

## The Bartlett School for Environment, Energy & Resources

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Mike Davies

**UCL**  
Institute for  
Sustainable  
Heritage

**Director**  
May Cassar

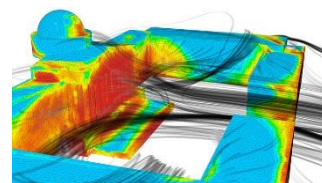
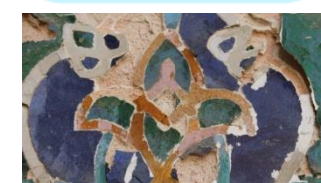
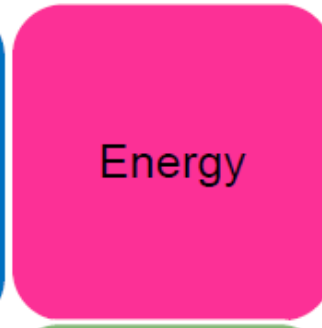
**UCL**  
Institute for  
Sustainable  
Resources

**Director**  
Paul Ekins

### UCL Institute for Sustainable Resources

**Vision:** a world of globally sustainable resource use.

**Mission:** generate knowledge in the globally sustainable use of natural resources and train the future leaders in the field when faced with a growing global population and increased demand and competition for natural resources



### UCL Energy Institute

**Mission:** Faced with the challenge of energy equity, security and climate change, the UCL Energy Institute aims to accelerate the transition to a globally sustainable energy system through world-class energy research, education and policy support.

### UCL Institute for Sustainable Heritage

At our community-focussed Institute, our **vision** is a world that engages with heritage, appreciates its value and participates fully in its protection. The communities we wish to impact through our research and teaching are heritage groups, companies and decision-makers

### UCL Institute for Environmental Design and Engineering

**Vision:** a world in which development is sustainable, affording social, economic, technological, cultural and aesthetic innovation, and enhancing diverse ecologies, cultures and heritage.



# BSEER: A School to enable 4 world leading UCL Institutes in sustainability

What **unifies** the Institutes and makes the School different from other Schools within the Faculty?

1. Sustainability
2. Making a difference - real world problem focus
3. Multi-disciplinarity - cross faculty
4. Research focus - e.g. centers for doctoral training. Funded research powerhouse of the faculty.
5. Rapid evolution
6. Not just built environment

