



1 Want to drive, but worried about air pollution and global warming? The hybrid car is the answer. Running on petrol and electricity it uses half as much fuel as normal cars, and so emits half the harmful gases. Stars like Cameron Diaz and Leonardo di Caprio are enthusiastic owners of the Toyota Prius, one of the first such cars. The Prius is so popular that there is now a six-month waiting list to buy one in the United States. In 2004 it was voted Car of the Year in both Europe and North America. And this is just the beginning. Manufacturers are competing to bring out similar cars and Ford is about to launch a hybrid SUV (sport utility vehicle). Next come 'hyper-cars' that use one third to a fifth less fuel than normal.

photo: Toyota

2 Electric light transforms the lives of the poor, making it possible for families to stay active - and children to study - after night falls. But electricity is scarce in many developing countries; millions of villages are far from the grids, and power is expensive. Now the Light Up the World Foundation has found a way to illuminate whole villages with less electricity than is used by a single 100 watt bulb. Combining simple pedal-powered electric generators with wind turbines and with cutting edge technology from light-emitting diodes it has won a Rolex Award for Enterprise. Already working successfully in Nepalese villages, it is set to spread around the world.

photo: Seth Leon/LUTW

3 More than 2,000 metres up on Mount Snowmass in Colorado, where the temperature can fall to minus 44 degrees centigrade, a banana crop is harvested each year. It is grown in a building at the Rocky Mountain Institute that is 99 per cent heated by the rays of the sun (the rest comes from two wood stoves, lit occasionally mainly because they look good). The self-heating building was achieved by orienting it towards the sun, designing it to catch the rays and insulating it heavily. It is a dramatic example of what can be done using passive solar heating, a technique well understood by some ancient societies, which is now rapidly catching on around the world.

photo: Rocky Mountain Institute



4 More than a billion people around the globe cannot get safe water. But now a simple device is making it possible for poor people to purify their water. When water is placed in the base of the Watercone it is evaporated by the sun and condenses out as pure water on the side of the cone. Taken up by CARE Germany, and already in use in Yemen, it needs no power or complicated maintenance, and will produce a litre of fresh drinking water a day.

photo: www.watercone.com

5 Wind is the cheapest form of renewable energy, but 'windfarms' designed to harness it are accused of ruining the landscape in many countries. But now a firm in Scotland has designed a personal rooftop windmill that will fit on the chimney of a house, and generate much of its electricity. The Windsave will start producing power in winds of just 8 kph, pay for itself in reduced electricity bills in three years, and needs no maintenance for a decade. And each rooftop windmill is calculated to save the emission of nearly a tonne of carbon dioxide, the main cause of global warming, each year.

photo: Windsave



6 Cooking supper, over much of the world, means cutting down a tree. Wood is often the only fuel available to the poor. They spend backbreaking days collecting it. And, when burned, its smoke contains a cocktail of poisonous chemicals that kill over a million small children every year. The Escorts stove, which has just won an Ashden Award for Sustainable Energy, is the latest of a series of improved devices that need much less fuel and so preserve forests and health. Built by trained local women near Lahore, Pakistan, the stoves are spreading rapidly in the area, and have been taken up by 70 per cent of the people in the 56 villages where it has so far been introduced.

photo: Martin Wright

7 Run down your mobile phone battery? Now you can recharge it by hand. You save electricity, and you don't have to be near a power point. Several companies now produce chargers that work by turning a small handle and a Japanese company has just produced one that works when you squeeze it. Inventors are also looking into ones that will charge automatically as you walk along. Apart from their convenience and environmental friendliness for everyone, the hand chargers could be invaluable in developing-country villages where mobile phones are increasingly used for vital communications.

photo: www.porta-charge.co.uk





photo: Scott W. Powell/UNEP/Topham

THERE'S ONLY ONE EARTH