

It's not easy being green! Part 1

How difficult is it to find out about green building and is any of the information available really helping in the decision making process. We invited three families to write up their experiences and thoughts on the subject. Each of the families have, over the last five years, 'down-shifted'. First up, housewife and mother **Kerry Hughes**, who used the internet as a vehicle for finding out the hard facts about how green her family is and what more could be done ...

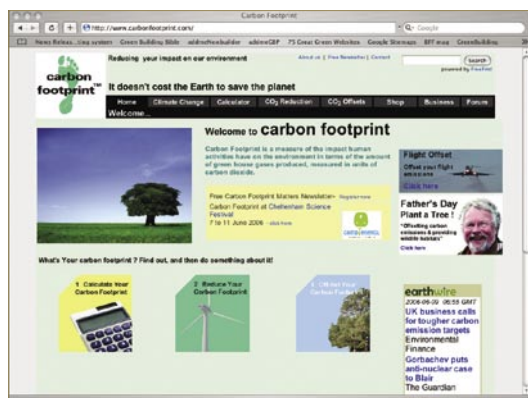
It's everywhere, after decades of apathy; you cannot escape tales of global warming. At some point you have to consider whether you are going to keep your head firmly fixed in the sand and hope that the problem will somehow go away. OR acknowledge that you and your household can make a difference. But can I personally, one individual in a nation of 60 million, make a difference?

I have to say that my head is not continuously buried in the sand. My family, one overworked husband, three energy draining sons and I moved to West Wales from the Midlands to get away from the high levels of pollution there. We are aware of environmental issues; I am a member of both Friends of the Earth and Greenpeace, we recycle, we have low energy light bulbs and yes, I do turn off the tap when I'm brushing my teeth! But there has to be more we can do. I confess to being a bit of a material girl and I do like my home comforts, but what future is there for our children and future generations if we all continue to consume in the way we do?

So step one to the new me. On went the computer and I hit the internet. I decided the first thing to do was to check out my carbon footprint. I put 'carbon footprint' into the search engine and got 153,000 results! I'm obviously alone in my ignorance of this subject! On www.carbonfootprint.com I calculated my personal primary footprint which was terrifyingly

17,125kg CO₂. With a UK average of 5,013kg and a recommended level of 2,500kg, that put me way above average, so what am I doing wrong? The site did not acknowledge that I live in a household of five people, so to ease my conscience, I could divide that figure!

One of the questions asked on the site was whether we have a green electricity supplier. We didn't! Before changing supplier I had to check with my money guru on www.moneysavingexpert.com whether now was a good time to do it, in the middle of this period of price rises. Apparently 'yes' and two sites were recommended where I could check out the best deal – www.energyhelpline.com. Both sites offered the option of making your choice based on 'price', 'service' or 'green energy'. So although I was tempted by the predicted saving of over £200 a year on the 'price' selection, I ignored that and headed for the green section. I promptly changed my supplier to Scottish Power H₂O which promises 100% renewable energy from hydroelectric power stations in Scotland, and to save me £64 a year.



Both sites offered incentives to switch with them; the first offered £12.50 and the second a free bottle of champagne. Naturally I opted



for the champagne so now we have a green electricity supplier, £64 in my wallet and a bottle of Piper Heidsieck - result. I re-entered my information to calculate my carbon footprint, including my new green energy supplier and my footprint was down to 13,615kg. This is definitely a good start in my quest. However, I still have concerns. Does this now mean that I can use huge amounts of electricity without a thought for the environment? And if every household in the UK decided to change their electricity supplier to one that promised 100% renewable energy, is there enough renewable energy out there?

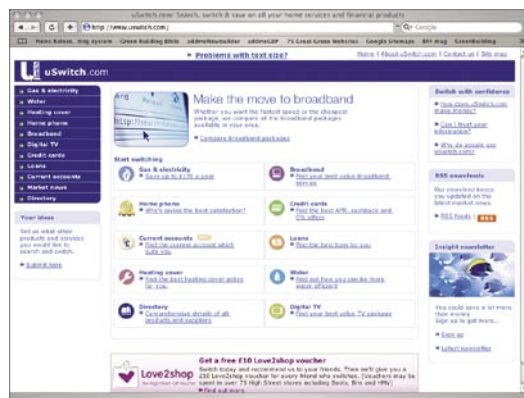
So what next? Other recommendations on the carbon footprint site were:

- switch off electrical items when not in use. I already do this and nag the children to do the same
- turn down the central heating. We haven't used the central heating this winter, we



have kept the house warm by lighting the wood burning stoves in the living room and kitchen using wood collected on walks on the beach. We've felt good about this but boy has bedtime been cold!

