

**AQA P1c Energy : energy resources**  
**Combined science Higher - Physics**

There are no RPs in this part of the topic

Key word	Definition
<b>non-renewable energy resource</b>	Cannot be replenished as it is used. So it will run out at some point.
<b>renewable energy resource</b>	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
<b>biofuel</b>	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.
<b>geothermal</b>	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.
<b>hydroelectric</b>	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.
<b>solar</b>	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.
<b>tides</b>	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 devices.
<b>waves</b>	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 devices.
<b>wind</b>	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**

<b>transport</b>	petrol, diesel, kerosene produced from crude oil	used in cars, planes and trains
<b>heating</b>	gas and electricity	used in buildings
<b>electricity</b>	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
<b>fossil fuels (coal, oil and gas)</b>	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
<b>nuclear</b>	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.