

GOOD ENERGY

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- ENERGY EFFICIENCY IN THE HOME •
- ENERGY SAVING DEVICES •



Introduction

There can't be many people left who aren't aware of the devastating effect that excessive carbon dioxide emissions are having on our environment. The prospect of climate change should be a real concern for all of us. Stories of melting ice caps may seem remote today, but they will not be so irrelevant when the resultant rise in sea levels leaves the waves lapping around our ankles.

It has been said numerous times before that only a few small changes to our lifestyles could have a big impact on the future of the planet. The difference now is that not only is the pressure to make these changes mounting, but governments are beginning to listen to the environmental campaigners and enshrine their objectives in legislation.

One of these changes is a decision to apply Energy Performance Certificates (such as those found on fridges and freezers) to all houses bought and sold in England and Wales. These give every house an A to G rating for its energy efficiency and carbon emissions, as well as offering information on how these ratings can be improved.

Even before these measures come in to place, there is plenty of room for most

households to make substantial savings on their CO₂ emissions (and therefore their energy bills) by improving their insulation, installing energy-efficient lightbulbs and buying the most environmentally-friendly appliances for their home.

The most important decision to make is the switch to renewable energy. This is now easier than ever before, particularly as most of the major companies offer their own 'green' energy packages. The best option, however, is to switch to a 100 per cent renewable company – or even to set up a micro-generation site of your own.

This section of *The Good Shopping Guide* includes an in-depth look at renewable energy, as well as tips on home efficiency and a few novel gadgets that could help cut your energy use even further.

Renewable energy suppliers

Switching to a green electricity supplier is a great way to reduce your CO₂ emissions. Green power is a growing area, and the more demand there is for renewable energy, the more pressure there will be on governments and power companies to provide it. Many potential customers are put off from making the switch by the challenge of finding the right tariff, which is why this guide is here to help.

GOOD ENERGY IS GREEN...

The biggest sources of carbon dioxide emissions are power stations, which account for around one third of the total produced. Coal power stations are the least efficient, and although the increased popularity of natural gas burning has reduced our potential CO₂ emissions slightly, the benefits are offset by an increase in energy usage overall. Our rising electricity consumption requires more and more power to be generated, and although consumers' energy efficiency can help reduce this, the only real alternative is to source electricity from renewable resources.

CONFUSING MARKET

The domestic energy market is confusing. A few years ago customers knew that one gas company supplied their gas and nothing else, and another did the same with their electricity. In recent years all customers have been able to change their gas or electricity supplier and over 19 million have swapped in search of a better deal. Now homeowners have a dazzling array of tariffs and service

providers, before they even attempt to take the environment into account.

Most of the main energy companies provide some kind of green tariff for electricity. The price and coverage depends on the area in which you live, but it is generally accepted that green electricity tariffs cost the consumer either about the same or just a few pounds per bill more than conventional tariffs.

Green energy supply has been available to some customers in this country from as far back as 1997. However, it did not truly become an option for the average consumer until the energy market was completely opened up to competition in May 1999. Since then the offerings that are available have come a long way.

The green energy revolution has gained significant support at a commercial level. Large energy users and corporations have taken to green energy in a big way. It is not only the large 'green'-centric companies such as The Body Shop that have a green power supply, but also institutions including Oxford University, who have 100 per cent of their energy needs provided for by a green supplier.

Any company, small or large, that claims 'corporate social responsibility' but has not yet switched to a renewable energy supply should think again!

With 14 green energy tariffs now available in the UK, there is a lot of choice around for the consumer. However, it is not the case that these tariffs all offer the same product.

The most important issue for those on a budget may be that of cost. For an average household, as you might expect due to economies of scale, the price of receiving a green energy supply is fractionally higher: the supplement over and above a 'regular' tariff is normally in the order of £20 or £30 a year. However, changing your methods of payment to either direct debit or one annual fee can, in most cases, offset the entire extra cost, so there is no reason not to change your supply today.

WHY SWITCH TO RENEWABLE ENERGY?

When we read the newspapers and watch the news on TV every day, and see the environmental disasters and freak weather conditions that are attributed to global warming, we can see for ourselves the effects of the by-products of traditional energy generation. Electricity production is the single biggest contributor to the emissions that cause climate change.

The prime gas responsible for global warming or the 'greenhouse effect' is carbon dioxide or CO₂. The burning of oil, coal and gas (otherwise known as fossil fuels) in traditional power stations produces a considerable amount of carbon dioxide. The UK, which has 1 per cent of the

world's population, emits 2.3 per cent of the world's total emissions of CO₂.

Not only do fossil fuels contribute to the degradation of the environment, they are also finite in nature and increasingly have to be imported into the UK, sometimes from politically unstable areas of the world. It is only a matter of time before the planet's supply of these fuels runs out.

