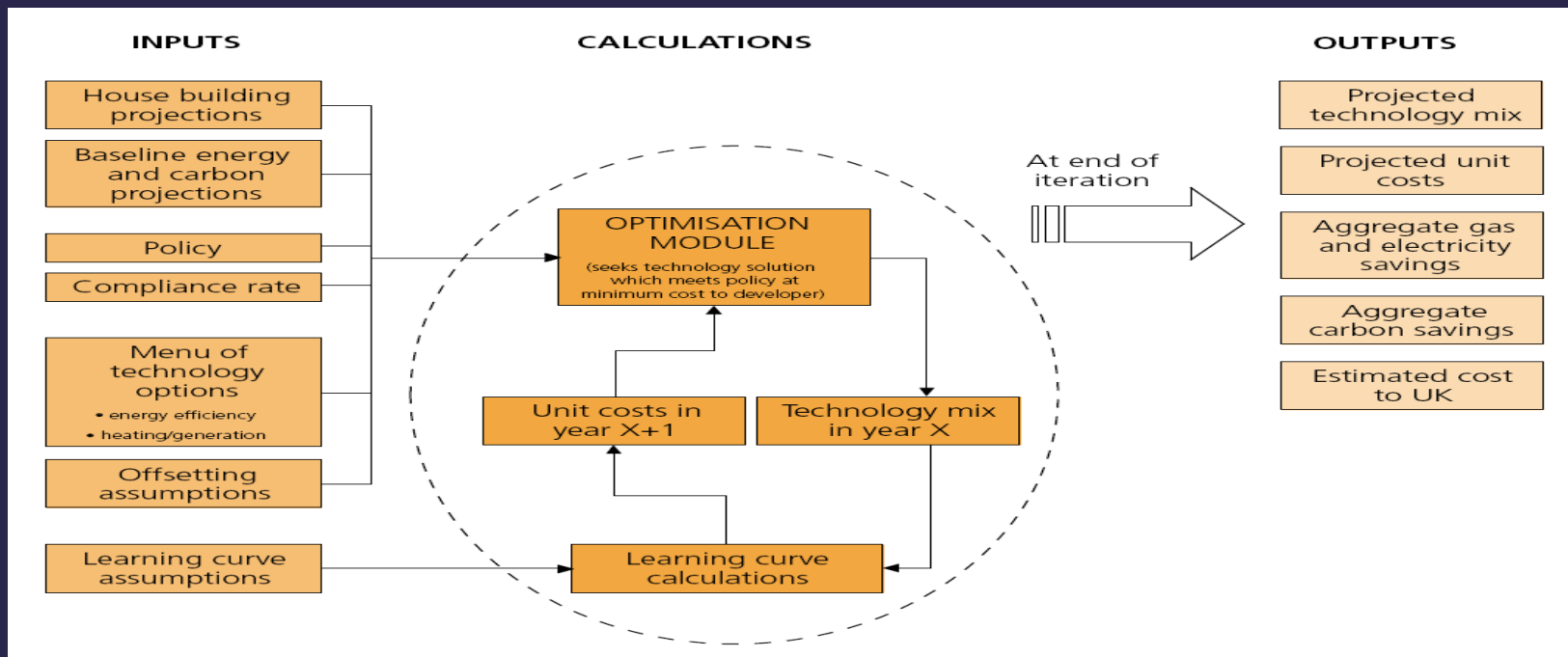


What Does Zero Carbon Really Mean (and how should we deliver it?)

CIBSE National Conference

29th April, 2009



Overview

1. Background
2. Defining zero carbon
 - Overview
 - Dwellings
 - Non-dwellings
3. How should we deliver it?

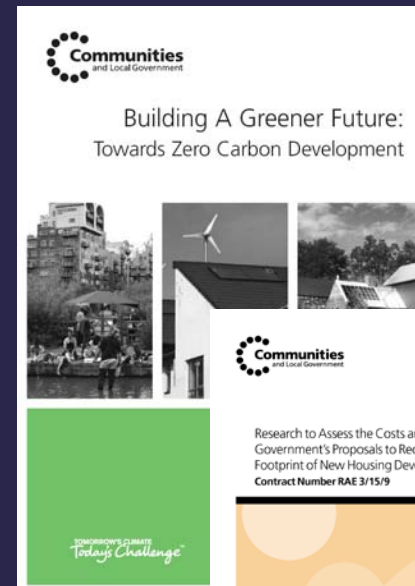


Background

1. December, 2006, CLG issued consultation on Building a Greener Future
2. April, 2007 – CLG commissioned research (Cyril Sweett, FM and Europe Economics) to assess costs and benefits of policy options
3. July 2007 – CLG issued policy statement on BG

