

What is nuclear energy?

Nuclear energy refers to the energy contained in the nucleus of an atom. This energy can be released in two ways: either the nucleus fuses with another nucleus (**nuclear fusion**) or it splits into two parts (**nuclear fission**). Nuclear fission is controlled on an industrial scale to generate electricity. The nuclear chain reaction of uranium atoms is currently used in nuclear reactors.

How does a nuclear power plant operate?

A nuclear power plant operates much like a conventional thermal power plant, i.e, it generates steam to rotate a turbine connected to an alternator which generates electricity. The difference lies in the type of fuel used and the way this steam is generated. **In a nuclear power plant, the fuel is mainly radioactive nuclei of fissile uranium.** These nuclei split when they collide with neutrons and release a large quantity of energy in the form of heat, which is removed from the reactor via a primary pressurised water system. The heat collected by the water in this first system is transferred to a secondary system containing water which vaporises into steam and is used to drive turbines and generate electricity. The part of the nuclear power plant to generate and control nuclear fission reactions is called a nuclear reactor.

