

AQA P1c Energy : energy resources
Combined science Higher - Physics

There are no RPs in this part of the topic

Key word	Definition
Non-renewable energy resource	Cannot be replenished as it is used. So it will run out at some point.
Renewable energy resource	Can be replenished as it is used. It will not run out.

Patterns and trends of energy use

Daily changes in demand – e.g. less used at night; more at tea time.
 Seasonal changes – more used in winter as it is colder and darker

Renewable sources of energy

Energy source	How it works	Is it reliable	Environmental impacts	
			Positive (all are renewable)	negative
Biofuel	Organic matter is burnt	fairly reliable	Carbon neutral – carbon dioxide is released when burnt but when a new plant grows it is taken back from the atmosphere	Large areas of land needed for crops causes habitat destruction.
geothermal	Hot magma used to turn generators	Very reliable	No carbon dioxide or sulphur dioxide released during use.	Only available in very few areas. Small area of habitat destroyed.
hydroelectric	Falling water turns the generator	Usually reliable	No carbon dioxide or sulphur dioxide released during use.	Habitats destroyed when dams are built of large area.
Solar	Sun used to heat water or to generate electricity	Not reliable	No carbon dioxide or sulphur dioxide released during use.	Some carbon dioxide released in the making of the solar devices.
Tides	Rise and fall of tides turn generators	Very reliable	No carbon dioxide or sulphur dioxide released during use.	Structures built across estuaries causing disruption to habitats. Some carbon dioxide released in the making of the solar devices.
waves	Up and down motion turns generators	Not reliable	No carbon dioxide or sulphur dioxide released during use.	Some carbon dioxide released in the making of the solar devices.
wind	Wind turns generators	Not reliable	No carbon dioxide or sulphur dioxide released during use.	Some visual and noise pollution. Some carbon dioxide released in the making of the wind turbines.

Main uses of energy

Transport	Petrol, diesel, kerosene produced from crude oil	Used in cars, planes and trains
Heating	Gas and electricity	Used in buildings
electricity	Mostly generated by fossil fuels	Used to power most devices

Non-renewable sources of energy

Energy source	How it works	Is it reliable	Environmental impacts	
			positive	negative
Fossil fuels (coal, oil and gas)	Burnt to turn a turbine which turns a generator	Very reliable	High energy density. Provides most of the energy in the UK.	Releases carbon dioxide which causes global warming. Releases sulphur dioxide which causes acid rain
Nuclear	Nuclear fission to turn the generator	Very reliable	No carbon dioxide released. Very high energy density.	Risk of harmful radioactive material being released in accident.