One alternative to traditional fuel burning stations is nuclear power. This, however, is far from being a solution to global pollution. Although British Nuclear Fuels Limited (BNFL) has been pushing nuclear power as the non-polluting solution to climate change, this is certainly not the case. During its lifetime (around 30-40 years) a nuclear reactor can produce radioactive waste that has a 'lifespan' of thousands of years. This waste needs to be disposed of safely, as it is highly dangerous. Although no CO₂ is produced there are other by-products to the nuclear process that could potentially do serious harm to the environment.

In contrast to these more traditional forms of energy supply is renewable or 'green' energy. Not only does green energy not directly result in any by-products that may be harmful to our environment, it also comes from renewable and everlasting sources such as wind and water. In fact, most forms of renewable energy produce very little or no waste, and therefore have a minimal impact on the world around us.

When you switch to a renewable energy supply, you are also supporting the future of the renewable energy industry. By showing the government and mainstream energy suppliers that you wholeheartedly support renewable energy, you can help convince them to increase the support they offer to the industry as a whole.

Power from the people

‘Green energy comes from renewable and everlasting sources such as wind and water.’

HOW DO YOU SWITCH?

The great thing about switching to a green energy tariff is that it's incredibly easy to do. There is no need to get the electricians in, or have anything changed physically with your electricity supply. This is down to the nature of the green energy tariffs available to the consumer. These include the energy-based tariff, the fund-based tariff and tariffs that offer a combination of the two.

Of the choices available, the energy-based tariff is the one that actually offers you renewable energy in return for your money. Whilst there is no change in the actual electricity coming down the wires into your home when you subscribe to an energy-based tariff, a proportion of what you pay will be matched by the equivalent amount of energy being fed into the national grid from renewable sources. Tariffs such as the one from Good Energy (switch at www.good-energy.co.uk) promise over the course of the year to match 100 per cent of the units of electricity you buy from them with an equal amount from renewable sources.

With fund-based energy tariffs a proportion of the money you pay the

supplier is donated into a fund that supports new renewable capacity, green causes or other related initiatives. An independent body, established either by the supplier or a registered charity, normally administers these funds. In some cases the donation made from the consumer is matched in equal amounts by a donation made by the tariff supplier. A combination tariff is usually some mixture of both fund-based and energy-based supply.

It is extremely easy to switch to a green energy tariff. All you need to do is register your interest with a supplier and they can sign you up over the phone or send you forms to fill out by post. It is also possible to switch your supplier with very little hassle online at www.goosbing.co.uk. Here you can arrange to pay by direct debit, which will also save you money.

Over the following pages you will find information about the most widely available tariffs and how they operate, plus *The Good Shopping Guide's* ratings for each company.



Good Energy makes it easy for people concerned about climate change to make a difference.

100% of our electricity comes from people who are making energy from renewable sources like wind, water and sunlight. So by switching your electricity supply to Good Energy you'll be supporting a pioneering community of independent renewable generators.

Switching is easy – call 0845 456 1640 or visit www.goodenergy.co.uk

CHOOSING THE BEST SUPPLIER

Since April 1st 2004, energy suppliers have had to make sure that at least 4.9 per cent of all the energy they provide comes from renewable energy sources. For each unit of renewable energy bought they receive a certificate. If companies fail to match their required 4.9 per cent they may buy certificates from those companies that have exceeded their minimum.

In order to reach their minimum requirement, large energy suppliers offer a green tariff to customers. In many cases this does not exceed or match the minimum 4.9 per cent renewable energy that the supplier is required to provide, as demand for traditional tariffs is still considerably greater. These suppliers then have to buy in certificates from smaller niche companies who only offer a green tariff, or whose green tariff makes up more than 4.9 per cent of their total energy supply. If, however, the niche company sells all its certificates other than the 4.9 per cent it retains to meet its own government targets, it results in a net

status quo for the energy market. No extra demand for renewable energy supply is generated, as total demand for renewable energy is matched across the board. Trading of certificates at this level will mean that the net average of renewable energy supply will remain at 4.9 per cent nationwide. However, if those suppliers that produce more than the minimum requirement set aside a further percentage of their certificates, above and beyond the required minimum, and refuse to sell them on, additional demand for renewable energy sources is generated. At the moment only Good Energy does this.

When trying to evaluate which tariff is 'better', it's best to look at what green tariffs are trying to achieve. Ultimately the aim is to increase the amount of renewable energy supply there is in the country. By increasing the influence of renewable energy sources, it is possible to lessen the influence of the environmentally degrading sources, fossil fuels and nuclear power. It's for this reason that energy-based tariffs are the most positive choice.

'Any company, small or large, that claims 'corporate social responsibility' but has not yet switched to a renewable energy supplier should think again!'

