

University of Salford Winner - research and development

University of
Salford
MANCHESTER

“Green House”

Summary

"At the cutting edge of research", the words used by Climate Change Minister, Greg Barker, when he officially opened Europe's 1st Energy House within a fully controllable environment. Salford Energy House provides a platform for academics to collaborative with industry in the development of products to reduce the carbon emissions from our 21 million existing homes, which account for 26% of UK carbon emissions.

Project partners

NWDA / ERDF, Garfield Weston, Royal Society - Wolfson Foundation, Royal Society, EPSRC (Discipline Hoping), United Utilities (Commercial research funding), TSB – KTP, EPSRC, British Gas (Commercial research funding), Dyer Environmental (Commercial research project), NWDA / ERDF, FP7 - Energy Monitoring

The problem

Recent figures published by Department Energy and Climate Change (DECC) indicate that there are over 5.5million homes in fuel poverty of which 4.5m are classed as vulnerable. Our 21million existing homes, which account for 26% of UK carbon emissions.

At an individual level, questions such as the best solutions for different types of housing and methods to change attitudes all need to be addressed.

The approach

The facility is unique in that it can replicate the exact same conditions at any time of the year. Being indoors means that the same product can be tested to bespoke conditions time after time. The facility is used by a wide range of academics who are encouraged to work together to develop unique solutions. They include:

- Physics
- Materials
- Built Environment
- Architecture
- Supply Chain Management
- Design
- Physiology
- Health
- Policy
- Sociology
- Finance

To these academics are added specialists from industry who work in the facilities to deliver reliable data.

Our goals

- To help the government meet it's legally binding carbon reduction targets
- To change behaviour in society
- To develop new technologies in collaboration with industry
- To produce new and practical research outcomes
- To support the University's own carbon reduction plans

Obstacles and solutions

Tackling one of the most serious issues currently facing the UK

There is little doubt that Energy Prices are on the increase, the top 5 energy providers all announcing a 15+% increase starting this month on both gas and electricity supplies. Coupled this with the recent announcement from DECC that 1 in 5 households are in fuel poverty. The Energy House allows leading academics along with industry and the wider community to work collaboratively together to try to reduce the numbers of people currently in and forecast to be in fuel poverty. Either by the development of new technologies and solutions to improve the energy efficiency of the buildings or by behaviour change and show casing the "what we can all do solutions" to those local residents and tenants in fuel poverty.

Registered Office : EAUC UK Office, University of Gloucestershire, The Park, Cheltenham, GL50 2RH
Tel : 01242 714321, info@eauc.org.uk, www.eauc.org.uk

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Green Gown Awards case study



<p>Lack of reliable data for testing new products</p>	<p>Nowhere in the UK can businesses looking to develop and test products and solutions for the retrofit agenda can be undertaken in such a controlled and monitored environment. The ability to control external conditions to the house allows accurate improvement calculations to be conducted and analysed. Since the Energy House was launched in January 2011, over 200 businesses have passed through the door and which are now actively collaborating with the project / house, ranging from large blue chip and multinational organisations through to regional micro SMEs looking to test a new invention.</p>
<p>The public don't recognise the benefits of reducing energy use.</p>	<p>The House also provides a focal point to support local residents, 18% of the University's local residents and tenants are classed as being in Fuel Poverty. The Energy House has "opened" its doors to local residents, who are facing fuel poverty, these open day events provide an opportunity to show our local residents the real impact the University can make to their lives. This is achieved, through simple technology demonstrations, showcasing for example the effects and benefits of draught proofing a letter box or simple behaviour changes for example turning the boiler down by 1degree. To date the Energy House, has played host to over 100 local residents and tenants. The Energy House supports the University's outreach and engagement goals, by providing a facility for engagement with local primary and secondary schools. Projects have been developed within the house targeting these groups to not only showcase latest research and technologies, but also to give practical advice / guidance and tips on how they can save energy within their school and home environments. To date over 250 school and college children have taken part in activities within the house ranging from full day 'Energy Days' through to bite size demonstrations and 'top tip' sessions.</p>
<p>Academics work in silos.</p>	<p>The provides a unique facility and focal point in which interdisciplinary academics and researchers are working collaboratively with businesses and the wider community in the development, testing and showcasing of new products, technologies and systems, to improve the energy efficiency of existing properties. Academics are working with businesses not only to develop solutions to improve the energy efficiency of our homes, but to understand why people aren't installing and / or adopting these measures.</p>

Performance and results

At a national level, the results of the research and project team are supporting the work of BRE National Refurbishment Centre, the UK's centre for retrofit, in which Salford is the only University partner.

The University has run two major retrofit conferences attracting business, academia and politicians as part of over 1,000 delegates.

At a local level the project supports the work being undertaken by Greater Manchester Low Carbon Economic Area, "and its mission that "By 2015 Greater Manchester has established itself as a world leading city region transforming to a low carbon economy".

Lessons learned

The work conducted at the house has increasingly focussed on behaviour change. Around the world technology solutions are being brought to market but the prime lesson learned is that without the will of the user to reduce their energy use technology can play only a limited part. The house will be a powerful vehicle for this change by demonstrating benefits and solutions to hundreds of key influencers and members of the public each year.

Further information

Stephen Waterworth
Energy Hub Manager
University of Salford
Salford
M5 4WT
Phone: 0161 295 6347 / 07973 535 287
Email: s.d.waterworth@salford.ac.uk
Website: www.energy.salford.ac.uk

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