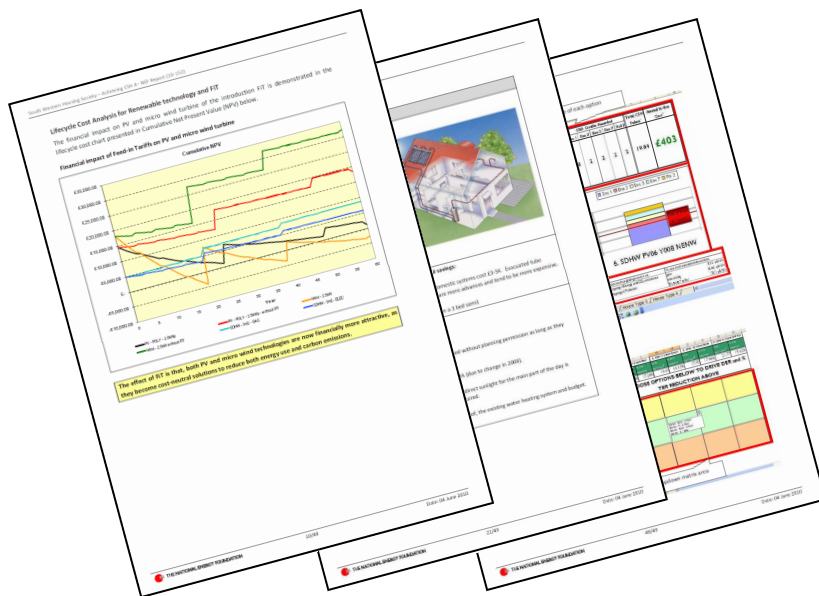


## Renewable / Low or Zero Carbon Technology Feasibility Study

Managing Risk, Controlling Costs &  
Achieving Code for Sustainable Homes Level 4



**Client:**

South Western Housing Society

**Completion date:**

June 2010

**Project scope:**

- NHER Plan Assessor SAP modelling
- Code for Sustainable Homes (CSH) energy assessment
- Government policy and incentive scheme study
- LZC technology review and feasibility study
- Lifecycle cost analysis
- Energy and Carbon Matrix Tool for CSH

### Project Description:

The National Energy Foundation (NEF) was commissioned by the client to provide a study on identifying and meeting Code for Sustainable Homes (May 2009 version 2) (CSH) requirements concerning the integration of Low or Zero Carbon (LZC) technologies into four different housing types to achieve CSH level 4.

The study estimated carbon emissions and energy consumption of the house/flat types from SAP calculations using accredited modelling software NHER Plan Assessor v4.5 (SAP2005 v9.81).

### Project Outcome:

The feasibility study identified and summarised the appropriate LZC technologies considered for the client which ensured the compliance to CSH Level 4 for Ene 1—Dwelling Emission Rate.

In association with the report, an Excel format Matrix Tool was developed to demonstrate the detailed breakdown of how to achieve CSH level 4 for each house/flat type.

In addition, the report assessed compliance with the requirements of Ene 2—Building Fabric, Ene 3—Internal Lighting, Ene 7—Low or Zero Carbon (LZC) Technologies and Pol 2—NO<sub>x</sub> Emissions under CSH.

## Implementation:

NEF completed over 150 different modelling options for the four house/flat types. Each option was carefully assessed in order to:

- Understand both energy use and carbon emissions and compare against benchmarks;
- Assess potential for energy demand reduction;
- Identify opportunities for suitable renewable energy technologies.

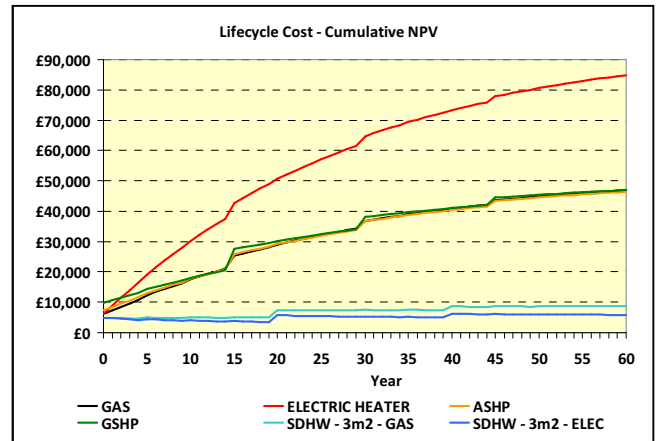
A comprehensive report was provided covering CSH energy related sections, future government policy requirements, and the potential for renewable energy technologies.

A further detailed lifecycle cost analysis demonstrating the financial impact over the whole lifetime of the house/flat was also carried out.

NEF completed a comprehensive and practical Matrix Tool which the client has found invaluable in unlocking the constraints of CSH and understanding the most cost effective route to compliance.

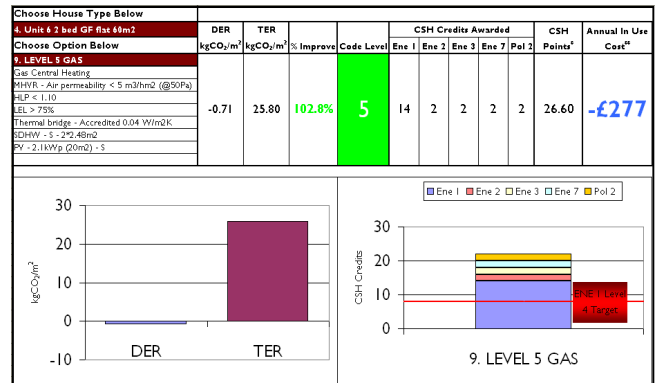
### Renewable technologies considered:

- Solar thermal and photovoltaic panels
- Ground source heating and cooling
- Air source heating and cooling
- Biomass boilers
- Combined Heat & Power



## Project Benefit:

- A report with the latest government policy requirements and incentive schemes factored in, ensuring the client is well prepared for the next levels of the Code for Sustainable Homes.
- The identification of cost savings, for example this client was able to identify crucial building fabric improvements, meaning that solar thermal hot water system was not needed — saving £5,000 per unit on all future developments.
- The Matrix Tool provided to the client by NEF gave the design flexibility and the foresight — meaning the client was fully aware of the energy and carbon performance from the chosen designs of their new developments.



## 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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