Creating A Sustainable Workplace

Peter Cookson

Programme Director – Manchester Campus Programme

The co-operative

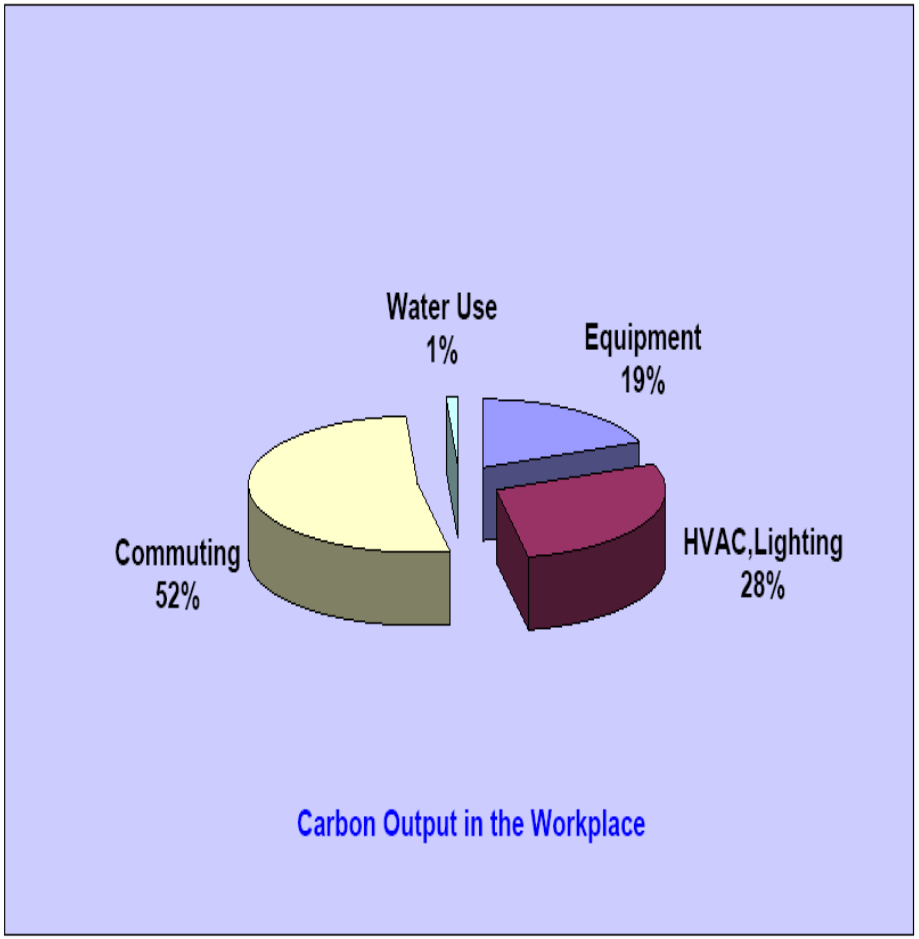
Sustainability in the workplace

"Sustainability" in the workplace is determined by

- The quantity of resources (energy, water, materials) we use
- The efficiency with which we use them (% waste)

Which are all affected by

- where we work, when we work, how we work and the facilities we use to work



Criteria for sustainable buildings

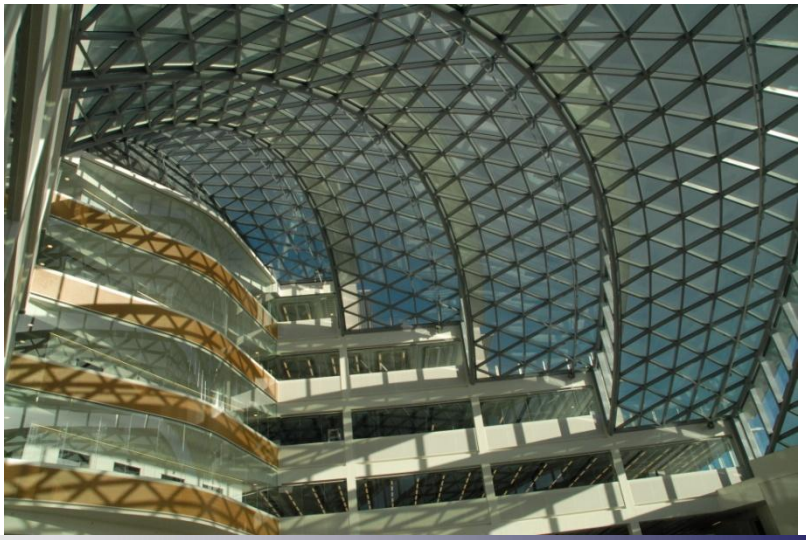
- Need to be objective, appropriate, comparable and with measurable returns

