

Energy Efficiency & Onsite Renewable Energy Feasibility Survey

Reducing Energy Consumption, Reducing CO₂ Emissions
and Reducing Running Costs of 'Hard-to-Treat' Buildings



Client:

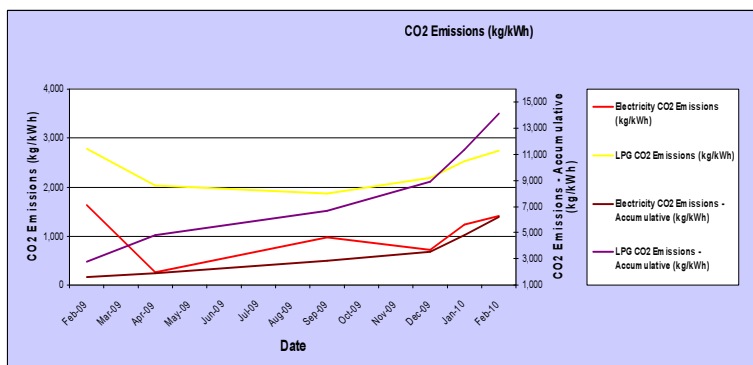
A private householder

Completion date:

June 2010

Project scope:

- Site Survey
- Benchmark Analysis & Report
- Action Plan



Project Description:

The National Energy Foundation (NEF) was commissioned by a private householder to provide an Energy Efficiency & Onsite Renewable Energy (EEORE) Feasibility Survey. The building had been extensively and sympathetically updated and retrofitted: comprising—cellar, ground floor (approximately 255m²), first and second floors and has retained many original features (such as flagstone flooring to the main entrance hall which

needed to be taken into consideration when assessing for any energy efficiency or renewable energy solutions). Primary heating and hot water was provided by liquid propane gas (LPG) supplying two LPG boilers (Band G ~ 70% efficiency), providing heat via a 250 litre Heatrae Sadia Megaglow cylinder to mixed type radiators fitted with thermostatically controlled radiator valves; the LPG being stored in a 200 litre tank to the rear of the premises. Secondary heating was provided by a number of open solid fuel fires. The house was deemed 'Hard to Treat' - especially given that its main walls were up to 600mm thick and there were specific restrictions on the type and level of double glazing that could be fitted (e.g. 9mm rather than the more normal 25mm). **An estimated CO₂ emission per square meter due to space heating, hot water, ventilation and internal lighting was calculated as being 86.27 kg/m²/year, which equates to approximately £3,500 per year of energy spend.**

The study provided guidance to the occupier as to which if any additional energy efficiency and onsite renewable energy technologies could be implemented to increase the overall energy performance of the house, as well as reducing its energy consumption and reliance on national supplies. The study also provided a selection of measures that he could look to implement.

Project Outcome:

A detailed analysis of the information and utility bill data provided to NEF, together with an on-site energy efficiency and onsite renewable energy feasibility survey, enabled NEF to draw up a number of conclusions and to provide a specific list or recommended actions.

Due to its Grade II listed status, when determining the recommended set of actions, specific reference was made to English Heritage.

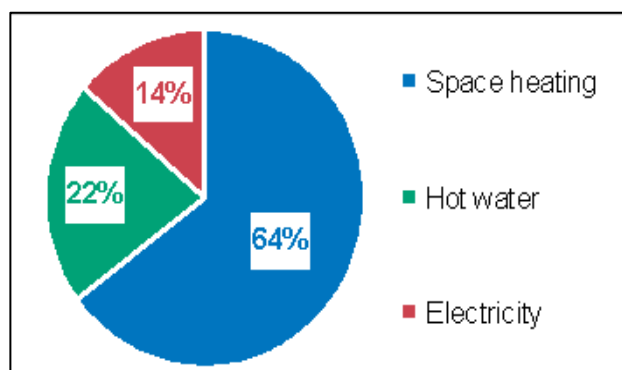
The survey report was prepared and provided to the client together with an offer to provide ongoing and additional support to the occupier to enable him to determine the best return on investment by providing value for money.

Project Benefit:

- Advice on the latest government policy requirements and incentive schemes factored in, ensuring the client was aware of any grants that might be accessible to assist when procuring improvement measures.
- A 'Whole House' strategy in implementing energy efficiency and onsite renewables measures was advised — enabling the client to formulate a long term plan for improving their building — with a hierarchical set of measures to select from when action is to be taken.
- Assistance with managing the clients risk through the sharing of best practice examples gathered from recent projects that demonstrate a technologies actual in-use performance — e.g. Ground Source Heat Pump surveys recently carried out by NEF enable the passing on our knowledge which assists in managing the risk of our clients.
- Potential energy reduction following the Energy Efficiency and Onsite Renewable Energy survey could take the building from the current energy spend for space heating, hot water, ventilation and internal lighting down by as much as 60% if the key recommendations were to be implemented.

Renewable technologies considered:

- Solar Photovoltaic (PV)
- Solar Thermal (Hot Water)
- Biomass log/batch boiler
- Ground Source Heat Pump
- Micro-Combined Heat and Power



NEF's Added Value:

NEF's unique position in the energy efficiency and renewables sector, enables us to provide independent and unbiased advice to a variety of different organisations. NEF's consultants undertake feasibility studies, strategic reviews and provide policy advice to businesses, local authorities and developers. In addition to this consultancy work, NEF is frequently involved in delivering projects through partnerships with other providers. Please visit our website at www.nef.org.uk to find out more.

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