

The Pilot Light Project at Beechenhill Farm

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The business:

- Organic farm in the Staffordshire Peak District with a relaxed and friendly B&B; two rooms.
- Hidden away, romantic cottage for two.
- Big comfortable cottage for 6 (wheelchair accessible).
- 10 eco weddings every year
- Organic milk (you can buy raw milk from the farm- in your own containers)
- Organic lamb.
- Hot Tub, Electric Bikes and walks from the door.
- Beecehnhill Artworks Ltd specialising in website design, Swedish style folk art

Pilot Light Project

This is a demonstration project to show how a small organic farm has started to adapt for resource efficiency and climate change within the protected landscape. We haven't done it all and are certainly not perfect; we are still discovering and learning! Still to come: mini bio-digester and solar PVs. You may be interested in doing similar things- you can learn from our mistakes!

We have adopted the principles of the carbon management hierarchy and implemented a number of energy elimination, reduction and replacement measures on the farm. We haven't introduced any off farm offsetting yet- we are still to be convinced, however we have planted over 2000 trees.

Avoid – eliminate energy usage (switch off campaigns, PIR sensors etc)

Reduce – reduce energy consumption (energy efficient lighting solutions, insulation, rainwater harvesting, Rayburn, A rated appliances etc)

Replace – replace high carbon sources with low carbon energy alternatives (biomass, solar PV etc)

Offset – as a last resort carbon emissions can be offset where they cannot be eliminated or reduced by other actions (Beecehnhill Farm could encourage guests to offset their emissions from travel)

Item	Source	Approx Cost	Govt Incentives	Impact	Comments
Natural light tunnel	Velux Sun Tunnel Tippers Builders Merchants, Uttoxeter	Approx £200		With light tube there is no need to turn lights on in daytime unless several people working for an event. <ul style="list-style-type: none"> ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	Food prep room has no windows or natural light. Still requires fluorescent lights at night and for events with several people working.
Low energy lighting – PIR sensors in Haybarn toilets	Screwfix CPC http://cpc.farnell.com	various	Green Deal: The Green Deal is the government's flagship energy saving plan to transform the country's homes to make them warmer and cheaper to run. From next year (2012), people will be able to access up to £10,000 upfront to pay for energy efficiency work, repaying the costs through savings on energy bills. Green Deal info available at: http://www.decc.gov.uk/en/content/cms/tackling/green_deal/green_deal.aspx	<ul style="list-style-type: none"> ▪ Reduced energy cost ▪ Reduced carbon emissions. 	Excellent – no lights are ever left on in 'public' area. However PIRs have been removed from cottage bathroom as guests wouldn't have normally turned lights on anyway and fan was linked. Sources of additional information: Carbon Trust – how to implement automatic lighting controls available at: http://www.carbontrust.co.uk/publications/pages/publicationdetail.aspx?id=CTL033
Stand by TV shut down	Energenie - Automatic Standby Shutdown www.energenie4u.co.uk	£12.99		Enable TV to be completely turned off with remote control. <ul style="list-style-type: none"> ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	It's a bit complicated for guests without some explanation- planning to install for all TVs
Owl Energy monitors	Owl www.theowl.com/	Approx £35		Enables consumers to see how much electricity is being used <ul style="list-style-type: none"> ▪ Reduced energy cost. ▪ Reduced carbon emissions 	Owls eat batteries. Difficult to keep all Owls going with their high battery consumption. We need to work out a way to easily engage visitors with their Owls.
Low energy lighting - Energy	CPC http://cpc.farnell.com	Approx £15 +vat each	Green Deal: See above	Changed 5 x 500 watt to 5 x 36 watt, 25p/hr to 2p/hr	They are white light equivalent to 300 watt flood-lights, also available with