To illustrate:

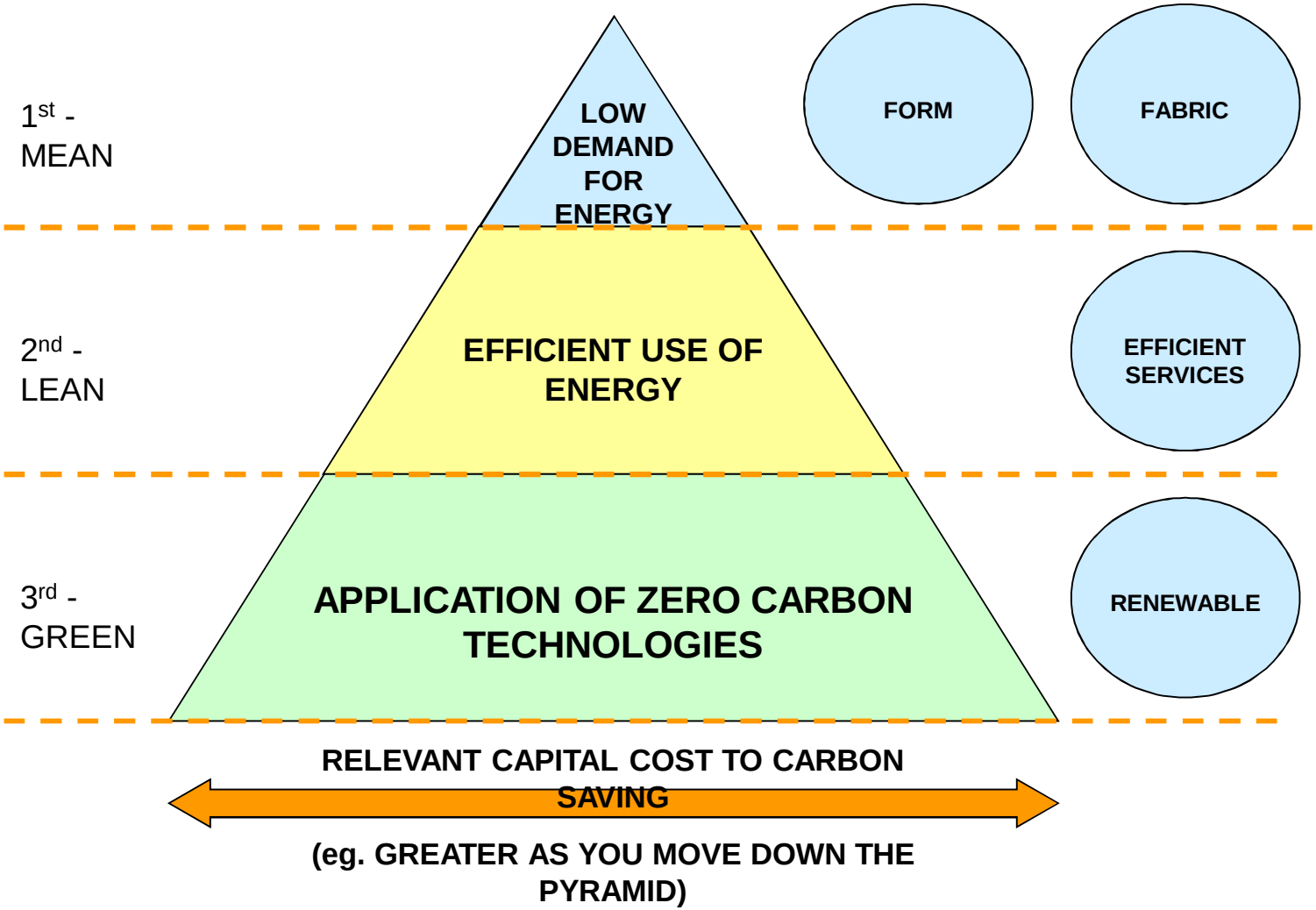
- Building target operational rating 150 kWh/sqm/pa with different levels of occupancy
  - @1/8sqm 83% desk/person = 1000 kWh/person/year
  - @1/10sqm 100% desk/person = 1500 kWh/person/year
  - Bigger building with more embedded energy

