ENERGY HOUSE LABS

European Union
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University of Salford MANCHESTER

ENERGY HOUSE LABS NEWSLETTER

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/ WHO WE ARE

The University of Salford's Energy House Laboratories helps businesses understand how effective their products and services are in lowering consumers' carbon footprint and reducing energy bills.Our research facilities include:

- Salford Energy House
- Energy House 2.0
- Smart Meters>Smart Homes Laboratory
- Thermal Measurement Laboratory

/ CONTACT US

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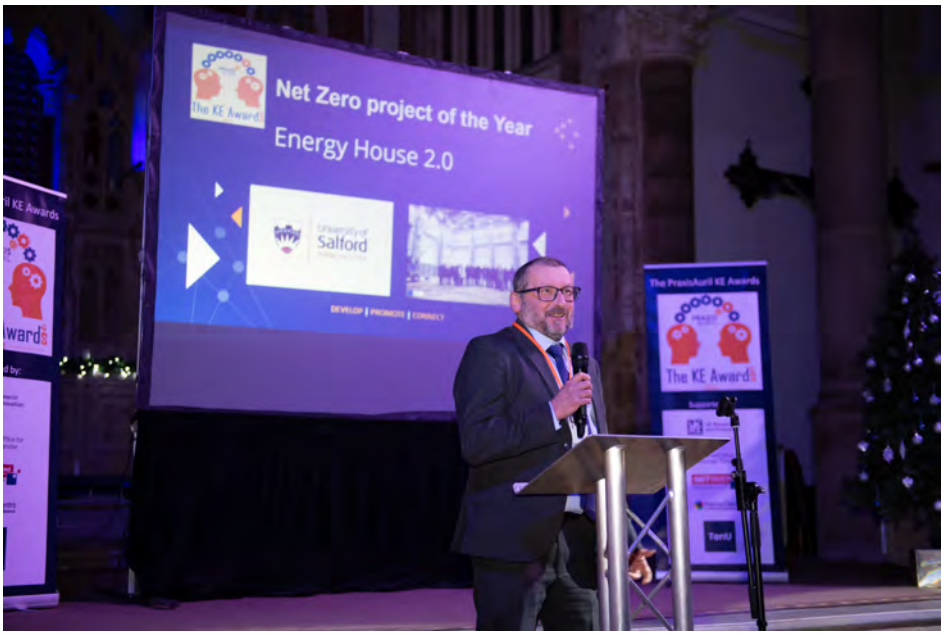
The Energy House 2.0 project is part-funded by the European Regional Development Fund



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/ Energy House 2.0 is 'Net Zero Project of the Year'

At the annual PraxisAuril Knowledge Exchange Awards the University was awarded the prize for the Net Zero Project of the Year for Energy House 2.0. Also shortlisted in this category were The University of Plymouth's 'Marine E-Charging Living Lab' and University of Bath's Innovation Centre for Applied Sustainable Technologies were.

This award recognised the ongoing research collaborations in the field of Net Zero homes between Energy House 2.0, national housebuilders, such as Barratt Developments and Bellway Homes, and a wide range of local suppliers and technology providers.

Joe Flanagan, Project Manager for Energy House 2.0, collected the award last week on behalf of the Energy House 2.0 team at a ceremony held at Gorton Monastery. Joe said: "This is a great recognition of all the hard work and effort that we have put in over the past three years; although Energy House 2.0 is a unique research facility, its success ultimately depends on strong industrial partnerships, many of which have come from work in the original Energy House facility in the Cockcroft Building. We are all looking forward to 2023 when we will move into full operation in Energy House 2.0; I'm sure our work will make a key contribution to making future and existing homes more energy efficient. This project is something the whole University can be proud of."

/ German Ambassador Visits Energy House Labs

Ambassador Miguel Berger visited Manchester on 22 November, invited by the Mayor of GM, Andy Burnham. This was the Ambassador's first visit to the North of England since he took post earlier this year and presented us with an opportunity to introduce Greater Manchester and the work already underway to build on the relationship between the city-region and Germany. He was accompanied by the Head of the Political Department at the German Embassy, Clemens Kohnen.

