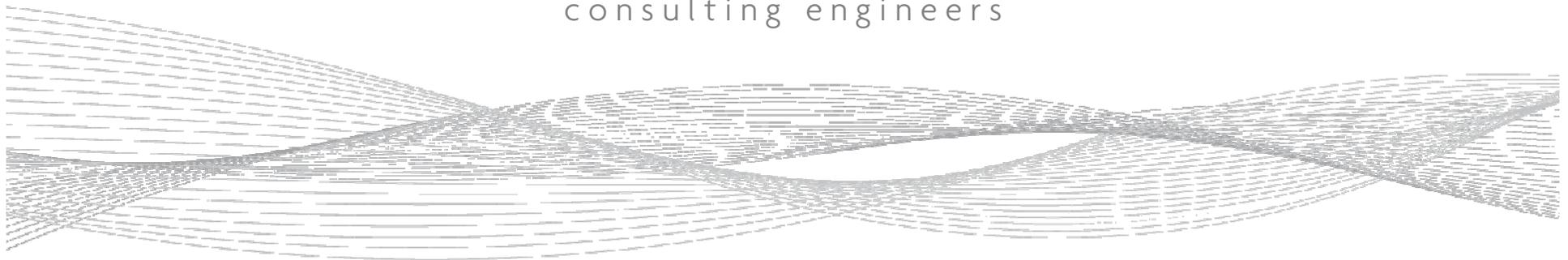


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The Carbon Reduction Commitment Energy Efficiency Scheme (CRC)

Mike Freed
27th November 2009

Hilson Moran

CRC introduction

Participation – are you in?

