

Power stations

A power station (also referred to as a generating station, power plant, or powerhouse) is an industrial facility for the generation of electric power. A power station converts some form of mechanical, chemical, or nuclear energy into electrical energy. The electrical energy generated is commonly called the "power".

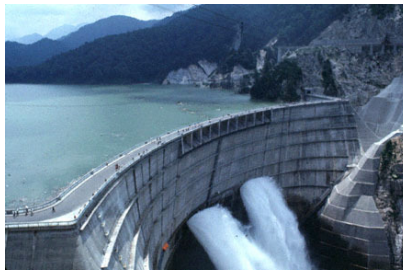
At the center of nearly all power stations is a generator, a rotating machine that converts mechanical energy into electrical energy by creating relative motion between a magnetic field and a conductor. The energy source harnessed to turn the generator varies widely. It depends chiefly on which fuels are easily available and on the types of technology that the power company has access to.

Types of power stations:

- thermal power station – converts forms of heat energy into electrical energy
- nuclear power plant – special type of thermal power station where heat is obtained by splitting atom cores
- hydroelectric dam – the production of electrical power through the use of the gravitational force of falling or flowing water.
- wind power plant – the electricity is generated by a propeller connected to a generator which is kept in low rotations by wind
- solar power plant – converts energy from the sun either by using the heat the sun emits or by direct conversion using photovoltaic cells
- geothermal power – is power extracted from heat stored in the earth
- tidal power station – is a form of hydropower that converts the energy of tides into electricity
- biomass fuelled power plant – methane produced by waste is burned and produced into heat



nuclear power station



hydroelectric dam



wind power plant



solar power plant



thermal powerstation



geothermal power

Thermal power station

Heat used for generating electric energy is obtained by burning fossil fuels. Steam created in a boiler powers series of turbines which are connected to series of alternators.

The heat produced by thermal power stations is often used for other purposes, such as heating of houses or for heating of water.

Nuclear power plant

The heat source is a nuclear fuel (either natural or enriched uranium). Fuel in the form of uranium pellets arranged in rods is placed in a pressurized reactor in which chemically treated water is flowing. This water serves as a heat conductor, taking the heat away from the rods where fission occurs. The water is heated to 297 °C and is directed to a heat exchanger – the steam generator. The cooled water then returns back to the reactor where it is heated up again. The remaining part of the power generating process is identical to the thermal power plant.

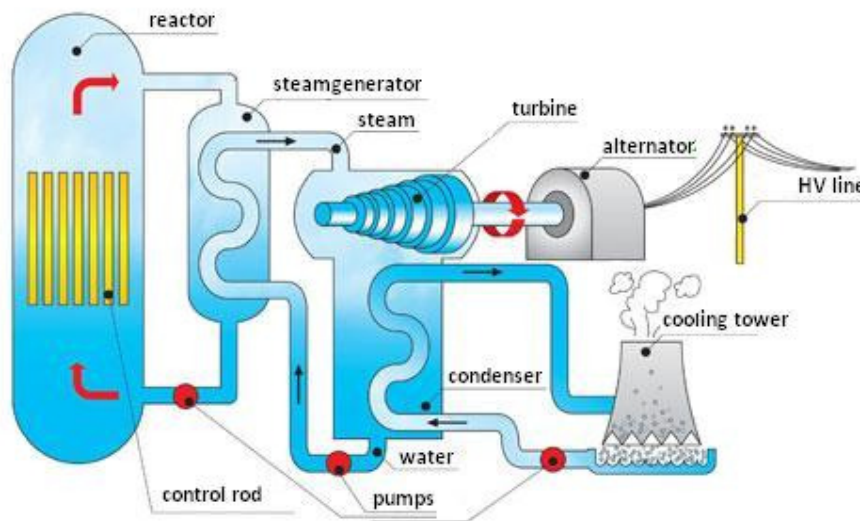


Diagram of how electric energy is produced in nuclear power plant

Hydroelectricity

Hydroelectric dams impound a reservoir of water and release it through one or more water turbines to generate electricity.

Pumped storage

A pumped storage hydroelectric power plant is a net consumer of energy but decreases the price of electricity. Water is pumped to a high reservoir when the demand, and price, for electricity is low. During hours of peak demand, when the price of electricity is high, the stored water is released through turbines to produce electric power.

Solar power plant

A solar photovoltaic power plant uses photovoltaic cells to convert sunlight into direct current electricity using the photoelectric effect.

Solar thermal power plants are another type of solar power plant. They use parabolic troughs to direct sunlight onto a pipe containing a heat transfer fluid, such as oil. The heated oil is then used to boil water into steam, which turns a turbine that drives an electrical generator. The central tower type of solar thermal power plant uses hundreds or thousands of mirrors, depending on size, to direct sunlight onto a receiver on top of a tower. Again, the heat is used to produce steam to turn turbines that drive electrical generators.

Wind power plant

Wind power is the conversion of wind energy into a useful form of energy, such as using wind turbines to make electricity, wind mills for mechanical power, and so on. Wind turbines can be used to generate electricity in areas with strong, steady winds, such as offshore.

VOCABULARY

harnessed – využiť
dam – priehrada, hrádza
plant – závod, podnik, továreň, zariadenie
power – výkon, moc, sila, energia, mocnina
steam – para
condenser – kondenzátor, zrážáč
pump – čerpadlo, pumpa
cooling tower – chladiaca veža
boiler – kotol
reservoir – nádrž, zásobník, priehrada
demand – dopyt, záujem, potreba
photovoltaic – fotovoltaiický
trough – žľab
Fission – štiepenie atómových jadier

thermal power station – tepelná elektrárň
nuclear power plant – jadrová elektrárň
hydroelectric dam – vodná elektrárň
solar power plant – slnečná elektrárň
wind power plant – veterná elektrárň
tidal power station – prílivová elektrárň
geothermal power – geotermálna elektrárň
pumped storage – prečerpávací vodná elektrárň
depending of size – v závislosti od veľkosti
receiver – prijímač
steady – stabilný, stály, trvalý
offshore – pobrežný, na pobreží
Fusion – syntéza atómových jadier