ENERGY COMPANIES WE RECOMMEND

GOOD ENERGY

Good Energy supplies only 100 per cent renewable electricity to homes and businesses in England, Scotland and Wales. For every unit of electricity used by a Good Energy customer, Good Energy promises to supply the national grid with a unit of electricity generated from renewable power sources including wind, running water and the sun. Therefore every new consumer means Good Energy sources more renewable power. This is verified by an annual green audit carried out by an independent firm of chartered accountants.

In addition, Good Energy supports micro-generators with its Home Generation Scheme, which pays people for all the electricity they generate from small renewable generators. The 100 per cent renewable supply is additional, meaning that it goes over and above the government obligation by setting aside extra renewable obligation certificates. By doing this, Good Energy helps to generate extra demand for renewable energy sources and creates greater environmental benefit. A new website to support people who want to generate their own power has been launched by Good Energy at www.generateyourown.co.uk.

Good Energy owns the UK's first-ever wind farm at Delabole in Cornwall and has over 1,000 investors, most of whom are Good Energy customers. They recently opened www.goodenergyshop.co.uk for those looking for the complete low carbon lifestyle.

Good Energy is also commended by the Ethical Company Organisation, as a founder member of its company accreditation scheme. 0845 456 1640

GREEN ENERGY UK

Green Energy offer two tariffs: 'Deep Green' which is sourced from water, wind, biomass, solar and tides, and 'Pale Green' which is competitively priced and comes from OFGEM approved low impact combined heat and power. Subscribers also become shareholders. Their electricity comes from small-scale hydro-electric operators, wind turbines, biomass and solar power.

Green Energy has also joined the Ethical Company Organisation's accreditation scheme, which provides full ethical certification every 12 months. 0845 456 9550

ECOTRICITY

Ecotricity is an independent energy supplier that invests in large wind turbines. At Swaffham in Norfolk it built the country's first multi-megawatt wind turbine, which alone provides enough energy for 3,000 people. The renewable energy certificates earned by Ecotricity are sold on to help other energy suppliers meet their government targets. The profits earned from the tariff and the sale of certificates are then used to build further wind farms and turbines. Ecotricity have been particularly pro-active in building new power sources of renewable energy – this helps increase the amount of renewable energy available to the UK market. Ecotricity offers two tariffs: 'New Energy' which comes from a mix of their own wind farms and brown energy sources, and 'New Energy Plus' which is a 100% green tariff and costs a little extra.

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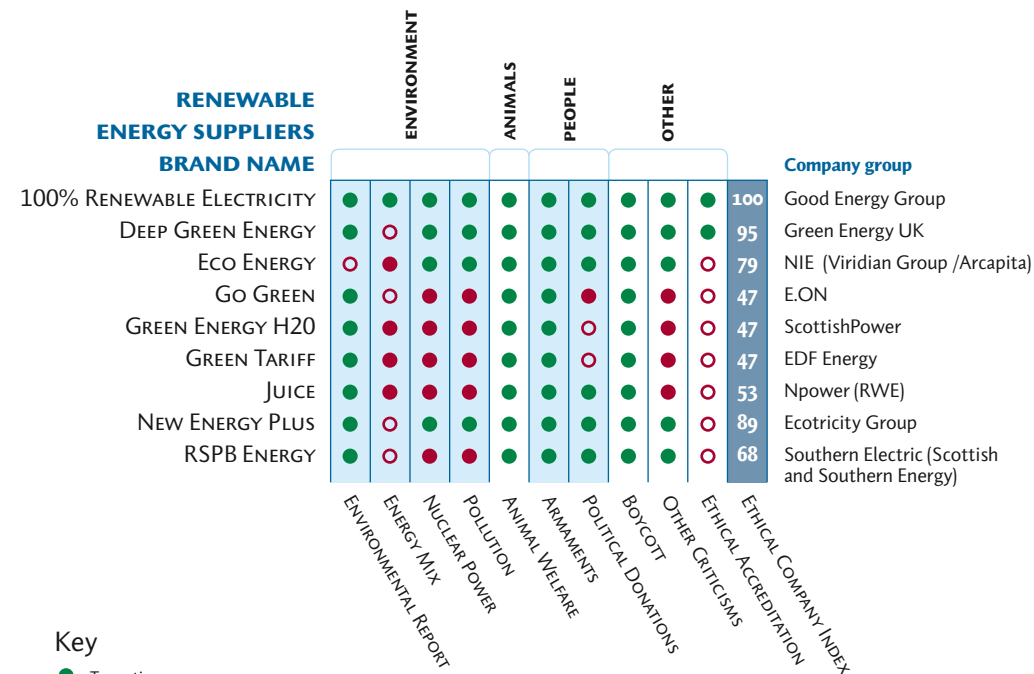
FINAL THOUGHTS: THE FUTURE

Despite the differences in the available green tariffs, and the ranking of one above another, switching to any green supply is a positive step to take. It is a win-win situation both for the environment and your peace of mind. Whether or not you choose a fund-based tariff or an energy-based tariff, what you are doing when you switch is registering your support for more environmental awareness from the energy suppliers. This will help encourage those suppliers who currently do not offer a green tariff to start one, which is clearly a good thing.