CRC process

Saving energy

Practice Overview

Leading engineering consultancy for the built environment

250 staff

Multidisciplinary service

3 UK offices

3 international offices

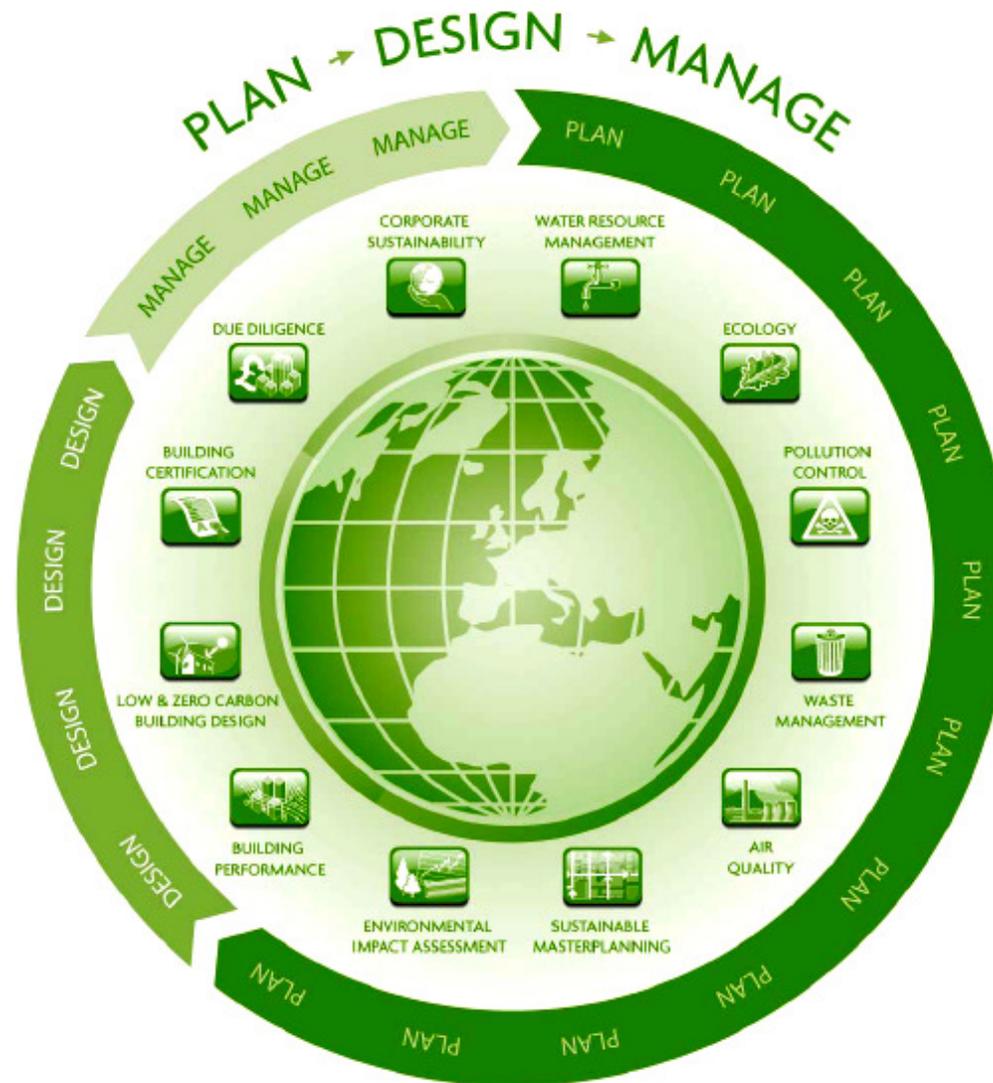
Operations in
all sectors

More than 5,000
completed projects



Over 30 years of success

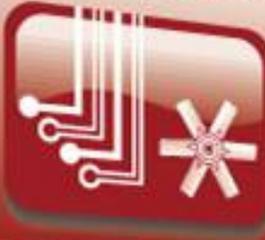
Sustainability services



SUSTAINABILITY



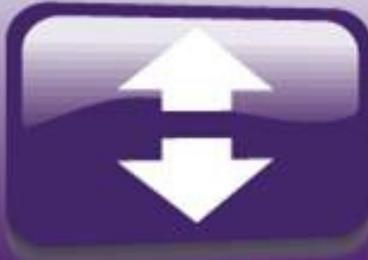
BUILDING SERVICES



STRUCTURAL ENGINEERING



VERTICAL TRANSPORTATION



INTELLIGENT BUILDINGS



LIGHT & VISUAL ENVIRONMENTS



ACOUSTICS



FIRE ENGINEERING



FACILITIES MANAGEMENT



CRC – what is it?

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Reducing energy consumption

CRC – what is it?

- Are you in?
 - 6000Mwh electricity consumption in 2008
 - HHM
 - UK organisations
 - Local Authorities
- Register April 2010

