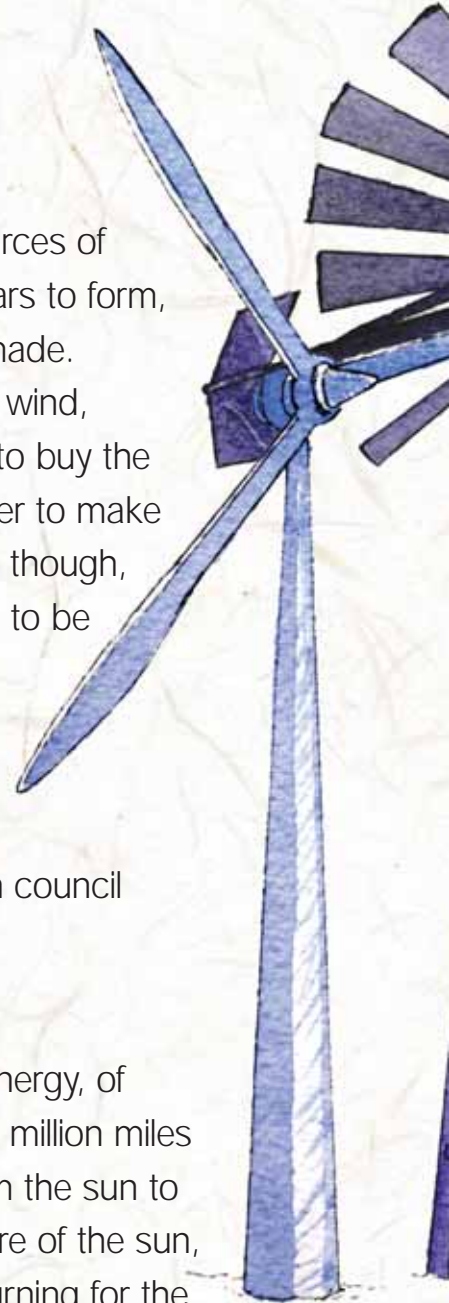


RENEWABLE ENERGY

What are renewable energy sources?

Solar, wind, biomass – these are all renewable sources of energy. Unlike fossil fuels which take millions of years to form, renewables are ever present or can be grown or made. Renewable sources of energy include the sun, the wind, water, human and animal waste. You have to pay to buy the technology in order to use the sun, or wind or water to make renewable household energy. Once this is paid for, though, you don't pay for fuel although the machines need to be looked after and fixed if they go wrong. Locally produced renewable energy can be more reliable than grid power. In order to use renewable energy technologies, you may need training and advice on finance. These may be available through council initiatives or charities where you live.

