



Hello Colleagues,

The 2014 AUE Conference 'Building a Self-Sustaining Future' was held at the University of Bradford between the 3rd and 5th September. The North West Region was represented at the conference by Phil Emmerson, Peter Birch (University of Liverpool), Simon Corless (Lancaster) and myself.

As you may be aware, the AUE have refreshed its [web-site](#) and re-launched the same at conference. The AUE Executive took the decision to require all members to re-register on the refreshed site and consequently you will not be able to enter the Members area until you do so. Please note that at first log-in you will also be prompted to confirm your contact details and current role within your organisations. Could I encourage you all to take the time to check that your details are correct and to review the minutes of the AGM held on 5th September at Bradford – there are a few important issues that you need to be aware of.

The conference marked the end of Paul Richards's term of office as our Chairman and the appointment of Keith Sims as the new Chairman. Other long serving colleagues on the AUE executive retired (Sally Senior, Bob McKenzie) or left to pursue career opportunities outside the sector (Tony Hammond). My two year term of office will end around the middle of October this year and after reflection and in accordance with the content of my e-mail to the region dated 12th May 2014, I have decided to step down from the role of regional chair to join the Sustainability and Energy Focus Group as this better aligns with my current role within LJMU. There have been no expressions of interest in taking up the Regional Chair appointment at this time and the executive have been advised accordingly.

I have summarised my notes from attending various plenary sessions at the conference and inserted some images so as you can get some idea of the Conference's themes and atmosphere.

AUE Conference Bradford
3rd to 5th September 2014
‘Building a Self-Sustaining Future.’



Re:Centre, Sustainable Development Centre

3rd September: Welcome Event Options.

All AUE conferences start with a welcome event; The 2014 delegates had a choice of visits:

- National Coalmining Museum
- Keighley and Worth Valley Railway
- National Media Museum
- Campus Biodiversity Tour
- Bradford Industrial Museum

Phil and I went on the Keighley and Worth Valley Railway!



4th September

Welcome: Julian Chaudhuri Dean of the School of Engineering and Informatics.

- The Vice Chancellor has reviewed Bradford's strategy and wants it to become the North of England Technology Centre.
- They plan to grow commercial and healthcare academic programmes.
- There has been a 6% growth in the number of Universities globally We need to recognise and respond to the increasing challenge to Universities UK from overseas universities
- Energy, fuel, power and technology usage in universities is growing – Bradford are considering introduction of stadium quality wireless broadband in response to mobile computing
- Sustainability is a big issue – universities need to be research test beds as well as a teaching and learning resource.
- New sustainable solutions are needed - Bath are trialing use of low voltage direct current power distribution systems in their Learning Resource Centres

Clive Wilson UoB Director of Estates

- The University of Bradford dates from 1964
- 2 academic campuses, 2 sports campuses and a business campus
- The numbers:-
 - 125,000m²
 - 12,000 students, 2,500 staff

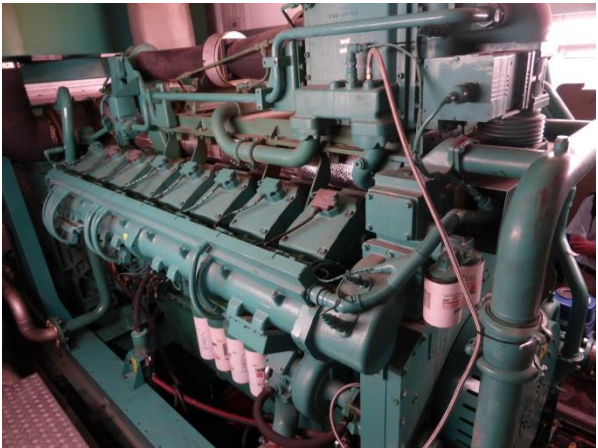
Bradford's Sustainability Targets and Credentials.

- To generate all their own electricity.
- They have a 1.4MWe (1.5MWh) CHP plant operated and maintained by COGENCO
- 2020 CO₂ target; reduce emissions by 75%
- Converting all existing fluorescent and discharge lighting to LED lighting
- They have installed 2 woodchip boilers fired by locally sourced biomass
- STEM Cavendish building has Passivhaus accreditation.
- Sustainable Development Centre has walls made of hemp externally rendered in concrete that absorbs CO₂
- 'The Green' Student Village is the most sustainable student accommodation of its type in the world.
- Introduction and roll out of rainwater harvesting
- University construction waste / demolition materials reused on campus
- Have introduced an on-site furniture store - reused 6000 pieces of furniture
- Have introduced bees and wild flower gardens across the estate – produce own honey for resale

Site Visit to University of Bradford CHP Plant.



