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NUCLEAR POWER

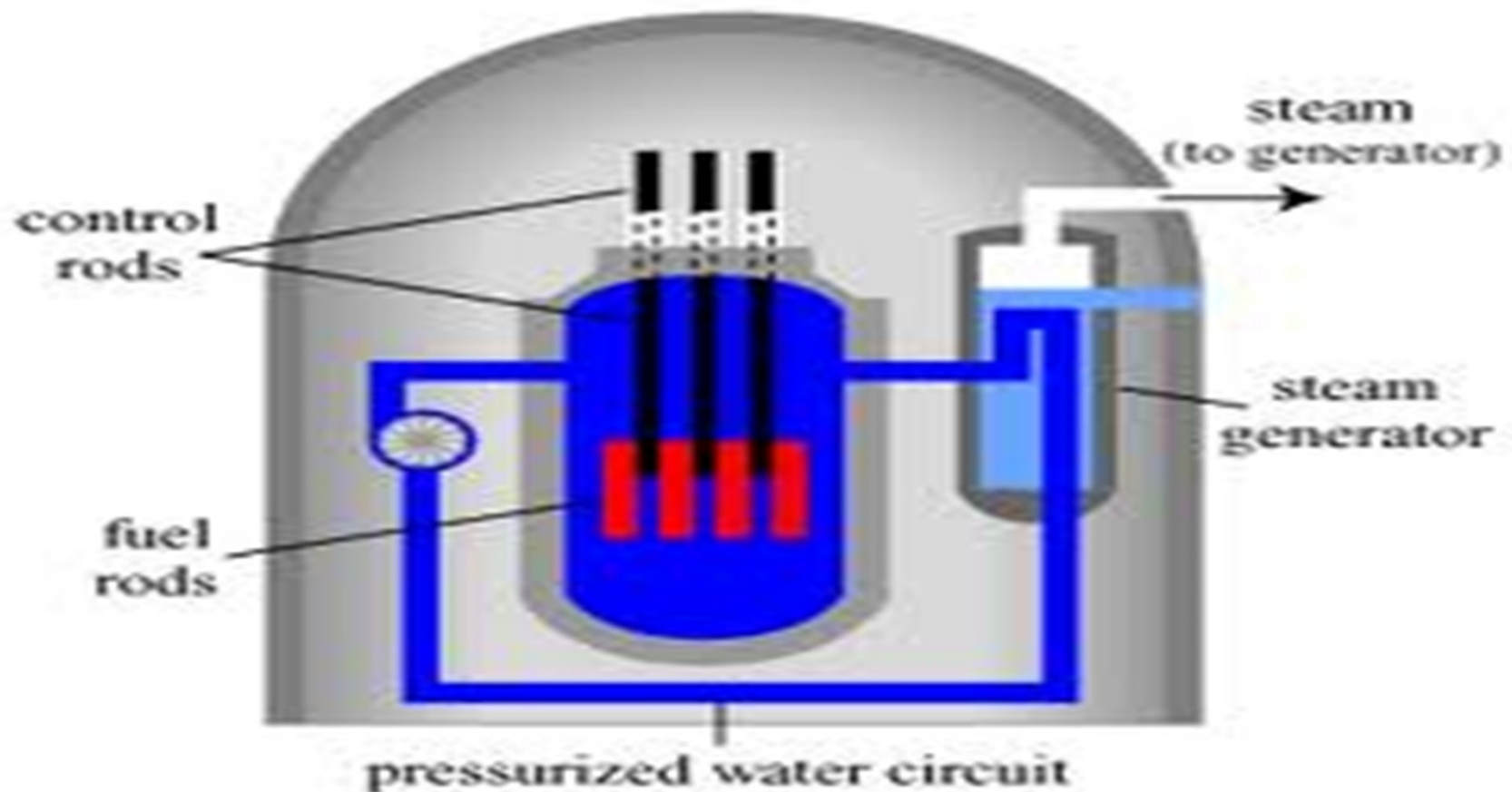
Energy from splitting Uranium atoms

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How it works

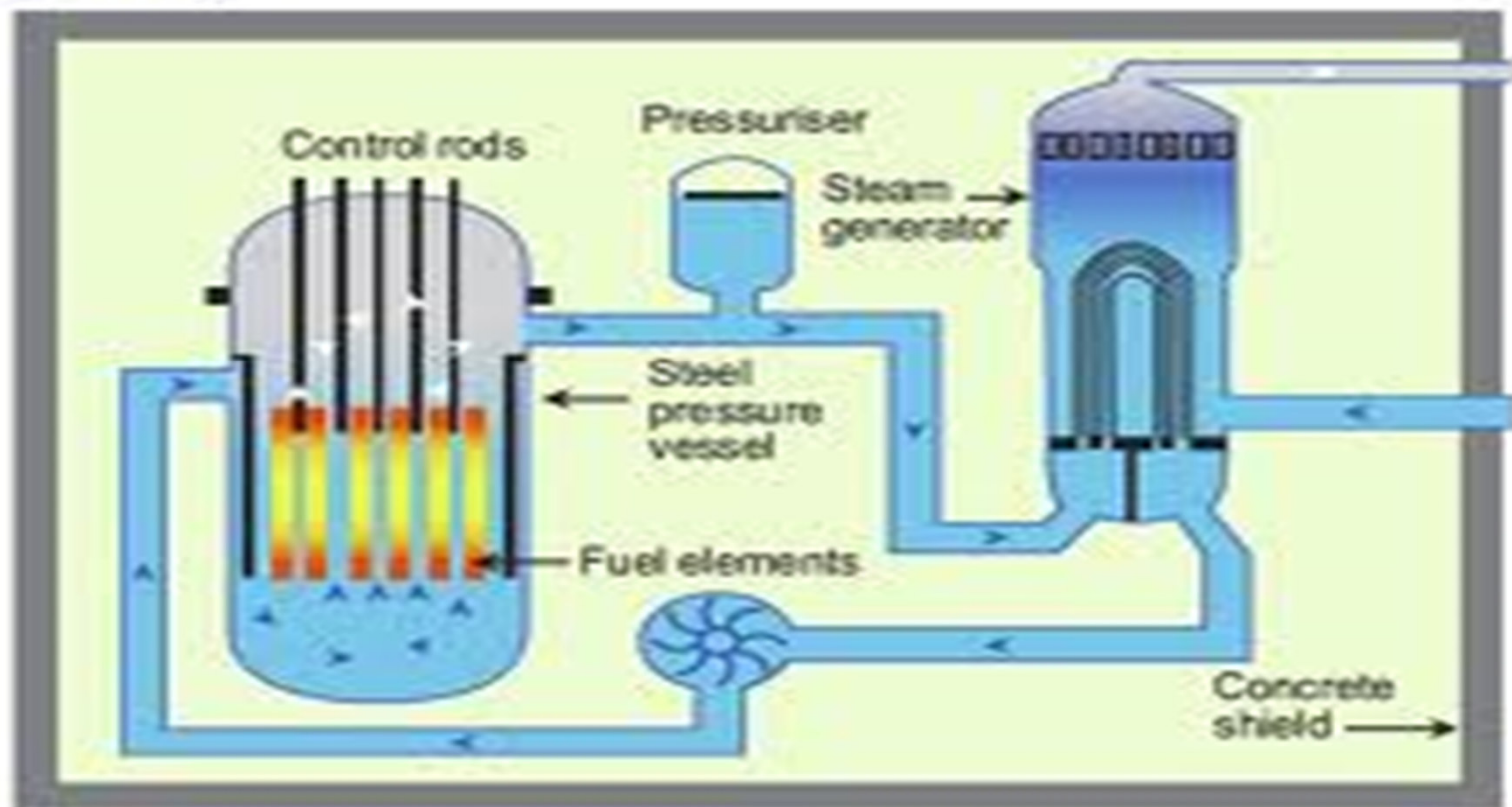
In Nuclear power stations

