

Reading Half Marathon

The TSBE is rapidly building up a tradition in the Reading Half Marathon. We had one runner in our first year (2010), three in our second (2011) and we are on course for at least 6 plus 'The Tisby Trotters', our 4 member relay team, in 2012. We will all be running for the centre's chosen charity, so look out for our distinctive TSBE running vests on the big day - Sunday 1 April 2012. For further details contact our RE, Howard Darby.

Ski trip

Whilst it may still be August, some of the TSBE team including research engineer and former ski technician Rich Belfitt are already looking to the winter. The team are currently planning a ski trip to the Alps this winter. Any REs who want to get involved should contact Rich for more information.

Lands End to John O'Groats

I can't think of a better way to see the glorious and varied landscapes of Britain than by making the iconic 1000 mile cycle ride from Lands End at the SW tip of Cornwall to John O'Groats at the furthest NE point of the Highlands. This is how I spent two, unforgettable weeks this summer, accompanied by my brother and two of my nephews. Tough going at times (will evolution ever produce harder backsides?), but fantastically rewarding, wonderful camaraderie and a great sense of achievement at the end - definitely one of those 'must-do' lifetime experiences.

by Howard Darby

Park and what?

Changing commuter transport modes

Research Engineer Mohamed Ismail is working with Hereford Futures Ltd and Herefordshire Council to develop a sustainability guide for the built environment. Part of this involves developing sustainable travel strategies within the city and for the wider region.

This is especially important for Hereford, due to its significant investment into regenerating the Edgar Street Grid area of the city, including substantial new retail, leisure, office and residential developments, which are expected to attract an even greater flow of people to the city.

Herefordshire County Council has developed 'Destination Hereford - Rural Access Initiatives', forming part of a wider sustainable transport strategy which is the subject of a Local Sustainable Transport fund application in the sum of £5 million.

These initiatives incorporate some of Mohamed's unique ideas, including having 'Park and Cycle' parking hubs on the fringes of the city centre, to enable regional commuters to drive within easy cycling distance of the city centre, then continuing the journey by cycle or on foot.

Other strategies include middle-distance 'Park and Share' hubs, to encourage drivers from rural areas to meet and car-share the remaining distance into Hereford; community transport schemes working with commercial public transport; and better broadband access to enable more flexible working.

UKERC Summer School

The UK Energy Research Centre (UKERC) held its 7th annual Energy Summer School from 26th June - 1st July 2011. One hundred highly sought after places, worth around £1000 each, were made available for UK and international PhD students, one of which was secured by AES Research Engineer Marek Kubik.

The week-long course, which runs in parallel to UKERC's Annual Assembly, gives first and second year PhD students an understanding of energy systems as a whole and of pathways to low-carbon and resilient energy systems. The delegates heard from speakers on global commercial, political, innovation and technological challenges of the transition to a low-carbon, resilient and affordable energy system from a

number of contrasting perspectives. The delegates also received the opportunity to network with key academic and energy research contacts; develop and practice professional skills in communication and engagement; and research, develop, negotiate and agree a collective vision for a low-carbon energy system and present their work to the UK Energy Research Centre.



footprint

The TSBE Centre newsletter

The sun shines on the new TSBE Centre Director

The TSBE Centre welcomes the appointment of Dr. Janet Barlow as its new Centre Director; the staff and researchers are hoping Janet will bring good weather with her given her background in meteorology.

Janet is currently a Reader at the University of Reading in the Meteorology Department and has earned an international reputation for her research into urban climate, pollution and the interactions between climate and energy. In 2008 she won an EPSRC Challenging Engineering Award of £1 million which has been used to develop an Advanced Climate Technology Urban Atmospheric Laboratory (ACTUAL). The project uses cutting edge technology to investigate London's climate from city, down to building scale. Understanding the two-way interaction of a building with the urban microclimate is key to designing low carbon cities of the future.

Janet has been an enthusiastic supporter of the TSBE Centre since its inception and currently supervises three Research Engineers. She has worked on collaborative research projects with key industries in the built environment and believes the application of academic research can yield innovative solutions to industry problems.

In seeking to extend research thinking across traditional boundaries Janet has worked with entomologists, engineers, artists, designers, as well as the full breadth of traditional scientists.

