

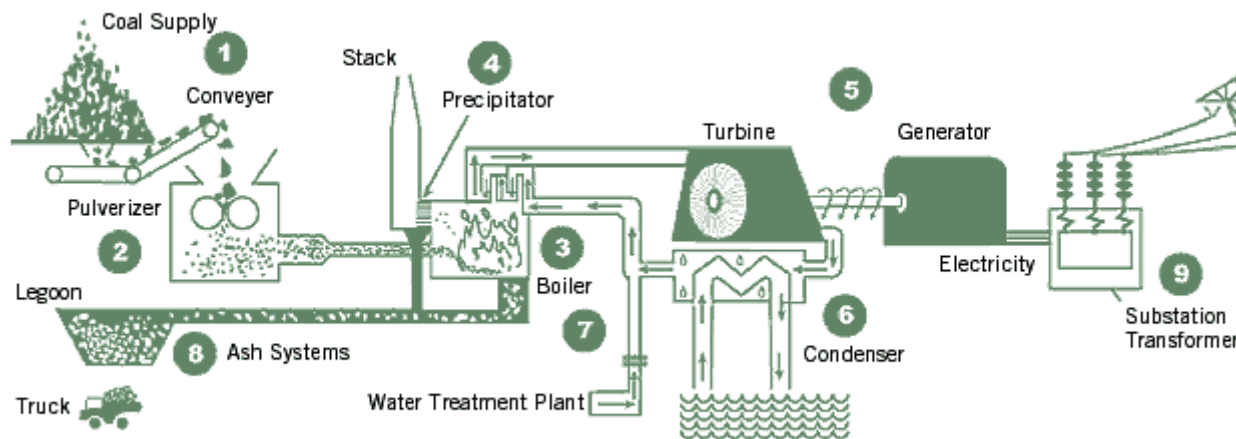
Thermal Power

Thermal power plants are one of the main sources of electricity in both industrialized and developing countries. The variation in the thermal power stations is due to the different fuel sources (coal, natural gas, naphtha, etc). In a thermal power plant, one of coal, oil or natural gas is used to heat the boiler to convert the water into steam. In fact, more than half of the electricity generated in the world is by using coal as the primary fuel.

The function of the coal fired thermal power plant is to convert the energy available in the coal to electricity. Coal power plants work by using several steps to convert stored energy in coal to usable electricity that we find in our home that powers our lights, computers, and sometimes, back into heat for our homes. The working of a coal power plant is explained in brief:

Firstly, water is taken into the boiler from a water source. The boiler is heated with the help of coal. The increase in temperature helps in the transformation of water into steam. The steam generated in the boiler is sent through a steam turbine. The turbine has blades that rotate when high velocity steam flows across them. This rotation of turbine blades is used to generate electricity. A generator is connected to the steam turbine. When the turbine turns, electricity is generated and given as output by the generator, which is then supplied to the consumers through high-voltage power lines.

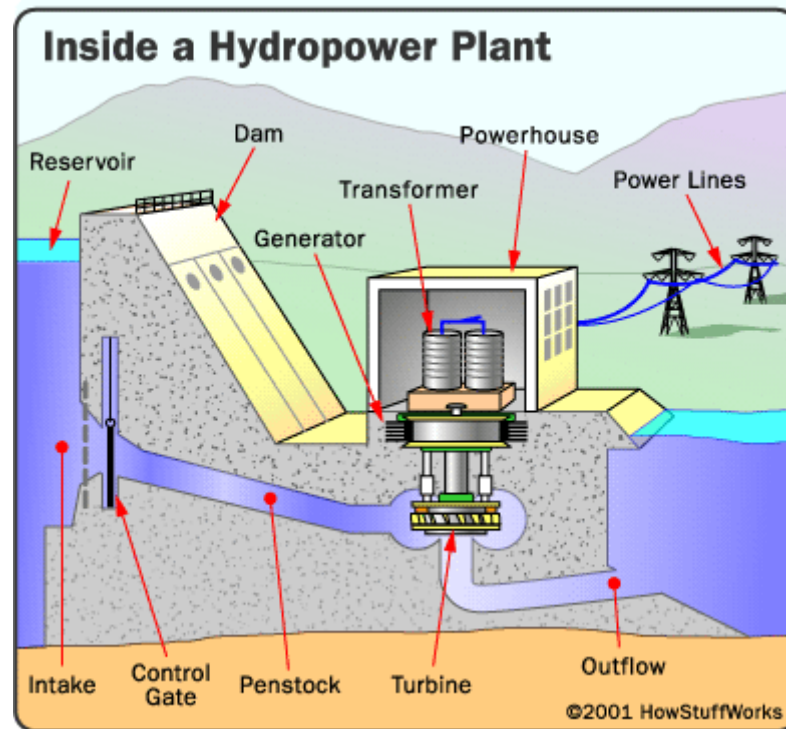
Components of a coal-fired thermal plant