The Co-operatives building brief

- A building which is iconic for its sustainability
- A commercial development
- A catalyst for development of 20 acre site
- Class A office built to BREEAM Outstanding
- EPC A and DEC A rating
- 320,000 sq ft offices
- Flexible space supporting “agile” working

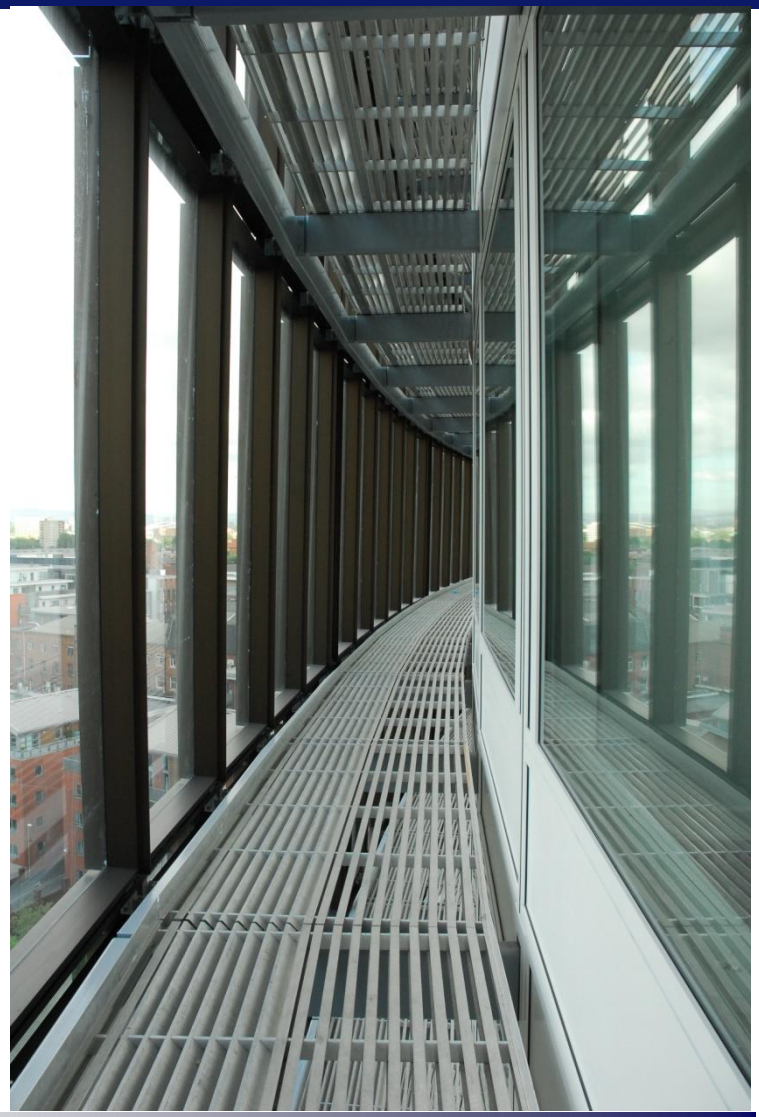


Design approach - Lean, Mean and Green



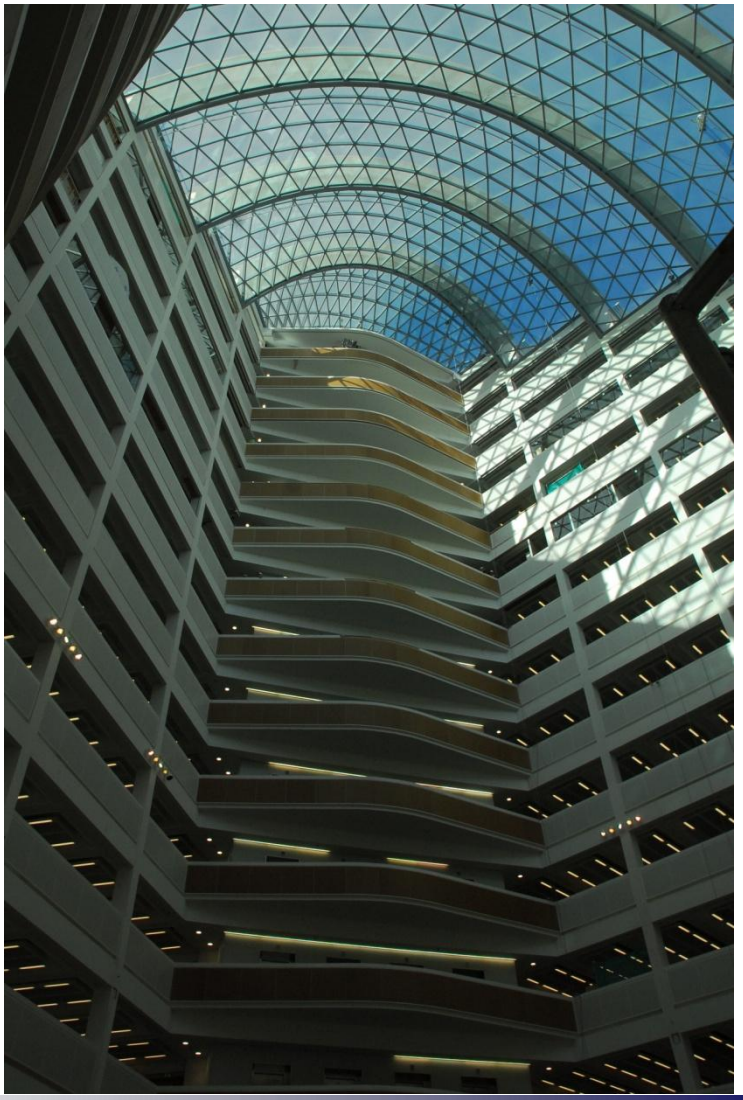
Form and fabric

- Building orientation
- Active twin skin façade
- Solar shading (glare control)



