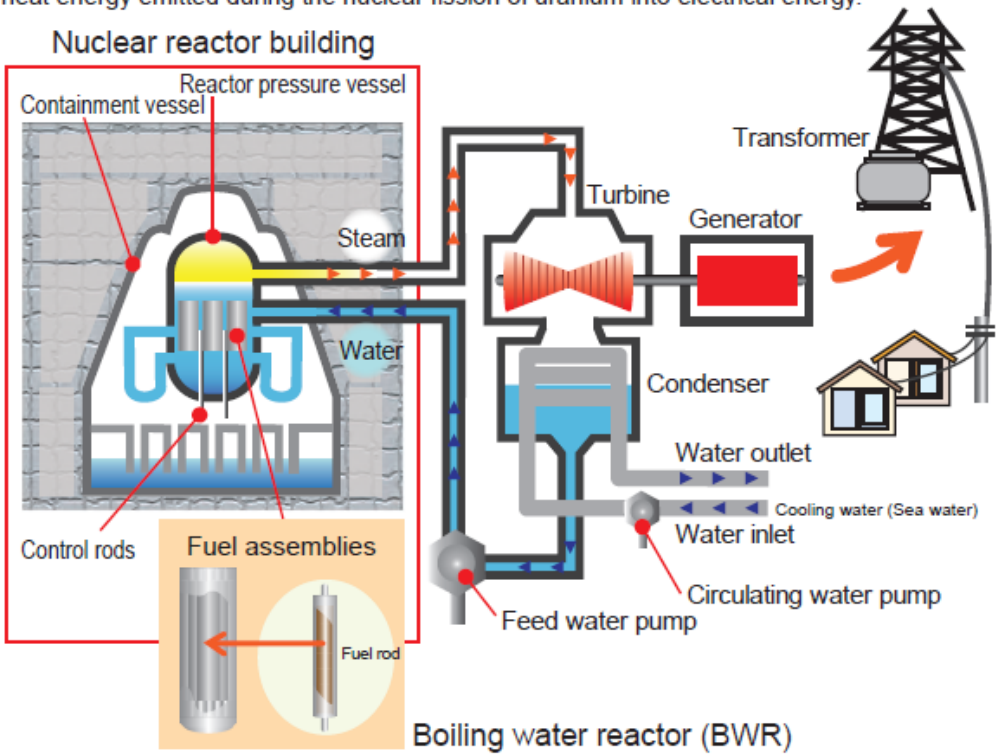
Nuclear power generation

Mechanism of nuclear power generation

Nuclear power generation makes the electricity that we need in our lives, by converting the heat energy emitted during the nuclear fission of uranium into electrical energy.



Thermal power generation and nuclear power generation

Thermal power generation and nuclear power generation use the same principle, where water is boiled to make steam, and its force is then used to rotate turbines and make electricity. The largest difference is the fuel (thermal energy) used to boil the water. Thermal power generation uses energy from combustion of petroleum, natural gas, or coal, while nuclear power generation uses energy released by the nuclear fission of uranium.

Fuel for nuclear power generation

Fuel used in nuclear power generation is called “nuclear fuel” or “atomic fuel”, and radioactive material, such as uranium, is used. Nuclear fuel contains uranium 235, which is a concentrated form of natural uranium that makes nuclear fission more likely to happen. Concentrated uranium is ground into powder, sintered into pellets in a process like making pottery, to enhance safety, and then placed into a sealed alloy tube to make a “fuel rod”. A “nuclear fuel assembly”, where many fuel rods are bundled together, is used in a reactor. Criticality from this nuclear fuel is maintained in a reactor, and the resulting thermal energy is used to make electricity. “Control rods” are used to manage the criticality state.