



GUILDFORD ENVIRONMENTAL FORUM

newsletter

MARCH 2007

What's in the wind?

by John Bannister

THE UK HAS 40% of the EU's wind resource, so why aren't we harnessing it to the same extent that Germany, Denmark and Spain are doing?

I suspect that our access to North Sea oil made us complacent for far too long. Production of UK North Sea oil and gas is now falling at over 10% per annum and our dependence on imports is rising accordingly. Also, our reliance on coal to generate our electricity has increased of late and coal is the most environmentally damaging of the fossil fuels.

Of course, the wind resource in the UK is not evenly distributed; it is concentrated in the north and west whereas the population is largely concentrated in the south and east. So to the extent it is viable and causes no damage to the environment we should be exploiting wind energy in the south-east to provide local, distributed energy for local communities.

Small wind turbines

There is enormous scope for small wind turbines in our part of the country. I do not mean 1 kW roof mounted domestic turbines, because there are doubts about the value of these, but 3kW to 20kW machines on a 7 to 12 metre pole. Modest numbers of such small wind turbines are already installed in the south-east in schools, on industrial sites and on farms, some close to Guildford. A 5kW turbine on a 10 metre pole is operating on a farm near Odiham. In Guildford Borough a very environmentally-conscious farm in Puttenham has been given planning permission for a 2.5kW turbine. As a planning condition, Guildford Borough Council (GBC) requires a full noise assessment.

The Forum is finding considerable interest from schools in small wind turbines, which can provide a useful reduction in rapidly escalating electricity bills.



A 6kW turbine providing power for a petrol station. The rotor diameter is 5.5 metres.

Large wind turbines

In February the UK reached 2 GW (gigawatts) of operating wind power when the Braes of Doune wind farm near Stirling was commissioned. This compares with 20.6 GW wind power operating in Germany. 2 GW of wind power is enough to meet 1.5% of the UK's electricity supply, sufficient for 1.1 million homes and saves 4.6 million tonnes of CO₂ a year – the same as taking 1.5 million cars off the road.

The nearest large wind turbines to Guildford are the two 1.8 MW Enercon turbines at Ford's Dagenham factory and the 2 MW turbine at the Greenpark Business Park near junction 11 of the M4, owned by the Prudential.



One of the two 1.8 MW turbines powering Ford's new Dagenham Clean Engine facility. They generate over 6.7million kWh of electricity, which equates to supplying more than 2,000 homes.

Guildford Environmental Forum has suggested that GBC take a serious look at wind energy in the Borough, and they have asked us to conduct a study of the potential. We are in the process of carrying out this study, which we hope will lead in time to the appropriate siting of both small and large wind turbines in the Borough.

Visit the online
farmers market at
www.farmfreshexpress.co.uk

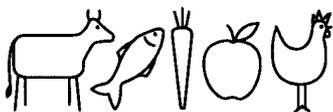
Enjoy your choice of the
best fresh local produce delivered
to your door

POSITION ONLY
FAMILY FARMED MEAT

- FRESHLY BAKED BREAD
- SEASONAL VEGETABLES
- DAIRY PRODUCTS

...and much more

Repeat from December issue



farm fresh express

Order online or call 0845 612 40 40

Must we eat fish?

IN REPLY TO Rosa Pawsey's excellent article (newsletter December 06) on sustainable fishing and ethical eating, I would like to add that fish is not an essential part of our diet; indeed, as the seas become more polluted, so the fish tend to store heavy metals which makes them a potential hazard to our diet.

People often argue that eating fish is the only way of consuming fatty acids such as omega 3 and 6 (alpha linolenic and linoleic). However, linseed oil, oily hempseeds, green leafy vegetables, tofu, nuts such as walnuts, almonds and hazel, nut oils, avocado and olive oil are all excellent providers of these essential acids.

I suggest that, if possible, we all give up fish at least until such time as the seas are replenished. We should remember that the seas play an enormous part in keeping the planet in a stable condition and by denuding them of fish and the marine animals reliant on them, we are doing great harm to the entire planet.

Everyone has a part to play in reducing global warming and every little act from each one of us helps. There are 60 million of us in Britain. Just imagine the difference 60 million people could make by taking one small life-style change!

Julie Roxburgh



University of Haifa Library

by Alwyn Marriage

TELLING STORIES:

Cassandra, Jonah and Jim'll fix it

IN GREEK mythology, the god Apollo, who had fallen in love with the beautiful Cassandra, gave her the precious gift of prophesy as a token of his affection. However, when Cassandra did not return his love, he was sufficiently peeved to punish her by bestowing a further gift, which had the painful effect that although her predictions were true, no one would believe her. She was therefore doomed to see clearly what was going to happen, and would know what people should do to avert catastrophes; but she would be unable to convince anyone to take what she was saying seriously.

Those of us who have been in the environmental movement for years know only too well what Cassandra felt like. Twenty years or more ago the evidence of long-term damage to the equilibrium of the world's climate seemed to be stacking up convincingly, and yet so often our warnings were greeted by disbelief and even scorn.

