Minutes of ICARB Buildings Workshop

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Held at Glasgow Caledonian University, Tuesday 17th May 2011

Summary

The following document provides minutes from the ICARB buildings workshop. The workshop discussed carbon accounting for buildings under the broad themes of enabling greater transparency and accuracy, and capacity building amongst construction professionals. The workshop was well attended, with participants from academia, the private sector and government. Attendees discussed the costs and benefits of enabling a culture of greater transparency amongst carbon accounting professionals, and the implications for professionals and decision makers of not doing so. There was universal agreement as to the urgency of the need to educate construction professionals in all stages of their careers in order to be able to meet Scotland's emissions reduction targets, the benefits of and potential for accreditation, and how to develop and deliver this.

A copy of the agenda and presentations are available on the ICARB website: www.icarb.org

Attendees

Keith Baker	Glasgow Caledonian University
Dr Rohinton Emmanuel	Glasgow Caledonian University
John Easton	Archial Sustainable Futures
Susan Walker	Scottish Government
Gillian Menzies	Heriot Watt University
Charlotte Waugh	Edinburgh Climate Change Centre
John Easton	Archial Sustainable Futures
Patricia Bryson	Woolgar Hunter
Polly Griffiths	Caledonian Environment Centre, GCU
Dr Branka Dimitrijevic	Glasgow Caledonian University
Dr Andy Kerr	Edinburgh Centre on Climate Change
Céline Garnier	Napier University
Reza Broun	Heriot Watt University
Edward Coles	Temporarily retired
Amy Brown	Green Energy Partners Ltd
Harris Bokhari	carbonless
John Mark Di Ciacca	JEF Developments Ltd
Michael A Gribben	GSG Energy
Louise Rennick	NHS Health Scotland
Lynn Skinner	Aedas Architects
Tessa Clark	Changeworks

Bernard McKeown (& colleague)	CADmeleon
Anne Stevenson	Ramboll
David Farrar	Dept for Work and Pensions
Andrew Mitchell	Edinburgh Centre on Climate Change
Iain Savage	FLN Consulting Engineers

Minutes

Welcome and Introduction - Chairs

Dr Rohinton Emmanuel, Director of the Centre for Energy and the Built Environment at GCU, welcomed everyone to the event and outlined some of the work that members of the CEBE are engaged in. Dr Keith Baker of the CEBE and ICARB introduced ICARB and outlined the topics proposed for discussion.

Presentation 1: Opening Black Boxes - Dr Keith Baker, GCU

Keith discussed the issues of transparency and accuracy in carbon accounting and how the experience of building energy modellers could be used to answer the questions of how transparent and accurate carbon accounting can / should be across all fields. Drawing on his experience of trying to reverse engineer a well known energy and environment model, he made the case for why the wider benefits of greater transparency should outweigh the costs to professionals (loss of IP and competitive advantage, expediency, scrutiny by those with their own agendas, etc). He also questioned the real value of IP to carbon accountants, and whether or to what extent 'transparent' should equate to 'free', called for greater transparency to open up carbon accounting models to greater peer review, and stressed the need to build greater public and political trust in the field. He cited Bath University's Inventory of Carbon and Energy, the Climate Challenge Fund 'Routemaps' and several building energy models as positive low / no cost examples.

He then discussed the problem of accuracy from the perspective of building energy models and the role of occupant behaviour in generating significantly higher energy demand than is frequently predicted pre-occupation, and asked if the lessons than can be drawn from attempts to refine these to account for the inaccuracies can be applied more widely.

Discussion 1: Enabling greater transparency and accuracy

The workshop was attended by several of those present at the energy workshop and the discussion picked back up on the opposition to a major power plant development in Edinburgh. Whilst some attendees disagreed, the majority favoured the view that it was a lack of transparency and sufficient stakeholder engagement that has resulted in claims of greenwashing from both the public and several politicians. This led on to the issue that non-expert organisations, for example those involved in Climate Challenge Fund projects, are increasingly having to understand and implement (more basic) carbon accounting practices to support their activities. In light of this there is a clear need to build both capacity and trust in carbon accounting, which can itself be achieved through greater transparency and greater honesty about the reliability of data sources, models and results. Questions were raised as to how this can be achieved in practice, who should be responsible for it, and how to tackle mis-representation by the media (etc).