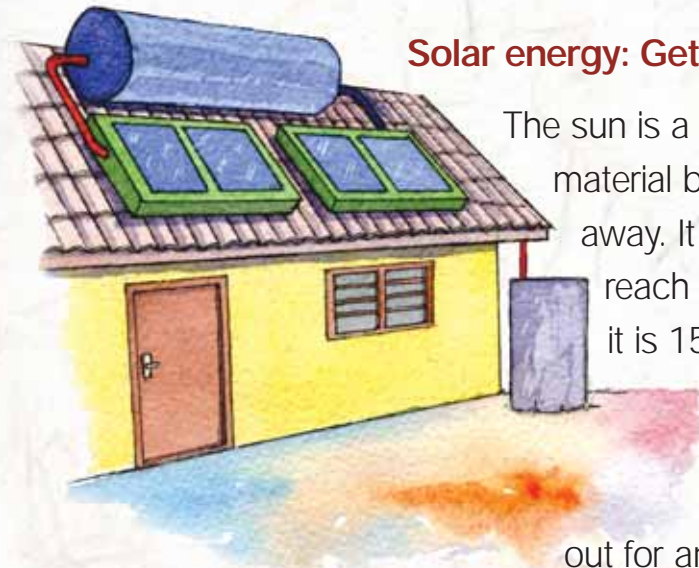


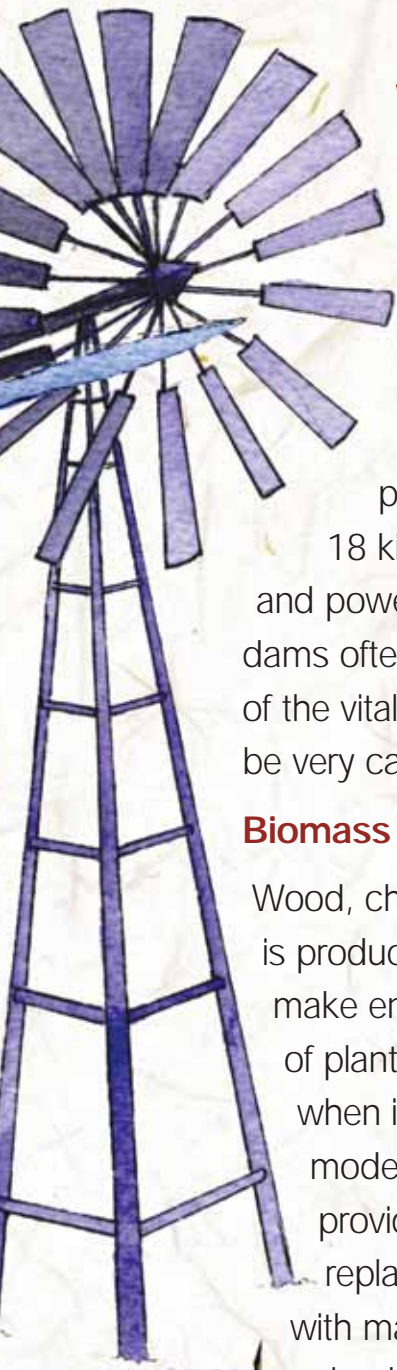
Solar energy: Get on the sunny side

The sun is a huge ball of fire, a mass of energy, of material burning up in outer space, 93 million miles away. It takes 8 minutes for light from the sun to reach us here on Earth. In the centre of the sun, it is 15,000,000°C and it's been burning for the

last 4.6 billion years. This energetic star can be used to make household energy. Solar energy is in many ways the perfect power source. It won't run out for another 5 billion years! Sitting in the sky sometimes it seems friendly, sometimes too hot and deadly, but it is always there for free.

Humans have been slow to take advantage of the sun's energy. You can't hold the sun in your hand, or put it into a tin can or a petrol pump. Therefore it's difficult to sell. You can use solar power to cook food on a solar cooker, heat your water and home, even to make electricity with photovoltaic technology. The Botswana government have passed a law so that all their buildings must now to install solar water heating systems. Solar home systems and renewable energy village power systems are now available in many countries.





Wet and windy – Wind and water power

Windy day? The movement of air can be used to make electricity. Large windmills have blades which are turned by the force of the wind. The most important thing is to put them where they won't harm people and wildlife, especially birds. The flow of water in rivers and the sea can also be turned into electricity using turbines.

This picture shows a pico-hydro system, which produces energy for a community in Kenya. Here 18 kilowatts of power is produced providing light and power to 90 homes. However, large hydropower dams often damage communities of people, so use of the vital resource that is water for energy, needs to be very carefully planned (See Chapter 2).



Biomass – Energy from life

Wood, charcoal, dung, agricultural and human waste – anything that grows or is produced by living things - are all known as 'biomass' and can be used to make energy. Biomass energy is created from the carbon stored in the bodies of plants and animals. Like fossil fuels, biomass produces carbon gases when it is burnt, but this is absorbed as new plants and trees grow. Using modern technology, biomass can be used to generate electricity and provide fuels for cars. Biomass is renewable. You can plant more to replace what you have used, so it need never run out. The trouble is, as with many natural resources, humans are using it up more quickly than it can grow back. Trees near to human settlements are often cleared for agriculture, for sale of timber, or to make charcoal to sell in towns and cities. People are taking longer and longer to find trees for wood. To make biomass fuel work for us, we must solve some of the problems: We must keep the supply nearby and ensure that we make more if it as time goes on. There is a lot more about this in Chapter 4: Forests.

***Don't forget –
If you burn wood, plant a tree!***