Date	2010	2013	2016
Energy/carbon improvement as compared to Part L (Building Regulations 2006)	25%	44%	zero carbon
Equivalent energy/carbon standard in the Code	Code level 3	Code level 4	Code level 6

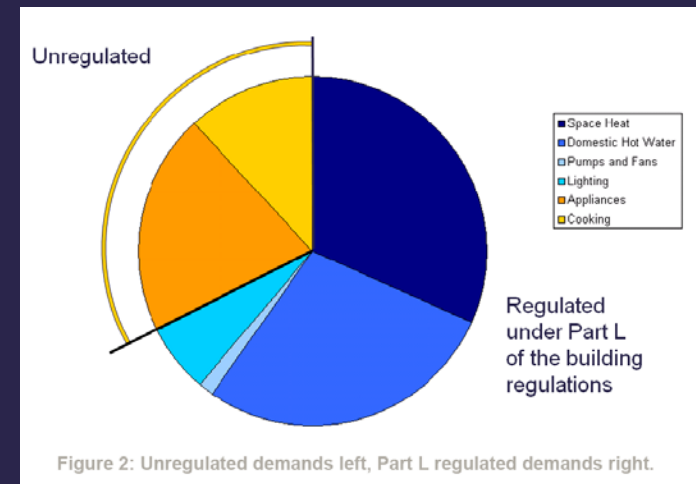
4. March 2008, Govt announce aspiration for zero carbon schools by 2016, other public buildings by 2018 and all non-domestic buildings by 2019
5. May, 2008 – study team commissioned to conduct further research to feed into zero carbon definition
6. Dec 2008 – CLG issued consultation on a definition for zero carbon homes and non-domestic buildings



Defining Zero Carbon

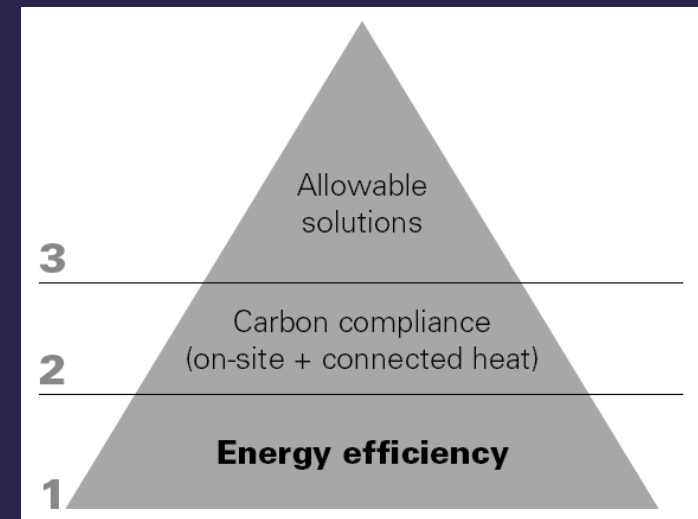
General Overview

- Current Government proposals define zero carbon in relation to operational energy use
- Does not include embodied energy, transport, process use (for industry)
- Based on energy use as predicted at design stage, using Part L approved software
- For dwellings, currently covers:
 - regulated energy use (space heating, hot water, internal lighting, pumps and fans)
 - unregulated energy uses (cooking, appliances) – measured by Code algorithm
- Zero carbon on a net annual basis
- Does not consider actual operational energy use after construction (i.e. from DEC's)