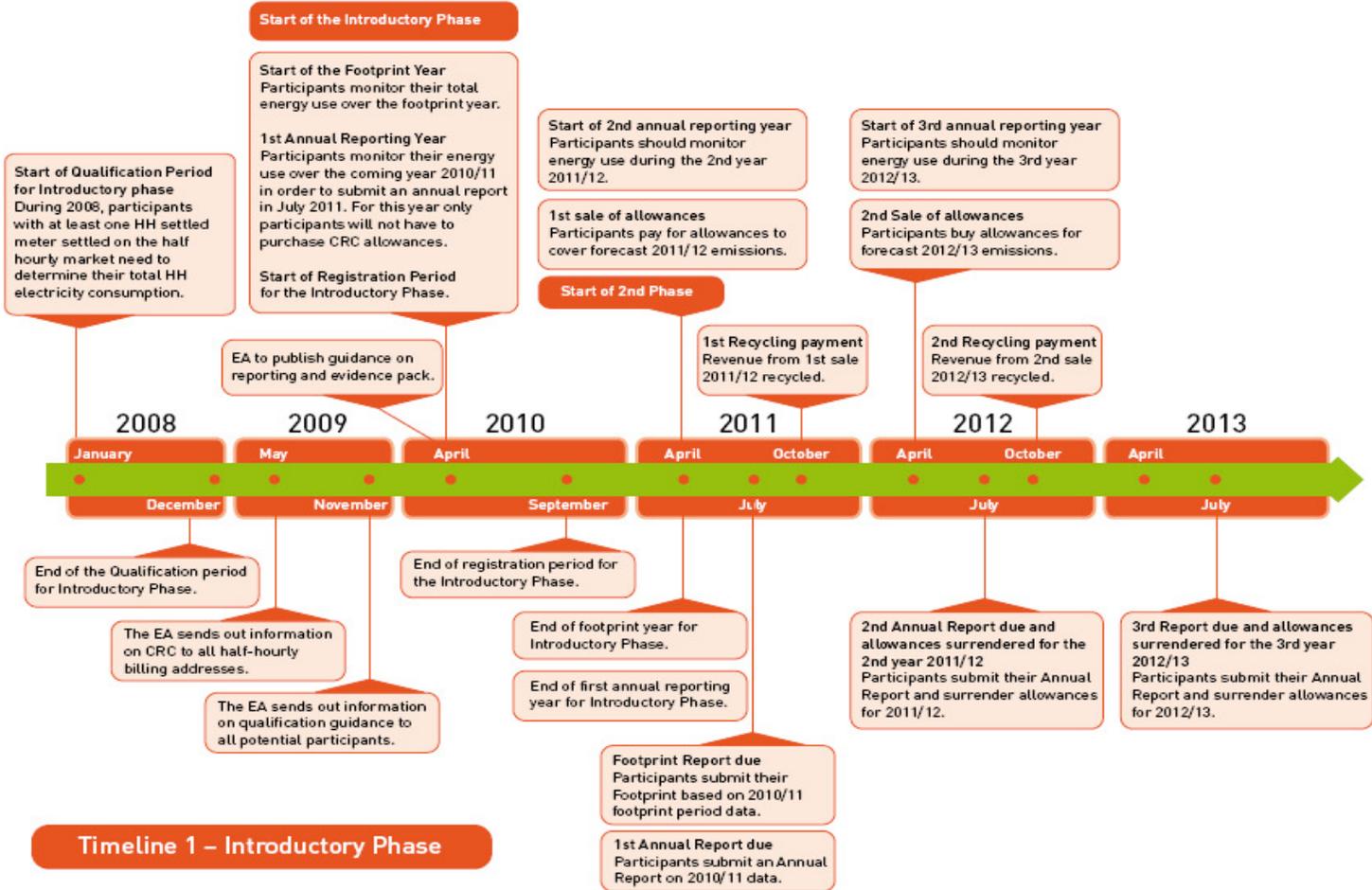


CRC – what is it?

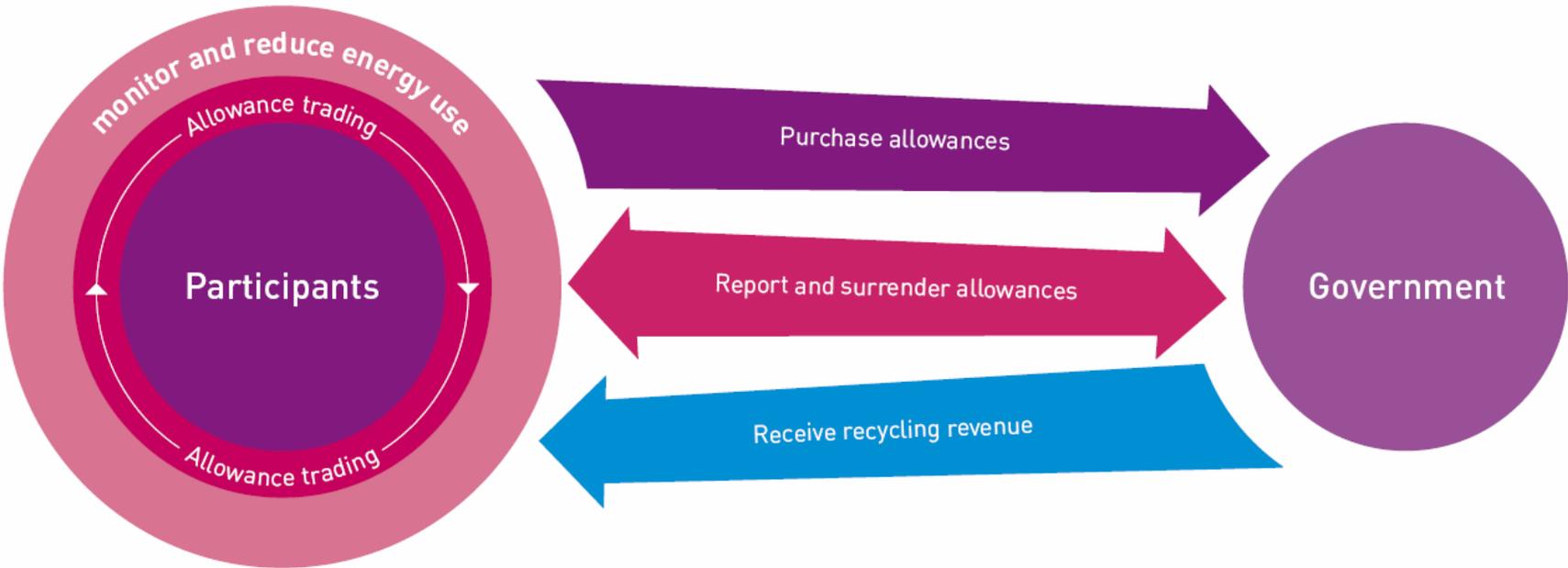
- Mandatory emissions trading scheme
 - Monitor & report
 - Purchase allowances
 - **League table**
 - Payment recycling
- Many benefits
- Complex?

