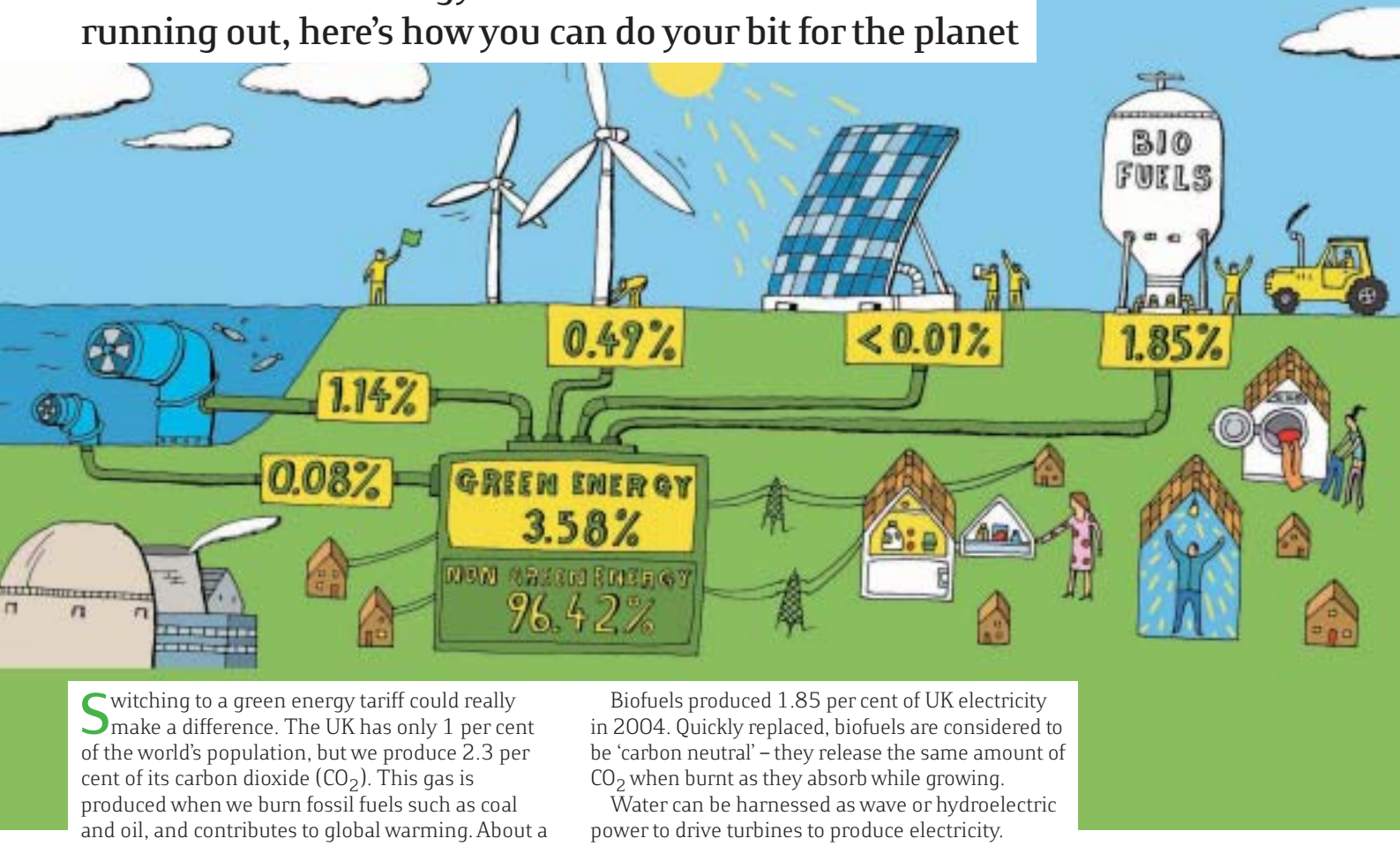
GREEN ELECTRICITY

With traditional energy sources such as fossil fuel running out, here's how you can do your bit for the planet



Switching to a green energy tariff could really make a difference. The UK has only 1 per cent of the world's population, but we produce 2.3 per cent of its carbon dioxide (CO_2). This gas is produced when we burn fossil fuels such as coal and oil, and contributes to global warming. About a quarter of CO_2 in the UK comes from domestic use – every time you flick on a light switch, power companies respond by burning coal and oil to make electricity. If you switch to a green tariff you'll be encouraging energy production from sources that don't worsen the problem of global warming.

