



RENEWABLE ENERGY

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WHAT ARE THE BEST CHOICES FOR DORSET?

Renewable energies include solar, wave, biomass, heat pumps and wind energy, all of which are produced directly or indirectly from the sun, together with tidal and geothermal energies. They are secure, essentially inexhaustible and give rise to little pollution.

It is important to choose those Renewable Energies which are truly cost effective rather than being subsidised with public money, and they should also be relatively unobtrusive in the countryside.

SAVING ENERGY IN THE HOME

About 80 % of the energy in a typical home is used for space heating and hot water. Quite substantial savings can be made with loft and cavity wall insulation, double glazing, thick carpets and curtains, and the draught proofing of doors, windows, and letter boxes. Unused chimneys should be blocked off.

A-rated white goods and low energy compact fluorescent bulbs or LED lighting (and remembering to turn off all lights when they are not needed) will also help. The costs are modest and will be paid back over a short period of time by the savings on utility bills.

SOLAR WATER HEATING

Dorset has some of the best sunshine in the country and this can be used to provide domestic hot water. This is presently the most popular form of renewable energy with over 80,000 systems in the UK. The system does not usually need planning permission, it requires little maintenance, and the pump is the only moving part.

SOLAR PHOTOVOLTAICS

Solar panels containing silicon semiconducting cells are mounted on a south facing roof. They convert daylight into electric current but the amount of electricity produced depends on the intensity and duration of the sunlight throughout the day and throughout the year. Dorset has plenty of sunshine, little maintenance is required, there are no moving parts, and no noise. Planning permission is not usually necessary. Commercial solar farms can generate substantial amounts of electricity but they are unsightly and should be located on industrial or brownfield sites and not in the open countryside.

BIOMASS

Many sorts of organic replenishable materials can be used to provide heat, electricity or gas. Wood fuel is cheaper than fossil fuels. A domestic or industrial boiler can use almost any type of wood (but especially ash, beech and chestnut) in the form of dead trees, fallen timber, scrap wood, or wood chips. Willow or poplar coppice, miscanthus (elephant grass) and switchgrass are grown for use as fuels, but relatively large amounts of land are needed to grow enough of these fuels for the larger installations. Cereal grains, animal waste, and partially treated domestic waste can also be used. Domestic wood burning stoves can be fitted with a back boiler for central heating and hot water.

WASTE TO ENERGY

Various types of domestic and commercial waste which used to be sent to landfill are now heat treated (with incineration or with pyrolysis or gasification) to produce useful amounts of heat for space heating and/or conversion into electricity. Modern plants are carefully monitored to avoid any toxic emissions and the ash residues are used for road building.

Methane is a very effective greenhouse gas being more than fifty times as powerful as carbon dioxide. These Waste to Energy plants thus have the twin advantages of providing substantial amounts of power, and of avoiding the release of large quantities of methane which formerly found its way into the atmosphere.

HEAT PUMPS

Heat pumps extract solar energy which has been stored in the air, in water, or in the ground and use a compressor to raise it to a useful temperature relying on the same principle as a refrigerator but working the other way round. Between three and four units of heat are generated for every unit needed to drive the pump.

WIND TURBINES

Wind turbines are typically 125 metres (that is over 400 feet) high and nearly always need a vast array of high voltage pylons to connect them to the national grid. They are heavily subsidised with the money coming from all our domestic electricity bills. They are a commercial proposition only because of these subsidies called Renewable Obligation Certificates or ROCs. Wind power is always intermittent and totally unpredictable. Industrial wind turbines are noisy, especially during quiet periods in the night, visually intrusive, especially in rural areas, and kill many birds and bats. The average wind speed in Dorset is about five metres per second which will power a wind turbine at only 10 % of its rated capacity.

Wind turbines are more efficient offshore and in mountainous regions where the wind blows more strongly. Even then, they rarely produce much more than 35 % of their rated capacity when averaged over a period of one year.