

Energise yourself

Generate your own electricity and sell it back to the grid. How good will that make you feel? **Margy Cockburn** meets with those that power themselves and checks out a range of options on the market

Finite fossil fuel supplies, carbon emissions and climate change, and a National Grid rapidly reaching retirement age, are forcing a reconsideration of how power is generated. Nature provides limitless renewable energy - in the form of sun, wind, wave, biomass, air and water - to satisfy the world's demands. The technologies to harness that power already exist. All that is needed is the will to make it happen and delivering decentralised 'power to the people' could provide us with the solution.

Revolutionary stirrings are in evidence: house mounted wind turbines and solar panels that generate electricity are sneaking their way onto roofs across the country and the Government has just committed a further £50 million to support its Microgeneration Strategy.

The tricky bit is to turn renewable technologies from a niche into a mainstream market so costs come down. This is where we all have a part to play.

You can save energy, ask your supplier to go green, or go positively emerald yourself and make your own power.

There are plenty of places to go for advice, a range of grants to help you, an increasing number simple yet affordable devices to use and as energy prices continue to climb, a shorter 'pay-back' time. You can even produce more than you use, sell the excess to the Grid and become a true microgenerator.

We are all responsible for climate change; the good thing about that is that means we can all be part of the solution. Determine to produce at least part of your warm glow for yourself!



SOLAR AND PHOTOVOLTAIC

Six years ago Sian and Richard Liwicki made a decision to live more sustainably, bought a vineyard in Oxfordshire, started an eco-friendly house and found themselves, with their builders, climbing a steep learning curve.

“Thinking of the future for our children we knew we wanted to make as small a footprint as possible; making our energy green was part of that. We decided to install solar panels for water heating and photovoltaic panels to generate electricity.

“I now think it’s criminal that every new house isn’t obliged to install solar panels - they were easy to fit, the pay back time is short and they work really well.

“Photovoltaics involved a big outlay but we realised unless people start to demand new technologies they won’t be forthcoming. We signed up with Good Energy which pays us for every unit of electricity we produce and we export any excess to the grid instead of having to store it using batteries – it goes out through the same wires it comes in so it wasn’t complicated to connect. It has certainly made us very aware of how, and when, we use power.

“Our annual bill for the house and winery is still more than we would like at around £800, less the £100 repayment, so we are looking at installing a wind turbine to cut that even further.”



Energy: Solar and 2kW array of photovoltaic panels
Cost: £2.5K and £7K plus 50% grant
Pros: Installing both photovoltaics and solar means the hot water pump is also home-powered.
Cons: The PV chunters away best just when we least need the power.

HYDRO ELECTRIC

For Chris and Jean Mason at their Mill house in Castle Douglas Scotland, their mill pond and race were all in place but the power of the water was no longer being used. Aware of the waste the Mason’s, grandparents five times over, decided to install a micro hydro turbine and produce their own electricity.

“I’d lie in bed listening to the water frothing away past the mill all night and think what a waste of energy it was. With five grandchildren we were also concerned at the effects of global warming. That, plus the rising cost of oil and electricity, and the increasing sloth of the log cutter, made us decide to use the burn water again.

“The Energy Saving Trust advised us on grants and we started by making the mill pond watertight and looking for a micro hydro turbine. That search ended in Pennsylvania – not a single UK manufacturer could supply us. We finished the work in spring 2005 and then

had the longest drought for years. A reminder that you are completely dependent on the weather with renewables.

“The structural work involved was fairly minimal as the weir, the mill pond and race were all in place for the waterwheel. Since the rains came in October we have been producing 60 kWh per day, while using a maximum of 65 kWh in the house. Being grid connected we also get payment from our supplier, Good Energy. With the



savings in bought electricity, oil and logs we estimate a pay back period of five to six years.”
Energy: Micro Hydro Electric Turbine 3.5 kW rating
Cost: £ 13,000 gross, less 30% grant
Pros: High output and should last for years
Cons: Needs a fast flowing river and reliable rainfall to operate

SOLAR

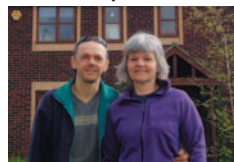
Clare and Paul Sheridan had already moved to a 100% green energy supplier but went one step further and installed their own solar panels. That worked so well they didn’t stop there

“We live in an ordinary house on an estate. We had looked at ways of reducing the amount of power we used in the house and wanted to go one step further to produce our own.

We started with a solar panel to provide hot water. I did all the work, it took a couple of days to fit and, even though our house is south west rather than south facing, it immediately worked well and gave us 70 per cent of our consumption.

“We then installed a small photovoltaic panel that we connected to a battery and inverter to power the solar pump and plug in a computer or whatever. That also worked well so, two years ago, we applied for a grant to install a larger system. We linked this to the Grid and used Good Energy’s Home Generation scheme so we get paid for all the electricity we produce. A year after installing our PV system our electricity bill was averaging £2 a month.

“We may not think we live in a very sunny place but we have shown that solar really can work well in the English climate.”



What: Solar plus 1.8kW array of photovoltaic
Cost: £1,800 (plus own labour); £5,900 plus grant
Pros: Can keep adding panels as your needs, or your funds, grow
Cons: To maximise performance need to be orientated as south-facing as possible

WIND TURBINE

Fuel poverty is often an issue for tenants. When a new wind turbine came onto the market which can provide around 60 per cent of a household’s electricity, operate in turbulent conditions, and do it silently, it was an obvious choice for Alistair Brown.

“As a registered social housing landlord the driver for us is to provide excellent, affordable housing. That doesn’t just mean an affordable rent. We are very aware of the fuel poverty issue and we see part of our job as reducing our tenants’ dependence on the National Grid and protecting them from rising fuel costs.

“We also take on an educational role – with gas costs having risen around 22 per cent recently people are starting to learn pretty quickly just how expensive energy is and the role that renewables have to play in the future. We are very proactive in researching ways in which we can cut energy consumption. We have just become the first in Europe to use a hydrogen fuel cell in a domestic property.

“Four months ago we chose to put in the Swift turbines – they are the first silent, building mountable turbines on the market, and have a special anti-vibration system. The occupiers are very pleased with them and we haven’t had a single adverse comment about the way they look. We are now designing all our new houses so we can bolt turbines on to them in the future.”



What: Swift 1.5 kW Wind Turbine
Cost: Turbine plus installation around £5000 (dropping as demand increases)
Pros: small turbines can be installed on roofs in urban or rural environments and directly power the building with no need to feed into the grid
Cons: It is important to determine if there is a suitable wind resource

GRANTS AND ADVICE

Energy Saving Trust www.est.org.uk
Centre for Alternative Technology www.cat.org.uk
National Energy Association www.nea.org.uk
Green Energy www.nef.org.uk/greenenergy
British Wind Energy Association www.bwea.com
British Photovoltaic Industry www.pv-uk.org.uk
Solar Trade Association www.greenenergy.org.uk/sta

To find out more about home generation:
Good Energy: 0845 456 1640
www.good-energy.co.uk