Now, however, all that has changed. Only a few years ago one had to pay notional respect to the sceptical scientists, mainly in the United States, who insisted that all was well, or, if it wasn't, that there was nothing we could do about it as we were just living through a long-term natural climatic cycle. Despite evidence now coming to light that interested parties such as certain oil companies have been offering bribes to scientists to get them to deny the reality of human-induced climate change, there are now very few who would deny that we are in a terrible mess, and that it is human beings who have caused and are causing that mess. We no longer need to feel that we are voices crying in the wilderness. Open a newspaper any day, or turn on the radio, and the subject of climate change is being addressed almost *ad nauseam*. Let us hope that this increased awareness is the first step in a process of change which will be in time to save the planet. And in the meantime, we have at least escaped the predicament of Cassandra.

Moving to another culture, we read the old story of Jonah, one of the most human and best-known characters in the Old Testament. In that tale, God tells Jonah to warn the people of the city of Nineveh of the impending doom that will befall

them if they do not change their ways. But telling people that they are heading for catastrophe is never very easy, and is likely to bring opprobrium and ridicule. Attempting to avoid this daunting mission, therefore, Jonah had the bright idea of taking a boat in the opposite direction; and, of course, he ended up in the belly of a whale, courtesy of divine tinkering. Thanks, perhaps, to the whale's sensitive digestive system he survived that ordeal and decided, somewhat reluctantly, to do as he had been told. To his astonishment, and no little chagrin, he then found that when he finally made it to Nineveh and prophesied as God had instructed him, the people accepted his message and repented,



www.dolphin.org

so escaping the terrible consequences that Jonah had predicted would come upon them if they did not.

So poor old Jonah sat under a tree and sulked.

Well, unlike Jonah, anyone, everyone who has been banging on about climate change all these years will be over the moon if the people of planet earth change their behaviour and avert the catastrophe that is threatened if we all go on acting as we have in the past. Although the situation is critical, there is still time to reduce the impact of the damage our past has inflicted on the future. We cannot now escape some of the effects, indeed parts of the world are already suffering them; but we could still take actions that would, in time, reverse some of the damage. If people, industry, governments, transport systems all take this on board and make the necessary changes, there will certainly be no one from the environmental movement sitting sulking under the trees. They will all be out celebrating with relief and delight and looking forward to a brighter future.

A third, more modern icon with relevance to our

present dilemma comes from the television programme, 'Jim'll fix it'. This is because many people, the US president in particular perhaps, hang on to a misguided confidence that somehow, somewhere, someone is going to come up with a magic solution: something that will allow everyone to continue burning oil profligately, tearing around the world in high emission aircraft and driving their own private climate-destroying capsules on wheels. Surely something will come up? What are we paying all these clever scientists for if they can't save the day?

Human ingenuity and the wonders of science have, indeed, rescued us from many ills. In general most of us have a good dose of optimism, and would, quite naturally, like to believe that someone is going to come along to solve our problem. Surely Jim'll fix it?

No he won't. Not this time. It is highly unlikely that there are any quick fixes to get us out of this trouble. The best we can hope for is lots of small, insignificant actions that together might just save the day. And every gesture anyone makes towards that combined effort has some value, is better than nothing.

There are other stories that describe aspects of our present dilemma: Rip van Winkle, the Ice Maiden, doubting Thomas. Some of them might inspire or encourage us, while others are likely to



www.bbc.co.uk

tempt us to despair of our present situation. However, it is vital that we do not despair, for only if we believe that catastrophe can be averted will we have the will to act appropriately. Change is coming, and there is a growing awareness and determination to act. Even in the United States, a number of states have now committed to their own version of the Kyoto Agreement; and along with the thawing of the ice cap there is evidence that George Bush's frozen attitude is softening around the edges.

In another popular story, a handsome prince arrives after a hundred years to awaken the sleeping princess with a kiss. If we remain in the realm of story-telling, perhaps we can hang on to the fragile hope that someone who can appreciate the beauty of this planet is going to arrive in time to administer the loving kiss that will wake humanity into a new, sustainable attitude to life on earth? But it is a fond hope.

Al Gore is a man with a mission, and his film, 'An Inconvenient Truth', is addressed, above all, to Americans. He may not be a serious contender for the part of handsome prince, but there are plenty of other stories to encourage him in the Herculean task he has set himself, from St George setting out to slay the dragon, to Theseus pursuing the Minotaur at the heart of the labyrinth.

In ending, it would be tempting to refer to Gore's task as 'Mission Impossible'. But since the *Guardian*, in recognition of Tom Cruise's appalling record with regard to his private aeroplanes, has now dubbed him 'Emission Impossible', that would, perhaps, be a rather inappropriate choice of title.

Intergovernmental Panel on Climate Change – 4th report

Since the last report of the UN Intergovernmental Panel on Climate Change (IPCC) in 2001 the probability that climate change is manmade has risen from 66% to at least 90%.

The latest predictions in the February 2007 IPCC report are that if we go on as now, by 2100 we could see:

- **global average temperature + 2 to 4.5°C, best estimate + 3°C**
- **sea level rise between 28 and 42 cm**
- **4 billion extra people at risk of severe water shortage**
- **the Amazon rainforest starting to burn as early as 2050**
- **deserts covering southern Europe and millions displaced**
- **species extinctions on a large scale**

Climate Change is not something we can stop, we are going to have to live with it. The world will be very different in 100 years time. Plus 2°C (we are already + 0.8°C) is said to be a tipping point when biosystems will start to release locked-up CO₂ and methane. Buried in the IPCC report is the possibility of + 6.4°C by 2100, which would catapult the Earth into an extreme greenhouse state not seen for 100's of millions of years.