Source: Canadian Clean Power Coalition

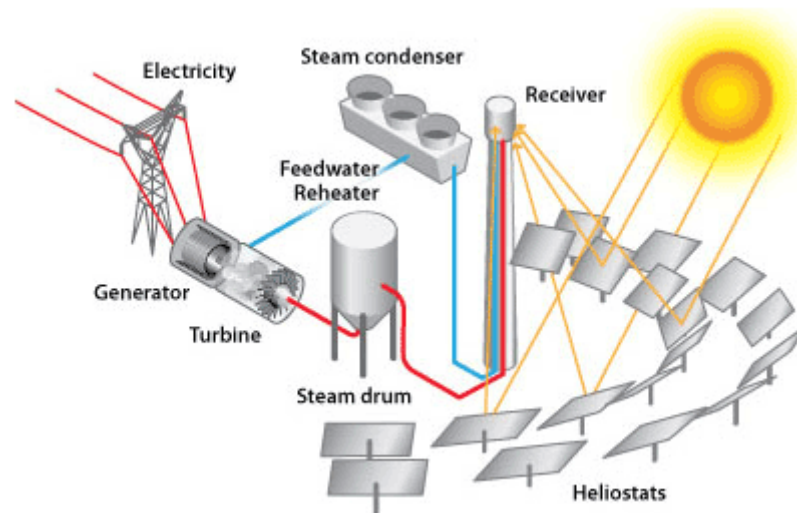
Hydro electricity

Hydroelectric power or hydroelectricity is electrical power which is generated through the energy of falling water. A hydroelectric power plant uses the force of the water to push a turbine which in turn powers a generator, creating electricity which can be used on-site or transported to other regions. This method of energy generation is viewed as very environmentally friendly by many people, since no waste occurs during energy generation. It is the most widely used form of renewable energy.



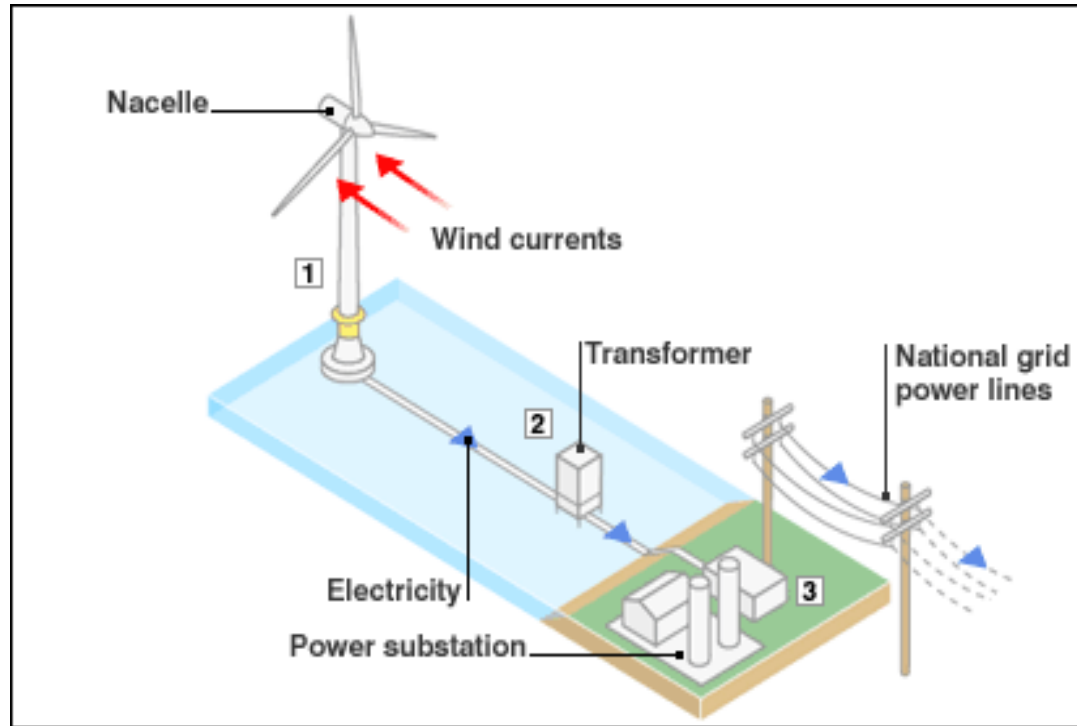
Solar Power

Solar power is energy that is derived from the sun and converted into heat or electricity. It is a versatile source of renewable energy that can be used in an amazing number of applications. Energy from the sun can be converted into solar power in two ways. The first way of obtaining solar power involves the use of photoelectric applications. Photoelectric applications use photovoltaic cells in converting energy from the sun into electricity. The second way involves the use of solar thermal applications wherein heating a transfer fluid is done to produce steam to run a generator.



