Tackling Carbon Emissions in Commercial Buildings

Sarah Cary
Agenda

• What British Land has done
  – And what my challenges are...

• UKGBC Zero Carbon Non Domestic Task Group
  – Context
  – Explorations
  – Performance and metrics
  – Recommendations

• Asks – for discussion
How we tackle carbon emissions….

DESIGN

BREEAM Excellent Offices, Very Good Retail

Target **10% reduction** in embodied carbon

29.9% better than Building Regulations require, on average

CIBSE TM 54 total energy estimates
How we tackle carbon emissions….

OPERATION

Heat, coolth & electric metering

36% Lower Emissions across our like-for-like 2009 portfolio

Incentivise building management

£6.9 million energy cost savings for occupiers since 2009

PHIL DRAPER TECHNICAL & SUSTAINABILITY
MANAGER AT REGENT’S PLACE
Our London office portfolio

![Graph showing energy use by year of completion or major refurbishment. The graph compares landlord and shared services energy use in blue bars and occupier direct energy use in red bars. There is a downward trend over the years.]
My Challenge

- Rotherhithe
- Canada Water
- Surrey Quays Shopping Centre
- SE16 Printworks
My Challenge
Building Zero Carbon - the case for action

UKGBC Task Group Findings
Purpose of the Task Group

1. Set out the economic case for non domestic building regulations
2. The technical detail of the Zero Carbon definition

Regulatory Context

• Building regulations are one of many influences
• There is a market failure in the relationship between designers/developers and those who occupy the finished buildings
• A minimum standard
• Building Regulations are applied at the point of construction and they apply to all stakeholders regardless of ownership, occupation, or use
EXPLORATIONS

Building Regulations Have been Successful

- Environmental terms
- Economic terms
- Energy efficiency regulation is a good thing

“More carbon has been saved, over the years, through the Building Regulations than from any other policy area in government”
Stephen Williams

Policy Development

- One-In, Two-Out is calculated on impact to industry
- Government Impact Assessments make no allowance for innovation, learning rates

Not Small Beer

- 25 - 40% improvement on current standards is challenging
- Varies between building types
- Allowable solutions not insignificant costs
THE WHOLE INDUSTRY IS AFFECTED

Building users
- lower running cost
- lower carbon emissions

Building developers and contractors
- potentially higher build costs
- supply chain engagement to reduce costs
- export potential

Building designers
- investment in energy design skills
- investment in new designs
- export potential

Building product manufactures
- investment in product innovation and manufacture
- export potential
THE POTENTIAL OF POLICY CERTAINTY

Innovation and investment benefits: beyond carbon and cost savings to innovation and green growth

Certainty about the trajectory towards 'zero carbon' will..

• Encourage product innovation
• Encourage investment in skills and knowledge

Further resulting..

• Reduce the cost of achieving challenging standards
• Increase the 'export' potential of UK knowledge to other countries
• Support retrofit and refurbishment goals
Innovation in the non-domestic buildings sector represents a significant opportunity to help meet the UK’s GHG emissions targets, as well as providing value through avoided energy costs, amounting to savings of 86MtCO2 and c. £13bn by 2050. Innovation could also help create export opportunities that could contribute an estimated £1.7bn to GDP to 2050.

http://www.lowcarboninnovation.co.uk
EXPORT POTENTIAL

• Opportunity to strengthen the reputation and value of UK companies abroad for green building
• Leveraging existing competitive advantage
• Forthcoming Energy Performance of Buildings Directive

“It is a fact that UK-based businesses have a global reputation for architecture, design and engineering, competitive whole life costs and sustainable construction solutions.”

Construction 2025, the UK Government's Industrial Strategy for Construction
THE ZERO CARBON DEFINITION

1. Fabric & systems minimum efficiencies
   "Elemental Efficiency"

2. Defined maximum energy use
   "Building Baseline Energy"

3. Zero Carbon (regulated energy)
   "Carbon Mitigation on-site /connected"
   "Allowable Solutions"
   "Off-site"

CAMPAIGN FOR A SUSTAINABLE BUILT ENVIRONMENT
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CARBON REDUCTION TARGETS

- 28% on 2002
- 25% on 2006
- 9% on 2010
- 20-30% on 2010
- 30-40% on 2010

- Add lifts, escalators and door heaters
- Introduce fabric standards and on-site carbon emissions target
- Allowable solutions as required to get to zero

Fig 3. Proposed changes to Part L set in context
A ZERO CARBON ROADMAP

Future

Performance Gap

Zero Carbon

Embodied CO₂

Future

Predicted actual operational energy use

‘Zero carbon’ = regulated + unregulated + embodied energy

Agreed embodied CO₂ standard widely adopted across industry

2022?

Feedback from DECs

‘Zero carbon’ = regulated energy only Part L 2010 -30% to -40% + Allowable Solutions

Increasing industry alignment on methodology and assessment techniques

2019

Optional enhancement to SBEM to more accurately predict energy usage

‘Zero carbon’ = regulated energy only Part L 2010 -20% to -30% + lifts + escalators + door heaters

Part L 2010 -30% to -40% + Allowable Solutions

2016

Part L 2010 -9%
ALLOWABLE SOLUTIONS

Allowable Solutions provide an off-site mechanism to cover CO₂ emissions not economically or technically feasible to mitigate on-site.

DCLG released a consultation on Allowable Solutions for homes in August 2013, proposing principles and a framework.

The same mechanism should be used for non-domestic buildings in 2019:
- Simpler
- Aligned definitions
- Economies of scale
- Market develops from 2016
1. Government should restate its firm commitment to Zero Carbon non-domestic buildings from 2019 immediately

2. DECC, BIS and CLG should work with industry over the next year to create a ‘roadmap’ to 2019 and beyond - setting out the parameters of the zero carbon standard and enabling industry to invest in innovation and skills.
4. Industry, working with government, should form a Zero Carbon Non Domestic Hub to finalise the definition of zero carbon and facilitate implementation.

5. The technical definition of zero carbon for commercial should follow a similar model to that for residential.
Asks

• Encourage national government to confirm an ambition for a challenging 2019 target

• Support the establishment of a non domestic hub

• To discuss
The UKGBC Task Force Report

For British Land policies, detailed performance data and progress on targets:
www.britishland.com/responsibility

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### IMPACT ASSESSMENT

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