UCL Institutes

Heritage

- Research
- Teaching
- Partnerships

Environment

- Research
- Teaching
- Partnerships

Resource

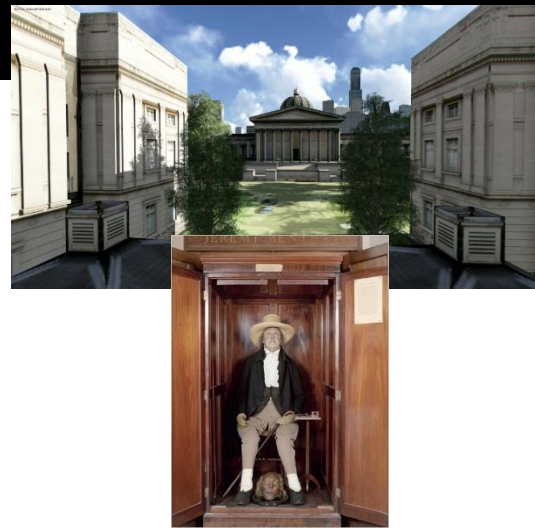
- Research
- Teaching
- Partnerships

Energy

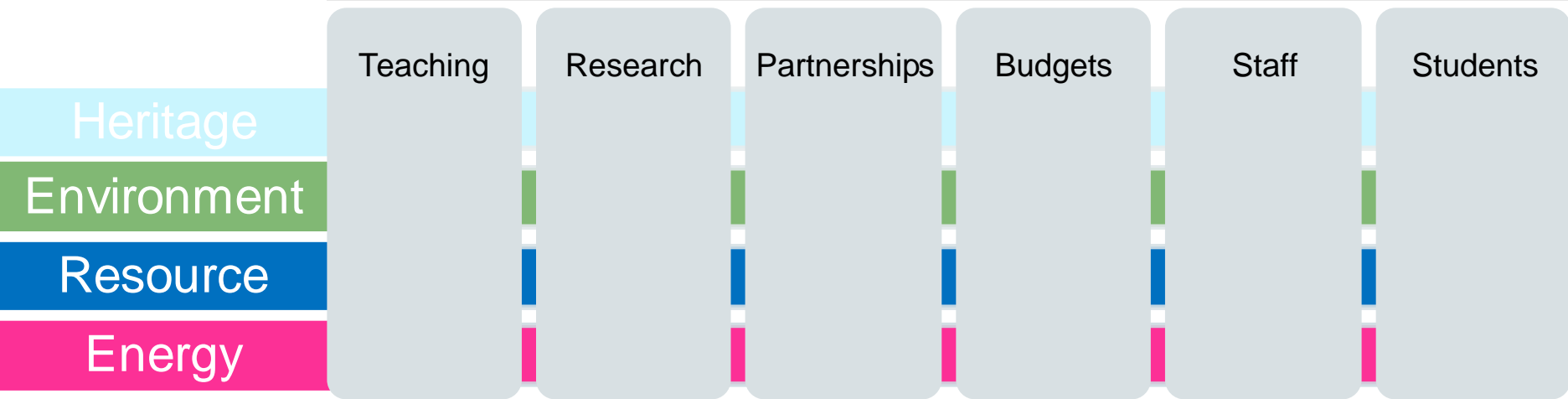
- Research
- Teaching
- Partnerships

The Bartlett School of Environment, Energy and Resource: *Enabling*





## The Bartlett School of Environment, Energy and Resource: *Enabling*



Average BSEER Academic does the following each year:

- Manages a £1M project
- Supervises 1.1 RA's
- Teaches 8 students
- Raises a £1/3 of a million funding per annum
- Writes 8 outputs ( 4 journal)
- Submits 3 research proposals and 1 consultancy
- Impact, 1.5 events, media, meetings with govt and stakeholders etc

# "The geographical distribution of fossil fuels unused when limiting global warming to two degrees" C McGlade and P Ekins, Nature, 8 January 2015.