saving flood - lights	ell.com		<p>Sources of additional information: Energy Saving Trust – Lighting information available at: http://www.energysavingtrust.org.uk/Home-improvements-and-products/Lighting</p> <p>Carbon Trust Lighting information available at: http://www.carbontrust.co.uk/cut-carbon-reduce-costs/products-services/technology-advice/Pages/lighting.aspx</p>	<ul style="list-style-type: none"> ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	PIRs at £20 approx
Low energy lighting- LEDs	Internet No reliable source yet	various	Green Deal: See above	<p>Still to record actual energy savings and payback period</p> <ul style="list-style-type: none"> ▪ Reduced heat loss. ▪ Reduced energy ▪ Reduced carbon emissions. 	<p>Warm white, used in the Haybarn Bar- much less heat given off than conventional bulbs.</p> <p>Sources of additional information: Energy Saving Trust – Lighting: See above</p>
Low energy lighting- fairy lights in barn	www.Lights4fun.co.uk	<p>3 x 40 lights at £9.99 80 lights at £19.95 24v transformer £15 3 x 80 set deal £65 Total £129.92</p>	Green Deal: see above	<ul style="list-style-type: none"> ▪ Reduced energy cost replaced 440 incandescent fairy lights using 220W/hr (2.5p /hr) with 440 LED lights using 16W/hr (0.16p/hr) ▪ Reduced carbon emissions. 	<p>Warm white</p> <p>Sources of additional information: Energy Saving Trust – Lighting: See above</p>
Under floor heating- Haybarn	Robbins Systems www.underfloorheating.co.uk/	£1,675 +Vat		<p>Low energy heating of large space 6kW</p> <ul style="list-style-type: none"> ▪ Lower water temperature required. ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	DIY in Haybarn
Rayburn Cooker	Snug Burner www.snughome	£1,600		Should save £412 per year assuming oil at 55p/litre	Reduces oil use by 20-25%. Makes Rayburn much more

Conversion	cookers.co.uk Installer Colin Sandford, Telford 01952 771533 sandfordes@aol.com				controllable, however is a bit noisier than before, have to remember to turn it up and down.
Under floor heating- Cowmans Cottage	Eco Energi	£2800 inc fitting		<ul style="list-style-type: none"> ▪ Lower water temperature required. ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	Cowmans Cottage
Induction Cooker	IKEA	£299 (on offer)		<ul style="list-style-type: none"> ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	Cowmans Cottage
A Rated appliances				<ul style="list-style-type: none"> ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	Cowmans Cottage
Heat exchange- plate cooler in milking parlour	Fullwood	£580		<ul style="list-style-type: none"> ▪ Reduced energy cost require to cool milk. ▪ Reduced carbon emissions 	Fitted 1996 Warm water fed to cows
Insulation- sheep wool		Approx £19 +vat per roll 100mm thick £30 +vat per roll 150mm thick	Green Deal: see above	<p>Will try to include approx financial savings and potential payback period figures here.</p> <ul style="list-style-type: none"> ▪ Reduced heat loss. ▪ Reduced energy cost. ▪ Reduced carbon emissions. <p>Much more pleasant to use than glass fibre.</p>	<p>Proved difficult to get local wool, ours is from neighbouring Casterne Farm, although the wool travelled to Ireland for processing!</p> <p>Sources of additional information:</p> <p>Energy Saving Trust Insulation Information available at: http://www.energysavingtrust.org.uk/Home-improvements-and-products/Home-insulation-glazing/Loft-insulation</p>
Insulation- lime plaster	Produced in Belgium Obtained from Tellings, Four Ashes, Wolverhampton www.telling.co.uk/		Green Deal: See above	<p>Will try to include approx financial savings and potential payback period figures here.</p> <ul style="list-style-type: none"> ▪ Reduced heat loss. ▪ Reduced energy cost. ▪ Reduced carbon emissions. 	Around a third of all heat lost in an un-insulated building is through the walls.

