

Sustainability in Design Teaching: A Loughborough University Perspective

Professor DL Loveday

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Overview of Presentation

- What is 'sustainability'?
- Research dimension
- Teaching dimension and analysis
- Points for discussion

Sustainability

- Definition: Meeting society's needs without limiting the opportunities for future societies to meet theirs, or....
- Don't rob the children
- Sustainability relates to resources, environment, economy and society
- Worldwide, the penny has now dropped



Sustainability at Loughborough

Research and Teaching

Sustainability Research School - Aims

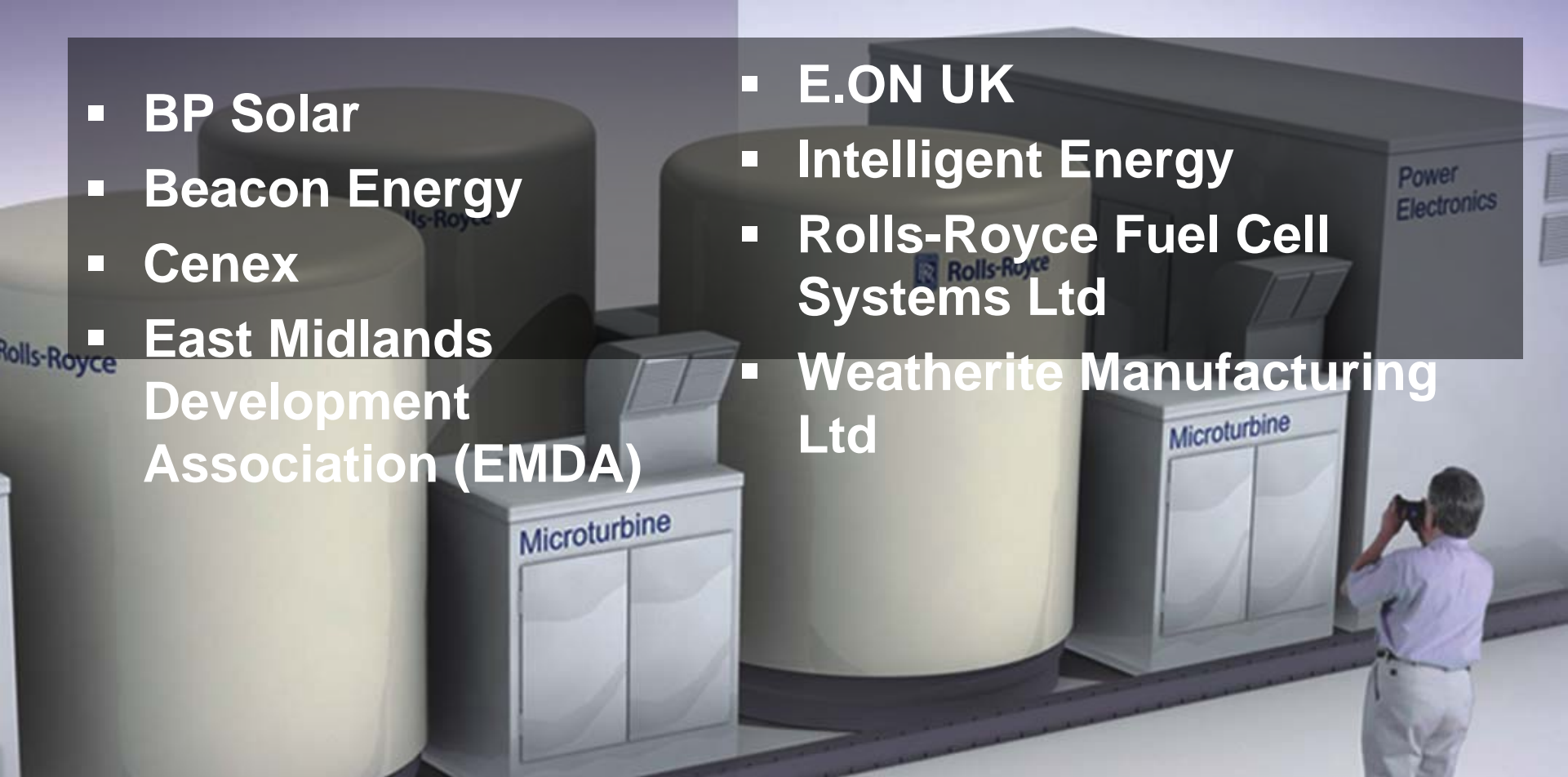
- To co-ordinate the multi-disciplinary research talent across campus in the area of Sustainability
- To present an 'outward face' for responding to, and creating, opportunities
- To enhance research funding successes, publications, influence and impact
- To promote multi-disciplinary working for the generation of new research areas, collaborations and teams

Areas of Expertise - Sustainability Research School

- Renewable Energy Technology
- Sustainable Design and Manufacture
- Sustainable Energy and Transport
- Water Resources and Land Management
- Built Environment
- Natural Resource Management
- Sustainable Societies & Economies



Industrial Collaborators - Sustainability Research School

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- BP Solar
 - Beacon Energy
 - Cenex
 - East Midlands Development Association (EMDA)
 - E.ON UK
 - Intelligent Energy
 - Rolls-Royce Fuel Cell Systems Ltd
 - Weatherite Manufacturing Ltd



BP Solar



The Department of Civil and Building Engineering

- One of the UK's largest multi-disciplinary construction and transportation departments
- UG students 742
- PG students 259
- Researchers 131



Undergraduate programmes

- Construction
 - MEng Civil Engineering
 - BEng Civil Engineering
 - BSc Construction Eng Management
 - BSc Commercial Man and QS
 - BSc Architectural Eng and Design Man
- Transport
 - BSc Air Transport Management
 - BSc Transport Man and Planning

Postgraduate programmes

- Construction management
- Construction project management
- Construction innovation and management
- Transport policy and business management
- Building services engineering
- Water and waste engineering
- Water and environmental management
- Urban environmental engineering

The Department's Sponsored Programmes

Construction Engineering Management



Civil Engineering



Commercial Management and Quantity Surveying



Analysis of Modules

- Total number of Departmental modules:
 - 251

- Of these:
 - 235 are mainly teaching-based modules
 - 16 are mainly design-based modules

Sustainability content

- Of the 235 teaching-based modules:
 - Sustainability is present in 24 modules (10%)
- Of the 16 design-based modules:
 - Sustainability is present in 7 modules (44%)

Sustainability Content – some examples (module)

- Design a net –zero energy building (Eng Design)
- Conduct an environmental assessment -BREEAM (Low Energy Arch Des)
- Climate change issues and estimating the carbon footprint (Low Energy Bldg Des & Analysis)
- Economic, environmental and life-cycle appraisals (Infrastructure and Env Eng)
- Materials use, re-use and waste (Geotechnics)
- Appropriate technologies for developing countries (Civ Eng for Developing Countries)
- Water, energy and renewable resources (various)
- Sustainability, environmental, social, economic and political appraisals eg windfarm (Development Project)

Sustainability - Issues for Discussion

- Is it present in taught material? – yes
- Is it appropriate in all modules? –no
- Is it present in design? – yes, significantly
- Do we need more sustainability issues in design teaching?
- Should we label content as “sustainability”?
- What happens at other HEIs?