John Bannister



Report by Raymond Smith

Biodiversity indicators and the 2010 target: measuring conservation success, or failure

Jonathan Loh,

WWF International and Institute of Zoology

We love landfill

The UK sends 27 million tonnes of 'rubbish' to landfill each year, which is 7 million tonnes more than any other EU country. Germany, with a population 25% larger than the UK's, sends less than half this amount to landfill.

(Source: Local Government Association)

Drying out

The area of the Earth's surface suffering drought has more than doubled since the early 70s - from less than 15% to about 30% in 2002.

(Source: Focus, Apr 05)

FACTS & FIGURES

Feeding the birds

Each year in Britain we feed wild birds with approximately 16,000 tonnes of peanuts, 10,000 tonnes of sunflower hearts, 20,000 tonnes of black sunflower seeds and 2,000 tonnes of fat.

(Source: BBC Wildlife, Dec 06)

Power - 1

A digital radio uses between 12 and 20 times the energy that an analogue radio does.

(Source: BBC Ceefax, 26 Nov 06)

Power - 2

Government estimates are that the switch to digital, along with rising sales of home entertainment equipment, could boost consumer electronics' electricity consumption by 60% by 2010.

(Source: Radio Times, 16-22 Dec 06)

JONATHAN explained the significance of the use of Biodiversity Indicators, factors which had arisen from the Earth Summits. Although the Rio Summit in 1992 had not been especially productive in this regard, the subsequent Johannesburg meeting in 2002 was more useful. Governments agreed to a target of reducing the rate of biodiversity loss both globally and nationally by 2010.

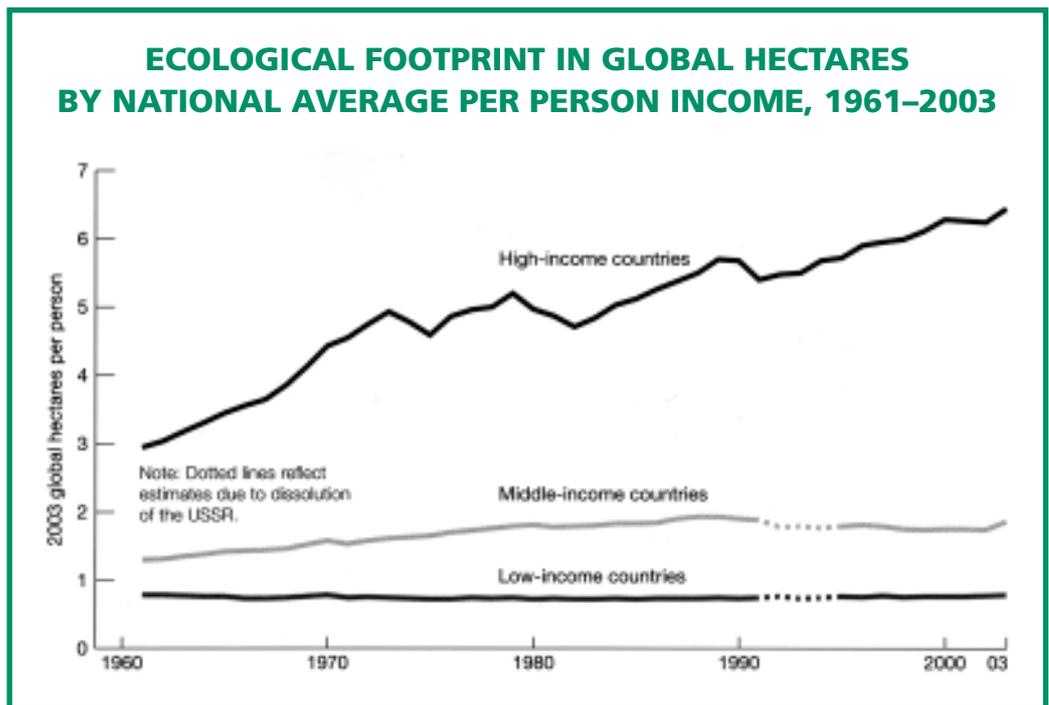
The Biodiversity Convention was given the task of monitoring this aim, and it chose to concentrate on biodiversity indicators. This called upon work that WWF had started in 1997 on the "Living Planet" and "Ecological Footprint" projects.

The Living Planet project aimed at measuring the health of the natural world and mankind's impact on it. As a result a Living Planet Index was generated to track the global population of a set of specified animal species (not invertebrates or plants). This has shown

overall a 30% decline over the study period, but with significant variations; for example birds are far more resilient than fresh water fishes, presumably due to their greater mobility and flexibility.

The Ecological Footprint is intended as a measure of the demands that human communities, typically nations, are making on the world's resources. Jonathan showed a graph that plotted countries in terms of their standard of living and their ecological footprint. Of those that had an acceptable living standard, only one (Cuba) did so whilst being "sustainable". Some countries, for example in the former "Eastern Bloc", had worsened their standard of living for a while. (Below is a less complex illustration showing the difference in ecological footprint between countries graded by income.)