CHP Plant and control



Cummins Prime Mover



1.5MW plate heat exchanger



Boiler Plant



Thermal Store

Plenary 2B.

Driving down energy consumption through behaviour change: Erik Bichard. Regeneration and Sustainable Development, University of Salford



- Senior management don't often do the walk with the talk
- Why don't people listen to the experts? Is it;
 - Bad communications
 - They aren't interested in the message
 - They don't understand the issues will affect them
- Successful changes are catalysed through people experiencing tangible benefits from their behavioural change, not receiving rewards / money for a quick box ticking exercise.
- Carrot and stick based on assumption that people make perfectly rational decisions but they don't!
- Changing the context in which people make decisions does work.
- Salford Energy House Behaviour Experiment. Behaviour change experiment simulation over 3 days suggested that consumption between the two test models; best practice was -63% electricity, gas -38%
- People aren't in denial (not listening) they are confused (don't know what to do but are prepared to listen)
- Information does not necessarily lead to increased awareness. Increased awareness does not necessarily lead to action. These must be backed up and supported by other approaches.
- Sustainable Decision Making; Is there a problem / Do I care / Do I know what to do about it / will the solution work / what will my peers think of my behaviour?
- Only about 25% of people have a pioneering mentality
- Offer info at optimum points in the decision making process
- Offer incentives; what are you offer in return for the action? Different incentives for each type of action? Match rewards with what the subjects want.
- Show visible cues of similar behaviour in the surrounding community (advocate led change)
- Provide support / reassurance on demand to people taking the first faltering steps.
- Keep the message fresh - what worked last year won't work this year
- Use differing media to get the message across - don't use all of them at the same time
- Breakdown actions into technical and practical categories
- Develop a Staff and Fresher's induction talk setting out the University's sustainability vision and outlining their personal responsibilities within it.

Plenary Session 4

Wholesale Power Market: David Wilks, Senior Trader DRAX Power Ltd.

- Drax own and operate the largest and cleanest coal fired plant in the UK generating around 4,000MW
- They are in the process of converting their 6 generating units to run 50% biomass, 50% coal
- Huge reliance on imports; the UK cannot produce enough biomass to supply DRAX
- They are building 3 pellet plants in USA.
- DRAX Group PLC own wholesale power company which sells into market
- Market position 08/14; global circumstances are influencing the UK power market
- Recession left a lot of spare capacity (businesses closing / relocating off shore).
- Future forecast is for 2% growth for electricity demand per annum.
- There are concerns as to whether there is enough capacity in market for peak demand. Projections suggest 2019 looks like the crunch point
- Requirement to close coal plants (EU Large Combustion Plant Directive) means that the UK will lose 12GW of generating plant by end 2015
- Old gas plant is being closed too - 3GW closed 04/14
- New waste to energy plant at Carrington due to come on stream 2016?
- The UK could lose 7% of safety margin - equates to potential 5 hours per annum when demand exceeds supply
- New plant & investment needed but returns on investment not attractive
- Current electricity demand to double by 2050? (Electricity Market Reform assumption)
- The UK government has a 2020 target of producing 15% of electricity from renewable sources
- Development of a capacity market - private generating plant owners paid a standby fee to provide energy to the grid at times of high demand.
- Security of gas supplies is a concern (Ukraine is a massive influence)
- Unforeseen maintenance / plant failures at 2 EDF UK nuclear plants = loss of capacity till end December?
- Fires at Ferrybridge and Ironbridge power stations
- Gas price increasing = reduced profit for gas fired generation = withdrawal from the market
- Loss of appetite to contract for the long term
- No incentives in market for investment
- **Great uncertainty in the global market = no possibility of forward planning / UK energy market making = scarcity of long term contracts!**

Plenary Session 5. Why and How Should We Build a Self-Sustaining Future?



Five minute presentations from Will Stewart (Teacher and Educational Designer UoB), Dr Haile-Selassie Rajmani (Senior Lecturer, Power, Electronics and Systems UoB), Clive Wilson (Director of Estates UoB), Cal Bailey (NG Bailey).

Will Stuart

- The Circular Economy: Securing the Future, Bradford is a world leader
- Bradford design and deliver courses on Circular
- The courses deliver Biological and Technical Nutrients
- Key principals; design for re-use, build resilience through diversity, think in systems, share values, use renewable energy sources
- Consider leasing / borrowing instead of buying
- Buy use of what you need when you need it
- Change to concept of Asset Ownership?

Dr Haile-Selassie Rajmani,

- University's offer renewable energy, land, load profile sacrifice, knowledge, innovation and technology.
- We are seen as beacons of Community leadership, standard setters.
- Opportunities to collaborate with and work alongside the local communities
- The internet of things / smart grid are the way forward
- Universities must adapt to market forces

Clive Wilson.