WHAT IS GREEN ENERGY?

Green, or renewable, energy is generated by wind, sun and sea or by burning replaceable sources such as waste products and crops (biofuels). The most popular sources in the UK are biofuels, wind and water. Unlike fossil fuels, these will never run out and don't release extra CO_2.

The UK is the windiest country in Europe: wind power is predicted to supply around three quarters of the UK's target of 10 per cent renewable energy by 2010 (18 per cent in Scotland). Our 106 wind farms range in size from Scroby Sands, Norfolk (which can power up to 44,000 households), to the Isle of Gigha in the Highlands (which powers just 370).

Biofuels produced 1.85 per cent of UK electricity in 2004. Quickly replaced, biofuels are considered to be 'carbon neutral' – they release the same amount of CO_2 when burnt as they absorb while growing.

Water can be harnessed as wave or hydroelectric power to drive turbines to produce electricity.

WHAT ARE GREEN TARIFFS?

This year, power companies are required by law to produce 5.5 per cent of energy from renewable sources. This target will rise every year, reaching 10.4 per cent by 2010-2011. The best green tariffs are offered by suppliers who produce more green energy than their legal obligation.

There are two types of green tariff. The first (such as ScottishPower's Green Energy Fund) gives a fixed donation to a fund for renewable projects – for example, building wind turbines.

The second type (such as Good Energy 100%) provides electricity from green sources. This doesn't mean that the energy you need to boil your kettle comes from a particular wind farm – all electricity from green and non-green sources feeds into the national grid and can't be separated (see illustration above). What it means in reality is that the supplier promises to buy the same amount of green energy as you use, to feed into the national grid.

In practice, most suppliers offer combination tariffs, which provide green energy and invest in renewable energy projects.

NO QUEUES TO SIGN UP

Less than 1 per cent of us are estimated to have opted for green electricity. A green tariff costs around 10 per cent more a year than a standard tariff, so is it price that's stopping us?

Environmental action group Greenpeace claims price is not a factor. The main problem, it says, is lack of proof that a green tariff makes any difference.

'Consumers need to be able to be satisfied that their support is making a difference'

Ofgem

A spokesman told us: 'Consumers have little access to information and there is no independent accreditation.'

The gas and electricity regulator Ofgem is revising its green tariff guidelines to address this. Details hadn't been confirmed as we went to press, but it is expected that companies will have to:

- make clear where your green energy comes from
- be able to prove any claims they make, and disclose this information when asked
- produce enough green electricity to meet your demand, over and above their obligation, or contribute to another environmental benefit (such as a green fund). This is known as additionality.

The regulator Ofgem says that additionality is the key: 'Consumers need to be able to be satisfied that their support is making a difference.'

TARIFFS SUPPLYING GREEN POWER

Pros

- You encourage production of green electricity.
- You directly contribute to the government's targets of 10 per cent green electricity by 2010.
- You make a positive contribution to slowing down the effects of climate change.

Cons

- You aren't necessarily contributing to an increase in the supply of renewable energy for the future.

When suppliers produce renewable energy, the government issues them with 'renewable obligations certificates' (ROCs) as proof. If a supplier produces more green energy than its target (5.5 per cent this year), it can sell its excess ROCs to suppliers that have not met the target, or it can keep hold of them ('retire' them). So the overall target may be met even if individual companies fail to meet their own. Suppliers who don't meet the legal target, and don't buy enough ROCs to compensate, face a fine from Ofgem.

Environmental group Friends of the Earth argues that the best green tariffs are offered by companies that do not sell on their excess ROCs to other companies. It believes that this encourages all companies to produce their own renewable energy rather than just buy 'proof', so that the level of green electricity produced will be greater than the 5.5 per cent required by law.