Defining Zero Carbon Dwellings

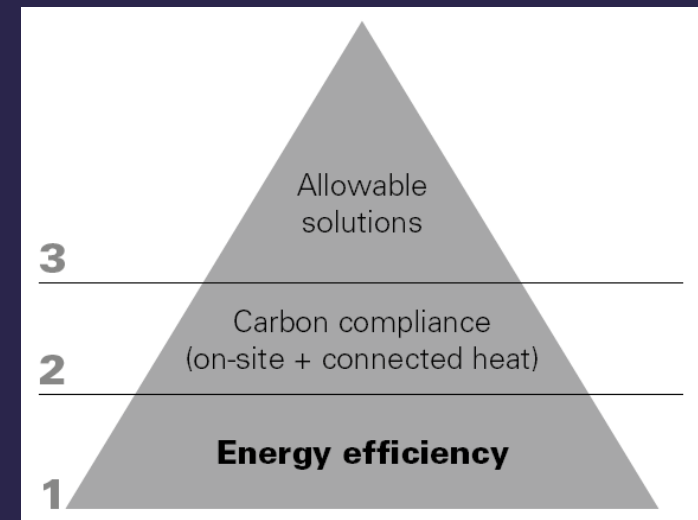
- Three levels of on or near site carbon compliance proposed:
 - 44% below 2006 Part L TER
 - 70% below
 - 100% below (i.e. zero regulated emissions)
- Can be met from energy efficiency or LZC energy options
- Off-site district heating/ CHP is eligible if physically connected but NOT wind
- Follows “energy hierarchy”
- Proposal to tighten up mandatory energy efficiency backstops for 2016 – Passivhaus?
- Remaining residual emissions to be dealt with by allowable solutions



Defining Zero Carbon

Dwellings – Allowable Solutions

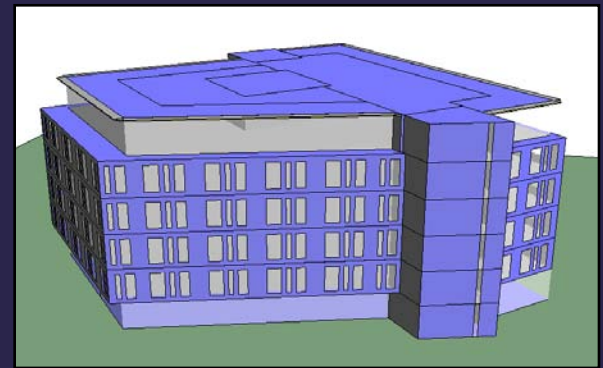
- Carbon compliance beyond the minimum
- Energy efficient appliances /building control systems
- Exports of low carbon or renewable heat (or cooling) to surrounding developments
- S106 Planning Obligations (to help fund energy infrastructure)
- Retrofitting of existing buildings in the locality
- Investments in LZC energy infrastructure (benefits of ownership transferred to buyer)
- Offsite renewable electricity connected via direct physical connection
- Any other measures announced by Govt.



