

What is your Carbon Footprint ?

As a society we are being forced to think about our energy usage and that new buzz-word, 'carbon footprint'. Until very recently few people equated use of energy to anything other than money, however carbon reduction has become the target we have to strive for and to do this we must find ways of using less fossil fuels at work and at home. But how much energy does a house use, do you know the energy usage profile of your house, and what's your Carbon Footprint ?

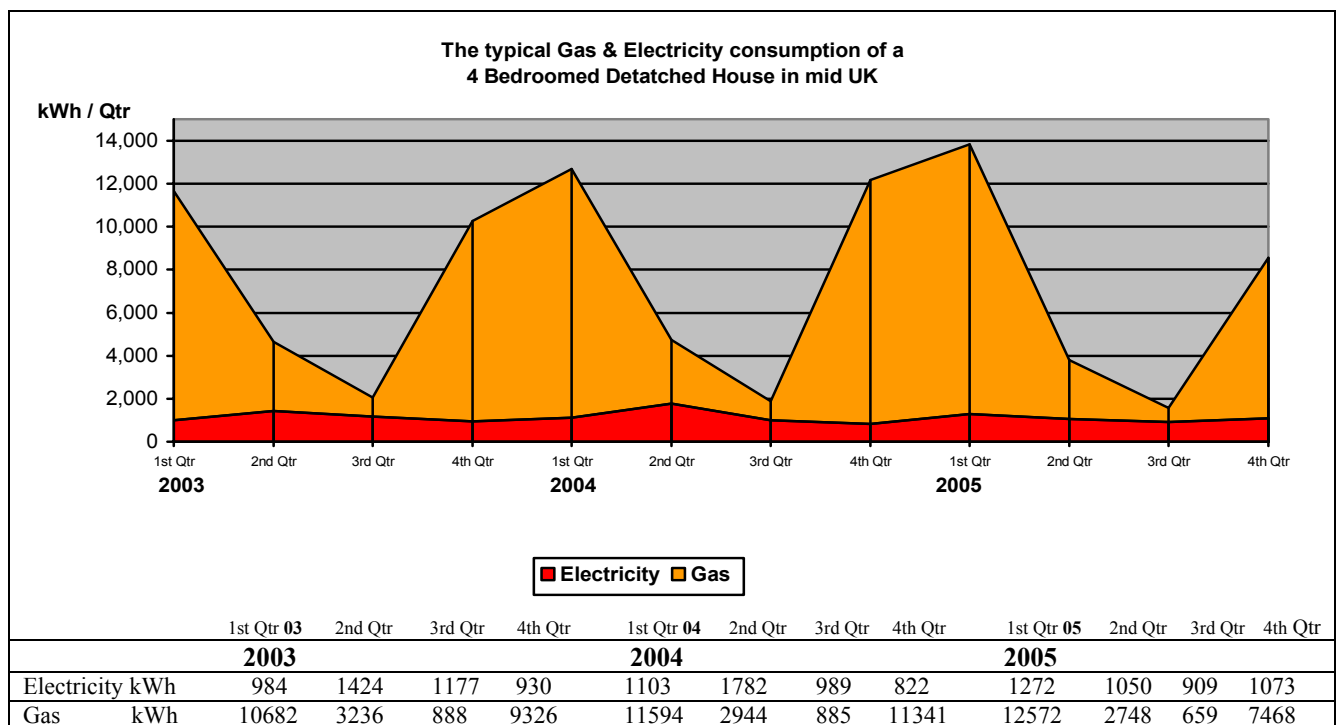
When we are trying to obtain this data from a client, particularly a domestic client, in order to assess how best to advise them, we frequently find that old bills have been thrown out and that they have no idea how much they are consuming. Without this basic information it is very difficult to get a picture of how the property uses energy and therefore advice on efficiency measures or sizing a solar energy solution becomes somewhat of a guessing game. Ideally we want to offer a personal report not an average of other similar houses.

So, how much energy does a typical house use. The graph below shows a plot of the Energy consumption of a late 60's 4 bed-roomed, two storey detached house 20 miles north of London over a three year period from January 2003 to January 2006. Four 'adults' occupy the house, Space Heating and domestic hot water (DHW) are by way of a 10 year old combination Gas boiler and Cooking is also by gas.

The average total energy consumed was 29,266kWh/yr ~ 24,781kWh of Gas & 4485kWh of electricity.

The Gas plot shows the typical peaked usage due to space heating from around September to March and also indicates a base load for DHW and cooking of 270kWh /month. For those cooking with electricity the minimum gas usage will indicate very clearly the base DHW load, which helps when sizing a Solar Thermal system for example.

Space heating accounts for the rest and if taken over a 6½ month heating period averages out at 3312kWh/month. So, approx 90% of the heat energy needed is used for space heating (in just 55% of the year), whilst 10% is used for DHW washing and for cooking. Space heating therefore offers the greatest opportunity for energy savings.



Electricity use is fairly constant at around 374kWh/month although it is worth noting that a great deal of UK electricity is produced by Gas fired power stations and by the time it is delivered is only 35% efficient. Hence the figures above for Electricity should be multiplied by 2.86 (a gas equivalent of 1070kWh/month) to realise the true amount of primary energy consumed and with this the carbon impact this has on the Planet.

CO₂ and Carbon emission depend on the fuel burned. One kWh of Gas produces 0.19kg of CO₂ whilst an average kWh of electricity produces 0.43kg of CO₂. 1kg of CO₂ is equivalent to 0.27kg of carbon, hence the above house emits 6637 tonnes of CO₂/year, or has a Carbon Footprint of 1.811 tonnes !

You can calculate your own **Carbon Footprint** at www.nef.org.uk/energyadvice/co2calculator.htm