



Centre for  
Alternative  
Technology

# ELECTRICITY FROM RENEWABLE SOURCES

Information Department, Centre for Alternative Technology, Machynlleth, Powys, SY20 9AZ.  
Tel: 0845 3308373 or 01654 705989 Fax: 01654 702782 e-mail: [info@cat.org.uk](mailto:info@cat.org.uk)  
For more information sheets, see our web site: [www.cat.org.uk/information](http://www.cat.org.uk/information)

For most of us, generating our own electricity is not going to be profitable, as electricity through the grid is relatively cheap compared to the costs of setting up a wind or hydro turbine or photovoltaic (solar) panels. See overleaf for more on this. However, we can all easily power our homes and businesses with renewable energy supplied through the national grid. This both supports the renewables industry and sends a message to the government that we want to support non-polluting forms of energy.

## **Renewable electricity through the grid**

You can now buy your electricity from any supplier, and many of them now offer either '**green tariffs**' or '**green funds**'. A green tariff will match your electricity use with energy from renewable sources. A green fund uses some of the money from your bill to support renewable energy installations or research, or other environmental projects.

In order to meet a target of 10% of electricity produced from renewable sources by 2010, the government has introduced two measures:

(1) Businesses are taxed under the **Climate Change Levy** for any gas and electricity they use. They are exempt from this tax if they can show with **Levy Exemption Certificates (LECs)** that the electricity they purchased was from renewable sources. For a worthwhile green tariff, suppliers should keep ('retire') all of the LECs they receive.

(2) The **Renewables Obligation** requires suppliers to prove that a proportion of the electricity they sell comes from renewable sources. This proportion is being gradually increased to reach 10% by 2010. To prove they meet this percentage, suppliers are issued with **Renewable Obligation Certificates (ROCs)** when they buy energy from a renewable source. Those with more ROCs than they need to meet the target can sell them to companies who don't have enough.

There is a limited supply of ROCs, and companies who do not meet the target must buy out the shortfall - this money is invested in renewable energy. By holding on to ('retiring') more than the target amount, companies can further increase demand, so encouraging development of renewable energy.

## **What is Renewable Electricity?**

The energy sources that the government counts as renewable include wind, solar, some hydro, wave, tidal and biomass (wood and crop fuels). They also include energy from waste - produced either by the incineration of rubbish or from methane captured from landfill sites. Some see this as a reasonable way of making best use of resources, but others fear that it creates an infrastructure discouraging to waste minimisation and recycling, and that incinerators have potentially hazardous emissions. Suppliers should be able to tell you if any of their energy comes from waste, and what proportions of each renewable energy source they use.

Changing your supplier won't make any difference to the way that electricity comes into your home, or how you are billed. However, before switching suppliers you will need to confirm that your meter is compatible with the new company.

Every means of generating electricity has some environmental impact, including the energy and materials that go into manufacture and installation, so energy efficiency measures are still paramount - see over the page for a few efficiency tips.

## **Further Information / Contacts**

The **Green Electricity Marketplace** web site has information on renewable electricity suppliers, with details of prices etc. See [www.greenelectricity.org](http://www.greenelectricity.org)

Issue 85 of **Ethical Consumer Magazine** contained a report on the ethical background of electricity suppliers. See [www.ethicalconsumer.org](http://www.ethicalconsumer.org) or phone 0161 226 2929 for subscription details.

**Good Energy** supplies electricity from wind and hydro power. They will donate £20 per year to CAT for each CAT Member that signs up to their tariff. Web: [www.good-energy.co.uk](http://www.good-energy.co.uk) Tel: 0845 456 1640

**Ecotricity** supplies electricity from wind power. They will donate £10 to CAT for every CAT member that signs up to their domestic tariff. Web: [www.ecotricity.co.uk](http://www.ecotricity.co.uk) Tel: 0800 326 100

### **Green Energy UK**

Offer tariffs including 'Green Energy 100', which matches your supply with 100% renewable energy [www.greenenergy.uk.com](http://www.greenenergy.uk.com) Tel: 0845 456 9550

## Energy Efficiency

Switching to a green tariff helps to promote the development of renewable energy, but you should still try to minimise your electricity consumption as much as possible. This will reduce overall energy demand, and so less large-scale generating capacity and grid infrastructure will be needed.

Making a few small changes to the way you use electricity in your home can make a big change to your overall energy consumption, and of course it will save you money in reduced bills.