CRC timeline - introductory phase

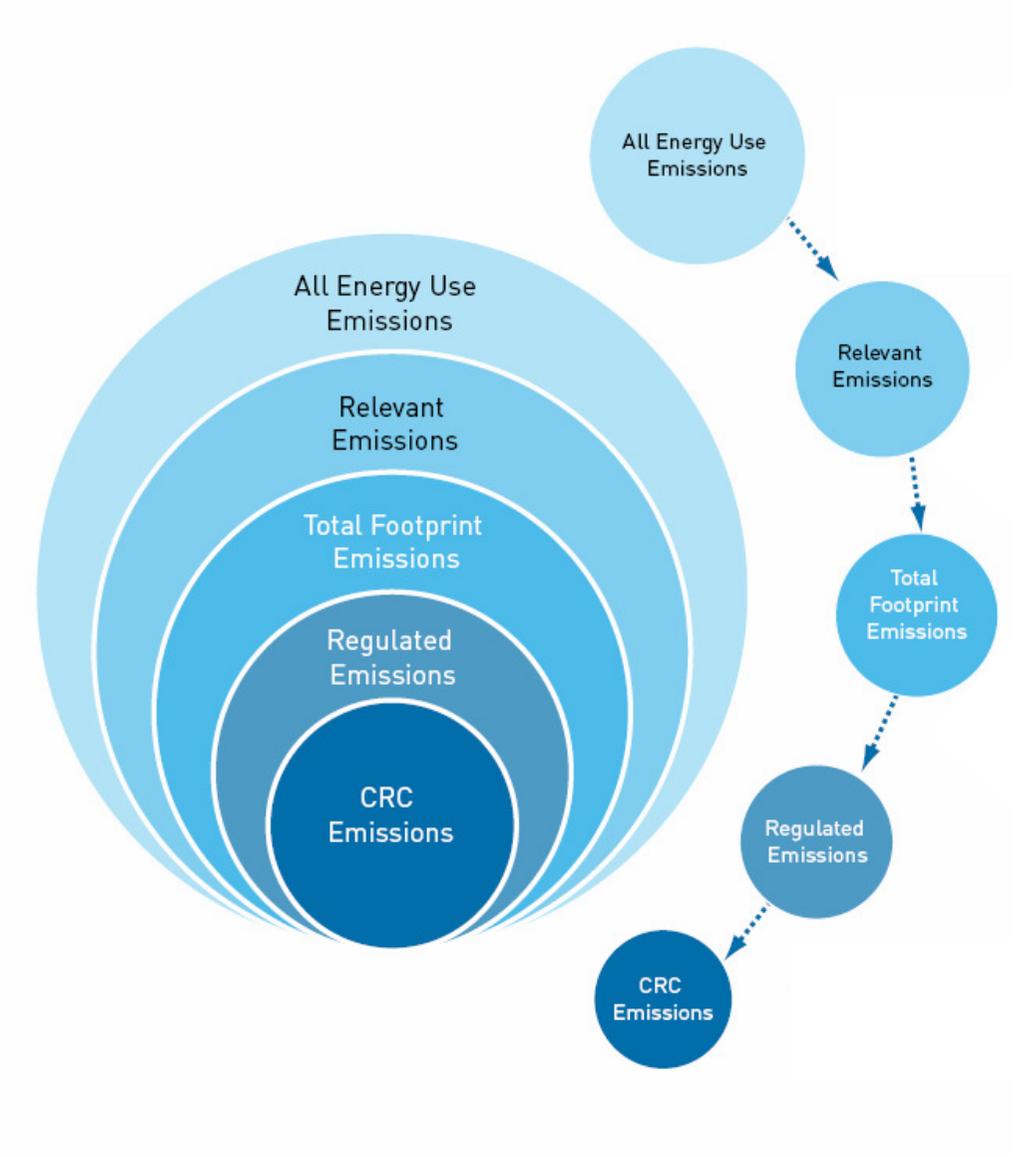
Timeline 1: Introductory Phase



CRC cycle



CRC emissions



CRC – ‘funny’ things

- Landlord – tenant relationship
- Houses of Parliament
- Monasteries
- Rented housing



CRC – what is it?

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Reducing energy consumption

- ▶ SUSTAINABILITY
- ▶ BUILDING SERVICES
- ▶ STRUCTURAL ENGINEERING
- ▶ VERTICAL TRANSPORTATION
- ▶ LIGHT & VISUAL ENVIRONMENTS
- ▶ ACOUSTICS
- ▶ FIRE ENGINEERING
- ▶ FACILITIES MANAGEMENT



CRC Energy Efficiency Scheme

Are you ready for the CRC Energy Efficiency Scheme (CRC)?

CRC is the UK's new, mandatory, energy savings and carbon emissions reduction scheme. Designed to encourage higher-end energy users to improve their energy efficiency and reduce carbon dioxide (CO2) emissions, it comes into effect in April 2010 and organisations need to be prepared well in advance.

