# Making a Green Home

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**HECA Conference, 13th and 14th May 2008**

# Content

- Introduction
- Overview of Eco n'Home project - methodology and results
- Developments in energy efficiency
- Time for questions

# Introduction

**In 2002, 30% of total UK energy consumption occurred in the domestic sector.**

**Approx. 27% of the Government's target for reducing carbon emissions by 2020 available through improving domestic energy efficiency.**

**Fuel poverty, and high excess winter deaths have focused attention on winter indoor temperatures. Installing energy efficiency measures can improve thermal comfort and help bring people out of fuel poverty.**

# Eco n’Home

# What is the Eco n’Home project?

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# Eco n'Home

**Aims:**

- Reduce domestic energy consumption by 10-20%
- Minimum 50% savings to come from transport

**UK**

MEA (Shrewsbury)

LEA (Leicester)

**FRANCE**

FLAME (network)

MVE (Montreuil)

Gefosat (Montpellier)

ADEME (researcher)


**Belgium**

E-ster (Ghent)

**Germany**

KliBA (Heidelberg)

**Italy**

EAA (Turin)

**Portugal**

Ageneal (Almada)

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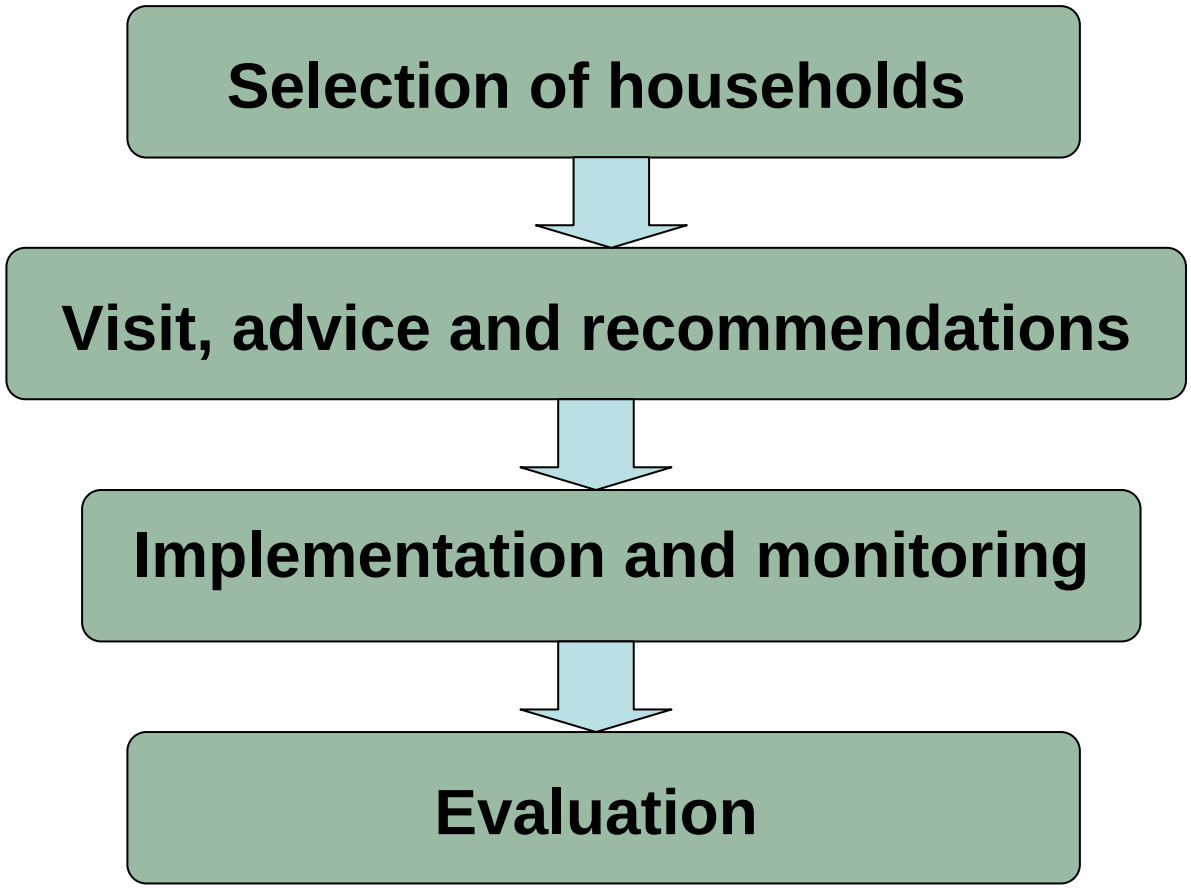
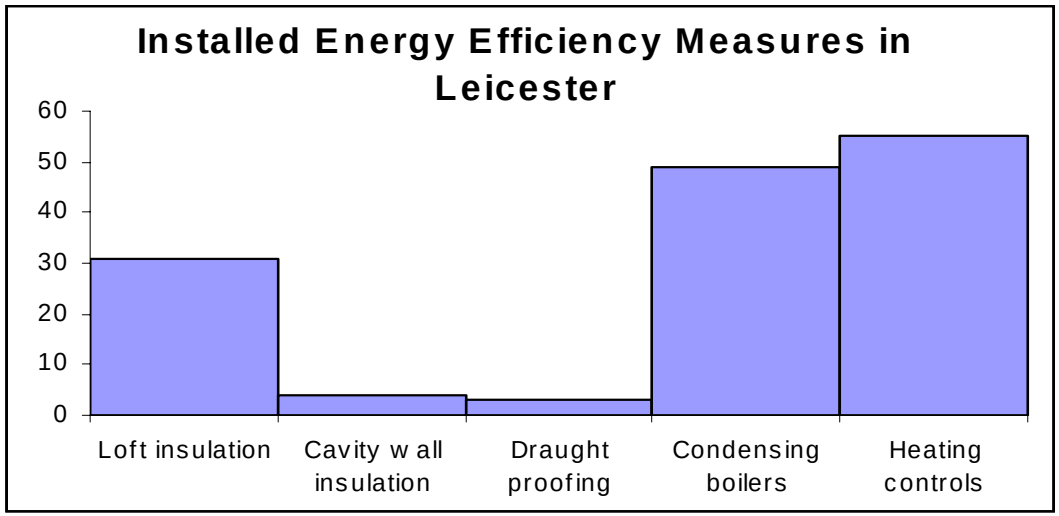
# Methodology