The Carbon Brief

Globally



52% of natural gas reserves



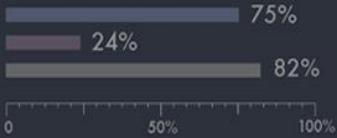
35% of oil reserves



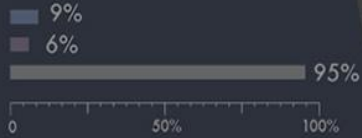
88% of coal reserves

## How much oil, gas and coal will we have to leave in the ground to stay under 2 degrees of warming?

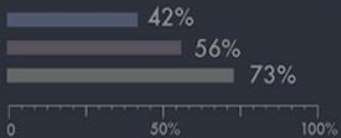
Canada



US



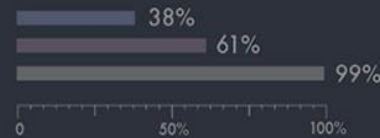
Central and South America



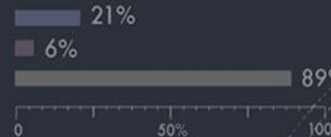
Africa



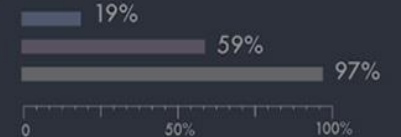
Middle East



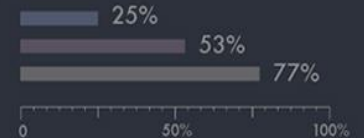
Europe



Former Soviet Union countries



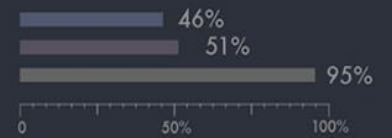
China and India



Other developing Asian countries



OECD Pacific



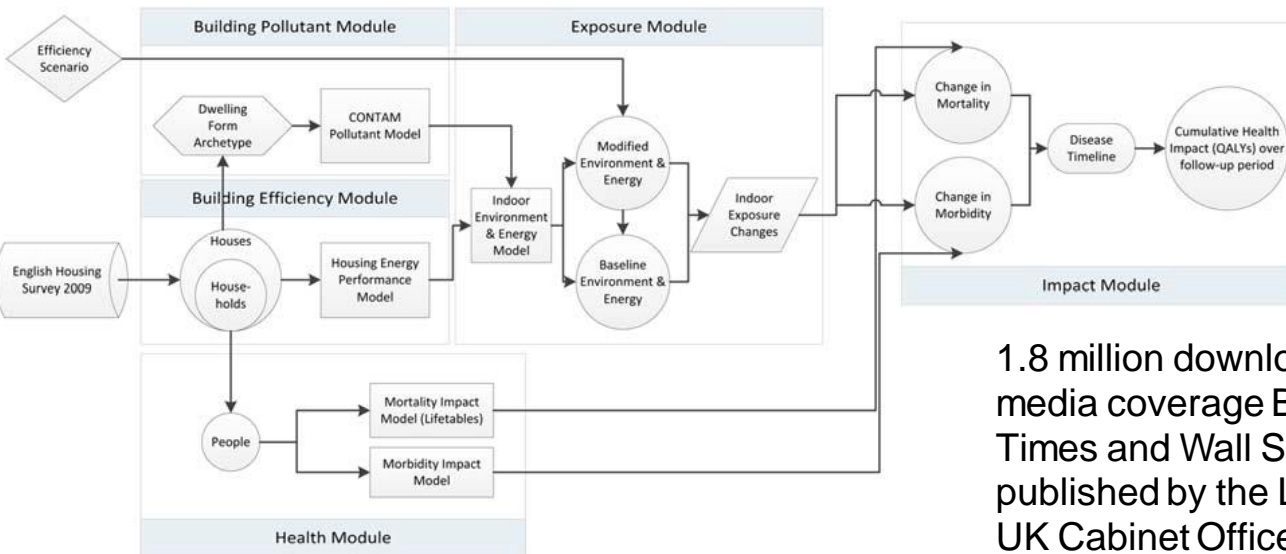
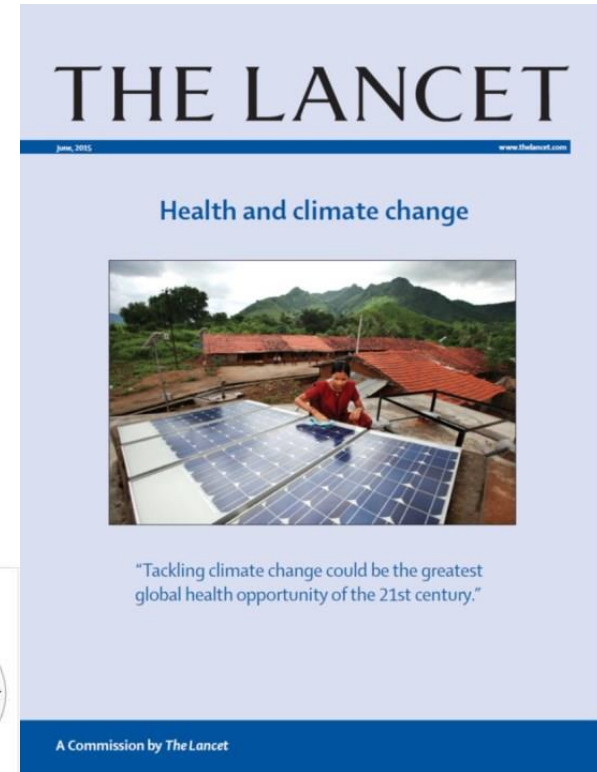
Top climate paper in 2015 for news and social media



# Energy Demand and Health

Can the health benefits of energy efficiency be greater than the energy cost savings?

Impact – DECC Fuel Poverty Team, DECC National Household model, global negotiations, Paris COP

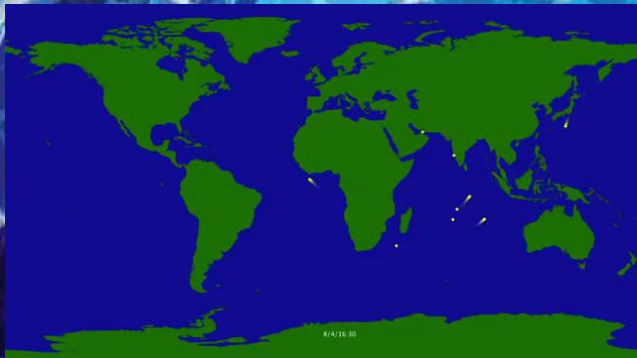
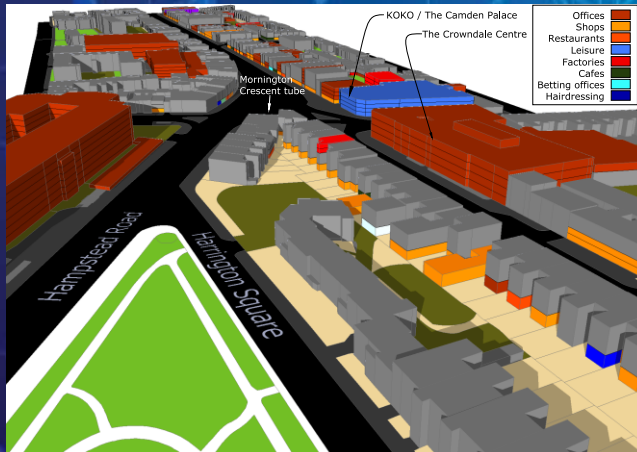


1.8 million downloads in the first 6 days! 983 unique media coverage BBC World, ABC, TIME, Financial Times and Wall Street Journal. 4<sup>th</sup> highest ever published by the Lancet. Briefings to the White House, UK Cabinet Office and DECC. Presentations on COP21 in Paris.





