



NUCLEAR POWER'S CARBON FOOTPRINT

People that claim nuclear power is carbon-neutral are considering only the direct emissions of the plant itself. In fact, it has the **largest carbon footprint of any energy source other than fossil fuels**. An incomplete list:

1. **MINING** - Uranium (or thorium)
2. **MILLING** - Transportation to millworks, converting ore to "yellowcake" uranium
3. **CONVERSION** - Construction of the uranium (U) conversion facility, transportation of "yellowcake", conversion to UF₆
4. **ENRICHMENT** - Construction of the U enrichment facility and the cylinders used to transport UF₆, transportation of UF₆ to the enrichment facility, enrichment. The Paducah, KY plant uses 3,040 megawatts of coal energy at peak power.
5. **FUEL PELLETS** - Formation & transportation of uranium fuel pellets
6. **NUCLEAR POWER PLANT CONSTRUCTION (NPP)** - Takes years and uses heavy construction equipment. Steel and concrete production are carbon-intensive.
7. **SUPPORTING INFRASTRUCTURE NPPs** - Construction of roads, transmission lines, barge canals
8. **GENERATORS** - Heavy-duty diesel generators run the cooling system during routine maintenance, refueling, other normal shut downs, SCRAMs, and power outages
9. **WASTE STORAGE** - Building Radioactive Waste (radwaste) storage facilities and storage containers. Transportation of radwaste, sometimes across the country or the ocean.
10. **WASTE PROCESSING** - Building reprocessing plant, transportation of radwaste, reprocessing, building storage for the remaining radwaste
11. **WASTE INCINERATION** - Building radwaste incineration facilities, transporting the waste to the incineration facility, incineration
12. **WASTE VITRIFICATION** - Building vitrification plants, transporting waste to the plant, vitrifying the waste (involves heating the materials to very high temperatures)
13. **MONITORING OF RADIOACTIVE WASTE** - Carbon pollution generated by monitoring and guarding the radwaste for eternity
14. **DECOMMISSIONING AND DECONTAMINATION** - NPPs, other reactors, enrichment facilities, and other support infrastructure
15. **ACCIDENTS** - Mitigation and clean-up efforts have a huge carbon footprint
16. **DAMAGED REACTORS AND ACCIDENTS** - Building sarcophagus structures, monitoring, securing and periodically re-entombing failed NPPs for eternity



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NUCLEAR POWER'S OTHER FOOTPRINT

Wind, solar, geothermal and wave energy are fully able to meet our electricity needs. Why should **we** risk everything so that **this industry** can profit?

STILL NO REPOSITORY - Nuclear reactors have produced radioactive waste since the 1940s, yet we still have no permanent repository

MOBILE CHERNOBYL - Transporting nuclear waste to a central repository risks contamination along highways and rail lines, by accident or terrorists

MAJOR DISASTER EVERY 20 YEARS - Latest calculations show that the world will average one major disaster every 20 years

NO ENVIRONMENTAL JUSTICE ON THE REZ - Uranium mining on the Navajo Reservation is an environmental justice disaster

NUCLEAR WEAPONS PROLIFERATION - You can't make a modern nuclear weapon without a nuclear reactor

FINANCIAL RISK IS OURS - Huge taxpayer subsidies & loan guarantees mean that the industry is not responsible for most of the costs of projects they do not complete. In addition, the Price-Anderson Act caps damages that the industry must pay after a disaster. U.S. taxpayers pay the rest. Homeowners insurance does not cover radioactive contamination & you'll still have your mortgage.

UNINHABITABLE LAND - We risk the loss of valuable real estate. For example, if a disaster happened at New York's Indian Point, the estimated economic loss would be in the hundreds of billions to trillions of dollars. Beyond the cash value, the Hudson Valley, like so many other places near NPPs, is irreplaceable.

EVACUATION - Evacuation plans are untested and unworkable. Plans only cover 10 miles, there no plans beyond 10 miles. New Yorkers, Long Islanders, how would you escape if there is a catastrophe at Indian Point?

HEALTH RISK IS OURS - Google "Chernobyl children" and see the horrible results of nuclear power disasters. Sixty percent of Fukushima children have abnormal thyroids; in a few years thyroid cancers will present. The Japanese government is already hiding their medical records.

EXTREME WEATHER CAN CAUSE MELTDOWNS - (1) Climate change raises water temperature leading to the shutdown of some water-cooled reactors. (2) Extended loss of power grid will lead to more Fukushimas.

Thank you to Lisa Kasenow for summarizing Benjamin K. Sovacool's research article, "Valuing the greenhouse gas emissions from nuclear power: A critical survey"



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