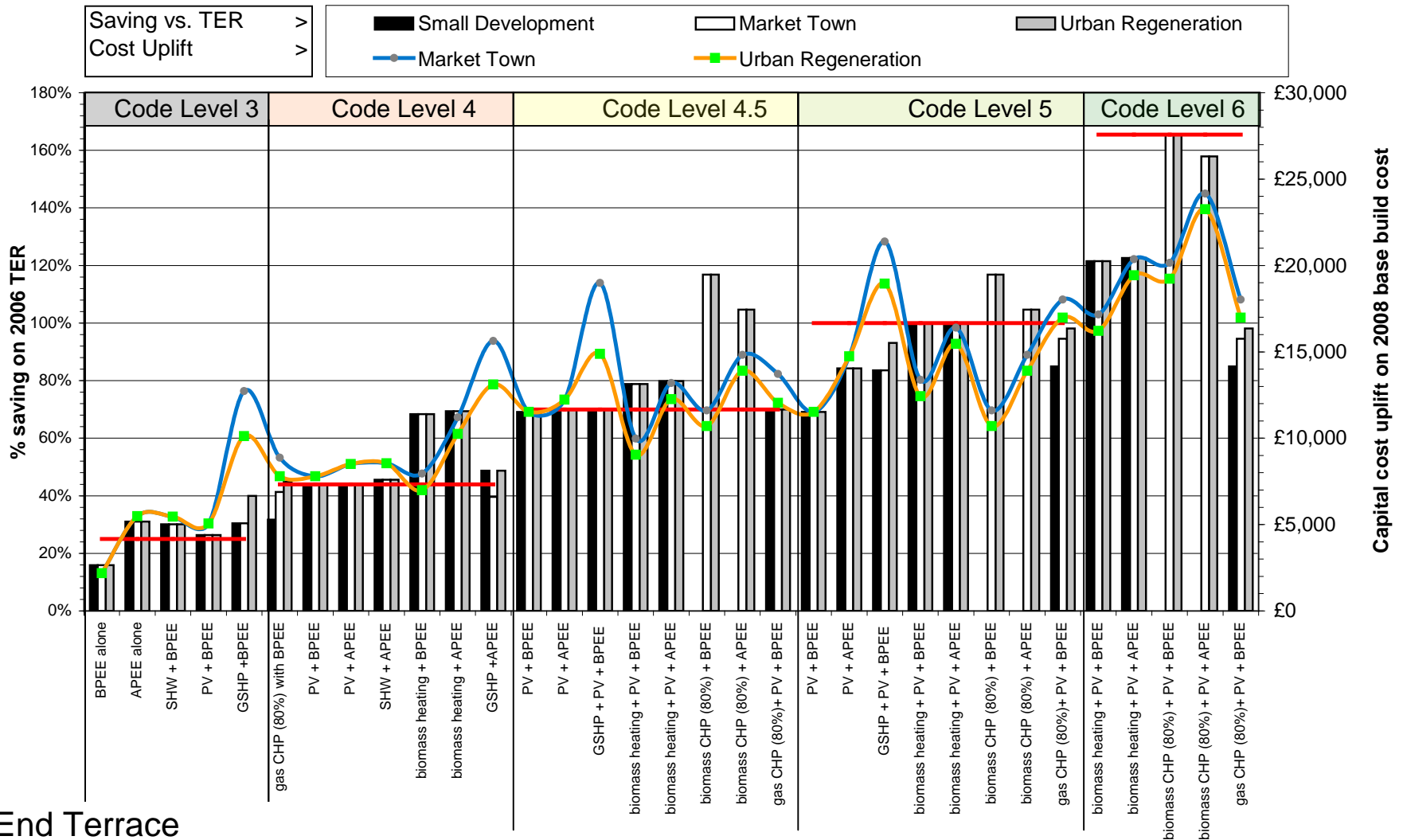
Defining Zero Carbon

Non-Dwellings

- No firm definition or trajectory yet – Govt. considering revision in 2010 and 2013
- The consultation suggests that similar hierarchy could be used for non-domestic buildings
- But whether or not unregulated emissions will be included is still an open question
- Consultation recognises wide variety of energy between different building types
- May need to be different targets for different building types
- Further research currently ongoing (Europe Economics, FM, Davis Langdon)
- Consultation planned for later in 2009



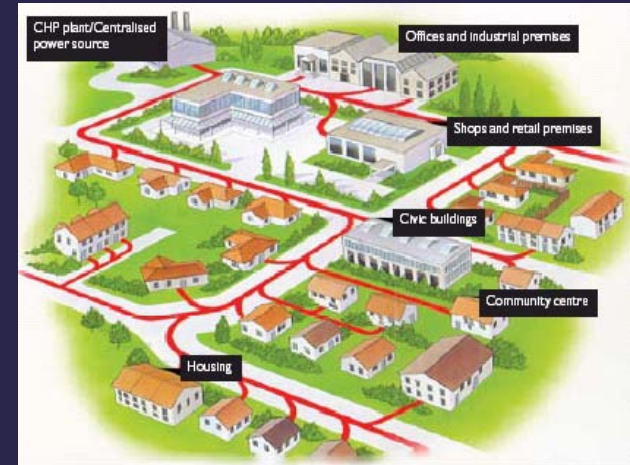
How Should We Deliver It?



How Should We Deliver It?

Principles

- Range of technology solutions – “horses for courses”
- Need to consider energy issues at earliest stages of projects
- For larger/ mixed use developments. Key opportunities for district heat and power
- Link to serve existing heat loads
- Key role for ESCOs/ Utility companies – linking together developments
- For individual building solutions – need to carefully consider ongoing O&M
- Likely to be significant innovation in coming years around technology, financing, installation, etc



Thank You!

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