Rain water collection- toilet flushing	Switches from Maplins Plumbing from Screwfix	2 water level switches £6 ea Central heating pump £40 Tank £100 Pipes & fittings £200 Total £352	Sources of additional information: Envirowise – reducing mains water use through rainwater harvesting available at: http://envirowise.wrap.org.uk/english/Our-Services/Publications/EN896-Reducing-mains-water-use-through-rainwater-harvesting.html	No mains water used to flush 5 toilets	1 Rain water flush in Cowmans Cottage 2 Cottage by the Pond & 2 Haybarn. Advantage was existing 8000 gal rain water tank behind house taking all rain from north roofs. Mains water kicks in if drought. Planning to install elsewhere when decorating.
Transport- electric bikes	Electric Bicycle Network http://electricbicyclenetwork.com Carsington Sports	£120 per bike per month Minimum 2 bikes for 3 months Total £720/3 months		Keeps vehicles off the road.	Enables guests to explore nearby rather than driving all day.
Transport- coaches	Warringtons			Keeps vehicles off the road for one day!	Wedding guests stay at neighbouring B&Bs and Cottages and are brought to and from farm by local coach. Local guests collected at NT carpark.
Biomass boiler 120kW Wood pellet boiler Mini -district main Accumulator tank	Eco-energi Ltd Beechcliffe House Beech Lane, Beech, Staffordshire ST4 8SF Telephone: 01782 373193 Manco supplied boiler through Eco-energi	£80,000 RDPE grant £12k	Renewable Heat Incentive (RHI): RHI is designed to provide financial support that encourages individuals, communities and businesses to switch from using fossil fuel for heating, to renewables such as wood fuel. Sources of additional information: Energy Saving Trust RHI: http://www.energysavingtrust.org.uk/Generate-your-own-energy/Sell-your-own-energy/Renewable-Heat-Incentive DECC RHI: http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_energy/incentive/incentive.aspx	Reduced carbon footprint from 42 to 21 tonnes. Replaced 2 oil CH boilers 4 immersion heaters Return on investment: Cost £80K less £12k grant is £68k RHI = £6k to £10k/year for 20yrs Oil not used £5k/year Payback 10yrs Example: A typical 3 bed house would need approx 15kW system, whereas a large detached house would need approx 20kW or more. Savings for a pellet wood fuelled	Will extend into milking parlour to replace 2 immersion heaters. Would not recommend Manco. Issues to consider: Do you have enough space? Do you have a suitable flue? Can you comply with safety and building regulations? Do you live in a smokeless zone? Do you need planning permission? Carbon Trust – Bioenergy information available at: http://www.carbontrust.co.uk/emerging-technologies/technology-directory/bioenergy/Pages/bioenergy.aspx

			<p>Sources of additional information: Wood fuelled heating: http://www.energysavingtrust.org.uk/Generate-your-own-energy/Wood-fuelled-heating Energy Saving Trust – A Buyers Guide to Wood Fuelled Heating available at: http://www.energysavingtrust.org.uk/Resources/Publications/Renewables/A-buyer-s-guide-to-wood-fuelled-heating</p>	boiler – replacing electricity would save approx £275/year and 7.2T CO2 – replacing solid fuel such as coal would save approx £120/year and 7T CO2 (Based on a 3 bed semi detached property). If replacing gas then a wood fuelled system could cost more to run but you would still save around 4T CO2 per year. (source: Energy Saving Trust)	Carbon Trust – Biomass sizing tool available at: http://www.carbontrust.co.uk/emerging-technologies/current-focus-areas/biomass/pages/biomass-tool.aspx
bio-digester					To be completed later in 2011
Solar Photovoltaic (PV)			<p>Feed in Tariffs (FITs): Under this scheme energy suppliers have to (compulsory for big six suppliers) make regular payments to householders and communities who generate their own electricity from renewable or low carbon sources such as Solar PV.</p>		Dependent on planning consent Sources of additional information: Energy Saving Trust – FITs available at: http://www.energysavingtrust.org.uk/Generate-your-own-energy/Sell-your-own-energy/Feed-in-Tariff-scheme .