

ENERGY AWARENESS MONTH – OCTOBER 2009



What are some renewable sources of energy? Solar, wind, hydro, biomass, geothermal etc.

Solar power or sun's energy can be used to make both electricity and fuels with solar panels. These panels take energy from sunlight and turn it into either electricity or they drive a chemical reaction to make a fuel (hydrogen gas for instance). More energy from the sun hits the earth's surface in one hour that ALL the energy used by people on the entire earth in one year!

Tidal energy remains a vast, untapped source of water power in Australia. It could provide a predictable, regular source of power with water turbines turning as the tide ebbs and flows. Tidal energy is used in a number of other countries including France.

Wind: Large wind generators are being erected very quickly in almost every state in Australia. They can be installed in two days, take up very little room on the ground and are relatively cheap to construct, compared to other renewable energy sources. Like all power-generation projects, they have some drawbacks. Our coastlines have some of the prime spots for wind generators, but many people don't want our coastline marred by lines of towering turbines. The migration routes of birds such as the endangered orange-bellied parrot also have to be considered. There's no doubt wind power is set to play an increasingly important role in Australia's power production. In Albany, south-western Australia, 12 turbines with massive 33m blades now provide 75 % of the power for the town's 7000 people.

Biomass: Many plants can be turned into chemical fuels that can be burned. Ethanol is the most common, and usually corn or sugar cane is grown to make ethanol. Gecko does not support the use of food crops for production of ethanol, nor the growing of biomass for ethanol if it displaces existing food crops or areas of high biodiversity. You can burn ethanol in many cars just like gasoline, and it is widely available throughout the country. One of our largest current sources of renewable fuel, providing about 2 percent of our total energy, is a waste product from the sugar industry. The 30 percent of sugar cane that's unusable – fibrous matter called bagasse – is burnt to provide heat for sugar processing, and power for the industry. Extra power is exported to the grid. As the efficiency of the boilers is improved, bagasse – and waste from other crops, such as rice or macadamia nuts – will become an even greater power source. Because it grows quickly, the non-psychoactive strain of hemp is an excellent source of biomass for the production of clean-burning ethanol fuel. Naturally resistant to pests and weeds, hemp can be grown without the need for pesticides.

Geothermal energy is being actively explored in Australia and Queensland has a pilot project in western Queensland. Geothermal energy consists of water being pumped down a long bore until it meets hot rock. The resulting steam drive turbines to produce electricity. The steam can be recaptured and the condensed water used again. It has also been proposed to re-use the water used in extracting coal seam gas rather than allowing this toxic water enter the natural environment.

Easy energy saving habits: Reducing your demand of energy will not only help save the environment, but save you money. Unplug seldom used appliances; unplug your chargers when you're not charging;

set computers to sleep and hibernate; take control of home temperature; use appliances efficiently. Walk, bicycle, catch public transport and car pool to reduce your reliance on polluting fossil fuels.

Hydroelectric: By building a dam on a river, and only letting the water pass through a small passage, you can use the force of the moving water to spin a turbine to make electricity such as the Snowy Mountains Hydro-Electric Scheme. However, forecasters agree that we're unlikely to build any more massive dams for power generation because of the major environmental impacts on the natural environment and the energy required to build them.

Further reading: AUS Geo 67 July-Sept 2002, available now in Gecko library