- Finite Resources - when its gone, its gone
- Dwindling resources = increasing costs = affordability issues
- Reduce engineering services levels in new buildings as far as possible
- Behavioural change is essential and must be championed

Cal Bailey

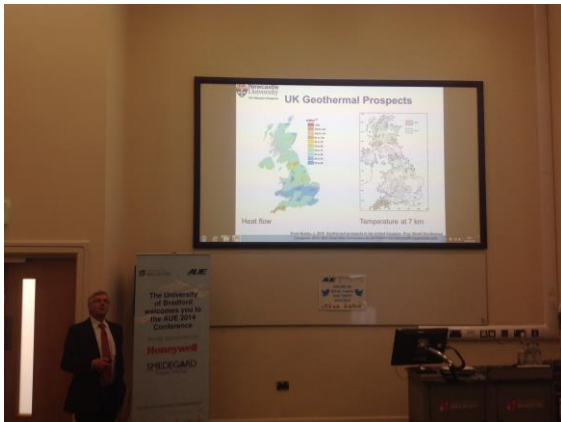
- Why should we do it?
- We should not be greedy; profligacy is an act of theft from future generations.
- We need to live Lives of Health and Sustainability (LOHAS)
- Exercise, meat reduced / free diet
- Adopting a better lifestyle will improve your sense of wellbeing
- Become Carbon negative
- NG Bailey's corporate sustainability target; to enable 2 people to have a more sustainable future for every NG Bailey employee - they have a schools partnering programme to deliver this.

Images from the Conference Dinner.



Plenary Session 6

Geothermal Energy; the Newcastle Experience; Professor David Manning, Professor of Soil Science Newcastle University.



- Geothermal is low carbon: just pumping costs.
- Not much visible geothermal for heating in UK
- Not much geothermal used for electricity worldwide
- Not much potential in UK
- Best locations for accessing commercially exploitable geothermal energy in the UK would need boreholes 7KM deep.
- Southampton have had a geothermal district heating plant since the late 1980's / early 1990's– borehole water temperature is 76C but is very saline. They discharge the cooled borehole water into the sea / river but this wouldn't be permitted now
- The Southampton installation produces a small amount of electricity for the Port of Southampton and is also connected to a district heating system serving domestic properties, municipal buildings, hotels and a shopping centre
- Coal-mining expertise and experience in NE England and Stublick Fault System gives them unique opportunity to exploit any geothermal opportunities that might be identified
- The Eastgate Geothermal Exploration Project was the first project identified in the North East.
- Vision to create the UK's first model geothermally heated eco village.
- £480K pilot project completed
- 1km lined borehole 100mm dia
- Did not deliver sufficient geothermal energy to be viable
- Newcastle University are partners in Science Central (redevelopment of 10ha former Newcastle Brown Ale Brewery Site)
- Powered by CHP and supplemented by geothermal
- Borehole estimated to be 2km deep
- Started in 2011 with £900K funding from DECC
- Pilot hole was blocked by jammed drill assembly in 2012
- Project parked in 2013 then new partnership with city council enabled recovery of well which was completed July 2014
- See image of temperatures at depths
- Not much volume of water in hole though!
- Project unlikely to be commercially viable but knowledge gained will be used by industry and the borehole / well may offer opportunities to test and develop geothermal research techniques and equipment.

Plenary Session 7

Leadership in Challenging, Changing Times; The Art of SUMO. Paul McGee (HR experience with Unilever and as a consultant for Man City FC)

- Don't be too busy helping others - remember, you can't lead if you've lost sight of where you're going.
- Visualise the airline stuff - put your oxygen mask on first then help others!
- Beware when arrogance meets ignorance
- Wisdom, hard work, communication skills and support more important than qualifications
- Tell it as it is, no waffle, be practical
- Get off autopilot; pause and reflect- look at yourself (not a comfortable experience) Stop, Understand and Move On.
- Acknowledge other views but don't let them influence you (unless you want to) - what have you got to lose by backing your judgement? Opportunities rarely lie inside your comfort zone
- Watch out for self-doubt / the inner critic - don't be afraid to try and fail - the process of trying is key
- Just because you've failed doesn't mean you're a failure
- Adapt leadership style to match your audience
- Learn to shut up your inner critic and listen to your inner coach
- Build in recovery time – you can't be on the go all the waking hours
- Get perspective; where is the issue on a scale of 1-10 where 10 is death?
- Stress makes you stupid
- Have face to face conversations - eyeballs not iPhones and e-mails
- Seize the day and persevere; there will be disappointments and failures on the way