- unplug your mobile phone when charging is complete. Whoops, I'll do this from now on



- do your weekly shopping in one go. Living 20 miles from the nearest supermarket means that this is a necessity. In our previous existence, living in a city, I was at the local supermarket almost daily, so not only has our move been better for the environment, it has been better for my wallet
- fit energy saving light bulbs. We have these, thanks to our previous electricity supplier who provided us with the first four
- install cavity wall insulation. We have 75cm thick stone walls, so this is not an option.
- Insulate the loft - I poked my head through the loft hatch to discover that it is fairly well insulated already with that horrid pink glass fibre, not to mention a layer of dead flies!
- replace your old boiler with an energy efficient condensing boiler. We changed the boiler from coal fired to oil fired three years ago but I'm beginning to think that wasn't one of our wisest moves!

Naturally we were moving to our Welsh dream home and it had to be accompanied by the heat spewing 'Aga' in the corner, very rural! So we now have our central heating and hot water supplied by an oil fired 'Rayburn' and I

have the delightful view of an enormous green plastic oil tank through my kitchen window! This, of course, is accompanied by soaring oil prices and tales of oil eventually running out! So what are the other options? Do we consider producing our own energy? If so, how do we do it and can our wallet cope with the changes needed?

Back to the internet then, to look at what alternatives are out there. I typed 'alternative energy' into the search engine and got 10,100,000 results – now that could take some time! Maybe there is something or someone locally that could give me the information I'm looking for. I decided to check out the local free papers. Perhaps one of those numerous small ads would be informative. Sadly not – but it's amazing what people do advertise! Next came a hunt for the telephone directory, which I eventually located, in a dusty corner. If dust and cobwebs are good insulation then we are well away! Nothing under alternative energy but

novice like me they were way too complicated and took me back to those physics lessons of many years ago complete with the associated headache. I'm a bit confused between my ac's and my dc's and do I need an inverter to convert or a converter to invert? A number of the fact sheets had a link onto www.est.org.uk and here I found more simple explanations of the alternatives. Now at least I feel that I have some idea of what options are out there. The next step is to find out the logistics and, most importantly, the prices of the alternatives available.



there under 'energy' was the West Wales Eco Centre offering 'free advice on energy saving and renewable energy' – yes! But what questions do I ask them? Do I show my complete ignorance and display my lack of knowledge publicly or should I check out their website? The coward in me headed for www.ecocentre.org.uk - don't forget the UK bit or you'll end up on a tasteful French site!

The site has a number of fact sheets about the various renewables available, but for a



So what are my options?

Ground source heat pumps – I'm assuming this is not an option for us, as this system is most efficient supplying underfloor heating and we have wooden floors and an enormous basement. And don't you need electricity for the compressor and the pump, so doesn't it kind of defeat the object? Trawling around a few suppliers on the internet I found estimates ranging from £4,000 - £10,000 for an 8kW system. Pricey.

Small Scale Hydro (water power) – I thought I had found a straightforward explanation of how this system works on www.british-hydro.org until I found the following equation $P = h r g Q H$. Do I really need to know that? The most positive



factor about small-scale hydro is its high efficiency, quoted as being 70-90%, by far the best of all the alternatives. Unfortunately, this is not an option for us as our house is half way up a hill and a distance from the river. There is a fast flowing river going through the village so I do wonder why its energy is not being sourced at least for the residents whose houses back onto it.

Small scale wind power - my image of wind power is the large turbines sited together on the hills around and about. I have found it difficult to find information on smaller scale turbines for domestic use. There is an interesting briefing sheet on www.bwea.com. I'm assuming that due to the siting of our house, a wind turbine may not be a viable option. We are on the leeward side of the hill and have a number of buildings fairly close behind us, including the church. As the church tower is the focal point of the village, how popular would we be if we were to obliterate the view with a wind

turbine the size of a telegraph pole in front of it? Out of interest I asked the opinion of some neighbours to gauge their reaction if we were to erect a turbine. Our immediate neighbour thought it was an excellent idea and was keen to join us in such a venture. But I was surprised at the negativity of others, in particular those who have just erected a upvc conservatory which gazes directly into our garden! The only site I could find that gave details of wind turbine packages available for domestic use was www.provenenergy.co.uk. For a grid-connected system, which should power the average 3 bed house, they quote £11,000 and a battery charging system would set us back £15,800.

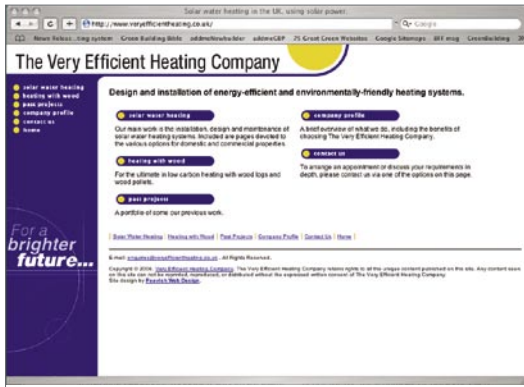
Solar PV (photovoltaics) There is an excellent downloadable homeowner's fact sheet on www.est.org.uk/myhome/generating/types/solarpv. The one downside to the EST website is that I have found it difficult to navigate and I've struggled to re-find information previously viewed. It also has a fact sheet telling you why MP Peter Hain has solar PV, if anyone is remotely interested! There were 291,000 results when I entered 'solar pv' into the search engine. Of the initial few I looked at, the sales pitch seemed to be 'free electricity'. So it was refreshing to see on www.imaginationssolar.com that, even with a government grant it would take 50 years to achieve payback. They also made it clear that solar PV would only produce 30-50% of the average household requirements. The average price quoted was £9,000 per kWp. I would be interested to get a quote from a supplier but I think our three-storey, hill house would be daunting to anyone needing to get on the roof! Also we have huge chimneys which cast a lot of shadow across the roof, so I'm not sure how achievable this option is.