Further information can be found in the *Living Planet Report 2006*, which can be downloaded from www.panda.org



The 2003 world average biocapacity per person is 1.8 global hectares, ignoring the needs of wild species

GROUND SOURCE HEAT PUMPS

As geothermal energy grows in popularity and acceptance in the UK, Patrick Sherriff, Sales and Marketing Director of Geothermal International Ltd, explains the role ground source heat pumps can play in fulfilling renewable energy obligations.

GROUND SOURCE heating and cooling is a relatively new idea to the UK. Despite being a proven and cost effective technology for over 10 years in domestic premises on the Continent and larger commercial buildings in North America, in this country we have lagged behind.

However, in recent years new policy drivers for change have emerged, focusing the attention of the building industry on the viability of geothermal energy. The publication of Planning Policy Statement 22, Planning Guidance on Renewable Energy, issued by the Office of Deputy Prime Minister in 2004, led the London Borough of Merton to pioneer legislation which requires the use of renewable energy onsite to reduce annual CO₂ emissions in the built environment. This has come to be known as the 'Merton Rule'.

These bold moves have been replicated elsewhere. The London Borough of Croydon was quick to follow Merton's lead, and its first project designed to reach a 10% CO₂ reduction target was completed in July 2005 by increasing use of renewables. North Devon Council has chosen to demand 15% CO₂ reduction from renewables and Kirklees Council has proposed that by 2011, 30% of energy consumption in every one of its new buildings will be from renewable sources. Merton's principal environmental officer, Adrian Hewitt, suggests that the policy will be universal by 2007.

The drivers are in place but consultant engineers and architects are faced with the challenge of how to address new legislation around renewable energy within new builds without breaking the bank. Ground source heat pump systems are increasingly seen as a cost-effective way of meeting these tougher renewable energy standards.

Geothermal International has been designing and installing ground source heat pumps (GSHP) in commercial buildings for more than five years. Its experience indicates that ground source heating and cooling systems for large UK commercial buildings are not only viable, but the payback on investment and performance efficiency is impressive.

Geothermal International recently designed and installed a ground source heating and cooling closed loop system at the Gloucester Police HQ building. The system has now been up and running for over a year, and the renewable energy content for the building is around 20%. The Coefficient of Performance – the ratio of energy delivered versus energy purchased – averages over 6, compared to 0.85 for a typical condensing gas boiler.

The fuel efficiency of a GSHP system in heating mode can be up to 70% higher than most efficient gas boilers, and cooling efficiency can be up to 40% greater than alternative air-cooled technologies. On average, building carbon emissions can be reduced



Gloucester's Police Headquarters, a building with around 20% renewable energy content.

by 50% with GSHP systems, meaning it is one of the least expensive ways of achieving a reduction in CO₂ generation and meeting the minimum 10% renewable energy targets.

The technology

GSHP use the earth or ground water as a source of heat in winter – extracting low grade heat by way of a liquid, and then adding energy via a heat pump, resulting in 'high grade' heat that warms the building. In summer, the process is reversed and the earth or ground water acts as a 'heat sink'.

A properly designed system can heat and cool

different parts of the same building at the same time, providing year-round energy savings and carbon efficiency reductions.

The procedure

Geothermal installations in the UK tend to be driven by a client's requirements, i.e. either a consultancy advises them that a system could be beneficial to their building, or such a system could be a planning requirement. In order to meet these demands, geothermal companies need to provide a comprehensive design, equipment supply and installation service.

The GSHP company will initially provide a preliminary budget that fits into the client's cost plan. Ideally, geothermal can provide for 100% of the heating or cooling load. If it does not, or the payback is too long, then a reduced scheme may be considered to meet up to, say, 80% of the heating or cooling loads.

If the budget is accepted and the scheme is to progress, then the GSHP company will be appointed as the geothermal specialist to the project to ensure that the scheme is as efficient as possible and that costs are minimised. A geothermal design will be undertaken with specifications, design drawings and schematics being produced. The company's operational team will then take this design and install it, undertaking any drilling works and installing pipework heat pumps and ground loop circulation pumps. Commissioning and setting the system to work will follow.

System design

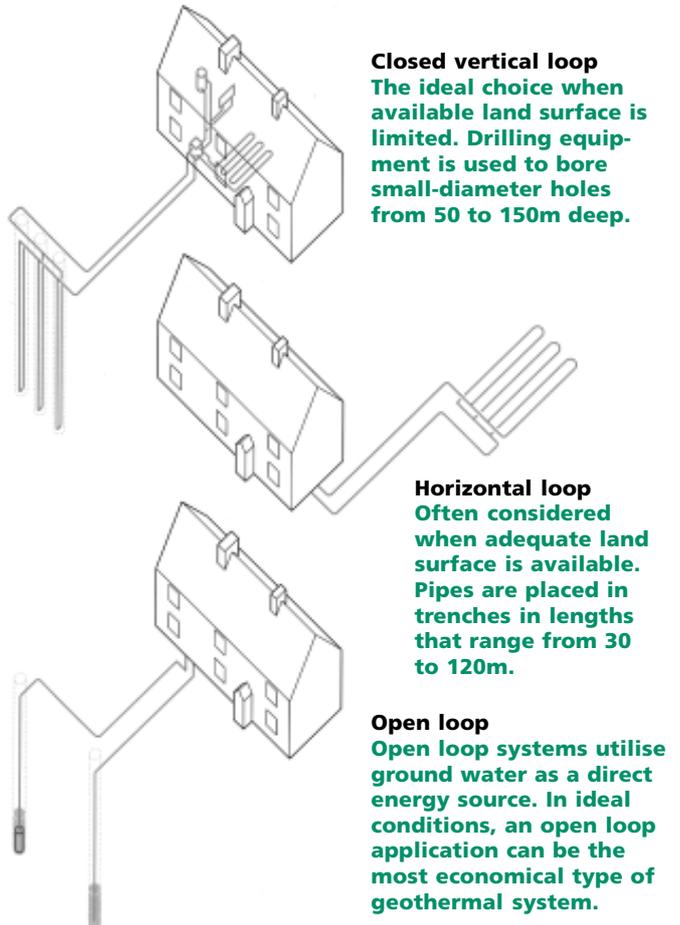
It is essential that experienced technical designers create the correct ground loop for a GSHP building. There are two main types of ground source heating systems: closed and open loop.