a "chain reaction" inside a nuclear reactor makes the heat

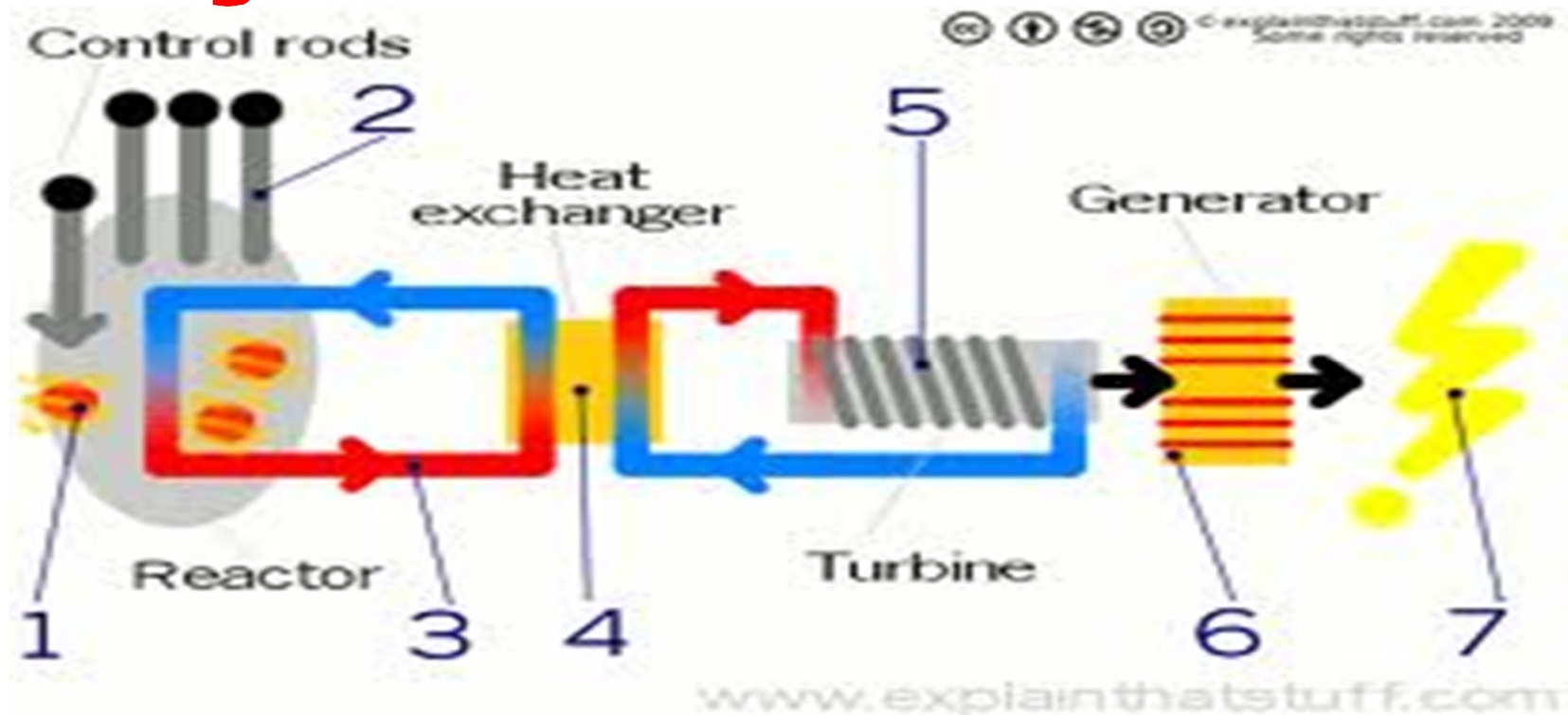


The reactor uses Uranium rods as fuel, and the heat is generated by nuclear fission: neutrons smash into the nucleus of the uranium atoms, which split roughly in half and release energy in the form of heat.

A typical Pressurised Water Reactor (PWR)



- Carbon dioxide gas or water is pumped through the reactor to take the heat away, this then heats water to make steam.
- The steam drives turbines which drive generators.