Your vote for a cleaner energy supply also has an impact on the future of government policy. For example, in 2005 all energy

suppliers had to disclose the exact sources of their electricity and how much came from renewables. Green energy supplier Good Energy decided to spearhead this disclosure and showed the market the way forward by making their sources available to the public in advance. So by supporting green energy suppliers you can also show your support for government reform.

It has never been easier to switch your energy supplier than it is now. All it takes is a simple phone call or compare further and switch through *The Good Shopping Guide's* recommended website, www.gooshing.co.uk/energy.html. You can start helping to create a cleaner planet. So why wait?



GOOD SHOPPING GUIDE ETHICAL COMPANY

- 100% Renewable Electricity (Good Energy)
- Deep Green Energy (Green Energy)
- New Energy Plus (Ecotricity)

?

- Eco Energy (NIE)
- RSPB Energy (Southern Electric)

X

- Go Green (E.ON)
- Green Energy H2O (ScottishPower)
- Green Tariff (EDF Energy)
- Juice (Npower)

ENERGY MIX

Since 2002 under the Renewable Obligation schemes for England, Scotland and Northern Ireland, electricity suppliers must source an increasing proportion of their electricity from renewable sources. The minimum requirement for 2008/09 is 9.1% (3% for Northern Ireland whose order came into effect in April 2005). These schemes were introduced by the Department of Trade and Industry, the Scottish Executive and the Department of Enterprise, Trade and Investment respectively and are administered by the Gas and Electricity Markets Authority (whose day to day functions are performed by Ofgem).

The top rating indicates that over 50% of the company's energy is generated only from renewable sources. The middle rating indicates that the company generates more than 9.1% of its energy from renewable sources. Companies that do not reach the minimum target are given a bottom rating.

To SWITCH NOW: CONTACT

GOOD ENERGY

Monkton Park Offices,
Chippenham,
Wiltshire
SN15 1ER
Tel: 0845 456 1640
www.good-energy.co.uk



GREEN ENERGY UK

9 Church Street,
Ware,
Herts
WG12 9EG
Tel: 0845 456 9550
www.greenenergy.uk.com



ECOTRICITY

Axiom House,
Station Road,
Gloucester
GL5 3AP
Tel: 08000 302 302
www.ecotricity.co.uk

VIRIDIAN (NIE): ECO ENERGY

120 Malone Road,
Belfast
BT9 5HT
Tel: 0845 745 5455
www.nie.co.uk

SCOTTISH AND SOUTHERN ENERGY PLC: RSPB ENERGY

Southern Electric, PO Box 6009,
Basingstoke
RG21 8ZD
Tel: 0845 7444 555
www.southern-electric.co.uk

NPOWER: JUICE

Npower Centre,
Oak House,
Bridgewater Road,
Warnden,
Worcester
WR4 9FP
Tel: 0800 316 3370
www.npower.com

E.ON: GO GREEN

PO Box 7750,
Nottingham
NG1 6WR
Tel: 0800 051 0760
www.eon-uk.com

SCOTTISHPOWER: GREEN ENERGY H2O

1 Atlantic Quay,
Glasgow
G2 8SP
Tel: 0845 270 6543
www.scottishpower.co.uk

EDF ENERGY: GREEN TARRIFF

Customer Service Team,
EDF Energy,
Freepost 3814,
London
WC1V 6AJ
Tel: 0800 051 1905
www.edfenergy.com

Energy efficiency in the home

With rising energy costs a standard three bedroom detached house can cost £1000 a year to heat. If proper energy efficiency measures are taken it is entirely possible to halve the cost. Heating is not the only area in which energy efficiency in the home can be improved: simple changes to lighting, household appliances and glazing can also help reduce the amount of energy we consume every day.

HEATING

During the cold winter months we all rely on our heating to keep us warm and cosy. However, having an energy inefficient heating system can mean you are spending more than you need to on your heating costs. Here are some tips on how to improve your heating efficiency.

Make sure you have an effective method of heating control, as boilers are unable to tell when you want heat or hot water without one. If some form of heating control is installed then you can regulate when and where you need heat. Controlling heat efficiently around the house can save up to 17 per cent on your heating costs.

If your boiler is more than 15 years old you should think about replacing it. New energy efficient condensing boilers could save you up to 32 per cent on your fuel bills. Even without upgrading to a condensing boiler, modern, more efficient boilers can still save you up to 20 per cent. In addition to this your local council may be able to provide a grant to help you out. If you live in a small property, you could

also consider using energy efficient convection heaters or gas heaters to heat your property, rather than relying on central heating.

Turn to the chapter on Boilers (page 41) for more information.

