

19 Energy

A The UK's energy system has changed dramatically over the last century.

In the first half of the twentieth century:

- coal was the dominant **fuel** in industry and electricity **power plants**, and in houses and businesses
- **town-gas** networks existed in larger towns, with the **gas** derived from coal

In the second half of the 20th century:

- coal continued to be of central importance for electricity **generation**, although its importance elsewhere fell substantially
- **nuclear power plants** began to be **commissioned** from the mid-1950s
- the electricity industry was combined into state-owned monopolies, during the 1950s
- the **high voltage** electricity **transmission network** was created in order to transport electricity over long distances from big power plants
- electricity **distribution networks** shrank in importance and activity
- during the 1960s and 1970s there was a move to an extensive **natural gas** network for **heating** (industry, commerce and domestic)
- demand for **transport fuel** increased dramatically
- **gas-fired central heating** largely replaced **open coal fires** in homes
- the use of **electrical appliances** in commerce and the domestic sector increased hugely

B Today we are seeing increasing interest in those renewable *sources of energy* which can deliver clean and cheap *types of energy*, using environmentally-friendly processes and *equipment*.

Sources of energy

renewable

- sun • water
- wave • wind

non-renewable

- fossil fuels: coal, oil, natural gas, petroleum
- biofuel • plutonium • uranium

Types of energy

- electrical energy • fire • fossil fuels • gas power • geothermal energy
- greenhouse effect • hydraulic power • hydroelectric energy • kinetic energy
- magnetic energy • nuclear energy • solar energy • steam power • tidal power
- water power • wave power • wind power

Equipment to produce energy

- atomic energy plant • gas station • gasworks • generating station • generator
- heat exchanger • hydroelectric scheme • motor • nuclear plant • power station
- powerhouse • solar cell • solar panel • tidal barrage • tide mill • turbine
- waterfall • waterworks • wind farm • windmill

C Study the sentences below.

In 1950, the energy system for both industry and domestic demand was fuelled by coal. Today domestic natural gas is the UK's largest source of energy. Developments in technology are gradually

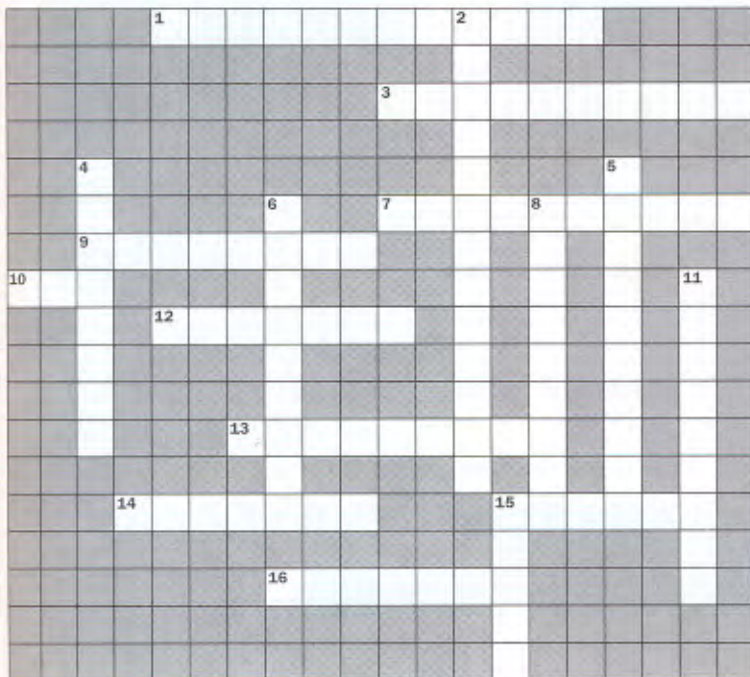
lowering the costs of generating electricity from alternative and renewable sources. The increasing and fluctuating prices of natural gas are contributing to making biomass and wind energy competitive.

TASKS

1 Rearrange the letters to name six sources of energy.

1 uns 2 fbielou 3 dwni 4 piunutoln 5 weva 6 peumroetl

2 Complete the crossword with words from the opposite page.



Across

- 1** When a nuclear plant is put into action it is _____.
- 3** The flow of electrons produces this type of energy.
- 7** This heat comes from the earth itself.
- 9** This is where gas was made from coal in the past.
- 10** Almost all the energy we use comes from this.
- 12** The reactor in nuclear power stations contains a nuclear fuel such as _____.
- 13** These turn the energy in sunlight into electricity.
- 14** This kind of energy is in things that are moving, e.g. a moving turbine.
- 15** This is a hydroelectric power station together with its dam and reservoir.
- 16** This is made from plant or animal matter.

Down

- 2** The main way of heating homes in the UK before central heating.
- 4** This energy is associated with electric current.
- 5** Exhaust gases from vehicles and power stations, methane from oil and gas rigs and CFCs in refrigerators all contribute to this effect.
- 6** This type of fuel is used to power all sorts of vehicles.
- 8** This power comes from the pressure or movement of a liquid.
- 11** Another word for oil.
- 15** This type of energy comes from the sun.

3 Complete the following text about power using the words from the box.

barrage • gas • non-renewable • produce • water • wave • fossil fuels
power stations • generators • renewable • tidal • coal • turbines

Most large power stations burn (a) _____ which were formed from the remains of plants and animals that lived on the earth millions of years ago. The first type of fossil fuel to be used in large quantities was (b) _____. Today, it is increasingly expensive to mine, however, many (c) _____ still burn it to (d) _____ electricity. Oil and natural (e) _____ have now largely replaced coal. These fuels are all (f) _____ and will eventually run out. Wood is used by 2 billion people in the developing world and unlike fossil fuels, it is a (g) _____ energy source. Alternative energy sources include (h) _____ power technology. In hydro schemes, water from a reservoir or from a river powers (i) _____ which drive (j) _____. (k) _____ power systems use the energy from wind and sea or take mechanical energy from wave movement. The UK offers a good position to exploit wave energy. The movement of the sun, moon and earth combine to produce (l) _____ power. Electricity can be generated when tidal water passes through turbines positioned in a (m) _____.