

Definitions and Concepts for WJEC (Wales) Physics GCSE

Topic 1.2: Generating Electricity

*Definitions in **bold** are for higher tier only*

Definitions marked by '' are for separate sciences only*

Carbon Footprint: A measure of the amount of carbon dioxide released into the atmosphere by a process.

Efficiency: The ratio of useful output energy transfer to total energy input. It can never exceed 1 (or 100%), due to the conservation of energy.

Fossil Fuels: Coal, oil and gas. They act as stores of chemical energy, which is released as thermal energy when they are burned in power stations. They are non-renewable.

Hydroelectric Power: Renewable energy generated by water stored at a height, and released through a turbine. The turbine turns a generator which converts the kinetic energy into electrical energy.

Mains Electricity: An a.c supply, which in the UK has a frequency of 50Hz a value of 230V.

Non-Renewable Energy Resource: An energy resource that cannot be replenished whilst it is being used. It is a finite resource.

Nuclear Power: Non-renewable energy that is generated from the energy stored in the nuclei of radioactive isotopes. It is released in processes known as nuclear fission and nuclear fusion.

Power Cables: Metal wires that are part of the National Grid. Electricity is transported along them at very high voltages to reduce the energy loss and make the transportation more efficient.

Renewable Energy Resource: An energy resource that can be replenished whilst it is being used.

Solar Power: Renewable energy generated by converting the energy of the sun into electrical energy, usually by using a solar panel.

Step-Down Transformer: A device used to decrease the voltage of the power transported by power lines to safe levels before it is used for domestic purposes.

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Step-Up Transformer: A device used to increase the voltage of a power supply before it is transported along power cables.

Tidal Power: Renewable energy generated by trapping water when at high tide, and then releasing it through a turbine. The turbine turns a generator which converts the kinetic energy into electrical energy.

Useful Energy Transfer: The transfer of energy by a system, to directly serve the purpose of the system.

Waste Energy Transfer: The transfer of energy by a system to a form that doesn't directly serve the purpose of the system.

Wave Power: Renewable energy generated by converting the kinetic energy of waves into electrical energy.

