enough uranium-235 to power all of the reactors in the country.
- Worldwide, per terawatt-hours of electricity generated (a terawatt is one trillion watts), nuclear power is responsible for the fewest deaths of all large-scale energy production.
- U.S. deaths from the operation of nuclear power in over 40 years of operation: 0. Deaths from Chernobyl since the accident in 1986: 60. (Most of these fatalities were suffered by emergency workers in the plant.)
- Due to tens of thousands of studies, a great deal is known about how to isolate and shield spent nuclear fuel for the long term. But the likeliest outcome of today's inventory of spent fuel is that it will be recycled. The small volume of remaining waste can be safely encapsulated in special containers and immobilized in deep geological formations. The U.S., Sweden, and Finland all are working on repositories of this kind.