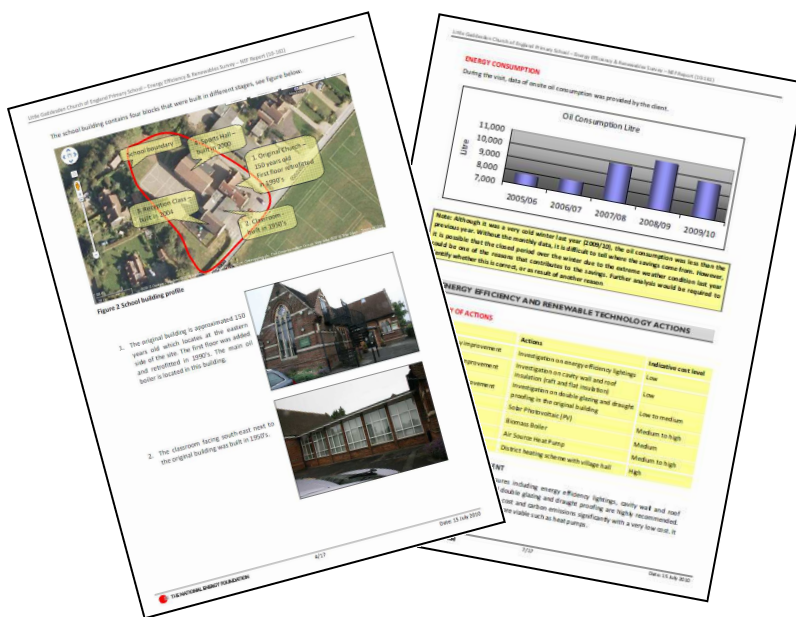


## Technical Consultation—Specifying Space Heating & Hot Water Upgrades

Managing Risk, Controlling Costs & Making the Right Investment Decisions



**Client:**

Little Gaddesden Church of England Primary School

**Completion date:**

July 2010

**Project scope:**

- Onsite meeting and energy efficiency survey
- Renewable and Low or zero carbon technology consultation
- Government policy and incentive scheme study
- LZC technology review and feasibility study
- Action plan and associated financial implications

### Project Description:

The National Energy Foundation (NEF) was commissioned by the client to provide an onsite survey and study on identifying the renewable solutions of replacing the current oil boiler. During our visit we discussed a range of options for replacing the space heating and hot water systems, including biomass, air source and ground source heat pump.



## Project Outcome:

NEF advised on all of the possible energy efficiency improvement measures as well as the onsite renewable energy technologies such as solar hot water, PV, heat pumps, biomass and micro wind turbine, which can produce electrical and thermal (heat) energy.

### Renewable technologies considered:

- Solar photovoltaic panels
- Ground source heating
- Air source heating and cooling
- Biomass boilers
- Community heating scheme

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

## Project Benefit:

- A report with 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.
- The identification of cost savings, for example this client was able to identify the potential replacement of current old oil boiler can save up to £2,000 per year on the energy bill.
- Assistance with managing the client's 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.

	2005/06	2006/07	2007/08	2008/09	2009/10	Calculation Factor	Unit
Oil Consumption (£)	3,811	3,889	4,812	5,216	4,771		
Oil Consumption (Litre)	7,825	7,986	9,881	10,710	9,797	0.487	£/litre
Oil Input Energy (kWh)	93,514	95,428	118,077	127,990	117,071	11.55	kWh/litre
Oil Equivalent Carbon Emission (kgCO <sub>2</sub> )	26,184	26,720	33,062	35,837	32,780	0.28	kgCO <sub>2</sub> /kWh
<b>Scenario 1</b>	<b>Existing oil boiler 30% less efficiency than new biomass boiler</b>						
Pellet Consumption tonne @ 30%	11	11	14	15	14	0.002	equivalent tonnes of pellet/litre oil
Pellet Consumption Running Cost £	2,520	2,571	3,182	3,449	3,155	230	£/tonne pellet
<b>kgCO<sub>2</sub> SAVING per year</b>	24,678	25,184	31,160	33,777	<b>30,895</b>	0.023	kgCO <sub>2</sub> /kWh from biomass
<b>£ SAVING per year</b>	1,291	1,318	1,630	1,767	<b>1,616</b>		
<b>Years of Payback</b>	19	12	10	9	<b>10</b>	22,000	£ of estimated install cost
<b>Scenario 2</b>	<b>Existing oil boiler 40% less efficiency than new biomass boiler</b>						
Pellet Consumption tonne @ 40%	9	10	12	13	12	0.002	equivalent tonnes of pellet/litre Oil
Pellet Consumption Running Cost £	2,160	2,204	2,727	2,956	2,704	230	£/tonne pellet
<b>kgCO<sub>2</sub> SAVING per year</b>	24,893	25,403	31,432	34,071	<b>31,164</b>	0.023	kgCO <sub>2</sub> /kWh from biomass
<b>£ SAVING per year</b>	1,651	1,685	2,085	2,260	<b>2,067</b>		
<b>Years of Payback</b>	13	14	11	10	<b>15</b>	22,000	£ of estimated install cost

## 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](http://www.nef.org.uk) to find out more.

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