How can your energy choices significantly reduce your carbon footprint?

By John Hall & Dave Green

Based on a series of articles by John Hall former CEO of Essex Wildlife Trust who was awarded an MBE for services to the environment , this is the second article in a series that looks at how we can all reduce our carbon footprint.

The carbon emissions that an average Martlesham resident are responsible for are over 10 tonnes per year. In article 1 we looked at food choices, which can reduce your carbon footprint by about 1.5 tonnes – a good start.

Energy is the big one. Over 25% of the average person's carbon emissions result from their need for energy in the home – electricity for power; gas or oil for heating, for hot water, for cooking etc – so more than 2 tonnes of your carbon emissions.

Good national progress has been made to reduce emissions from UK electricity generation by phasing out coal power stations and increasing renewables by solar and wind generation. However, your electricity supply still relies heavily on gas power stations, so your choices are important.

The easiest choice you can make is to switch to a provider which offers electricity from renewables like Ecotricity, Good Energy and Green Energy UK (GEUK) - so worth getting a quote. GEUK also offer 100% biogas (sourced from bio-digesters on farms). If you switch, this could reduce your carbon footprint by about 1 tonne. There are other providers who claim their electricity comes from renewables. However, some rely on carbon offsetting through REGO certificates (Renewable Energy Guarantees of Origin), which they purchase, rather than obtaining their energy from renewable sources – worth checking.

If you have a poorly insulated or draughty home, the best thing you can do is to improve the insulation of your loft, your walls internally or externally, or improve your windows with double or triple glazing. Some grants may be available to help you (see our website for details in East Suffolk). The pay back through reduced heating costs is usually well within 8 years and you will reduce your carbon footprint by about 0.5 to 0.8 tonnes and raise the EPC (Energy Performance Certificate) of your home.

The pay back on installing solar panels may be longer, typically up to 10 years on an investment of £5000+. Many will not be able to afford this, although there are grants to help those on low incomes but solar remains a good investment, particularly if you include ways of utilising the surplus electricity on those bright sunny days. For example, some Martlesham residents use a Solar iBoost that uses the surplus to heat hot water. Some residents also put surplus solar into their electric car. A storage battery is another option. These steps will reduce your carbon footprint by 0.8 to 1.3 tonnes. Have a look at some resident case studies on our web site (martleshamclimateaction.onesuffolk.net). I also have 2 solar water panels on my roof feeding solar energy directly into the hot water tank. These are more efficient that something like iBoost and the 2 panels produce up to 2.5kW on a sunny day directly heating my hot water.

So, will that provide enough energy to discard your gas/oil boiler? No, because your biggest demand for heating will be in winter when solar is at its lowest. Most UK homes are heated by gas and legislation will ban new gas boilers in the next 5 years. An air source heat pump will be the replacement for many of us – a “reverse fridge” which extracts energy from the air outside and uses this to heat your home. A heat pump system plumbed into your existing central heating pipes can cost in excess of £12000 at the moment and is much more expensive than a new gas boiler, but there are grants and you should achieve pay back in about 8 years, particularly if your home is well insulated. A heat pump will cut your carbon footprint by about 0.8 tonnes. Have a look at Phil Wallace’s case study under 'Documents' for real world experience of doing this. You might also consider a ‘hybrid’ system: I have a 6kW air-air heat pump that heats downstairs consuming around 1.5-2 kW courtesy of the efficiency gain you get on heat pumps. This enables me to avoid putting on our gas central heating until mid evening saving around 30% of my total gas consumption. It does cooling as well: great in the summer and free with my solar panels!

There are of course other simple choices such as lowering your thermostat by 1 or 2 degrees in winter; steaming rather than roasting; LED lighting etc but these have less impact than the major choices given above but still make a significant contribution to reducing your carbon footprint. We are all going to have to embrace such choices in the next 10 years if we are to reduce the serious impacts of global temperature rise and help make a stable society in the future for our children and grandchildren.