LIGHTING

In the average home you can expect your lighting costs to account for 10-15 per cent of your electricity bill. With lighting accountable for such a sizeable percentage of the costs, it seems only sensible to invest in ways in which you can improve efficiency around the house. With energy saving light bulbs now readily available, they are an ideal option.

Energy saving light bulbs only use a quarter of the energy of standard bulbs. For this reason they are available in much lower wattages. However, the light from an energy saving bulb is often radiated differently to a conventional one, so you may need to choose a higher wattage bulb than usual to achieve the same lighting effect. At the moment energy saving light bulbs tend to be more expensive to buy

than conventional ones, at around £5 for a 20W bulb. However, the cost benefit makes up for this extra initial outlay. For every conventional bulb you replace with an energy saving one it could save you up to £10 a year on your electricity bill, making back the extra £5 spent on the bulb and leaving you with an extra £5 in your pocket.

By 2012 incandescent light bulbs will be banned in the UK. In a voluntary withdrawal, retailers have already stopped replenishing stocks of conventional 100 watt bulbs and 60 watt bulbs will be phased out in 2010. The Government first announced the plan to phase out traditional incandescent light bulbs and offer customers only low-energy bulbs back in 2007 – the move is predicted to cut UK carbon dioxide emissions by five million tonnes of carbon dioxide a year by 2012.

To complement energy saving bulbs, consider installing energy saving fittings in which to place them. These are little transformers that fit into the base of the bulb, which regulate the amount of energy that is fed into it. For the few milliseconds it takes for a bulb to light, the transformer provides a surge of energy. Once a bulb is lit it requires far less power to stay alight, so the fitting maintains the electricity flow into the bulb at a very low level.

HOUSEHOLD APPLIANCES

No matter how well you feel your household appliances are running and how few problems they have given you, they could still be extremely energy hungry and inefficient. As a general rule, the older your appliance the more it is going to cost to run. For this reason, it is best where possible to

buy your fridges, cookers, dishwashers and washing machines brand new as these will be the most energy efficient. The saving you make on a second hand purchase will soon be outweighed by the extra cost it takes to run the appliance.

When buying new appliances look out for the Energy Efficiency Recommended logo. To find out more about which currently available appliances are listed as energy efficient, go to www.saveenergy.co.uk and browse the extensive database of energy efficient household appliances.

INSULATION

Bad insulation in the home can result in considerable heat loss. Most heat is lost through the walls and the loft space. Fully insulating these spaces can help reduce the amount of heat lost in the home by more than 50 per cent. The walls alone can be responsible for up to 35 per cent of the total heat wastage in the home.

Badly insulated walls can be one of the major sources of heat loss in the home. They could be costing you anywhere up to £200 extra per year. For this reason insulating the walls of your home is one of the most energy efficient ways to make a saving on your heating bills.

If you want to find out what you can do about adding insulation to your walls, the first step is to identify what kind of walls you have in your home. Most houses built after 1930 have cavity walls. To identify whether you have cavity walls you can check by measuring their thickness at a door or window. They are normally around 30cm thick. This is comprised of an inner and an outer layer, and a small air gap in-between.

To fill your wall with insulation, small holes are drilled into the outer or inner layer and insulation material is injected into the air gap. This work has to be carried out by a professional, and will be guaranteed for 25 years by the Cavity Insulation Guarantee Agency (CIGA). The cost of the work should be recovered within five years in the savings you make on your heating costs. There are also grants and offers available to help cover the cost of the work.

As air gets hotter it becomes less dense, and as a result rises above cold air, which is denser. This is the reason why it is important to ensure any heat lost through the roof is minimised. Most houses have some space under the roof, normally the loft. Insulating the loft properly can save around 25 per cent on your heating costs. You can insulate your loft easily yourself, and it requires no professional work to be done. By simply adding a 250mm (10 inch) thick layer of insulation the job is done. The material that you need to insulate the roof can easily be picked up at a local DIY store or builder's merchants.

Draughts coming through the edge of the skirting board or up through the cracks in the floor can make a room feel cold and unwelcoming. Sealing up these cracks with a regular tube sealant can save you up to £10 on your heating bills. To make your floors warmer and to stop the chilly draughts coming up through them you could invest in some under floor insulation, which can help save a further £25. Remember, if you fit the insulation yourself, not to block any air bricks on the outside wall. These help maintain adequate ventilation under the floor, and without them it's likely that the floorboards will start to rot.

Heat that escapes through the space under your doors or windows also accounts for a considerable amount of heat lost in the home; as much as 20 per cent. Draught excluders come in many different materials, from brushes to rubber strips. Without double-glazing these can be a cheap and easy way to prevent heat escaping from your home. Do remember that in some rooms ventilation is very important, especially if they have solid fuel burners, gas fires or boilers within.

