ENERGY AND RECYCLING: Renewable Energy

There is debate about our need to cut down or eliminate the use of fossil fuels and to turn to renewable sources (that won't run out and don't add to pollution or the Greenhouse Effect) for our energy needs. Additionally, there is much discussion surrounding which renewable sources would be best and the advantages and disadvantages of each. Issues such as the cost, timescale and practicality of installation, and how effective they are at meeting our energy needs, must all be considered. The following shows different types of renewable energy and the advantages and disadvantages of each.

Solar: Energy produced by sunlight

Advantages

- Solar panels can provide heating whilst photovoltaic panels can produce electricity
- Can be used in all countries (not just those that get a lot of sunshine)
- Panels can be fitted to some existing buildings, so they don't affect land use
- Energy can be generated in remote locations that aren't serviced by an energy supply grid (e.g. solar-powered satellites in space)
- Once manufactured and installed they can supply a large proportion of a building's hot water and energy needs

Disadvantages

- The manufacturing and transportation of solar panels currently requires the use of fossil fuels and is expensive
- Efficiency can be affected by weather and pollution
- Not all buildings can have solar panels fitted; permission needs to be sought in some cases

Wind: Energy produced by wind

Advantages

- Wind turbines use less land space than a power station and can be used in remote areas
- Turbines can be made in different sizes for different purposes
- Wind turbines can generate a huge amount of power in a renewable way and cost relatively little to build and maintain

Disadvantages

- They can interfere with birdlife
- Some people view them as unattractive additions to the landscape, and there are occasionally protests when setting up a new wind farm
- They are usually restricted to windy areas and wind strength can vary

Cont'd

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Water: Energy produced by the movement of water

Advantages

- Water flow can be harnessed and used to produce masses of energy
- Water dams do not run on fossil fuels so do not produce carbon emissions
- Dammed lakes can be used for watersports, tourism, etc. and can become usable ecosystems for wildlife

Disadvantages

- Damming can cause erosion or flooding, or affect the natural ecosystem of the river
- Building dams is expensive, can destroy habitats and sometimes towns need to be relocated
- Restricted to areas near water sources

Hydrogen: The heat energy produced from splitting hydrogen atoms

Advantages

- Can be produced anywhere in the world
- More efficient than petrol at fuelling cars
- Hydrogen can be safer than other forms of vehicle fuel
- Heat and water are the only by-products

Disadvantages

- The manufacturing process currently relies on fossil fuels
- Technology to produce hydrogen fuel that is cost effective is still to be developed
- Hydrogen is dangerous to transport as it is highly flammable

Geothermal: Heat and steam energy stored beneath the Earth's surface

Advantages

- Geothermal energy can be used to power large areas
- Once the energy is harnessed no fossil fuels are needed to convert it into heat energy
- Geothermal energy can heat a variety of different things including swimming pools and buildings

Disadvantages

- Drilling can be costly and a large area is needed to install piping
- Restricted to areas where there is a geothermal energy source
- The release of geothermal heat also causes the release of harmful gases, such as CO_2

Did you know?

An average wind speed of just 14mph is required to turn wind energy into electricity.

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