



Bio-energy

what is bio-energy?

Biomass is plant and animal matter, such as wood, straw, sewage and waste food.

We can burn these natural materials to produce heat and electricity. The Earth's biomass is a huge store of energy, which is continually renewed by the sun through photosynthesis.

The power we produce from biomass is called **bio-energy**. People all around the world use wood, rice husks and other plant and animal material (biomass) as fuel to create heat (bio-energy) for use on a small scale.

How does bio-energy work?

There are two main large-scale ways of generating bio-energy.



Oil from oilseed rape can be used as fuel.

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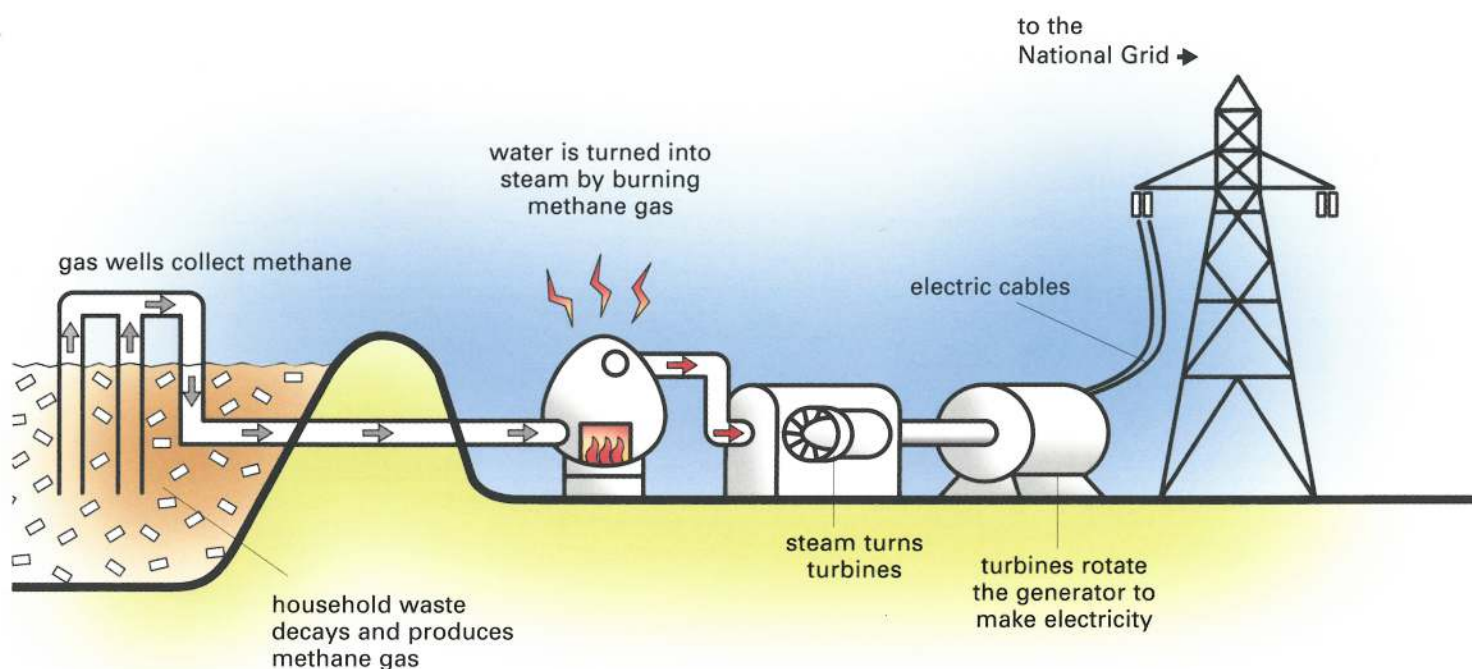
A farmer harvests trees for fuel.

Photo courtesy of NRE Slide Library/DTI

- **Energy crops** such as wood, oilseed rape and sugar beet are specially grown for fuel. A form of bio-diesel can be produced from vegetable oils. Other crops can be fermented to produce ethanol, a high-energy substance similar to petrol.



Using landfill gas to generate electricity



- **Waste** is an important source of bio-energy. Landfill sites, animal droppings and sewage all give off methane gas as they rot. Methane can be burnt to produce electricity and heat.

Advantages

- The fuel is cheap.
- It helps get rid of waste, which can cause smells and pollution.
- It is not using up limited resources like coal: biomass cannot run out.

Disadvantages

- Burning the fuel creates carbon dioxide, a greenhouse gas. However, if you grow crops that absorb the same amount of carbon dioxide from the air that is created by burning them, the effect on the environment is less harmful.
- Collecting waste in big enough amounts to generate energy can be difficult.
- If trees aren't grown especially for fuel, and re-planted, the result is deforestation.