Several companies promise to provide customers with 100 per cent green electricity and do not sell all their excess ROCs – for example, both Good Energy and Green Energy retire 10 per cent of their excess certificates. (It would be even better if they retired all their excess certificates, but for small companies these ROCs are very valuable, and they argue that they can't afford to retire them all.)

Some green tariffs, such as Scottish and Southern's Power2, rely on older hydroelectric stations. Although this type of electricity is technically renewable, the government is keen to promote new developments and doesn't count large-scale hydroelectricity as 'new' green electricity. Bear this in mind if you choose a tariff that relies solely on large-scale hydroelectricity.

Greenpeace supports offshore wind farms, and recommends Npower's Juice tariff. Juice costs no more than the standard tariff, and consumers know where their green power comes from – North Hoyle wind farm, in Wales. (However, like most energy suppliers, Npower did not retire any ROCs in 2004. Nor did it meet its obligation of green energy production.)

We've summarised all the green tariffs in the table below if you're keen to receive green electricity now.

TARIFFS INVESTING IN THE FUTURE

Pros

- You're investing in the future of renewable energy.
- You're making a positive contribution to slowing down the effects of climate change.

Cons

- You may not receive green electricity immediately.
- You can't be sure where your money is going.

Investing in new green energy sources is essential to meeting future government targets. Some suppliers prefer to invest in projects to produce green energy in future rather than relying on current sources. For example, Ecotricity customers receive only around 21 per cent of electricity from renewable sources.

ILLUSTRATION LEE WRIGHT PHOTOGRAPHY ALAMY

SWITCH WITH WHICH?

The costs in our table are based on average prices, and include VAT and standing charge but not prepayment or discounts. Economy 7 is excluded. For a personalised quote, visit **www.which.co.uk/switch**, where you'll also find advice on how to reduce your household energy bills.

Green tariffs

	Own resources (%)
TARIFFS SUPPLYING GREEN POWER ONLY	
Good Energy Good Energy 100%	16[a]
Green Energy (UK) Green Energy 100	0
Green Energy (UK) Green Energy 10	0
Ecotricity New Energy	100
COMBINATION TARIFFS	
London Energy/Sweb Energy Green Tariff	0.1
Npower Juice	100
Powergen GreenPlan	100
Scottish and Southern Power2	100
Scottish and Southern RSPB Energy	100
ScottishPower Green Energy H20	100

a Good Energy does not generate electricity. Monkton Generation, its sister company, generated and supplied 16% of Good Energy's supply in 2004-2005 **b** Figure varies annually – 21% in 2004-2005 **c** Fund is controlled by committee made

Wind farms - a blot on the landscape?

Wind farms are a common sight on UK hilltops. But not everyone is a fan. Country Guardian is a group that campaigns against them. We put some of its objections to the wind farm industry.

Wind farms are not 'green': 'They damage the environment in so many ways,' says Ann West, Vice-Chairman of Country Guardian. 'The sites are often prominent and scenically beautiful.'

The British Wind Energy Association (BWEA) disagrees. 'The industry has very strict guidelines – there are no wind farms in national parks,' counters Alison Hill, spokeswoman for BWEA.

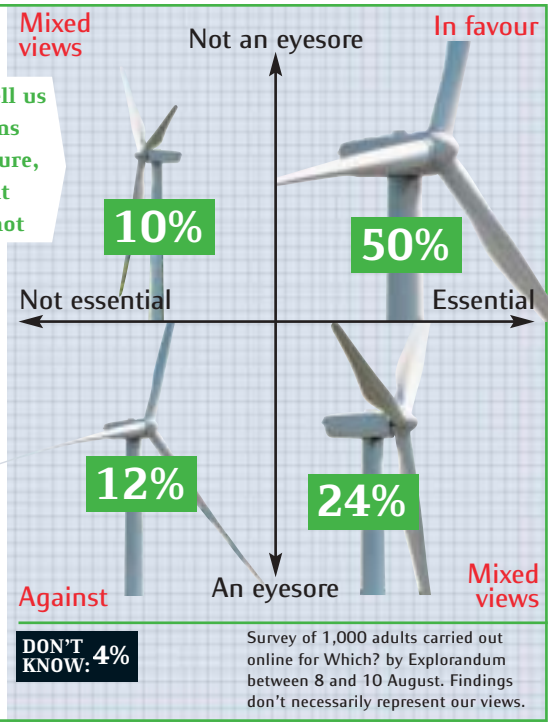
Wind farms endanger wildlife: 'Turbine blades have killed birds in huge numbers...they weigh up to 1.5 tonnes and their tips travel at 180mph,' accuses Ann West.

