

## 2. Modest Low Carbon Initiatives at The Crescent, Rutherfordway, OX2

### General Description:

This house was built in the late 1990s. It has been renovated with an insulated loft extension and solar thermal system, with the inclusion of low carbon lights and appliances, plus planning for electric vehicles.

### 1. Solar Thermal System

- One large evacuated panel with 20 tubes made by German manufacturer Rita
- On a rear NW facing large flat dormer roof with ballasted frame tilted Southwards. Virtually no shadow cast from pitched roof
- Three adjacent property installations on same stretch of loft extension roof space
- Total cost per installation in Q4 2009 £4800 including panel, solar cylinder and plumbing.
- Generally no gas heated hot water requirement between Mid April and Mid September (5 months). Pre-warms water on sunny days for the rest of the year.
- Maintenance: Modest annual re-balancing/pressurising

### 2. Loft extension

- Extensive Celotex loft insulation during the loft extension process significantly improved heat retention.
- Incorporated a light pipe to take light down into the stairwell leading up to the loft space. Total additional cost of this including fitting was £250. Unit manufactured by Velux. Provides reasonable light (during daylight hours!) in what is a very dark space. Worth doing during this construction but retro-fitting costs probably prohibitive.



### **3. LED lighting**

- Extensive refurbishment works on ground floor incorporated a complete rethink on all lighting
- 50 downlight dimmable LED bulbs provided by leading manufacturer Aurora. Supplied at £35 per unit including the GU10 mains direct housings. Fitting costs separate.
- Each 8watt bulb can dim comfortably to 75%
- On full power the bulb provides equivalent light of a 50w Halogen
- Guaranteed for 20,000 hours (estimate minimum 20 years)
- Six independent circuits on entire ground floor. Each circuit linked through a PIR (Passive Infra Red) movement detector that switches lights off after a set time of no movement.
- PIR can be set to only come on when light dims beyond a certain level.

### **4. Other**

- During ground floor refurbishment used opportunity to wire electric feed through the house to outside car-parking space ready for electric vehicle
- Built internal glass porch to provide a barrier between heated area and front door without the porch detracting from the spacious feeling delivered by new open plan space.
- Despite new kitchen modernity, we have incorporated ceiling hanging rail pully system ("Sheila Maid") in utility room to avoid use of electric drying machine

### **5. Next steps**

- Re-considering Photovoltaic solar installation in light of recent government subsidy cut backs. Will perhaps now consider a group community scheme to lower costs
- Purchase an Electric car
- Move to Green Energy electricity supplier