# What is Energy Epidemiology?



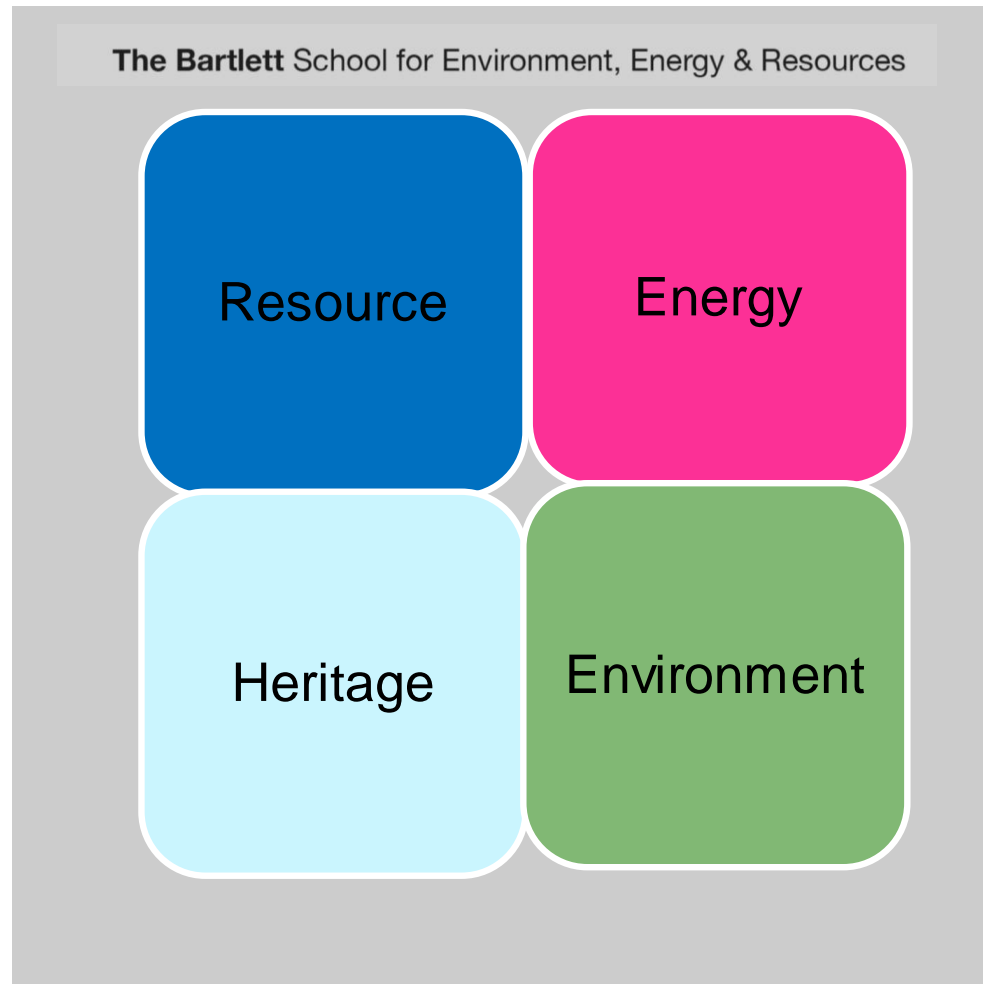
## epidemiology

"epi" - upon; "demos" - the people;  
"ology" - logic, study

The study of what is upon the people – normally applied to the study of health.

## energy epidemiology

The systematic study of the distributions and patterns of energy use and their causes or influences in populations.





**UCL Institute for Sustainable Resources**

Resource

Energy

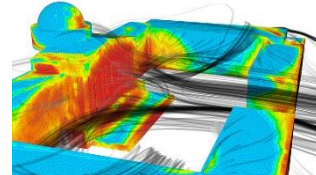
**UCL Energy Institute**

**UCL Institute for Sustainable Heritage**

Heritage

Environment

**UCL Institute for Environmental Design and Engineering**



# Interdisciplinary Methods Development

- Heritage Science
- Socio-technical (technology deployment)
- Macro-economic
- System Dynamics
- Food/water/energy/climate nexus
- Energy Epidemiology

1999 UCL funded 3 new academic posts to set up a new virtual Energy Institute

7 years later the Bartlett School of Environment, Energy and Resources hosts 4 new Institutes:

- 110 staff, 370 students
- Teaching: 6 postgraduate courses
- Research: 123 projects, value £46M, 242 journal papers per annum
- Events: 60 per annum, 145k web site users, 8,000 twitter followers
- Total income: £13.2M - no direct expenditure by College.
- All physically based in Central House – **not** virtual