The visit followed on from a delegation from Greater Manchester led by Andy Burnham to the Ruhr region, where energy and buildings was a central topic of discussion with the University of Salford represented by Professor Will Swan, Director of Energy House Labs.

As part of the trip the Ambassador spent some time touring Energy House Labs, visiting Salford Energy House, Zed House, and Energy House 2.0, where he was able to see the new homes under construction.

Professor Will Swan said, "Both our visit to the Ruhr and this visit show that energy consumption in buildings is a global issue for both new and retrofit homes. These visits allow us to show the unique work we are doing here and help us develop partnerships that can drive the internationalisation of our work. We would like to thank the Ambassador for taking the time to come and see what we are doing."

The visit was part of a wider programme by Greater Manchester to build bi-lateral relationships with Germany looking to boost trade and research and innovation collaborations.

/ Solar & Storage Live 2022

In October, Energy House Labs participated in the Solar & Storage Live 2022 event, which took place at the NEC in Birmingham. The event's theme was around the decentralisation and decarbonisation of the energy systems and attracted a diverse range of organisations with an interest in solar, EVs, and storage technologies.

Professor Richard Fitton, Technical Lead of the Energy House Labs, participated in a panel session about the role of the Smart Meter Network as a foundation for Net Zero, whilst Dr Ioannis Paraskevas, Smart Meters > Smart Homes Lab Lead, delivered a presentation about the Energy House Labs being a hub for Research & Innovation.

/ NESTA Money Saving Boiler Challenge

Established in 1998, NESTA was the UK's first ever publicly supported national endowment to support innovation and is now an independent innovation agency with a socially focused vision. In October this year NESTA launched the Money Saving Boiler Challenge which aims to help over one million households change their combi boiler settings to save energy this winter. It was a widely held view in the industry that by lowering the boiler flow temperature on a combi boiler resulted in significant energy savings. However, there was no independent evidence available to support this claim so NESTA commissioned a piece of research work in the original Salford Energy House to provide some definitive evidence.

Our researchers, Dave Farmer and Grant Henshaw, developed a programme to measure the boiler efficiency over a variety of different operating conditions and settings. Although the work was completed over the summer, typical UK winter temperatures were recreated in the Energy House environmental chamber.

The work carried out by Dave and Grant showed that by lowering the flow temperature on a condensing combi boiler from 80°C to 60°C, households could save about 9% on their total gas, saving 1,092 kWh of gas per year for a medium sized household; at **current prices** this equates to a saving of £112 per year.

NESTA have produced some guidance for householders on how to turn down the boiler flow temperature **here**, and a copy of the University of Salford's technical report can be found **here**.

Energy House 2.0 Update

The construction of our first two experimental homes is almost complete: one is now fully finished and decorated, with HVAC systems now being commissioned; the neighbouring one is currently being carpeted and some finishing touches added. Both homes will be complete by Christmas with the grand opening taking place on the 12 and 13 January 2023.

The construction of the houses has not been without its complications, but we are quite sure that they are a great example of the types of homes that will soon be commonplace in the UK, with highly effective fabric and airtightness, air source heat pump, batteries, and PV, all operating in tandem with each other.

The big question is, how do the buildings perform? We don't know that yet but we aim to start publishing our initial results next year, with hopefully some great learnings for the industry.

University of Salford Alumni Lecture paves the way to net zero

Last month, the University of Salford presented their award-winning energy and sustainability research to an audience of alumni, supporters, and industry partners at a special alumni event in London.

The lecture, delivered by Professor Will Swan and Professor Richard Fitton, focused on Energy House Labs, a commercial and grant funded research facility, that helps businesses understand how effective their products and services are in lowering consumers' carbon footprint and reducing energy bills.

Energy House 2.0 includes two environmental chambers, each able to accommodate two detached houses under controlled conditions. Technology in the chambers can recreate a wide range of weather conditions, with temperatures ranging between -20˚C to +40˚C and simulate wind, rain, snow and solar radiation.

