



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. **EUTROPHICATION** - NPPs heat water in lakes and rivers causing algae blooms. The algae sink to the bottom when they die, releasing tons of methane as they decompose.
9. **GENERATORS** - Heavy-duty diesel generators run the cooling system during routine maintenance, refueling, other normal shut downs, SCRAMs, and power outages
10. **WASTE STORAGE** - Building Radioactive Waste (radwaste) storage facilities and storage containers. Transportation of radwaste, sometimes across the country or the ocean.
11. **WASTE PROCESSING** - Building reprocessing plant, transportation of radwaste, reprocessing, building storage for the remaining radwaste
12. **WASTE INCINERATION** - Building radwaste incineration facilities, transporting the waste to the incineration facility, incineration
13. **WASTE VITRIFICATION** - Building vitrification plants, transporting waste to the plant, vitrifying the waste (involves heating the materials to very high temperatures)
14. **MONITORING OF RADIOACTIVE WASTE** - Carbon pollution generated by monitoring and guarding the radwaste for eternity
15. **DECOMMISSIONING AND DECONTAMINATION** - NPPs, other reactors, enrichment facilities, and other support infrastructure
16. **ACCIDENTS** - Mitigation and clean-up efforts have a huge carbon footprint
17. **DAMAGED REACTORS AND ACCIDENTS** - Building sarcophagus structures, monitoring, securing and periodically re-entombing failed NPPs for eternity