How we can help

Hilson Moran's understanding of building services and their interaction, building services design and experience of improving an existing building's energy conservation, place us in an excellent position to guide clients through all aspects of the CRC scheme.

We provide the following assistance:

- Guidance on ensuring 'minimum compliance' obligations are met
- Reviewing the feasibility and benefits of adopting a more pro-active approach to energy and CO2 reduction, as per the CRC scheme target
- Providing a long-term energy management strategy, or reviewing and updating existing strategies and energy policies
- Asset management advice and Due Diligence reviews of client's buildings and property portfolios

Hilson Moran employs Low Carbon Energy Assessors and Consultants and is actively engaged with the Environment Agency's CRC consultation and the industry's CRC events. Consequently, we provide robust and up-to date guidance to participating organisations on how to effectively manage their CRC obligations and their optimum approach to the scheme, according to the client's requirements.

CRC projects are managed and delivered by Hilson Moran's Sustainability group in tandem with engineers from our Facilities Management and Building Services teams.

Contact information

For more information on our services in relation to CRC, please contact crc@hilsonmoran.com

FIND OUT MORE

Plan

- Water Resource Management
- Ecology
- Pollution Control
- Waste Management
- Air Quality
- Sustainable Masterplanning
- Environmental Impact Assessment

Design

- Building Performance
- Low and Zero Carbon Building Design
- Building Certification

Manage

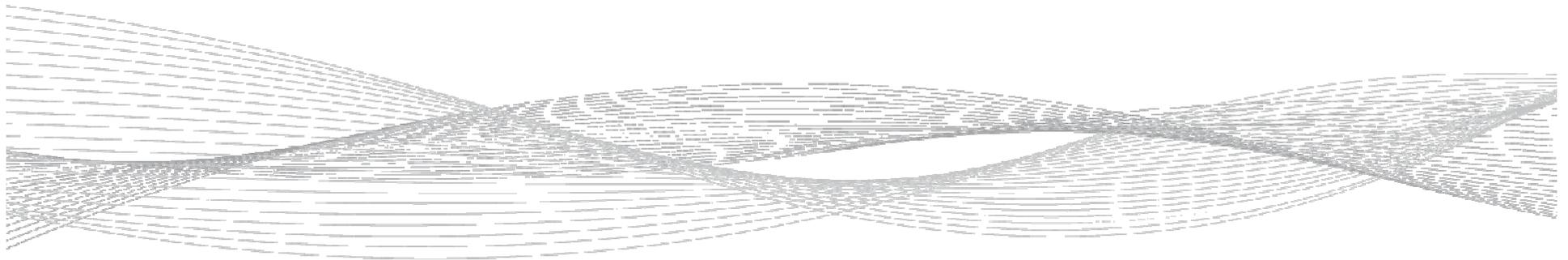
- Due Diligence
- Corporate Sustainability

Carbon Reduction Commitment

SuBET

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Definition of Zero Carbon Homes and Non-Domestic Buildings