Closed loops draw heat from the ground using multiple continuous loops in polyethylene pipe buried in the ground either vertically or horizontally, and contain a solution of environmentally friendly antifreeze and water. Detailed analysis is needed to consider the annual energy balance of the system and not just the peak rate of extraction or discharge. These calculations must be carried out by a specialist using comprehensive dynamic modelling techniques.

Geothermal International has recently worked on two projects that use different configurations of closed loops. It designed and installed a vertical closed loop for the Chelsea Building Society HQ in Cheltenham. The ground loop consisted of 108 boreholes at 98m each, delivering a renewable

energy level of 20% for the building. The first building consisted of 490kW of cooling and 290kW of heating, the second building 380kW of cooling and 190kW of heating.

At Solihull School, a horizontal closed loop was used, with 54 horizontal trenches (100m each in length) providing a heating load of 350kW. This is the largest horizontal system in the UK, achieving a 15% renewable energy level for the building.



Closed vertical loop
The ideal choice when available land surface is limited. Drilling equipment is used to bore small-diameter holes from 50 to 150m deep.

Horizontal loop
Often considered when adequate land surface is available. Pipes are placed in trenches in lengths that range from 30 to 120m.

Open loop
Open loop systems utilise ground water as a direct energy source. In ideal conditions, an open loop application can be the most economical type of geothermal system.

Open loop systems use water from an aquifer instead of an antifreeze solution sealed inside the buried piping. These systems are increasingly being used; for example, such a system has recently been designed and installed by Geothermal International consisting of a 1 MW heating and cooling project for an office block in Paddington.

The future

GSHP systems have a proven track record in providing energy-efficient solutions for today's building requirements. With a strong policy framework that began with the Merton Rule and is now being adopted across the UK, the need for renewable energy technology is ever-increasing.

The market for geothermal energy is set to grow rapidly. The question will be whether the expertise for analysis, system design and delivery of these specialised systems can meet the expected demand. For further information see www.geoheat.co.uk

Wood chip and wood pellet production in the Surrey Hills

WHO

The Surrey Hills Wood Fuel Group (SHWFG) is a Limited Liability Partnership developed to produce and sell premium wood pellets and wood chip. The Group has received grant funding from the Department for Environment Food and Rural Affairs and the Sustainable Development Fund. Guildford Environmental Forum has also been very supportive in its development. Guildford Borough Council is helping to identify suitable sites on its estate that could be used for the storage and production of wood fuel.

WHERE

SHWFG is based in the Surrey Hills area, which is an Area of Outstanding Natural Beauty (AONB). The AONB includes Farnham, Haslemere, Guildford, Cranleigh, Dorking, Reigate and Oxted. Wood by-product from the Surrey Hills area is used to make wood chip and pellets.

WHAT

Wood chip (pictured), pellets and logs can be used in biomass boilers (very similar to gas



boilers, only burning wood instead of gas). A biomass boiler can provide a building's space heating and water heating requirements.

Additionally, wood fuel can be burnt very effectively in domestic wood stoves. The SHWFG wood pellets have a low moisture content, produce very little ash and have a long burning life.

WHEN

The production of wood pellets in Surrey Hills will begin in spring/summer 2007.

WHY

The use of biomass also helps the fight against climate change, as wood fuel is carbon neutral, or produces very little carbon dioxide. The burning of wood fuel approximately balances the carbon absorbed by trees during their growing life. Furthermore, SHWFG produces wood pellet and wood chip for distribution within the Surrey Hills area, which keeps transport-related carbon emissions to a minimum.

Typical CO₂ per kWh comparison

Wood pellets	0.025kg
Oil	0.265kg

(*Forest Research & Forestry Commission England, Woodfuel meets the Challenge, 2006*).

The best example locally of a wood energy system is at Shoelands Farm on the Hampton Estate, where Bill Biddell has installed a 100kW Talbotts woodchip-fired boiler which provides space heating and hot water to all the farm buildings via a local district heating system.

Now that the fuel supply is being established in Surrey, further projects are being developed and being sought.

If you would like to know more, please ring 0800 783 2503 and request information about the Surrey Hills Wood Fuel Group.

*Lucy McKenzie, Project Officer,
Energy Centre for Sustainable Communities*

Bush, biofuels and balls

IN HIS State of the Union address, Bush set a target of 20% of petrol to be replaced by biofuels by 2017. If achieved, this will be mainly ethanol from corn and an area the size of Kansas and Iowa combined will need to be given over to this industry.