Badly insulated hot water pipes and water tanks can result in 75 per cent more energy use than those that are fully insulated. British Standard water tank 'jackets' can be found at all good DIY stores and are easy to fit. The saving you make on your water heating bills means the cost can be recouped within a year. If you already have insulation on your water tank check that it's at least 75mm (3 inches) thick. If it isn't it could be a good idea to replace it with a new one to make yours as energy efficient as it can be.

For further information on improving insulation you can get in touch with your local Energy Efficiency Advice Centre. If you don't know where this is you can phone 0845 727 7200 or search on the Energy Savings Trust website at www.saveenergy.co.uk or visit www.goosbing.co.uk/energy.

GLAZING

Double-glazing your windows is an ideal way to reduce heat loss in the home by up to 20 per cent. Whilst it is an expensive option, it should definitely be considered if you are thinking of replacing your window frames. Not only does double (or even triple-) glazing help prevent heat loss but it can also stop

condensation and reduce noise levels and sound from outside. If you are on a tight budget you can always fit secondary glazing, which is less expensive than fitting brand new double-glazing and can still result in annual savings of around £30.

QUICK TIPS TO IMPROVE YOUR ENERGY EFFICIENCY TODAY!

- If you are too warm at home, turn down your thermostat by 1°C. This could save you up to 10 per cent on your heating bill. If you are planning to go away over the winter for any extended period of time, turn the thermostat down to a low level. You can turn it down as far as you want, but be sure to leave it high enough that the house doesn't freeze. Your total saving could be as much as £30 a year.
- There is no need to have the hot water come out of your taps at scalding temperatures. For most people a setting of 60°C/140°F on their cylinder thermostat will be more than enough for taking baths and the washing-up. Doing this can save you as much as £10 a year.
- Never leave the taps running and the plughole unblocked. If you are washing up using hot water, try not to do it with the plughole open. The cost for hot water can soon mount up and leaving the plughole open can flush money away with the waste water.
- Always close your curtains in the evening. Your curtains are a valuable form of insulation. If you close the curtains you can stop extra heat escaping out through the window into the cold night air.
- Try not to use electric lights when there is a good source of natural light available.

Open your curtains or blinds fully rather than switching on an electric light. If you do use an electric light make sure you remember to switch it off when you leave the room.

- Electrical devices such as televisions and computers consume almost as much electricity in their standby mode as when switched on. Try to switch off all devices of this nature if you can. Obviously if this will have an effect on the appliance's memory settings then leaving it on standby can be unavoidable, so check the manual before you switch it off.
- Defrosting your fridge or freezer can help it run more efficiently; try to do this as often as possible. Also try not to leave the fridge or freezer door open for more than a few seconds as the cold air will escape, meaning the appliance will have to work harder to cool the air inside down again when you close the door.
- It's important to try to make sure you run a full load in your washing machine and tumble dryer. If this is impossible, use the economy wash settings or run at a low heat. Modern washing powders will work just as effectively at 40°C as at 60°C. These rules can apply to dishwashers too; try to run a full load every time and use the lowest temperature setting available.
- When cooking try to use the best pot or pan available for the job, and match this with the right cooking ring. Ideally the base of the pot should just cover the edges of the ring. If you are using a gas hob the flames should only heat the bottom of the pot, as any flames that rise up the sides of the pot will be wasting heat.
- When boiling water in a kettle, there is no need to fill it all the way to the

top if you are not going to use all the water. Fill the kettle with enough water to cover the element, but not more than you plan to use.

- A tap left dripping for a day can waste as much water as it would take to run a good sized bath. This is needless waste, especially if the water is hot. Make sure you firmly close all taps when you have finished with them.
- If you are used to taking baths, consider switching to a shower. An ordinary shower uses less than half of the water that a bath does. You can easily buy devices that convert your bath taps into a shower.

NEW DEVELOPMENTS – HOME GENERATION

The ultimate way to cut your contribution to climate change may be to start your own small-scale renewable energy generation. The government now offer grants for the installation of micro-generation technologies in a range of buildings including households, community organisations, public, private and the non-profit sectors. Householders can apply for grants of up to £2,500 per property towards the cost of installing a certified product by a certified installer. To find out more about the grant and to find a list of certified installers in your area, visit the website funded by the Department of Energy & Climate change www.lowcarbonbuildings.org.uk.

Since Good Energy Ltd set up its Home Generation tariff you can even sell the energy you generate – customers receive four pence per KWH (unit) for all the renewable electricity produced, including the energy you use yourself!

If you are interested in home generation you can contact Good Energy on 0845 456 1640 or see www.generateyourown.co.uk.

Below is further information about two of the most popular renewable energy technologies available for generating your own energy and reducing your home's carbon dioxide emissions.

SOLAR PANELS

Solar energy has long been heralded as the obvious answer to our renewable energy production needs. Usage is growing steadily, especially amongst opinion-forming consumers who can quickly see the win-win benefits of the small additional initial investment.