Dan Jestico

Introduction

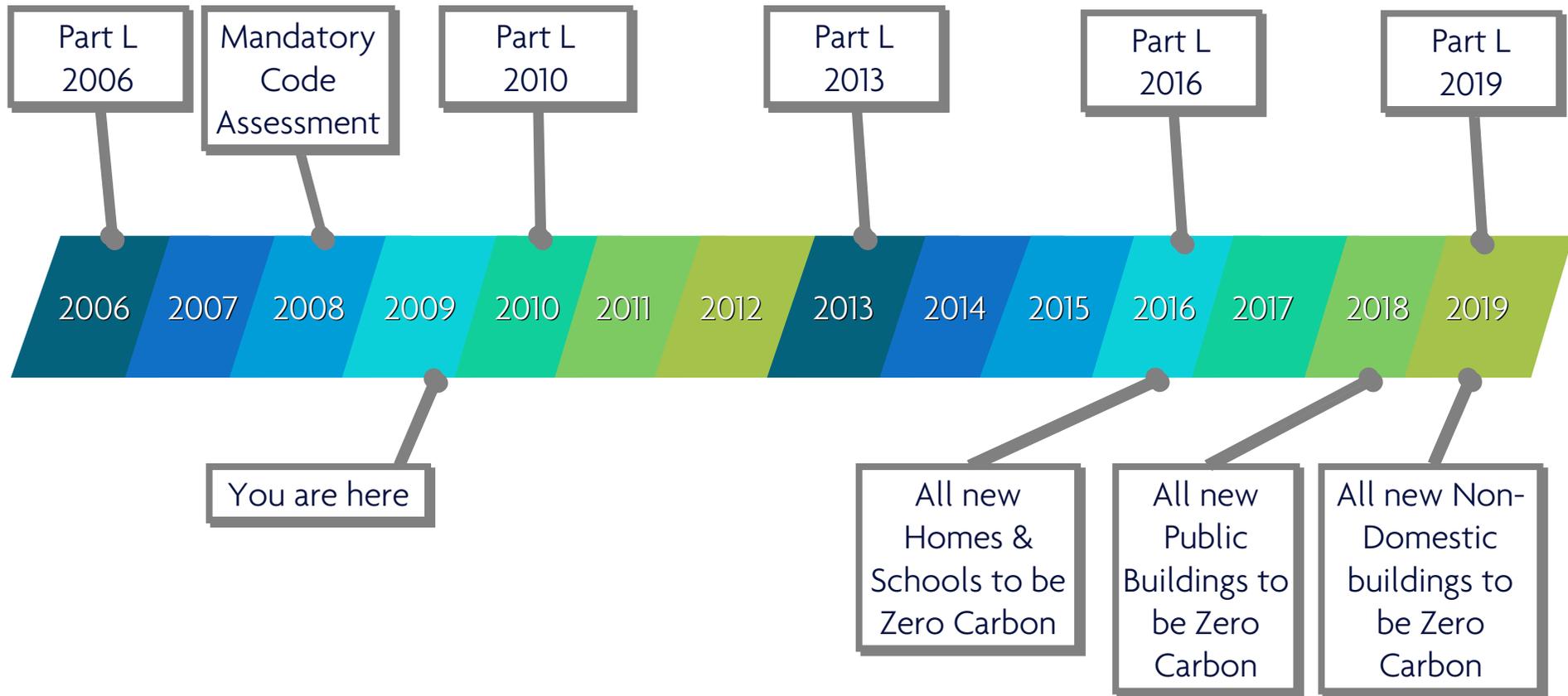
- Consultation launched in December 2008 and closed in March 2009.
- Responses published in July 2009 along with policy statement from John Healy.
- Policy statement provided decisions to *some* issues.
- The consultation was primarily directed towards homes, as further consultation was intended to be undertaken in 2009 on non-domestic buildings.
- However, the approach for the two building types is likely to be similar.