It may do something to reduce the US reliance on imported oil but it will do nothing for the environment or to reduce US CO₂ emissions. On a cradle-to-grave basis, ethanol derived from corn is almost as energy-intensive as petrol from crude oil. Some US ethanol plants are actually coal-powered.

In 2006 the US created almost 25% of global CO₂ emissions with less than 5% of the

world's population, and Bush continues to undermine the Kyoto process.

Bush has also endorsed proposals to develop systems in space to reflect sunlight to save the world from climate change, using a million tonnes of hydrogen-filled aluminium balls. This won't address some of the other problems of rising CO₂ concentration in the atmosphere, such as acidification of the seas with its dire consequences for the food chain.

At least some US States and cities are forging ahead to reduce their CO₂ emissions, and the dreadful legacies of the Bush regime will eventually come to an end.

John Bannister

Insects

There are more than 26 billion insects living in every square mile of habitable land on Earth. Experts estimate that there are between 5 and 10 million species still unknown to science.

(*Source: The Indypedia, Apr 06*)

FACTS & FIGURES

Piling on the agony

Concern is mounting over marine life affected during the construction phase of offshore windfarms.

There was a huge increase in numbers of abandoned and aborted seal pups when the Scroby Sands windfarm was being built, and a Crown Estates report has confirmed that impact piling reduces the activity of harbour porpoises up to 15km from the site.

(*Source: BBC Wildlife, Nov 05*)

No, you don't want a bag

Taiwan has banned plastic bags, introducing fines of up to £150, and has also outlawed the disposable plates, cups and cutlery used by fast-food vendors.

(*Source: Earthmatters, Spring 06*)

Lynx and rabbit

Rabbits in Iberia have declined by 90% over the past 50 years – the main reason why the Iberian lynx is on the edge of extinction. The name España is derived from the Phoenician word 'Isphahan', which means 'land of the rabbits'.

(*Source: BBC Wildlife, July 06*)

False economy

According to research by Friends of the Earth, some UK regions are losing around five times more revenue than they are gaining from aviation. UK air travellers spend £15 million more abroad per year than visitors to the UK spend here, contradicting the claim that airport expansion is good for the economy.

(Source: *Earthmatters*, Autumn 05)

Pure seawater?

The UN Environment Programme estimates that there are 46,000 pieces of plastic floating in every square mile of the world's oceans. And, according to the Marine Conservation Society, the density of litter along Britain's coastline has increased by 90% in the past decade.

(Source: *BBC Wildlife*, Dec 06)

FACTS & FIGURES

Mileage – 1

UK cars average 33 miles per gallon. US cars average 20.8mpg, with the Ford Explorer doing 16mpg. The Model T Ford managed 25mpg.

Mileage – 2

If America's cars ran at 40mpg, the oil saved on an annual basis would be 10 times the reserves reported to exist in the Arctic National Wildlife Reserve.

(Source: *BBC Wildlife*, Jun 06)

Energy (mis)use

£1 billion worth of energy is wasted by British companies each year.

(Source: *The Indylopedia*, Apr 06)

New recycling plant in Surrey

Enlightened Lamp Recycling Ltd, based in Redhill, has invested in a new plant to recycle light bulbs. The plant is able to deal with fluorescent tubes, including energy-efficient compact fluorescent tubes, and high-intensity discharge lamps. These lamps are hazardous waste due to their mercury content. The plant will recover aluminium and ferrous metals and is capable of processing 10% of all the lamps sold in the UK.

As the price of landfill increases, investment in recycling becomes attractive. Yet landfill charges in the UK, although increasing gradually, are still way below those in Germany and other EU countries.

China blazes a trail

China's economy is growing at a fantastic rate, yet their emissions per head are still significantly lower than ours. In fact the average Chinese produces only a quarter of the typical European – there are just a lot more of them!

China's growth has been unleashed in a remarkably short space of time, achieving in two decades what took Europe two centuries. But they stand to suffer as much, if not more, from accelerating climate change and China is devoting vast resources to the pursuit of "green growth". One example is Dongtan, which will be the world's first purpose built "eco-city". When completed it will be home to half a million people, on an island near Shanghai about three-quarters the size of Manhattan.

Factory turkeys



The recent discovery of the avian flu virus H5N1 at a turkey breeding and processing factory in East Anglia has provoked much speculation, in

the media and in the public mind, as to how such a deadly infection is spread. The initial theory that wild birds were to blame has now been discounted.

The organisation Compassion in World Farming puts forward a compelling case for the cause being factory farming of poultry, now a global affair. An intensive poultry farm

provides the optimum conditions for viral mutation and transmission – thousands of birds crowded together in a closed, warm and dusty environment is highly conducive to the transmission of a contagious disease. And selecting genera-

tion after generation of birds for their faster growth rates and higher meat yields has left the birds' immune systems less able to cope with infections.

The modern genetically-selected turkey bears little resemblance to its wild counterpart, especially the male of the species, who can now scarcely lift his feet off the ground. Wild turkeys like to roam in woodland, eating insects and vegetation such as seeds and berries. This is a far cry from being crammed into a vast shed with thousands of others, with an area the size of an A4 sheet of paper to stand on.

It's time to end the cruelty, and with it the conditions that act as a disease pressure cooker.