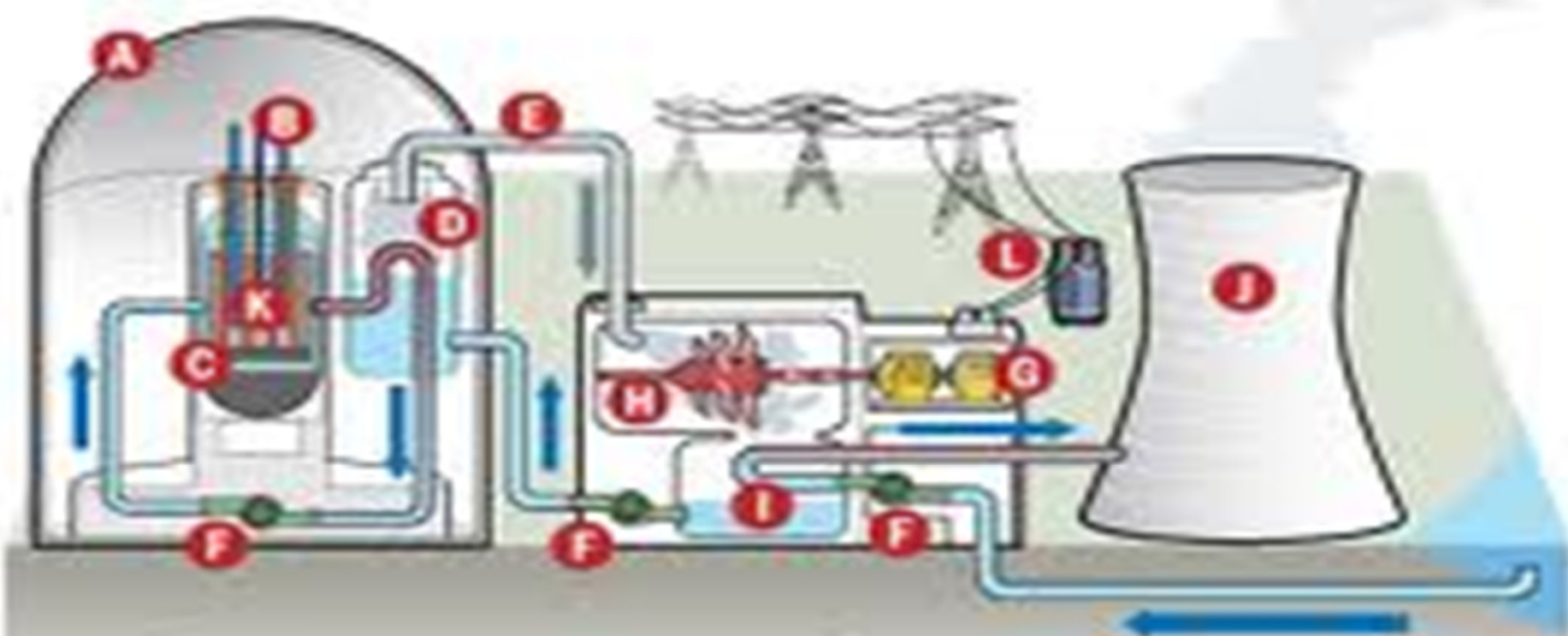


- **The reactor is controlled with "control rods", made of boron, which absorb neutrons.**
- **When the rods are lowered into the reactor, they absorb more neutrons and the fission process slows down.**
- **To generate more power, the rods are raised and more neutrons can crash into uranium atoms.**