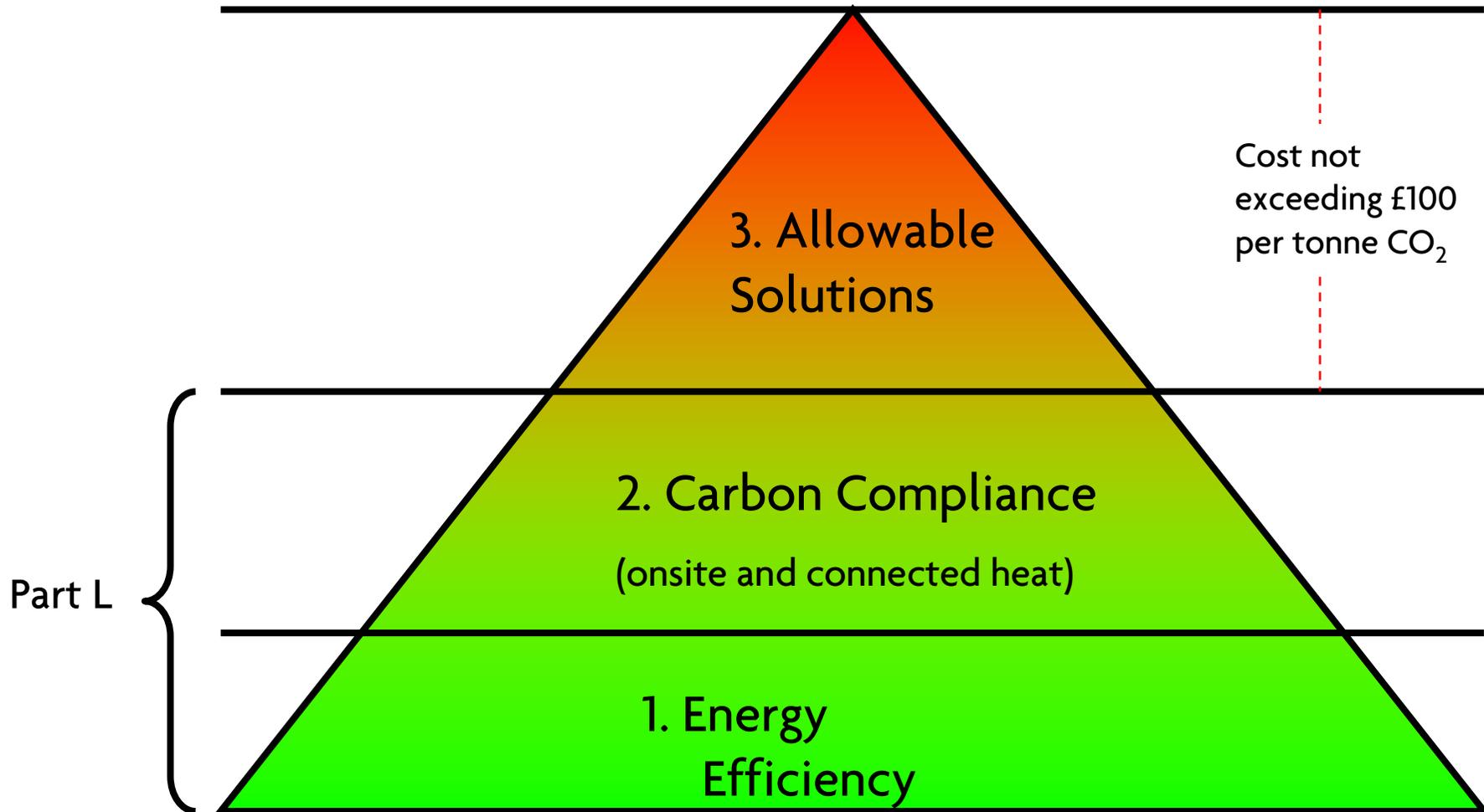
Zero Carbon Definition

- Zero carbon is defined such that the building will have net zero CO₂ emissions over the course of a year. The following will be accounted for:
 - Emissions from space heating, ventilation, hot water and fixed lighting (Part L).
 - Expected energy use from appliances (unregulated loads).
 - Exports and imports of energy from the development to and from centralised energy networks.
 - Embodied CO₂ will not be considered.

