

Key Terms

Energy	Power that comes from the use of resources and fuels.
Non-renewable	Types of resources that can only be used once and will run out (e.g. coal).
Renewable	Types of resources that can be used repeatedly and will not run out (e.g. water).
Finite	Refers to an element that is limited in its number and will eventually run out.
Sustainable	Something that is able to be maintained and kept as it is.
Nuclear energy	Using nuclear power (energy from the centre of an atom) to create energy. 19% of the UK's energy is produced this way.
Electricity	Energy that is produced from charged particles.
Fossil fuels	Natural gas, coal and oil that is found in the earth and can be used to make electricity. 60% of the UK's energy comes from burning fossil fuels.
Carbon emissions	Carbon dioxide is released into the atmosphere when fossil fuels are burnt. It causes damage to the ozone layer.
Greenhouse effect	The trapping of the sun's warmth in the atmosphere due to the increased carbon dioxide which stops it from escaping.
Air pollution	The presence of a substance in the air which causes damage or poisoning.
Acid rain	Rainfall that is made acidic due to pollution caused by burning fossil fuels.
Fracking	A way of extracting oil and gas from deep inside the earth to provide more fossil fuels for energy.
Biofuels	A type of fuel or energy that is produced from living matter.
Hydro-electric power	Electricity that is produced from flowing water. The water drives a turbine that powers a generator.
Geothermal energy	Using the internal heat of the earth to produce power.

Facts and Figures

UK's Energy Mix: 30% Coal, 30% Gas, 19% Nuclear Power and 21% Renewable energy. The UK is reliant on non-renewable energy which causes climate change.	The UK has 9 nuclear power stations but by 2023 only one of these will still be running. 10,000 people died in Chernobyl (Ukraine) when a nuclear reactor exploded at a plant.
All electricity is produced by turning a turbine, but this can be done in many ways. A hydroelectric station uses fast-flowing water to move the turbines. On a wind farm, the wind spins the turbines. The National Grid then gathers all the electricity.	Iceland relies on 100% renewable energy. Much of this comes from geothermal plants. Steam is produced from hot water that is found deep in the earth, this steam is used to spin a turbine which generates electricity.
Global warming is caused when carbon dioxide is released and this increase in the gas causes the heat on the earth to become trapped. Carbon dioxide is released by the burning of fossil fuels.	The amount of fuel produced by biofuel is set to increase 10 times by 2050. This is seen as a solution to the energy crisis as LICs can easily produce this type of fuel.
As fossil fuels are running out, the cost of them is increasing. This means that richer countries are able to afford more and are able to produce more energy. LIC's are the hardest hit.	Solar power is a good solution for developing countries. Around 1.6 billion people in the world have no electricity and photovoltaic (PV) cells (turn sunlight to energy) are cost efficient.
Producing electricity in coal-fired thermal plants: Water is heated in the boiler to produce steam. This steam drives a turbine, which turns a generator to produce electricity.	There are many ways to reduce energy use. 70% of the heat from a house disappears through poor insulation. Better designed homes could prevent this.

Renewable vs. Non-renewable Energy

Fossil fuels can be burned at all times, unlike wind energy and sun energy which relies on weather conditions. The burning of fossil fuels will remain the most cost efficient and easy way to produce energy.	Burning fossil fuels produces high levels of pollution, which renewable energy doesn't. The sulphur dioxide released by burning fossil fuels causes acid rain, which harms trees and damages buildings.
Biofuels contribute to food shortages and the prices rising for crops such as corn and sugar. This causes starvation in low income countries and doesn't affect the higher income countries.	Mining for fossil fuels is dangerous, and many workers have lost their lives. For example at Aberfan in Wales a disaster killed 116 children and 28 adults in the village.
Energy saving light bulbs can be used to save energy, along with loft insulation and double glazed windows to maintain heat in the home. Reduction in car use would also save energy, with solutions such as walking or public transport.	Fracking (used to mine fossil fuels) can cause small earthquakes and the waste water that is produced can pollute lakes and rivers. This has caused tap water to be flammable!
Compared to nuclear energy, the risks of producing energy by burning fossil fuels is relatively risk free. Nuclear energy is often unpopular because of the risk of radiation leaks.	Nuclear energy does not produce greenhouse gases and therefore can be seen as a cleaner way to produce energy. However, nuclear energy is still non-renewable as it relies on uranium.
In Iceland, all of their electricity is produced by geothermal energy but this is because they have the right types of hot rocks under the earth. The UK has the best wind turbine resources in Europe and we should take advantage should take advantage of that.	Solar energy is being used in parts of Africa to help the 598 million people who currently do not have access to electricity. It is an easy and cost efficient way of giving people access to energy.