Solar energy in the UK

The conversion of sunlight to electrical energy is known as photovoltaic (PV) conversion and has several advantages, primarily that the process is emission-free, renewable and noiseless.

Solar energy is an excellent alternative to conventional electricity. The sunshine per square metre available on average on earth is about 1,000 watts of energy. Approximately 4 to 22 per cent of the solar light is converted into electrical energy, the other 78 to 96 per cent is either reflected or turned into heat.

A solar roof is easy to maintain and simply has to be cleaned fairly regularly (otherwise dirt and dust can reduce the energy efficiency). In general the solar panel lasts for about 20 to 25 years, which ensures that significant financial and emissions savings are made.

Different kinds of solar panels

There are three types of solar panels, all made of silicon. The most effective (but most expensive) are monocrystalline panels, which are manufactured from silicon slices cut from a single crystal. Polycrystalline panels are made from silicon, which is cast in blocks. These are cheaper but also less efficient than the monocrystalline panels. The lowest cost option is the amorphous panel, manufactured from amorphous silicon. This method is less efficient, but cheaper and allows the complete replacements of the roof.

Advantages and costs

The main advantage of solar energy is the fact that sunlight is a renewable and zero carbon emission energy source and there can be real space savings as the panels sit on the roof! The installation of solar panels is not cheap, but in the long term the savings on electricity bills and carbon emissions are considerable. Within the last 30 years the technology has become 90% cheaper than in the 1970s, with an average system costing between £8,000 and £20,000, depending on its size and type.

WIND POWER

Wind turbines harness the power of the wind and use it to generate electricity. Small systems known as “microwind” turbines can produce enough electricity for the lights and electrical appliances in a typical home. Wind turbines use large blades to catch the wind, forcing them round and driving a turbine which generates electricity. The stronger the wind, the more electricity is produced. 40% of all the wind energy in Europe blows over the UK, making it an

ideal country for small domestic turbines.

If the turbine is not connected to the electricity grid then unused electricity can be stored in a battery for use when there is no wind.

A well-maintained turbine should last over 20 years, with maintenance checks necessary every few years.

Different types of wind turbines

There are two types of domestic wind turbines available – mast or roof mounted. Mast mounted systems are generally more cost effective, but they may not be appropriate for many properties. Smaller roof mounted systems are capable of generating a reasonable proportion of energy requirements under the right conditions.

You should contact your local authority before erecting a wind turbine, as planning permission may be required.

Advantages and costs

Similarly to solar energy, wind energy is renewable and plentiful – there will never be a shortage of it, although you will need to check that the average wind speed in your area is strong enough and that there are no obstructions nearby that might reduce the wind speed.

Wind turbines vary in price according to their size – smaller systems will cost around £1,500, while larger systems can cost as much as £20,000. Recent monitoring of a range of small domestic wind systems has shown that a well-sited 2.5kW turbine could save around £380 a year off electricity bills when some generation is exported, and a saving of around 2.6tonnes of carbon dioxide per year.

See more about Home Energy Generation at the Energy Savings Trusts website www.energysavingtrust.org.uk/Generate-your-own-energy or visit Good Energy’s dedicated website at www.generateyourown.co.uk

Energy saving devices

Saving energy at home doesn’t always require a grand gesture such as solar panels on the roof – the small changes are every bit as worthwhile. Something as simple as gradually replacing conventional light bulbs with the low-energy alternative will make a difference, and the more of us who do it, the greater the effect. The devices suggested here are just the tip of the iceberg, so get on the internet and see what you can find!

WIND-UP TORCHES

The Sherpa wind-up torch by Freeplay is an ideal gadget for camping trips, or to keep around the home in case of a power-cut. The wind-up system offers maximum dependability when dead batteries could leave you vulnerable. The handle folds out from the underside of this compact torch and can be wound clockwise and anti-clockwise: a 30-second wind gives about eight minutes of light on normal beam and you can re-wind at any time.

There are two brightness settings, ultra-bright and energy saving, allowing you to save battery power as necessary. The torch has an LED charge level indicator to tell you the optimum winding speed. With a fully charged battery (about 40 minutes winding), the torch will shine for five hours on normal beam and 30 minutes on high beam. The Sherpa is supplied with a charger and comes in four different colours.

www.freeplayenergy.com

LOW-ENERGY LIGHT BULBS

A huge amount of energy is wasted every day on lighting, but much of this could be saved with the right light bulbs. Low-energy bulbs will fit into standard light fittings and are highly efficient, long-lasting alternatives to conventional bulbs. They consume 75 per cent less energy and can last up to 15 times longer than ordinary light bulbs. A single low-energy bulb can save up to £75 over its lifetime.

