



## Case study Park Mill Farm North Devon

RENEWABLE ENERGY 4  
**DEVON**



### Introduction

Park Mill Farm owners, Ray and Sue Fisher, wished to extend their holiday letting business by converting an agricultural barn into four luxury 5\* holiday cottages. The new accommodation would be available all year round and the owner was keen to use a heating system that created a comfortable environment and was cheap to run.

The site doesn't have a gas supply and therefore the heating options were limited to oil, LPG or electric boilers. This would have been expensive and have a large environmental impact. The client contacted RE4D to discuss which renewable options would be best.

### Project development

Park Mill Farm has the potential to use most forms of renewable heating. A wood fuelled system was ruled out, as the client wanted a 'fit and forget' solution. The remaining options for heating the site were some form of heat pump and solar hot water system. After discussions the client decided to go for a ground source heat pump, using trenches dug in the lawn outside the barn.

After receiving various quotes the client decided to go with Ice Energy.

An additional solar hot water system was recommended, however, the client wanted to see how the heat pump performed before installing any other technologies.

### How the system works

The heat pumps circulate liquid along pipes (slinkies), absorbing heat from the ground and then concentrating it and transferring it to liquid that is piped through an under-floor heating system. Because the pumps are powered by electricity, they are not in themselves a truly renewable system unless the electricity also comes from a renewable source. However, for every one kWh of electricity input, a ground source heat pump can deliver around three kWh of heat output.

### Costs and benefits

- The installation cost £16,419 (including the control system, equipment, installation and ground works).
- Grants of £4500 were received (£3000 from RE4D and £1500 via Ice Energy), reducing the net cost of the installation to £11,919.
- The expected annual power output from the 11 kW system is 29,290 kWh of heat, which would require 9,763 kWh of electricity (at a 3:1 efficiency).
- This electricity would have a cost of around £976, whereas approximately 2503 litres of oil would be needed to generate 29,290 kWh of heat and this would cost about £1277.
- The financial saving from using the heat pump is therefore £301 p.a. giving a payback period of 39.5 years, although this is likely to reduce as the cost of oil increases. It also takes no account of the cost of installing any alternative heating system.
- The reduction in carbon emissions from using this system rather than LPG would be 3.4 tonnes per annum.

# Technical details

Heat Pump	1 x 11kW Greenline HT E+11 Ground Source Heat Pump
Hot Water Tank	IVT D300/160 mains pressure hot water tank
Trenching	6 trenches 42 m long, each trench receiving 167m of slinky of 32mm diameter
Floor Area Heated	290m <sup>2</sup>
Installer	Ice Energy

## Wider benefits

Ground Source Heat Pumps provide a low maintenance and trouble free under-floor heating system. Planning permission was not required, although the electrical connection did have to be upgraded.

Ray Fisher

"Working with RE4D gave us the opportunity to review the various energy saving options. Ben gave us guidance and good advice in addition to finally giving us a great saving on the Heat Pump we installed".

## Further information

[www.iceenergy.co.uk](http://www.iceenergy.co.uk) or 0808 145 2340

Also see [www.bluechipvacations.com](http://www.bluechipvacations.com) for more details and to book the cottages.

## Contact RE4D

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For independent advice and support

## Image gallery