Alison Hill admits: 'Some wind farms will impact on bird life, but climate change would cause a loss of 60 per cent of bird species.'

We can't rely on wind: Country Guardian says wind is too unpredictable – it believes that each turbine produces only a quarter of its potential capacity.

But BWEA maintains that turbines generate power 70 to 80 per cent of the time. Alison Hill says: 'The electricity industry is used to power fluctuations. When everyone comes in from work and puts the kettle on there isn't a power cut. Wind is an indigenous resource, so let's start harnessing it.'

We asked the public to tell us if they thought wind farms were essential for the future, and whether they thought they were an eyesore or not



However, the company invests around £700 a customer each year in renewable energy projects, such as new wind turbines. Scottish and Southern spends around £280 million a year (nearly £50 a customer) on 'green' investment, while newer entrants Green Energy UK and Good Energy promise to spend 50 per cent of their profits and £2 million a year respectively on renewable projects.

Other companies, such as ScottishPower, offer combination tariffs that invest in future projects as well as offering green electricity now. Here, customers and/or the company contribute to a fund that invests in future renewable energy projects, such as solar panels on school roofs (Powergen). Customers pay a proportion of their bill or a one-off fee; companies match customers' contributions or donate in other ways (Sweb plants a tree for each customer).

However, some critics argue that fund-based tariffs can't be trusted because of a lack of supporting proof and independence. The table below shows some combination tariffs that invest in new projects, and which funds are under independent control.

As the industry argues over the pros and cons of whether to focus on supplying green energy now or investing in future renewable projects, bill payers have to decide which is more important to them.

Tariff features			Source			Fund			Cost
Green energy (%)	Additional to obligation?	Excess ROCS retired (%)	Hydro	Wind	Other	Customer pays	Company pays	Independent control	Annual (£)
100	✓	10	Small	✓		n/a	n/a	n/a	337
100	✓	10	Small	✓	Biofuels	n/a	n/a	n/a	325
15	✓	10	Small	✓	Biofuels	n/a	n/a	n/a	289
21[b]	✓	0		✓		n/a	n/a	n/a	302
100	×	0	Small	✓	Biofuels	✓	✓	see[c]	295
100	×	0		✓		×	✓	✓	279
100[d]	×	0	Large			×	✓	×	302
100[d]	×	0	Large			×	✓	×	298
100[e]	✓	see[f]	Large	see[g]	see[g]	✓	✓	✓	307
100[d]	×	0	Large			✓	×	see[c]	290

up of company representatives and independent experts **d** Energy comes from large-scale hydro, not classified as a 'new' renewable source **e** 90% of energy comes from large-scale hydro, not classified as a 'new' renewable source **f** Only 10% of energy for this tariff qualifies for ROCs. All 10% ROCs are retired **g** 10% of the renewable energy supply for this tariff is from a mix of wind, small-scale hydro and biofuels

TABLE NOTES

We include all the supply-based and combination tariffs currently available.

Tariff features

Own resources Percentage of green energy from company's own resources (the rest is bought from other supply companies). **Green energy** Percentage of energy provided to you that is green. **Additional to obligation?** Whether tariff produces green energy exceeding legal target (5.5% in 2005-2006). **Excess ROCs retired** Percentage of ROCS above target not sold on.

Source

Hydro/Wind/Other Sources providing >10% of this tariff's green energy.

Fund

Customer pays/Company pays Whether customer/company contributes to fund investing in renewable projects. **Independent control** Whether fund is independently controlled.

Cost

Annual Cost of 3,300 units of electricity (based on UK average excluding Northern Ireland) as at 3 August 2005.