Form and fabric

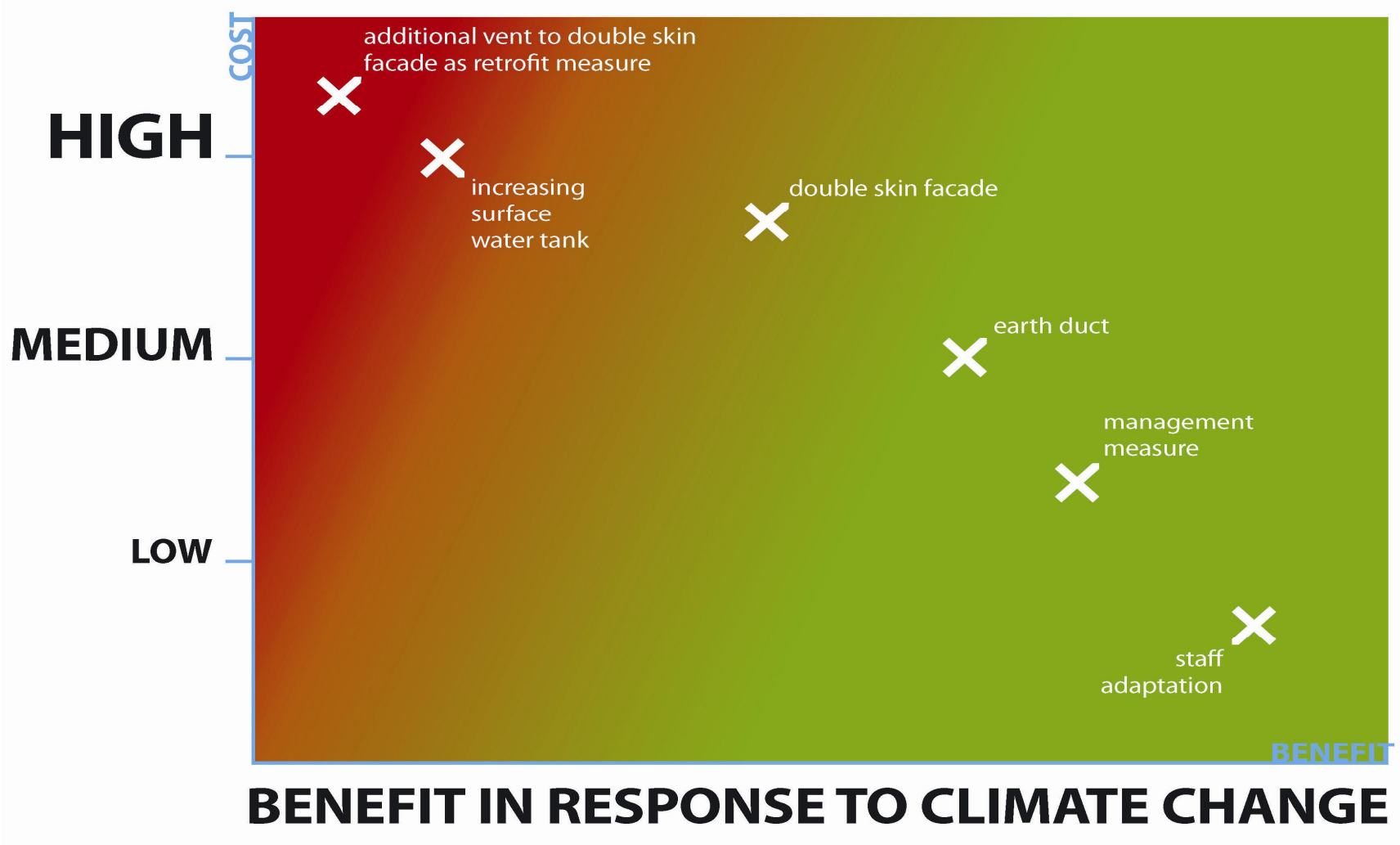
- Central atrium for a passive approach to environmental control
- Integrated passive chilled beams located in exposed concrete coffers



