WHAT IS NUCLEAR ENERGY?

Nuclear energy is used to produce electricity from uranium, a type of ore found underground. The conversion takes place at a power plant.

Primary loop:

Uranium atoms are split inside a reactor using the fission process. Fission produces a very large amount of heat, which is used to heat water that passes through a steam generator.

Secondary loop:

The steam generated drives a turbine, which is connected to a generator that produces an electric current. An electric transformer increases the current's voltage to simplify transmission.

Tertiary cooling loop:

Water pumped from a river or the sea cools the water used in the secondary circuit. It then circulates through a cooling tower before being returned to where it was taken from.

Disadvantages

Costly installation requiring numerous precautions.

Issue of radioactive waste management.

Discharged water is hotter than when drawn.

Advantages

Large amount of heat produced from a small quantity of uranium = very high efficiency.

Uranium available in large quantities = reduced dependence on fossil fuels.

No CO_2 emissions, just steam.

Summary

- Nuclear energy is used to produce electricity from uranium.
- Disadvantages: costly installation, safety concerns, waste, and impact on aquatic plants and wildlife.
- Advantages: high efficiency, reduced dependence on fossil fuels, small carbon footprint.