The discussion then moved on to accuracy and what can be learnt from building modelling. There was agreement that the results of post occupancy evaluations have found significantly higher energy use than predicted by building models, and although these have shown a range of error the tendency has been towards the high end of the scale (differences in orders of magnitude). Heriot-Watt's REALL project and a re-thinking of the assumptions used in many existing models (such as the Zone 1 / 2 convention for heating energy demand) should enable the reduction of such errors, but accurately accounting for the role of human behaviour will require the development of greater knowledge across all fields.

Presentation 2: Low Carbon Design and Accounting Skills - John Easton, Archial Sustainable Futures

John opened his presentation with a thought-provoking discussion as to what is the 'real' price of carbon, providing evidence that this is much higher (in the order of thousands of pounds per ton) than the £13 per ton used by the CRC Energy Efficiency Scheme. He used this to stress the importance of educating future construction professionals in carbon accounting, but more importantly the urgent need to educate those already working in the field - from recent graduates right up to chief execs. He stressed that it is those construction professionals in the 40 - 60 age bracket that are managing, designing and operating the projects / buildings that will need to be successful in order for Scotland to meet its emissions reduction targets, and so the trickle down process of delivering change through educating graduates is not enough - they take around 10 years to enter the profession and 2020 is only 9 years away. He outlined the potential of how the mandatory CPD activities required as part of membership of many professional institutions could be used to deliver this training, if any were to change to a prescribed curriculum for part of these requirements. He showed that if one third of such activities (at around 30 hours total per year) were required to be on low carbon design this could result in around 100,000 hours of training per year across the construction sector. Building capacity could be achieved by 'training the trainers' to ramp up the speed of development and delivery, and recommended some form of accreditation for participants.

John then raised the issue of establishing a common language between architects and engineers, and how easily (or otherwise) carbon figures are comprehended - for example energy specialists are often happy with raw figures, whilst architects and others (the public, politicians) relate better to measures such as double-decker buses. He illustrated this with a breakdown of the embodied energy in the refurbishment of a (fictional) building expressed as the same as running an electric fire for two millennia. Finally he addressed the need to get the most useful information to the right people at the right time by understanding how skill requirements evolve in response to career progression, and the opportunities this provides for targeted capacity building.

Discussion 2: Capacity building for low carbon design

There was some light hearted discussion and acceptance of the problems caused by the lack of a common language and how this barrier could be overcome. ICARB is already building a 'vocabulary' page on its website and whilst this was seen as welcome it was noted that other organisations are engaged in similar work. The proposal to develop and deliver CPD activities was universally welcomed, although questions were raised as to how it could be implemented and funded (as funding for CPD activities is often delineated by the career stages of the target audience, rather than the subject). Attendees also agreed that professional accreditation, perhaps by a new institution, would enhance the value of attending such training, and it was agreed that

the ICARB partnership could be a suitable vehicle for both delivering training and accrediting professionals. This proposal will be discussed further by members of ICARB's Steering Group during the summer and is expected to feed into the November conference.

Perhaps most importantly, attendees recognised the urgency of action in light of current progress and not being able to afford to wait until today's graduates can influence their professions, and that this problem should be communicated to decision makers as a matter of urgency.

Summary

- There is a clear and demonstrable need to develop a culture of greater transparency in carbon accounting, and for greater use of the peer review process, particularly where the results will influence policy and decision making bodies.
- There is a significant lack of capacity and understanding of carbon accounting amongst construction professionals. Addressing this through the 'trickle down' process of educating graduates will not yield sufficient progress in light of Scotland's emissions reduction targets. Educational initiatives should be developed, targeted at and tailored to professionals in all stages of their careers, as a matter of urgency.
- There is a substantial body of knowledge and expertise available from building modellers that could be used to enable greater accuracy in carbon accounting, and greater realism about the limitations of results.
- Developing a 'common language' amongst carbon accounting professionals will be essential for the future, particularly if carbon accounting is to become further integrated into organisational practices rather than farmed out to 'specialist' consultants, and also because of the increasingly diverse range of organisations that are being required to calculate and report their emissions.
- There is a growing demand for professional accreditation amongst carbon accounting professionals, which may be best served through the establishment of an independent professional institution.

Further Information

These minutes, copies of the presentations, details of other ICARB events, and other useful information can be found on our website at: www.icarb.org