# Wind generators

Wind is the result of differential temperatures, the warming of the sun, and the cooling in the shade. Day and night, winter and summer, north and south, wind is the attempt to restore equilibrium after the effects of duality. Solar energy one step down the line.

The main trouble with wind power is its unevenness, the wind seldom blows at a completely steady rate, so the power output is like that, unsteady. If the power can be stored and then used as required, you have a really excellent source of non polluting, reusable energy. The other option is to use it when there is wind, that’s how windmills ground corn in the old days. When it was calm, the miller took a day off! Another way to get round this uneven supply is to use it solely for heating, which has a number of advantages. Just run the generated electricity straight into heating cables in an insulated water tank. Any heat that is generated will be taken up by the water. The heat can be stored until needed, then pumped round your house for heating.

The first thing you need to do is to check your site. All you need is to put up a recording anemometer, and read off the results. Either there is wind or there isn’t. It will vary according to time of day and season, and you need to build up a picture. Again, you should do this for a year, because things can vary a lot. Weather measurements have been recorded properly for decades or more now, and you need to get in touch with the national meteorological service. Get it as detailed as possible. Don’t rely completely on these figures unless the wind recorder is actually on your site. Wind varies a lot with topography. A hill, a wood or any other obstruction can completely change the picture. If you can take wind measurements on your actual site, do it for a few weeks and compare it with recordings taken by the national service. You might be able to see a correlation, and can extrapolate from that.

You will also want to know from which direction winds are blowing, and this is usually displayed as a wind rose, showing graphically how much wind from which point of the compass.

Armed with these facts, you are in a position to consider your options. They end up very similar to the things we thought about connected with water power. Do you want electricity or mechanical power? If electric, are you going to store it yourself or hook into the grid. One option with wind is to use the excess to pump water into a storage dam. Then you have a considerable steady supply, given that your dam is large, and you can draw the water off into a turbine which gives steady power all the time. The more complex your systems, the more sustainability you create.

Wind is becoming more accepted. World wind generating capacity climbed from 17, 800 megawatts (MW) in 2000 to 23 300 MW in 2001. That was a one year gain of 31%! From 1995 until 2001 the wind generating capacity was increased by 487%! Forward projections are more dramatic still. According to the European Wind Energy Association, Europe alone is expected to be generating 60 000 MW by 2010. The countries which are spearheading this development are Canada, China, Italy, the Netherlands, Sweden, the United Kingdom, Greece, Ireland, Portugal, France and Japan. These facts and figures are taken from an article by Lester Brown, president of the Earth Policy Institute, in the December 2002 edition of *Resurgence* magazine.