'I am excited about being the TSBE Centre Director and having the opportunity to work across boundaries - both within the University and externally with industry partners and policy makers. We as a global society have a pressing need to make the transition to a more sustainable way of life. I welcome the opportunity to support a talented group of researchers and innovative businesses to help deliver the changes we will need to make in our built environment.'

When she has time to escape from her computer, Janet has a keen interest in music and drama and has appeared on stage at the Edinburgh Festival and in the Abbey Gardens in Reading.



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AEngD launch

Three TSBE Centre researchers have been elected to the Association of Engineering Doctorates (AEngD) steering committee in preparation for its launch.

The AEngD will be a professional institution that will act as a forum for the 19 EPSRC funded Industrial Doctorate Centres, forming an outward facing brand and inward facing body for organising greater collaboration between the research centres.

Research Engineers Bridget Adepoju, Peter Burgess and Marek Kubik will be involved in the establishment of the first AEngD conference and the development of the AEngD website for its launch later this year.

BREaking news

BRE, founders of the UK's leading environmental assessment method for buildings (BREEAM), has offered a two-year placement to 2nd year Research Engineer, Mohamed Ismail.

Mohamed's research, supported by Hereford Futures Limited, involves the development of a sustainability guide for the built environment, by improving existing strategies to create a flexible and dynamic tool suitable for the current economic climate in the construction industry.

BRE are currently updating their widely acclaimed BREEAM Communities strategies. The two projects are well-matched and it is expected the collaboration will bring substantial benefits to all parties, including the opportunity for Mohamed to test out exciting and unique proposals for inclusion within the new Edgar Street Grid, Hereford development. Successful strategies may also be integrated within the updated BREEAM Communities.

Dr Scott Steedman CBE, Director of Products and Services at BRE, a former Cambridge University lecturer, will be Mohamed's supervisor for the duration of his placement.

SET 2011, Istanbul

The 10th International Conference on Sustainable Energy Technologies

The conference was held in Istanbul in September 2011 and covered a broad and informative scientific program, including oral and poster presentations.

The event gathered about 400 scholars, researchers and experts to present their research and expertise. The presentations covered diverse topics such as Sustainable Buildings, Solar Energy, Energy Efficiency, Energy Management, Energy Policies, Biomass and Material Research.

A paper under the title 'Viability of Renewable Energy Technologies in Refurbished Non Domestic Building' was published and presented at the conference by the TSBE Research Engineer, Michelle Agha-Hosseini, sponsored by Halcrow.

Delivering 'the most sustainable Olympic Games ever'

The Olympic Delivery Authority (ODA) is the public body responsible for developing and building the new venues and infrastructure for the London 2012 Olympic and Paralympic Games. They have played and will continue to play a vital role in meeting the ambitious aim in providing 'the most sustainable games ever'.



Throughout the programme, there have been key aspects that have contributed to the on-going success of regularly reaching milestones and the important aspect of sustainability. Sustainability was embedded into the bid with the aim of setting new standards for planning, building and interacting throughout a construction programme. Permanent structures have only been built with a long term purpose following the Games, otherwise venues already existing in the UK will be used or temporary structures have been built.

TSBE researcher Jonathan Grossman is working with the Chartered Institute of Building (CIOB) to produce a new publication titled 'Lessons learned from the London 2012 Olympic Games programme', which CIOB intend to be an authoritative code of practice for built environment program and project management.

CIOB hails 'impressive' TSBE conference

The Chartered Institute of Building (CIOB), sponsors of the TSBE Centre's second annual EngD conference, held at the Henley Business School, were highly impressed with the standard of research in the Centre.

Around 100 research engineers, academics and industry representatives gathered on the 5th July to learn of cutting edge research aimed at reducing the carbon impact of buildings. Keynote speaker and CIOB Vice-President, Alan Crane, described the Carbon Action 2050 programme which aims to inform building professionals of ways to reduce the carbon impact of their portfolio.

Twenty TSBE Centre research engineers presented papers in two parallel sessions, highlighting aspects of their on-going study into energy efficiency and renewable energy in the built environment. Prizes for the best papers,

sponsored by the CIOB, were awarded to Richard Tetlow and Marek Kubik. Richard's paper looked at reducing the influence of building users on energy consumption by improving the design of buildings and controls. Marek's paper reported on how the variability of renewable energy affects conventional fossil fuel generation. A prize for best presentation was awarded to Dan Williams for his paper quantifying the environmental impacts of Microsoft Windows™.