Solar (thermal) for water heating - Again this one is more straightforward to understand and there were useful fact sheets on the EST website (mentioned earlier) and on www.very-efficientheating.co.uk. I preferred the prices for this one, with an average between £2,500 - £4,000. But the same issues exist as for solar PV - hard to access roof and chimney shadows.



I'm beginning to think that alternative energy is not for us, for a number of reasons. There are drawbacks to each of the systems I have looked at, some of which may be unique to us, but others would probably be relevant to anyone in



the average house. I know that we don't have £9,000+ to spare and I'm not sure I'm too keen to take out a loan to cover the costs. At www.est.org.uk (yes I have spent hours on this site!) you can enter your postcode to see if there are grants available. Information can be requested on cavity wall insulation, loft insulation, heating, appliances, energy saving light bulbs, renewables or radiator panels. I entered renewables and found information about the Low Carbon Buildings Programme. These grants have minimum requirements, including 270mm of loft insulation and using energy saving light bulbs. To get full details of what is available, you need to fill in a home energy check. This I would

do if it were a little more anonymous, I am not keen on giving out my personal details over the Internet. The information on the previous Clear Skies grant programme seemed much more straightforward to access!

But I think there may be a light at the end of my seemingly never-ending alternative energy tunnel. The final option I have looked at is biomass, otherwise known as bioenergy or biofuels - that is using organic matter of recent origin such as logs or woodchips. Now I may be simplifying this one too much, but isn't that what we've been doing by installing wood burners and collecting wood from the beach? This option appears to be so much more within the average household's grasp.

I looked at www.stovesareus.co.uk and for an extra £150 we could fit a boiler to our existing wood burner to provide all our hot water. Being on a fairly low budget we have paid under £400 for the stove itself. This is a much more achievable price tag than the £2,000+ for the solar water heating option and way more attractive than the £15,000 for a wind turbine. I assume that we are fortunate not to be in a smokeless zone and maybe this isn't an option for everyone. But if you are in a smokeless zone you just need to ensure that you have sufficient storage space for the fuel, and you need to check with your local planning department before fitting a flue, if you live in an area of outstanding beauty. One concern I do have is that to supply sufficient wood to warm our homes and heat our water in this fashion there



will need to be large plantations of fast growing trees. By planting row after row of such fast growing trees, for example, willow, will that not affect the biodiversity of the woodland? Would we then put certain species at risk? The cultivation of a single species over large areas clearly does not sustain normal or healthy biodiversity.

So I am now on my way to my new electricity supplier, I am poised to order a boiler for my wood burner and I should be feeling jolly self-righteous. But boy has it been a trial. The suppliers and those hoping to enlighten the world of the green alternatives, need to make the information easier to access and much easier to understand. When I was purchasing my 'Rayburn' as a new cooker and boiler, I didn't need to know the inner workings and the mathematical equation that was needed to heat the oil to the appropriate temperature to ensure my meringues were perfectly crisp and not burned. I just needed to know about efficiency and approximately how much oil we would need annually, how much the system and the ongoing running of it would cost, and that it could maintain a low enough temperature to ensure the perfect meringues! But it has been the basic information I have struggled to find. Most of the websites out there are keen to blind you with the science of the systems available. Is this to impress? Is it to inform? Or just to make the whole thing hard for the general public to access and achieve? And shouldn't it be the opposite of that? Shouldn't everyone have easy access to alternative energy?

For all of the options available, except biomass, I feel I would need to get an expert in to advise me right from the start and of course this generally means paying out right from the start! I'm not a great lover of paying consultants, I like to do the groundwork myself. And I would like to know that any 'experts' that I consult would have straightforward answers. But maybe the answer isn't to produce your own energy; it's just to do the best you can with what you've got. So maybe I should get back up the loft and see if those dead flies need some extra assistance in insulating my roof space. And maybe a few old-fashioned draft excluders

wouldn't go amiss at my ill-fitting doors.

Of course there is another option open to me - 'carbon offsets'. Now what is that about? Is that about reducing the damage to the environment or is it about quelling our conscience? If I had remained on www.carbonfootprint.com, I could have calculated that, to offset my personal carbon emissions, all I would need to do was to send them the money to plant 11 trees. At £10 per tree this is a much cheaper option than any of the energy alternatives I have looked at. If I include £1.75 p&p I'll also receive a certificate endorsed by Bill Oddie! So with my £110 cheque in the post and my framed certificate on the wall I can, with a clear conscience, stick my head firmly back in the sand and like the majority of the population, hope that the global warming issue will just go away! I think not ... ☹

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