Working with industry partners, such as Barratt Developments, Bellway Homes and Saint-Gobain, the facility's testing and research programmes are bringing innovative solutions to real-world problems, as the surge in energy costs means many households are facing a tough winter ahead.

Following the lecture, the speakers were joined by a panel of industry experts from across the sector to discuss the current energy climate, including Energy UK – the trade association for the energy industry; BEAMA – the UK trade association for manufacturers and providers of energy infrastructure technologies and systems; the Energy Saving Trust; and, Barratt Developments plc – one of the largest residential property development companies in the UK.

Patti Holmes, Head of Alumni Engagement & Development, said: "We are proud to showcase the important and vital research that takes place at Salford and include our alumni and supporters in the University's commitment to the UK's delivery of net zero homes.

"Our alumni are influential in all industries at every level. Events such as this provide a platform for us to shout proudly about what we do and engage potential partners, funders, and much more."

Professor Will Swan said: "Guests were proud that their University was committed to an important agenda that makes a difference, not only to delivering net zero, but also the impact that delivering high performing homes can have on people's lives.

"With a dedication to progressing towards low carbon and net zero housing design, our research has an urgency that cannot be ignored and paves the way for an international shift in how we build our homes and live our lives."

To find out more about the lecture, you can access the presentation slides **here**, and a walkthrough tour of Energy House 2.0 as it was reaching the final stages of development, **here**.

Friends of Energy House 2.0: Impact Fund Update

Earlier this year, we launched the Friends of Energy House 2.0 Impact Fund, a collective source of funding established thanks to the generous donations of our Friends, to help drive the activity and extend the reach of the new Energy House 2.0 facility.

Each of the Friends – Barratt Developments, Bellway Homes, Bowmer + Kirkland, BTS, Dyer Environmental Controls, Electricity North West, Hg, Persimmon Homes, Schneider Electric, Seddon Construction, and Trilliant – made a donation between £5,000 and £10,000, totalling over £120,000 in philanthropic support.

The Impact Fund was designed to support:

1. Diversification of the Energy Efficiency workforce – STEM PhD Studentship
2. Educational outreach programmes
3. Supporting student and local community initiatives for future learning projects

To aid our mission of diversifying the energy efficiency workforce, £62,904 from the Impact Fund has been allocated to support a STEM PhD Studentship, titled 'Examining the Energy Performance of Zero Carbon Homes Under Controlled Conditions'. The PhD is currently open for applications until 27 January 2023; click **here** to find out more.

Thanks to our Friends, we had £60,000 of funding to award to projects focused on points 2 and 3 above.

In June 2022, we opened for applications for funding and received nine submissions which were reviewed by the Friends of Energy House 2.0 Impact Fund Board Members and scored against a range of criteria, including the overall impact, value for money, and long-term sustainability of the project, to ensure the process was fair.

We are delighted to introduce the winning projects:

/ **Digital Advantage's The Sustainable Box Project** will centre around the creation of the Energy House in kit form to be used in classrooms alongside a set of challenges to provide students with a hands-on, experimental programme that will encourage them to explore STEAM subjects and careers.

/ **University of Salford Arts Collection Team's Artist in Residence** will be delivered in collaboration with Castlefield Gallery and Open Eye Gallery, to support two artist residencies in Energy House Labs to create awareness of the vital work of the Labs and engage the public in developing a better understanding of energy efficiency, sustainability, and climate change in thought-provoking and meaningful ways. The project will close with an exhibition at Castlefield Gallery in Spring 2025, alongside a public engagement programme.

/ **Marple Education and Spotlight School of Speech and Drama's The School Green Summit** is designed to raise awareness of sustainability issues by developing the work of the Greater Manchester Green Summit to be more accessible for young people. The team will work with experts to create impactful lessons and spoken word exercises to improve the understanding of sustainability for teachers and young people; the spoken word exercises will take the form of a competition, with the winning students performing at The School Green Summit.