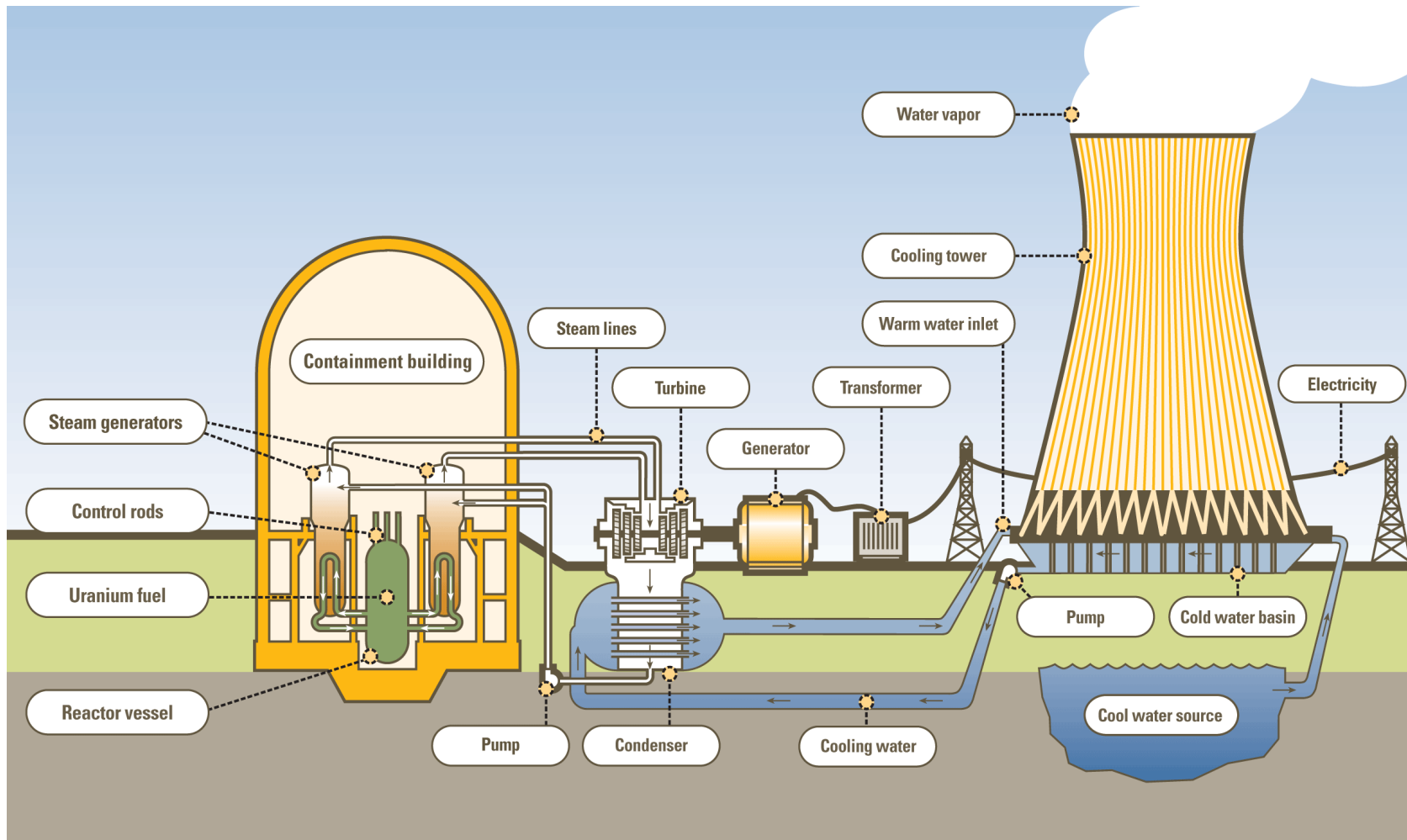
Wind Energy

Wind power is power which is derived from wind. There are a number of ways to collect and use wind power, and wind power is among the most ancient forms of energy used by humans. Wind power is the conversion of wind energy into a useful form of energy, such as using wind turbines to make electricity.



Nuclear Power

Nuclear energy is produced in two different ways. In one method, large nuclei are split to release energy. Here, nuclear energy originates from the splitting of uranium atoms in a process called fission. At the power plant, the fission process is used to generate heat for producing steam, which is used by a turbine to generate electricity. In the other method, small nuclei are combined to release energy.



Power Sector Supply Chain