Form & fabric

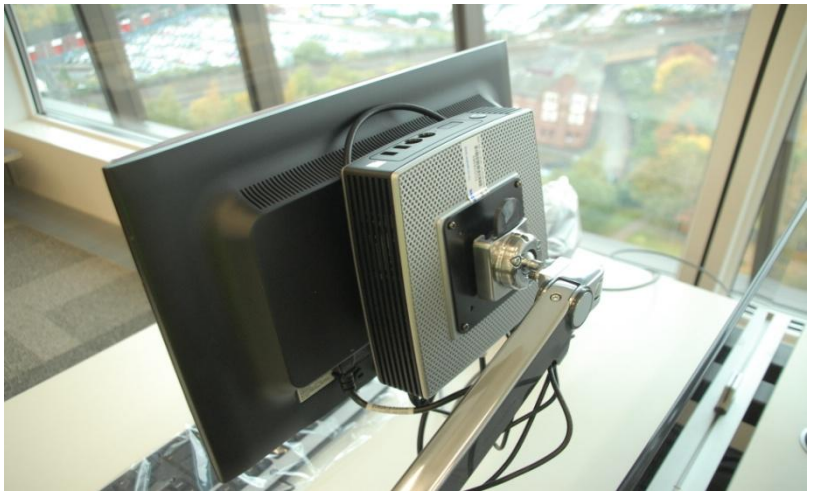
- Earth duct air supply

Impact of Climate Change



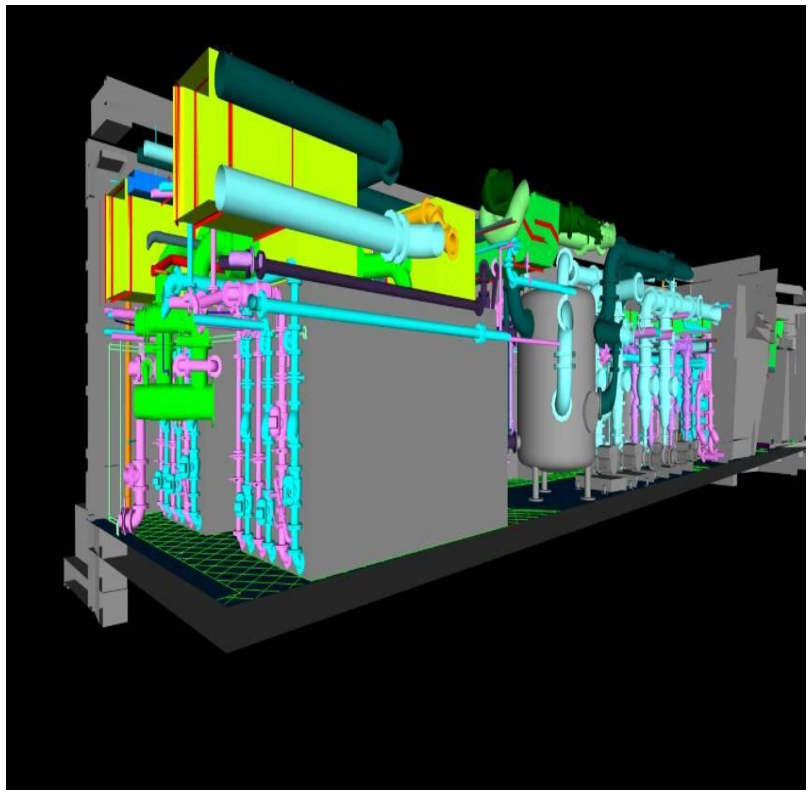
Efficient Services

- Heat recovery from atrium and computer rooms
- Regenerative motors on lifts with destination controls
- Advanced controls and energy monitoring to optimise building performance
- Used water and rain water recycling
- Low water consumption appliances
- Low energy IT systems