"Recyclability by Design"

We all despair that we can't recycle most of our plastic packaging, such as food trays, yogurt pots and margarine tubs. In an ideal world, packaging would be designed to satisfy technical and customer needs in a way that minimizes environmental impact and maximizes the scope for recycling. This does not happen at present, which is why bottles are the only plastic containers collected for recycling.

Bottles are made from mono materials. Other containers are made from a variety of different plastics which, although they may be of one generic type, say PVC, are sufficiently different in composition to foul up the recycling process. To help start to resolve this problem RECOUP, the national charity developing plastics recycling in the UK, has issued its "Recyclability by Design" guide. This, for the first time, provides international guidance and commonly agreed best practice to help supermarkets and other product suppliers re-specify their plastic packaging and start working with packaging manufacturers to design out barriers to recycling. See www.recoup.org

GOOD NEWS



BAD NEWS

compiled by John Bannister

A negawatt's cheaper than a megawatt!

Forum member Ed Hayden recommends a power-saving, money-saving piece of equipment

WE ALL KNOW about the three R's 'reduce, reuse and recycle', and these apply equally to our energy consumption as to our consumption of other natural resources. The electricity we use is generated from the burning of fossil fuels, and this is contributing to the greenhouse effect and global warming which is killing our planet.

We have recently seen domestic wind turbines becoming all the rage with David Cameron fitting a micro-turbine to the roof of his London home. But before you generate your own electricity you should reduce your consumption – a far cheaper and simpler method of reducing your carbon footprint.

In the home, do you really know where the electricity you consume is going? Did you know for example that the biggest energy hog in the house is the domestic fridge freezer?

You need to see where the power is being consumed, and in our house we have installed an electricity monitor called an Electrisave to do just that. It's a portable, easy to read monitor designed for use in the home or small office.

The Electrisave shows you instantly:

- just how much electricity you are using
- how much it is costing you
- how much harmful CO₂ you are contributing to the greenhouse effect

By knowing which appliances are using a lot of electricity you can adopt new energy-saving practices, which means you aren't wasting electricity and you're saving money on your electricity bills.

It is estimated that a real-time electricity monitor such as the Electrisave can save up to 25% on your current electricity bills. This is likely to be about the same as a well-placed micro-turbine, but for about 3% of the initial outlay.

The average household could save up to £200 a year by taking energy efficiency measures. This is equivalent to a saving of around 2 tonnes of CO₂. Imagine how much energy could be saved in the UK alone, if every household were to use an Electrisave.

What can Electrisave do for me?

- the meter changes the way you think about your personal electricity usage, by providing you with instant information on the cost of the electrical appliance you use.
- it allows you to check from a single

location if appliances, such as an iron, heater or oven, have been left on, before leaving your home.

Is it easy to install?

- it can be simply installed in most homes, using a small sensor which clips onto the electricity cable that runs out of your existing electricity meter into your existing fuse box. It requires no wiring or interruption of electricity supply.
- the device, with its push-button menu settings and large LCD screen, translates power use into a simply understood reading of cost per hour, and it has proven to be extremely effective in educating children about the use of electricity and the effect electricity wastage can have on the future of our planet.

How does it work?

The Electrisave comprises:

- a sensor
- wireless transmitter
- receiver (monitor)

The sensor is a clip-on current transformer that samples the electric current on the active phase wire inside your switchboard.

These readings are relayed by the wireless transmitter to the remote receiver/monitor. The receiver displays the results on a large portable LCD screen. Consumers can input specific country currency and voltage, electricity tariff rate, greenhouse gas conversion factor and peak load alarm value.

As for personal experience, the device has allowed us to understand our consumption patterns and reduce our requirement for electricity. I estimate that we have managed with this device and other triple A rated appliances to reduce our electricity consumption by over 50%, and put our family of four far below the average UK household electricity requirement.

“We have managed with this device and other triple A rated appliances to reduce our electricity consumption by over 50%.”

After necessary data has been inputted, the receiver displays the information you require on a portable LCD screen.



The Electrisave costs about £60. It can be ordered by telephone (between 9.30am and 3.00pm) on 0113 253 4091, or via the website www.electrisave.co.uk

Natural England comes into being

NATURAL
ENGLAND

Natural England's logo has a lime-green background with white and purple lettering.

THE GOVERNMENT agency 'Natural England' was established in October 2006. It has encompassed English Nature, the landscape, access and recreation elements of the Countryside Agency, and the environmental land-management functions of the Rural Development Service. This single organisation now has responsibility for protecting and enhancing biodiversity and landscapes, as well as promoting greater access and recreation.

Natural England is the government's independent watchdog to advise on how policies affect the natural environment. It is also providing incentives to land managers and farmers to manage their land in a more environmentally friendly way.

In recent months it has launched several major campaigns, tackling issues concerning climate change, the marine environment, farmers' stewardship of biodiversity and preventative health solutions. Targets include establishing a network of marine protected areas by 2012, and championing the provision of accessible green space within five minutes walk of every home.

Natural England's headquarters are in Sheffield and it employs 2,500 people. It has a budget of £500 million – this is less than originally hoped for, but last July Defra was required to make cuts of £200 million and the fledgeling body had to reduce its planned budget.

