**Atmospheric pollution** includes **CO2** which contributes to global warming and **SO2** which causes acid rain.

**Bio-fuels**Produced from plants or animal dung. Are used in the same way as fossil fuels – burned to produce electricity or run vehicles.
Where plants are used they take in CO2 through photosynthesis during their lifetime. When burned this CO2 is released again so no net change in the amount of CO2 in the atmosphere.

 + Carbon neutral (if plants are grown at the same rate as being burned).
 + Reliable as crops grow quickly

 - High costs to refine the fuel
 - Space for growing food taken up
 - Forests cleared to make space – decay and burned vegetation release CO2 and methane.

**Solar Cells**Generate electricity from sunlight.
 + No atmospheric pollution
 + In sunny countries there are reliable (during the day)
 + Useful for remote places not supplied by the national grid.
 + No fuel costs and minimal running costs

 - Cannot increase supply to match demand
 - High initial costs

All of the AQA science revision sheets at www.tes.com/teaching-resources/shop/teachsci1

**Advantages & Disadvantages of Energy Resources**

**Wind Power**The blades turn a generator which produces electricity.
 + No atmospheric pollution
 + No fuel costs and minimal running costs
 + No permanent damage to the landscape when removed

 - Visual and noise pollution
 - Cannot increase supply to match demand
 - High initial costs
 - Cannot generate electricity if there is too little wind

**Hydro-electric Power**Water flows out of a dam through turbines, producing electricity.
 + Can respond immediately to increased demand
 + Reliable (except if there is a drought)
 + No fuel costs and minimal running costs

 - Requires land to be flooded to create a dam
 - Loss of habitats
 - Look unsightly when the reservoir dries up

**Non-renewable** + Reliable
 + Easy to increase supply to match demand
 + Fairly low fuel extraction costs
 + high energy output

 - Running out
 - Release CO2 ­which contributes to global warming
 - Release SO2 which causes acid rain
 - Coal mines spoil the landscape
 - Oil spills
 - Nuclear waste difficult to dispose of

**Geothermal Power**Radioactive decay in the core heats rocks near the surface. This can be used to generate electricity or heat buildings directly.
 + Reliable
 + No atmospheric pollution

 - Few suitable locations (only possible in volcanic areas)
 - High cost to build power station

**Tidal Barrages**A large dam built across an estuary that allows the water back out to sea at a controlled speed through turbines.
 + No atmospheric pollution
 + No fuel costs and minimal running costs

 - Visual pollution
 - Difficulty providing access for boats
 - Initial costs are high