

Over the past five years or so Pat & Tony have sought to reduce their general impact on the environment in all ways, starting with the easy things such as reducing, re-using and estimate that 95% of their household waste (paper, glass, card, metal and plastic) is recycled, with all organic waste matter composted and used in the garden.

Joining a local scrap-swap charity group which has a lot of used and off-cut materials such as paint, fabric and wood has not only saved them money but saves waste here too.



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Technologies for a Sustainable Future

Few people still question the cause of global climate change to be the alarming release rate of carbon into our atmosphere in the form of gasses such as carbon dioxide and methane.

Whilst grant schemes have been confusing to say the least, low & zero carbon energy products have developed and are becoming much more affordable.

At the local level low carbon energy systems are beginning installed daily and those that have passed across Carleton Rise, Welwyn recently will have noticed our installations and may even be considering if now is the time for them to do likewise.

Since April this year householders who install zero carbon electricity technology such as solar photovoltaic (PV) panels and wind turbines will be paid for the electricity they generate, even if they use it themselves. A domestic sized solar PV installation will earn the owner 41.3p/kWh, thus a 3kWp system generating c.2925kWh/yr would yield £1208. A further payment of 3p/kWhr will be paid for any electricity not used and thus fed into the grid. These Feed-In-Tariff (FIT) payments are tax free and will be index linked for the next 25 years.

From April 2011 a similar incentive scheme, the Renewable Heat Incentive (RHI) is to be unveiled for low carbon heating technologies. Installations such as Solar Thermal hot water heating systems, for example will receive payments for the zero carbon heat energy they generate. A typical sized system, generating c.2000kWh/yr should earn £360/yr for up to 20 years.

Sustainable Living

AN OPEN HOUSE EVENT
at

16 Carleton Rise,
Welwyn, AL6 9RF

11th September 2010 11am to 4pm



This two storey detached house originally built in 1968, owned by Pat & Tony Almond since 1991, is an inspirational example of how we can transform our homes into ones fit for the 21st century.

Tony started his own consultancy and installation business in 2006 to help promote the understanding and take up of low carbon energy systems.

He always had the intention of practising what he preached and so as finances became available, he and his wife took on the task of incorporating many of the sustainable living systems he promotes into their home.

Tony commented "We've achieved a Energy Efficiency rating of 85/100 (B) and an Environmental Impact rating of 81/100 (B), which we are very pleased with, but will continue to look for ways to better that over time"

Reducing heat loss is fundamental in homes to help reduce wasted energy fuel bills and carbon emissions.

This house was fitted with double glazed windows some years ago, the cavity walls were filled and the loft has had its insulation increased to 250mm between the joists. In time this will be increased further by fitting 70mm of insulation between the rafters. More recently 100mm of *Kingspan* insulation has been fitted under the suspended timber ground floors.



During the summer of 2008 their 17 year old Potterton gas boiler broke down providing the opportunity to replace it with a highly efficient *Remeha Avanta*, condensing gas combi boiler by which was fitted in the loft space.

Also installed was the *Celcia 20* fully modulating, weather compensating controller which regulates the flow temperature according to the internal and external temperature.

To reduce the amount of gas used in the home, the boiler has been set to supply the radiators at 56°C, rather than the traditional 80-72°C, which helps further improve the efficiency of the system.

From May to September however, the boiler is not used as the domestic hot water is generated by a solar thermal heating system.

Three *Lazer 2* evacuated tube Solar Thermal collectors with a total of 27 tubes are installed on the south facing pitched roof of the house. These are connected to a 200 litre thermal store located in the loft, alongside the boiler.



On a clear, blue-sky day in May 2010 the display unit shows the temperature in the thermal store had reached 79°C with the water coming off the Solar thermal panel at 123°C, returning at 81°C.

Electricity consumption has been greatly reduced over the past few years by, simply switching off things when they are not being used and by replacement of all filament lighting and house appliances being replaced with "A" rated high energy efficient alternatives.

However, the installation in February 2010 of a 3.08kWp *Sharp-Fronius* Solar Photovoltaic array, encouraged by the recently announced Feed In Tariff cash-back scheme, is expected to generate close to 100% of the families annual electricity and payback the capital outlay in just 8 years.

Maintaining the sustainable living theme, fruit and vegetables are home grown and with good use of a large greenhouse, fresh food is available throughout the year.



Irrigation for this requires a lot of water and thus rainwater is harvested from both the house roof, to seven 220 litre butts

and from the 12m² workshop and the 17m² greenhouse roof to a 1000 litres water tank, recycled from a local factory, reducing worries about possible water shortages or hose-pipe bans in times of drought.

Bee keeping produce around 100lbs of honey a year and chickens provide eggs, with their manure going on to the compost heap and eventually the garden.

A carport to the side of the house has a sedum surface slowing down the rate of heavy rainwater runoff and thus reducing the load on local drainage systems whilst creating a small habitat for the bees and other small wildlife.