Speaking at the close of the conference, Saleem Akram, from CIOB, congratulated researchers for their outstanding papers and their 'first-rate' contribution to knowledge in the built environment. 'The CIOB would have no hesitation in sponsoring this EngD conference again next year.' Adding his commendation, Professor Stuart Green, Head of the School of Construction Management and Engineering said: 'This was a highly impressive conference and the presentations were all of a very high standard.'



Green heat gets the green light

In March the Government announced the eagerly awaited news that the Renewable Heat Incentive (RHI) was getting the go-ahead.

Leading up to the Government announcement it was widely reported that the RHI, which was originally proposed under the Labour party, was to be scrapped as part of the coalition's spending cuts. Despite criticism that the RHI has been both delayed and watered down since the original proposal, the majority within the green industry have praised the incentive that will provide a total of £860m in government funding.

The RHI has the aim of helping the UK meet its highly ambitious target of reducing carbon emissions by 80% (from 1990 levels). Its role is to replace fossil fuel derived heating in buildings with much lower carbon intensive heating using renewable sources, which will be made more cost effective through the use of installation grants and feed-in



tariffs. The RHI being the first of its kind in the world has had a number of stumbling blocks, which in fact still exist and continue to dent confidence in both potential suppliers and consumers. For example, the exact rates of the feed-in tariffs and the grants associated with different technologies available to homeowners are yet to be announced. If the Government is serious in their pledge to install low carbon heating in 4m homes by 2020 then they must give assurances to homeowners that they will deliver worthwhile financial incentives.

Report by Dan Saker

Choice architecture

Increasingly strict limits on CO2 emissions have led to designers employing evermore complex energy efficient systems in buildings. However, there is a large body of evidence showing that the in-use energy performance is often considerably greater than the initial design predictions, and that these energy efficient technologies are not always delivering the promised savings.

One of the key reasons for this discrepancy is the behaviour of the building's occupants, who often do not utilise the installed technology exactly how the designers presumed that they would, compromising systems and leading to dramatic increases in energy consumption.

Traditional attempts to change behaviour revolve around the widely held assumption that people behave rationally, and when confronted with information about their undesirable actions they will alter them accordingly. However, insights from behavioural economics demonstrate that we often behave completely irrationally and are not in control of our actions quite to the extent we would like to believe.

Instead much of our behaviour is determined by the environments we find ourselves in. The arrangement of foodstuffs in a cafeteria can determine what we choose and knowing how much electricity are neighbours are using can cause us to lower or even increase, our consumption. The capacity of an environment to influence our decisions has been labelled 'choice architecture'. There is growing interest in how this can be altered to channel people's behaviour and this has already been applied successfully in areas as diverse as organ donation and pension plans. AECOM sponsored researcher Richard Tetlow is exploring if modifying the choice architecture of buildings can influence building users to consume less energy.



In the news...

SSE Research Engineer Robert Burzynski made an appearance on BBC South Today and US news network CNN, talking about the Greenwatt Way zero carbon homes development, to discuss what living in a zero-carbon home is really like.

Robert explained: 'The homes are lovely and airy, and ideally sized for bringing up a family. You can't really tell the difference between a house at Greenwatt Way and a 'normal' house as a lot of the technology is hidden behind-the-scenes; that's great because it just means we're living like normal.' Robert's interview was broadcast on Sunday, 23rd of January on BBC South Today's news bulletin.

WREC 2011

In May a group of five EngD researchers as well as outgoing centre director Hazim Awbi attended WREC 2011 to share the findings of their research covering a wide range of topics from life cycle carbon in buildings to sustainable transport and from occupant behaviour of buildings to renewable energy generation.

Reflecting their commitment to sustainable behaviour, two researchers travelled to the conference in Linköping, Sweden by train.



Around the world...

Washington DC's botanical gardens are getting even greener.

A demonstration Vertical Axis Wind Turbine (VAWT), designed for harnessing wind energy in turbulent urban environments is currently generating electricity outside the botanic gardens near the Capitol.

VAWTs are a research interest to the TSBE, with a collaborative project with Wind Dam Ltd. and Researcher Rosario Nobile.