Clare Windsor



Giving away compost at last year's Compost Heaven

COMPOST HEAVEN

The Green Ark, Lido Road,
10am to 1pm, Saturday 12th May

WITH THE GARDEN beginning to bloom, it's time to compost. At Compost Heaven, Guildford Borough Council will be giving away compost and composters (while stocks last). Experts will be on hand to advise you on how to make fabulous compost in your garden. Border designer Claire Brown of Plant Passion will show you how to incorporate your composter into a beautiful border, and Ian Waghorn from RHS Wisley will be demonstrating the advantages of wormeries.

A model dry garden and allotment will show you how to adapt to drier summers without sacrificing colour or home-grown goodness. Discover how to recycle your grey water and install a water butt. You can even get your secateurs sharpened for free! Bring your old hand tools for re-use and recycling (no electrical items, please).

With bee-keeping demonstrations, nature crafts for kids and free refreshments, it promises to be a day for the whole family.

Compost Heaven is organised by Community Recyclers and the Guildford Allotment Society along with Guildford Borough Council.

*Jane Alexander,
Project Coordinator (Recycling),
Guildford Borough Council*



Guildford Environmental Forum aims to improve the environment in and around Guildford for wildlife and for people and to build a sustainable future. Forum membership costs only £5 per year or £7 for a couple, and new members are warmly welcomed. Please contact John Bannister on 01483 570468 or e-mail johnw.bannister@virgin.net



CALENDAR



All the Forum's Group meetings are open to the public

Wednesday 14 March

GEF Biodiversity Group. Paul Redsell, National Trust: **"The National Trust and Leith Hill"**.
1900. Committee Room 1, Millmead Offices. (Liquid refreshments from 1845.)

Saturday 24 March

Bring & Take Morning. 1000 – 1200. Onslow Village Hall, Wilderness Road, Guildford. Swap your old items for something you do want. Come and pick even if you don't bring anything. No money changes hands!

Monday 2 April

GEF Sustainable Energy Group. Dr Alistair Hotchkiss, Technical Sales Manager, Geothermal International:
"Heat Pumps for Heating and Cooling Buildings".
1900. Committee Room 1, Millmead Offices. (Liquid refreshments from 1830.)

Monday 16 April

GEF Sustainable Energy Group. Paul MacDonald PhD CEng, Goodrich Consulting: **"What Businesses Need to Know About the Energy Performance Commitment – a Mandatory Proposal"**.
PLEASE NOTE TIME – 1630. Committee Room 1, Millmead Offices. (Liquid refreshments from 1600.)

Wednesday 25 April

Tour of Guildford Mill hydroelectric power plant for Forum members and friends.
1515 for 1530. Meet outside Yvonne Arnaud Theatre.

Saturday 12 May

Compost Heaven. 1000 – 1300. Green Ark, Lido Road, Guildford. Free. Guildford Borough Council is giving residents their green waste back – fully composted! Claim your free compost and a free composter (while stocks last). Expert advice on hand, plus nature crafts for kids and free refreshments.

Monday 14 May

GEF Sustainable Energy Group. Jonathan Hill, MD of architects Scott Brownrigg: **"East Street Regeneration in Farnham"**. 1900. Committee Room 1, Millmead Offices. (Liquid refreshments from 1830.)

Wednesday 23 May

GEF Biodiversity Group. Derek Smith, Surrey Bat Group: **"Bats in their Surrey Habitats"**.
1900. Committee Room 1, Millmead Offices. (Liquid refreshments from 1845.)

Tuesday 5 June

World Environment Day. GEF proposes to run an event in Guildford to celebrate solar energy. Details to follow.

GUILDFORD ENVIRONMENTAL FORUM

Chair / Sustainable Energy

John Bannister

2 Littleholme, Upper Guilddown Road, Guildford GU2 4EZ
Tel: 01483 570468 E-mail: johnw.bannister@virgin.net

Vice Chair / Biodiversity

Raymond Smith

5 Felday, Holmbury St Mary, Dorking RH5 6NJ
E-mail: raysmith.biodiversity@envirohistory.waitrose.com

Transport

Alwyn Marriage

St Marys, 19 Harvey Road, Guildford GU1 3SE
Tel: 01483 560775 E-mail: a.marriage@surrey.ac.uk

Waste and Pollution

Trudy Thompson

Lilac Cottage, Dye House Road, Thursley GU8 6QA
Tel: 01252 702717 E-mail: tt@trudythompson.co.uk

Schools Liaison

Fiona Booth

Environmental Policy & Design Services, Guildford Borough Council, Millmead, Guildford GU2 4BB
Tel: 01483 444509 E-mail: fiona.booth@guildford.gov.uk

Treasurer

Howard Allison

2 Merrow Chase, Guildford GU1 2RY
Tel: 01483 300996 E-mail: howard@allison2348.wanadoo.co.uk

Membership

Trudy Thompson

Lilac Cottage, Dye House Road, Thursley GU8 6QA
Tel: 01252 702717 E-mail: tt@trudythompson.co.uk

Newsletter

Clare Windsor

15 Tuesley Corner, Godalming GU7 1TB
Tel: 01483 418048 E-mail: clare@cwindsor.freereserve.co.uk

Guildford Environmental Forum's newsletter is published in March, June, September and December. Please send contributions for the next issue to Clare Windsor by Monday 7 May 2007.

The views expressed in this newsletter are strictly those of its contributors and Guildford Environmental Forum.