

The Meaden Project - Peterborough

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Building type:

400-year-old renovated farmhouse

Technology used:

- High efficiency boiler
- Passive flue gas recovery device
- Solar thermal
- Air-to-water heat pump
- Ground source heat pump
- Mechanical ventilation & heat recovery

Installer:

Orangehouse Renewables
www.orangehouse.co.uk

PROJECT BACKGROUND

- Remote 400-year old farmhouse near Peterborough
- Aim to create sustainable home to minimise monthly outgoings
- Off-gas property
- geoTHERM exclusive 8kW ground source heat pump
- Vaillant 300 litre buffer tank
- Eligible for cash back under Renewable Heat Incentive

Annual fuel saving (vs oil)

£561

Projected lifetime fuel cost saving

£32,125

RHI cash back (over 7 years)*

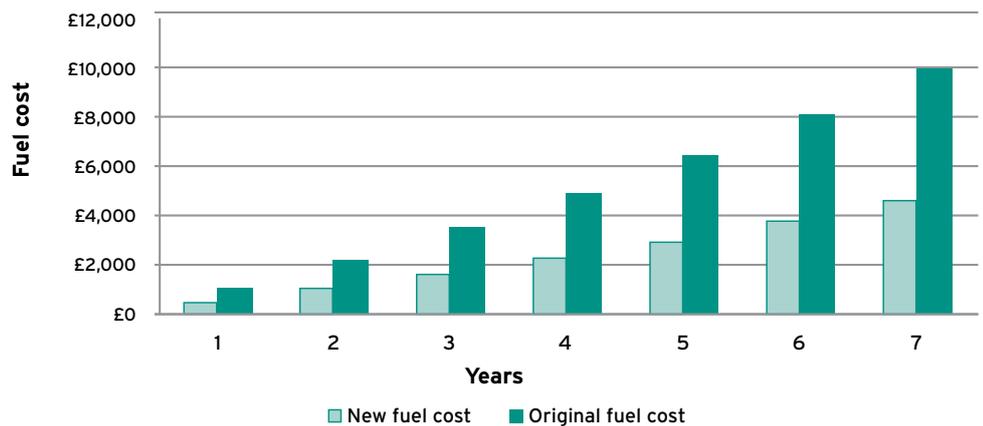
£18,111

System payback

5 years (approx)

*RHI cash back is estimated on heating and hot water usage

Fuel cost over 7 years



SYSTEM SPECIFICATION

In 2012, Emma and Richard Meaden bought a remote 400-year-old farmhouse near Peterborough, with plans to build a sustainable home. The ambition was for the finished house to cost as little as possible to run to minimise their monthly outgoings; therefore, several energy-saving measures were put in place, including rainwater harvesting and the use of SIPS panels for the new extension.

When it came to heating the house, Emma and Richard wanted an efficient system. As the property is in an off-gas area and has 1.5 acres of land, a ground source heat pump was suggested as an ideal solution.

A Vaillant geoTHERM exclusive 8kW was installed, with a built-in 175 litre tank for domestic hot water, along with a Vaillant 300 litre buffer tank.

The actual install took place over several months in early 2013. The two ground loops (each 225m in length) were dug into the paddock adjacent to the house using a trenching machine to minimise disruption and churn to the earth. The loops were buried 1m apart and 1.5m down, while the pump itself was installed into the utility room.

The installation of underfloor heating throughout the house is perfectly suited to a ground source heat pump due to the low flow temperature, and efficiency of the system is maximised through the use of a weather compensation control.

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OUTCOME

The Meaden Project is a special case in that so much work was undertaken on the existing property that the finished product is effectively a new build. Although this means that there are no previous costs to compare with, we can consider the predicted running costs of the ground source system versus the costs of running an oil system (since the area is off-gas).

It is estimated that the running costs of the heat pump are half those of an equivalent oil system, plus the estimated life of a GSHP stands at 25 years, compared to 10 years with an oil boiler. In terms of fuel savings, the figure stands at approximately £32,125 (vs oil) over a period of 20 years.

The system is eligible for Renewable Heat Incentive payments under the new tariff at 18.8 pence per kilowatt hour.

“The yearly payment is estimated at £2,587 or £18,111 over seven years, giving a payback period of just over five years.”

The installation of the geoTHERM heat pump will enable the Meadens to meet their objective of creating an economically sustainable home and reducing their monthly outgoings to a minimum.



WHY VAILLANT?

Alex Driver
Orangehouse Renewables

“All the way through the project, Vaillant gave us access to a wealth of technical experience and expertise, and we came to view them as not just

a supplier or a manufacturer, but as a trusted partner. The geoTHERM is a quality product built to last, and we have complete faith in the technology to deliver year after year.”

“ As a company with both proven technology and a proven heritage, we really felt that we could rely on Vaillant. The fact that we were able to visit one of their Centres of Excellence and actually view the product and speak to the experts really helped to reassure us that we were making the right decision. ”

Emma Meaden, homeowner
<http://themedadenproject.wordpress.com>