

nuclear power: The use of nuclear energy to generate electricity. This is accomplished using nuclear fission within nuclear reactors in power plants.

nuclear energy: The energy that holds together protons and neutrons within the nucleus of an atom. Several processes, each of which involves transforming isotopes of one element into isotopes of other elements, can convert nuclear energy into thermal energy, which is then used to generate electricity.

nuclear reactors: A facility within a nuclear power plant that initiates and controls the process of nuclear fission to generate electricity.

nuclear fission: the conversion of the energy within an atom's nucleus to usable thermal energy by splitting apart atomic nuclei.

nuclear fusion: The conversion of the energy within an atom's nucleus to usable thermal energy for forcing together the small nuclei of lightweight elements under extremely high temperature and pressure. Developing a commercially viable method of this remains an elusive goal.

Three Mile Island: Nuclear power plant in Pennsylvania that in 1979 experienced a partial meltdown. The term is often used to denote the accident itself, the most serious nuclear reactor malfunction that the United States has thus far experienced.

meltdown: The accidental melting of the uranium fuel rods inside the core of a nuclear reactor, causing the release of radiation.

Chernobyl: Site of a nuclear power plant in Ukraine (then part of the Soviet Union), where in 1986 an explosion caused the most severe nuclear reactor accident the world has yet seen. The term is also often used to denote the accident itself.

Fukushima Daiichi: Japanese nuclear power plant severely damaged by the tsunami associated with the March 2011 Tohoku earthquake that rocked Japan. Most radiation drifted over the ocean away from population centers, but the event was history's second most serious nuclear accident.

bioenergy: Energy harnessed from plant and animal matter, including wood from trees, charcoal from burned wood, and combustible animal waste products, such as cattle manure. Fossil fuels are not considered bioenergy sources because their organic matter has not been part of living organisms for millions of years and has undergone considerable chemical alteration since that time. (**biomass energy**)

biomass: (1) In ecology, organic material that makes up living organisms; the collective mass of living matter in a given place and time. (2) In energy, organic material derived from living or recently living organisms, containing chemical energy that originated with photosynthesis.

biopower: Power attained by combusting biomass resources to generate electricity.

biofuels: Fuel produced from biomass sources and used primarily to power automobiles. Examples include ethanol and biodiesel.

ethanol: The alcohol in beer, wine, and liquor, produced as a biofuel by fermenting biomass, generally from carbohydrate-rich crops such as corn or sugarcane.

biodiesel: Diesel fuel produced by mixing vegetable oil, used cooking grease, or animal fat with small amounts of ethanol or methanol (wood alcohol) in the presence of a chemical catalyst.

cellulosic ethanol: Ethanol produced from the cellulose in plant tissues by treating it with enzymes. Techniques for producing cellulosic ethanol are under development because of the desire to make ethanol from low-value crop waste (residues such as corn stalks and husks), rather than from the sugars of high-value crops.

hydroelectric power (hydropower): The generation of electricity using the kinetic energy of moving water.

run-of-river: Any of several methods used to generate hydroelectric power without greatly disrupting the flow of river water. Its approaches eliminate much of the environmental impact of large dams.

pumped storage: A technique used to generate hydroelectric power, in which water is pumped from a lower reservoir to a higher reservoir when power demand is weak and prices are low. When demand is strong and prices are high, water is allowed to flow downhill through a turbine, generating electricity.