**Low-energy light bulbs** cost slightly more, but they will recoup the extra cost within a year. Over the lifetime of the bulb you will save over £30. See our *Bright Ideas* tipsheet for more details.

**Fridges and freezers** account for a big chunk of electricity use, so make sure their doors are well-sealed, and that they are defrosted regularly.

**Appliances on standby** can still use quite a lot of energy - turn them off at the plug when possible.

You can get lots of advice on saving energy from your local **Energy Efficiency Advice Centre**. To contact them, either ring 0800 512 012 or visit the Energy Saving Trust web site: [www.est.org.uk](http://www.est.org.uk)

Using electricity for heating should be avoided if possible, as it uses lots of energy. If you have no other heating option, one way to improve efficiency is to use a **heat pump**. These draw warmth from an ambient heat source (e.g. under the ground), and use electricity to boost it to the temperature required. If properly installed, a heat pump can produce three kilowatts of heat for each kilowatt of electricity used. However, you need a good site (e.g. for laying lots of pipe) and installation costs are fairly high, so they may not be for everyone. See our *Heat Pumps* tipsheet or contact us on 01654 705989 or [info@cat.org.uk](mailto:info@cat.org.uk) to find out more.

## Domestic Renewable Energy Systems

Of course there is still the option of installing your own renewable energy system and selling the electricity produced to the national grid. As mentioned before, a domestic grid-connected system is unlikely to be economic, as at present market prices it will probably not recoup its costs.

However, the financial prospects could change if fuel prices rise above inflation, in which case your investment could suddenly become more rewarding. You'd also be promoting renewable energy, and helping to increase the market for these technologies and bring future costs down, so playing an important role in their development.

See our '*Grid-Connected Domestic Renewable Energy Systems*' information sheet for advice.

## Investing in Renewable Energy

Electricity from wind farms costs only 3 to 4 pence per kilowatt-hour, competitive with nuclear or coal. There are ways for individuals to invest in these large turbines, with a view to selling electricity to the grid and getting a good return on your money.

One way to do this is to through a community renewable energy scheme. This should yield a better financial return than installing your own grid-connected renewable energy system, and can act as a focus for the community. It's also a great way to raise awareness of energy issues, as it gives people a real stake in power generation, rather than just being consumers. One such project, *Bro Dyfi Community Renewables*, was set up in the Dyfi Valley, Mid Wales. For details, get a copy of our '*Community Wind Turbine*' Information Sheet. If you're keen on promoting renewables, and want to start up a community project, you can get advice from the *Renewable Energy Investment Club*, who helped with the Bro Dyfi project. They link those wishing to invest in sustainable energy initiatives with renewable energy developers. Another successful community project is the *Baywind Energy Cooperative*, who own six wind turbines in Cumbria and have set up *Energy4All* to advise and support other community schemes.

The ethical bank *Triodos* manages the *Renewable Energy Fund*, through which you can invest in small-scale projects in the UK & Ireland. Their *Renewable Energy for Development Fund* invests in developing countries.

If you own lots of land you may be able to set up a large-scale wind project without needing any initial investment, but with a share in any profit. *National Wind Power* and *RidgeWind* have programmes through which landowners can 'host' wind farms. In a similar vein, *Ecotricity* run a scheme called *Merchant Wind Power*, aimed at businesses. They will build and maintain wind turbines either on or away from the premises, in return for a 12-year agreement to purchase the power produced.

## Contacts

**Baywind Energy Cooperative / Energy4All**  
Tel: 01229 821 028 Web: [www.baywind.co.uk](http://www.baywind.co.uk)  
**Renewable Energy Investment Club**  
Tel: 01654 705000 Web: [www.reic.co.uk](http://www.reic.co.uk)  
**Triodos Bank - Renewable Energy Fund**  
Tel: 0800 056 2761  
Web: [www.triodosrenewables.co.uk](http://www.triodosrenewables.co.uk)  
**Npower Renewables** Tel: 0118 959 2440  
Web: [www.npower-renewables.com/landowner](http://www.npower-renewables.com/landowner)  
**RidgeWind**  
Tel: 01993 832511 Web: [www.ridgewind.com](http://www.ridgewind.com)  
**Merchant Wind Power (Ecotricity)**  
Tel: 01453 756111 Web: [www.ecotricity.co.uk](http://www.ecotricity.co.uk)  
Further info: [www.bwea.com/you/funding.html](http://www.bwea.com/you/funding.html)