



Case study

Middle Coombe Farm

Mid Devon

RENEWABLE ENERGY 4
DEVON



Introduction

Middle Coombe Farm, near Tiverton, is a Gold member of the Green Tourism Business Scheme. Set in 200 acres of organic farmland, it offers self-catering accommodation in 4 separate buildings and eco functions in a converted cider barn. The owner Tim Malyon has always been thoroughly committed to sustainable living and knew he needed to address the business' energy consumption as part of his wider environmental policy.

Project development

- Tim was interested in making Middle Coombe as sustainable as possible by generating electricity on site. This would harness natural resources and eliminate the wastage and inefficiencies arising from distribution systems connected to a central power station.
- In addition to his environmental concerns, Tim was attracted to renewable energy because of high fuel costs. A combination of electricity, oil, propane and log burners were used to heat the holiday cottages whilst an oil-fired boiler heated the outdoor swimming pool in summer. The rising cost of oil meant that the fuel bill for the property almost doubled within a year.
- Tim decided to install photovoltaic panels to offset electricity used by the business and install a solar hot water system to replace the oil fired boiler used to heat the swimming pool.
- He knew that this would be an expensive system to install and the payback periods would be fairly long (even taking grants into account). However, he chose to go ahead because of the pressing need to make our homes and workplaces more sustainable. The renewable energy systems at Middle Coombe would also act as an educational resource (and inspiration!) for visitors to the farm.

How the system works

Middle Coombe's systems were installed in July 2006 and have been working well ever since. The outdoor swimming pool is only used in summer. This is when the evacuated tube collectors are most efficient so the free pool heating they generate provides the ideal replacement for the oil burner. PV panels provide electricity to the main farmhouse so reduce the need to take electricity from the grid. To compliment this, Tim is seeking to change to a green energy tariff for the electricity which is imported.

Costs and benefits

- Middle Coombe generates 4000kWh of electricity with the PV, and 14,000kWh of heat with the solar thermal collectors. The PV saves 2 tonnes of CO₂ pa compared with grid electricity, and the solar thermal saves 3.6 tonnes CO₂ pa compared with using oil to heat the pool.
- The whole system cost £28,000 to install, and Tim was able to claim £7,500 in grants from the Low Carbon Buildings Programme. The electricity generated by the PV is worth about £592 pa taking ROC's into account, which gives a payback time of 34 yrs.
- At current fuel prices, the solar thermal system saves £550 of oil pa, which equates to a payback period of 21 years.
- The solar hot water is offsetting oil consumption. Generating 14,000 kWh of usable heat per annum this system is offsetting the consumption of 1197 litres of heating oil.

Technical details

PV	5.5kW
Solar thermal	13.5kW thermal evacuated tubes
Installer	Solar Sense

Wider benefits

The installation was only a small part of a holistic approach to sustainability at Middle Coombe Farm. Visitors are encouraged to use public transport and visit local attractions. Food is either grown and produced on site or bought from nearby suppliers. There is even a compost toilet for function guests!

"I have found RE4D to be an invaluable help in looking at the problems and bonuses of different types of renewable energy, especially for a complicated layout of buildings such as we have here. It is virtually impossible to find quality renewable advice without the advisor having some particular commercial tie. Making unbiased advice available is as important as the actual grants, although they too are a great incentive to invest in the technology.

Ben Eardley has been a very good advisor - friendly, enthusiastic, and knows his stuff very well. I sincerely hope the project can continue in some form. It seems pure madness to me that we aren't increasing such projects rather than closing them down."

Further information

www.coombefarmwoods.co.uk
www.solarsense.co.uk

Contact RE4D

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For independent advice and support

Image gallery

Solar thermal tubes



Inverter