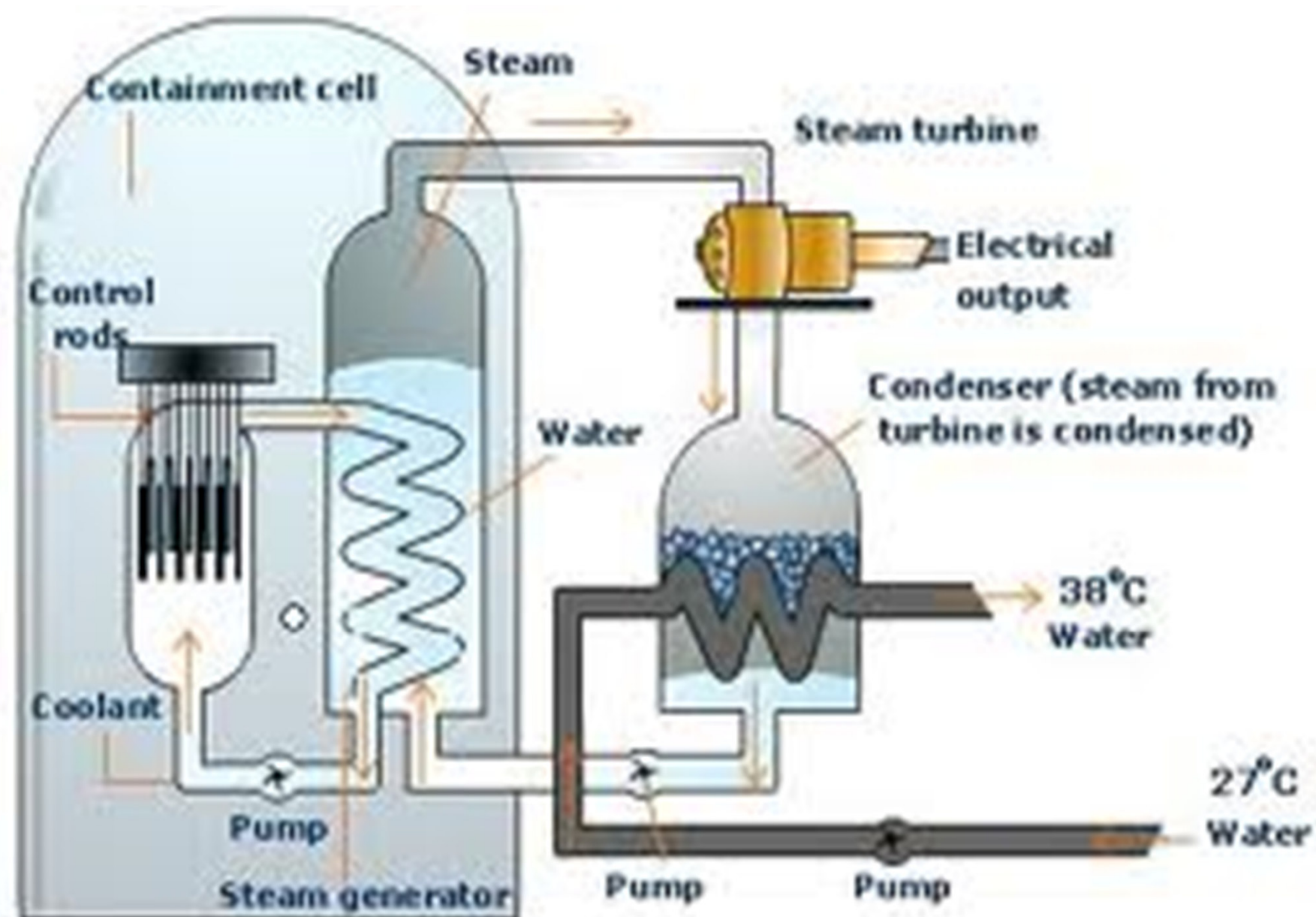
Inside a Nuclear Power Plant

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- A** Containment Structure
- B** Control Rods
- C** Reactor
- D** Steam Generator
- E** Steam Line
- F** Pump

- G** Generator
- H** Turbine
- I** Cooling Water Condenser
- J** Cooling Tower
- K** Fuel Rods
- L** Transformer



In Britain

nuclear power stations are often built on the coast, and use sea water for cooling the steam ready to be pumped round again. This means that they don't have the huge "cooling towers".





- **Disadvantages**

- Radioactivity is very, very **dangerous**.
It must be kept safe from earthquakes, flooding, terrorists and everything else. This is difficult.

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- Nuclear power is reliable, but a lot of money has to be spent on safety - if it **does** go wrong, a nuclear accident can be a major disaster.



The real 'generation gap.'

THE END