# In Leicester…

- 62 households from SRB6 grant scheme area
- Installed measures:



# In Leicester…


- ⇨ Temperature loggers installed in each household
- ⇨ Questionnaires
- ⇨ Meter readings

# Some Results

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⇨ Quantitative (from meter readings):

- ⇨ Decrease in gas consumption following installation of boilers
- ⇨ Small increase in gas consumption following insulation measures

⇨ Qualitative (from CARB report)

- ⇨ Main motivator: to save money
- ⇨ 75% grant “too good to be true”. Leaflet advertising lacked credibility
- ⇨ Widespread satisfaction with energy efficiency grant scheme as a whole
- ⇨ Widespread dissatisfaction with CFLs. “I have not used them because they are ugly. They are really really ugly.”

# Recommendations

| |
|---|
| Recruitment to grant schemes can be slow without strong incentives. But… too strong incentives can prevent participation. |
| Incomplete records due to sickness, holidays etc. Maximise your sample size to allow for drop-outs |
| Collect meter readings for one year before measures and one year after measures in order to compare two heating seasons and account for climatic variations. |
| Make sure that meter readings are taken at the same time each week and that participants are able to read their meters. |
| Represent all types of building tenure in the sample. |
| Understand motivations for taking part and level of understanding |

# Any Questions?

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More information from:

www.econhome.eu

# Developments in Energy Efficiency

**Neville Stork**

**Head of Environmental Sustainability, Leicester Partnership**

# Energy and Carbon

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# Hemcrete™



- ⇨ This hemp-lime product is made of fibres from industrial hemp mixed with lime. It is excellent for building in conjunction with timber- or steel-framed construction and for insulation.
- ⇨ · Uses an annually renewable crop
- ⇨ · Has excellent thermal and acoustic properties; U Value of maximum 0.28 is lower than 2006 Part L requirements
- ⇨ · Sequestrates and locks up carbon – about 110 kg / m3 of wall
- ⇨ · Is cost-competitive with conventional construction techniques
- ⇨ · High performance and materials points under Sustainable Code for Homes.

# Hemcrete™

⇨ Mineral wool, which is generally considered as a very good insulation material performs worse than the Hemcrete®

*"Bioclimatic envelopes made of lime and hemp concrete",* published in the proceedings from conference CISBAT 2005, A. Evrard, A. De Herde

# Strawboard


- ⇨ This technology was developed in Sweden in the 1930s, and the building panels made using it have been marketed internationally for 50 years under the trade name Stramit. It has been used in 350,000 houses in the UK.
- ⇨ Use of an annually renewable material; carbon-positive by locking up carbon
- ⇨ Very competitive thermal conductivity of 0.101 W m2 C, an excellent base for associated insulating products. Lower u-values than 2006 Part L easily achievable
- ⇨ High performance and materials points under Sustainable Code for Homes.
- ⇨ installed cost ranges from cost-neutral compared to standard build systems to less than 10% extra.

# Strawboard

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# Micronal®

- This product encapsulates phase change materials (PCMs) into interior elements such as plasterboard to deliver increased thermal efficiency and smaller temperature swings in the building.
- PCMs melt and solidify at various temperatures, which increases thermal capacity of the material they are encapsulated in.
- Energy on its way out of the building can therefore be captured, stored and released back when needed.

# T5 efficiency in T8 and T12 fittings

- ⇨ An adaptor which provides a high frequency, more efficient ballast suitable for modern T5 fluorescent light bulbs, but in existing T8 and T12 fittings.
- ⇨ Energy savings are up to 50%, carbon savings up to 60%,
- ⇨ and payback on the cost of the units goes down to less than a year, through greater energy efficiency and savings in fixture

# Thank You

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# Any questions?


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