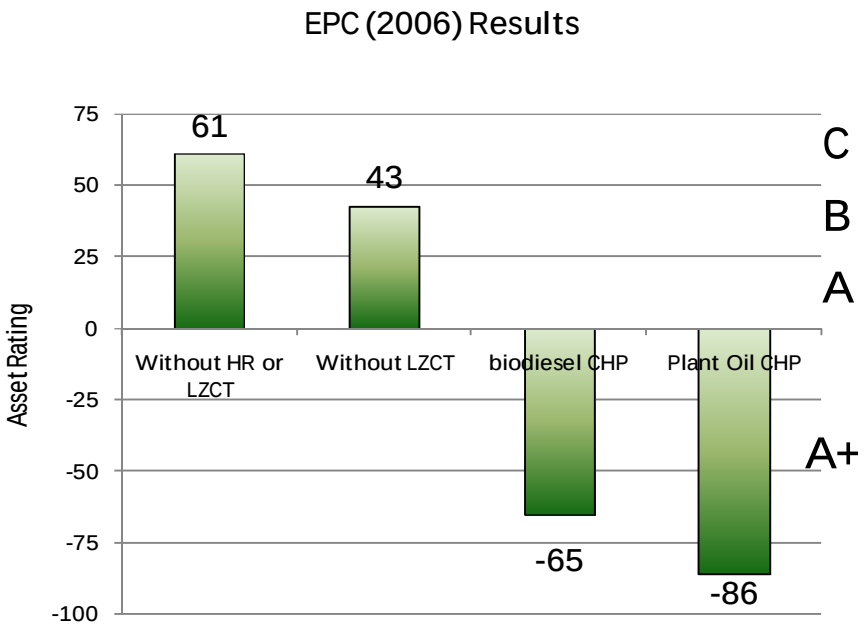


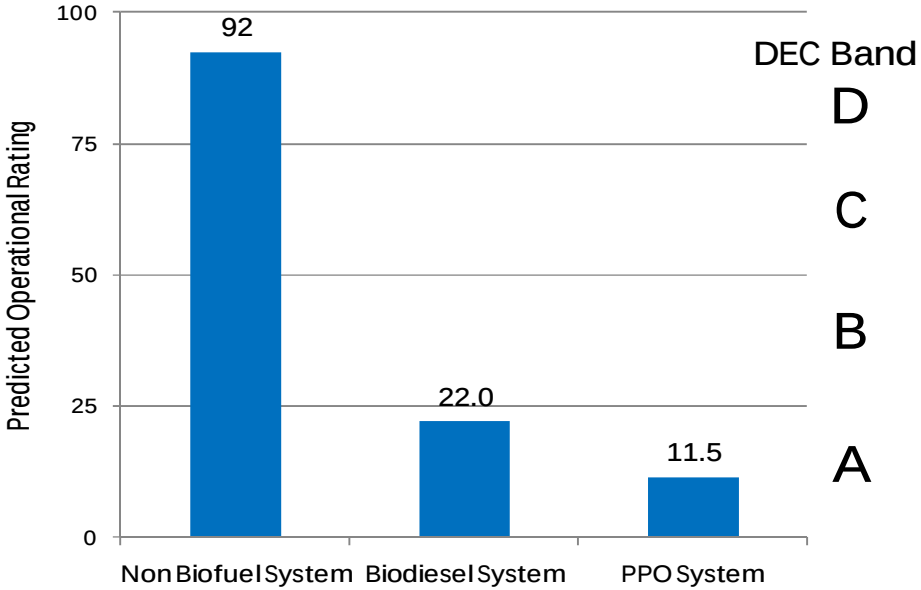
Zero Carbon Technologies - Combined Heating and Power Plant

- 2 x 400kw CHP Units (deliver 794kW electricity and 764kW heating)
- Optimised match to an absorption chiller
- Capable of running on multiple fuels
- Powered by pure plant oil
- CHP ppo provides the carbon index result to deliver DEC A and BREEAM Outstanding



EPC A + … and then DEC A too





BREEAM score

BREEAM: Results Summary		
Sector	Weighting	Score
Management	12.0%	12.0%
Health & Wellbeing	15.0%	12.7%
Energy	19.0%	19.0%
Transport	8.0%	8.0%
Water	6.0%	6.0%
Materials	12.5%	5.8%
Waste	7.5%	4.3%
Land Use & Ecology	10.0%	10.0%
Pollution	10.0%	7.5%
Sub-Total		85%
INNOVATION CREDITS	10.0%	7.0%
Final Predicted Score		92.5%
Final BREEAM Rating		OUTSTANDING

Impact of CHP scheme

Does “green” pay?

- Corporate Social Responsibility – Reputation
- Building Resilience – impact of climate change
- Minimise risk of obsolescence
- RoI - energy savings, carbon emissions

Creating a sustainable workplace - Summary

- Take a holistic view
  - For an occupier building performance is only part of the organisations carbon footprint
- When creating new space be:
  - "lean" - embrace existing good design practice. Optimise the use of space
  - "mean" - exploit options for recovery, reduce waste (heat, water)
  - "green" – conduct cost/benefit analyses of low and zero carbon technologies for measurable payback
- Monitor - capture data from "in use" consumption to optimise future performance.