Energy saving bulbs come in many different shapes and wattages, and will replace a bulb of up to 175 watts. As they use less energy, a lower wattage bulb will produce the same amount of light. For example, a 25W low-energy bulb is the equivalent of a standard 100W bulb. Although they are more expensive to buy, their financial and environmental advantages make low-energy bulbs good value for money.

www.est.org.uk
www.goodenergyshop.co.uk

ELECTRICAL APPLIANCES

The small electrical appliances in your home, can use up a surprisingly large amount of energy. There are now a number of intelligent energy saving appliances available which will improve energy efficiency in your home and save you money!

Kettles

Kettles are one of the most used appliances in the kitchen and an energy-saving kettle can save as much as 30% of the energy used by a standard kettle. The Energy Saving Trust say that if every household in the UK used an Energy Saving Recommended kettle, we would save around £170 million of energy a year – enough electricity to power 330,000 homes for a year. See www.energysavingtrust.org.uk for a list of their recommended kettles.

Irons

Morphy Richards have developed an iron called the 'Ecolectric Turbo Steam Iron' which switches itself off after three minutes to prevent wasting energy. The packaging materials are recycled and 100% recyclable.

Toasters

Within Morphy Richards 'Ecolectric' range, also comes an eco-friendly toaster, which features an innovative auto-close lid which helps to keep the heat close to the bread, which takes less time to brown the toast. It is claimed that this toaster uses an impressive 34% less energy than a standard toaster. It has also been certified by the Carbon Trust.

Slow Cookers

Slow cookers have had a resurgence in recent years – not surprisingly given our increasingly

busy lifestyles. Aside from the benefits of returning home to a hot, tasty meal which is ready to eat, slow cookers are extremely energy efficient – using a similar amount of electricity to a light bulb. They are also a great way to use up vegetables which may otherwise go to waste.

www.nigelsecostore.com

WIND-UP PHONES

Have you ever been caught short, needing to make an important call with no battery on your phone? The solution to this familiar problem could come from an unlikely source: the green movement.

Weighing only 90g, the Freecharge wind-up charger allows the talkative phone user to make and receive calls at any time, even when their handset has a flat battery. Since the charger is smaller than most phones, it can easily be kept on hand when you're days from the nearest power-point. The only thing it doesn't guarantee is enough network to make the call.

The charger produces either 30 to 60 minutes of standby or 2 to 8 minutes of talk time from a three minute wind-up, and can be wound in either direction. It has a built-in LED light to show when the optimum winding speed has been reached and the battery is charging. On average, the Freecharge will charge 60 per cent of the phone's battery, and the phone can be used while it is being recharged.

The charger is available via internet stockists, and comes with a standard two year warranty.

www.freeplayenergy.com

BATTERY CHARGERS

Add up the number of torches, personal stereos, digital cameras and other gadgets we keep around the home, and most of us would be surprised at how many of them require batteries.

Buying rechargeables instead of standard disposable batteries is a really easy way to reduce the amount of electrical waste we contribute to landfill sites, and saves a lot of energy in the long term. Nearly 700 million batteries are bought every year in the UK, and almost 90 per cent of these are general purpose ones that could probably be replaced with a recyclable alternative.

Most battery chargers will accept nickel cadmium (NiCad) and nickel metal hydride (NiMH) rechargeable batteries, reaching full charge in three to five hours on any AA, AAA or PP3 battery – less time than it takes to remember to go to the shops and buy some more! These batteries can on average be recharged up to 1,000 times, which means that they have a good life-span and will save the owner a significant amount of money compared to disposables.

It is also possible to find a battery charger that relies on solar power, which would save even more energy. Or switch your electricity supply to a renewable energy company and you may find your batteries are being charged by the wind!

Check out *The Good Shopping Guide's* chapter on Batteries (page 38) to find out why nickel metal hydride is the best option for rechargeable batteries.

www.battery-chargers.com
www.global-batteries.co.uk

SOLAR GARDEN LIGHTS

Solar lights enhance a garden in an easy-to-use, environmentally-friendly way. They produce a visually pleasing solar light that will last all night long. The units can be mounted around a driveway, decking or patio, and each one is completely self-contained, including a solar panel and LED light.

Solar garden lights require no wiring as they charge during the daytime from the sun's rays, which makes them easy to install. However, they do require a sunny position, although some models will still gain some charge on an overcast day. Solar lights generally come on automatically at dusk, but some have a manual over-ride switch. They do not provide bright surrounding light, but are ideal for marking pathways and garden features with a gentle glowing light.

www.naturalresourcegroup.co.uk

SOLAR DOOR CHIMES

If proof were needed that technology has infiltrated every area of our lives, just look at the doorbell: whatever happened to knocking on the door? Nevertheless, for noisy neighbourhoods and big houses, one company has come up with an innovative, environmentally friendly alternative to the battery-powered doorbell. The solar door chime uses a bell push unit and a solar panel, which keeps a small battery charged so the chime works in all light levels and at night. The unit comes with an electronic two-tone chime, five metres of connecting wire and full installation instructions.

www.greenshop.co.uk