Legislation Timeline

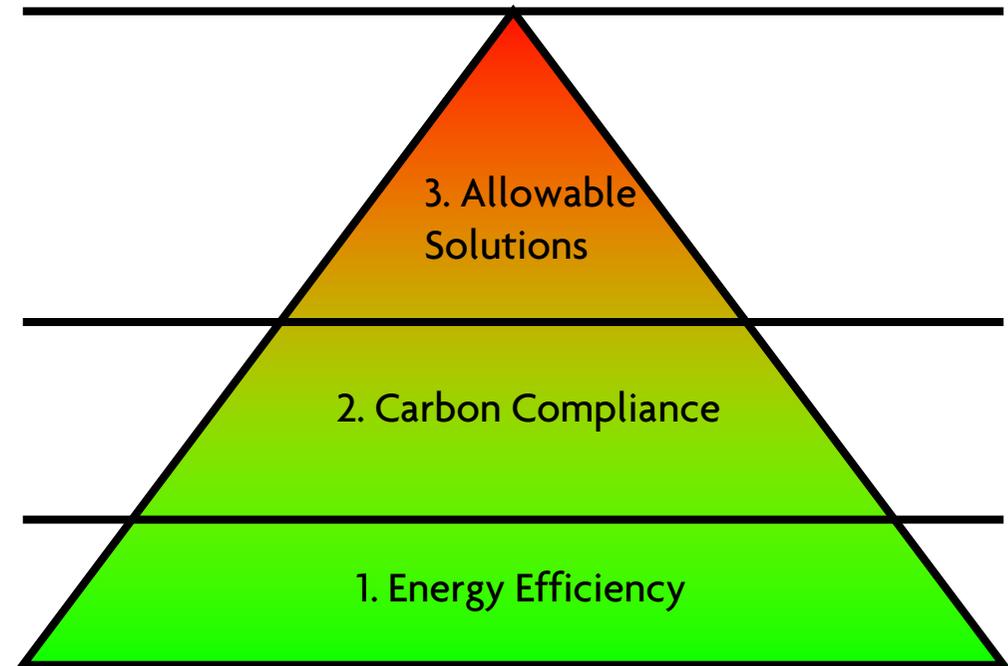


Overview of Proposed Approach



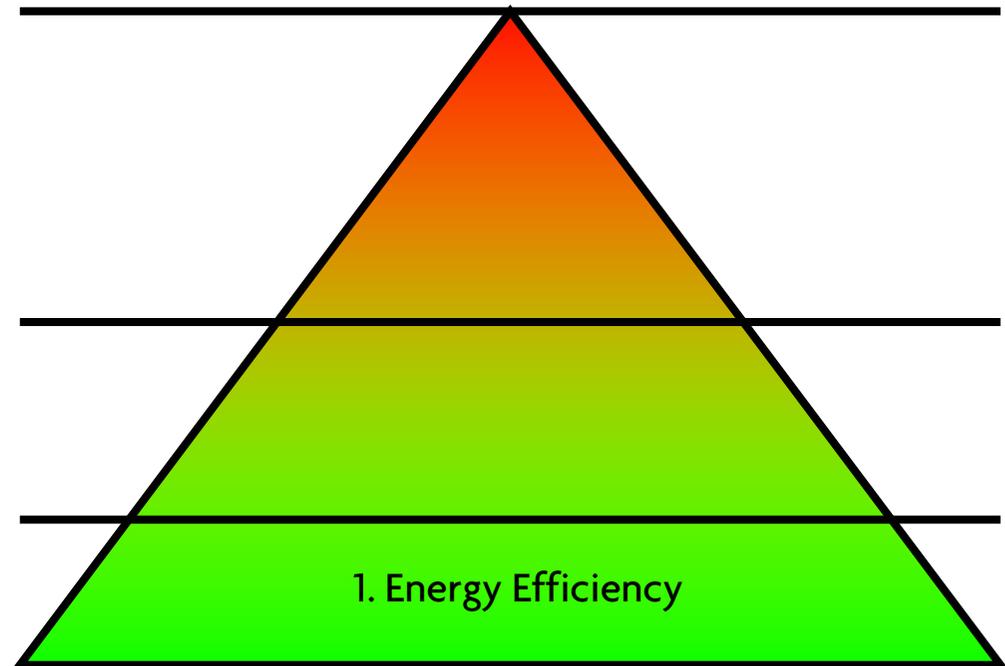
Overview of Proposed Approach

- Energy Efficiency
 - New buildings should be built to high standards of energy efficiency.
- Carbon Compliance
 - Minimum level of CO₂ emissions.
- Allowable Solutions
 - Measures to deal with residual emissions.
- This is more flexible than the Code for Sustainable Homes approach which states that renewable energy sources are only allowable if connected via 'private wire'.



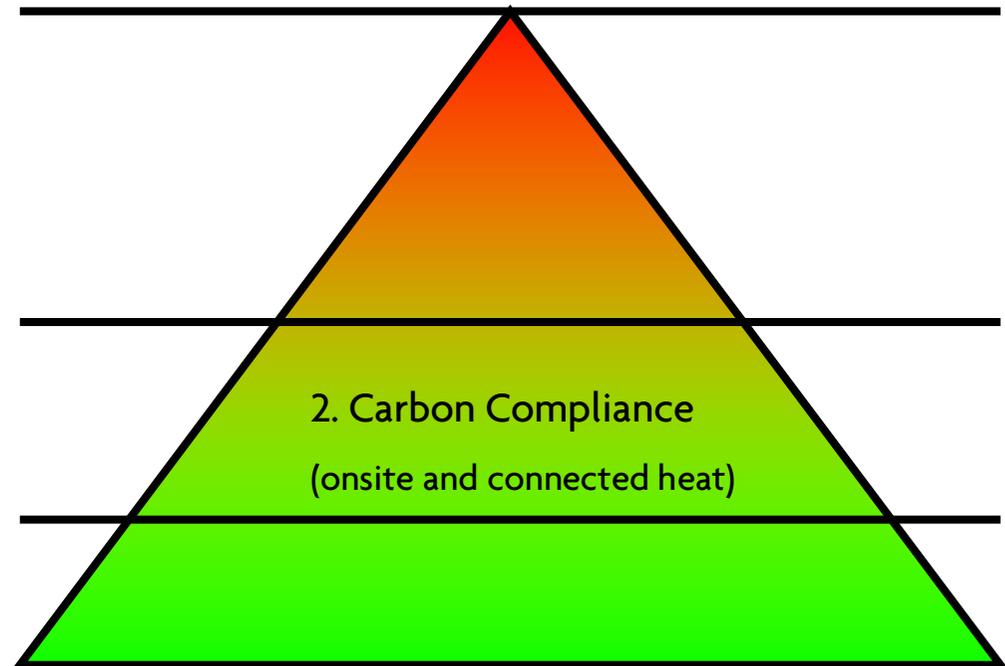
Energy Efficiency

- Consultation currently in progress to define this for homes (U-values, air-tightness, HVAC strategy)
- Consideration being given to
 - Building practices
 - Buildability at mass scale
 - Complexity/Health
 - Layout/Desirability
 - Build cost
 - Maintenance and cost
- Energy efficiency level likely to be defined in kWh/m², instead of HLP as used by CfSH.
- Decision expected by end 2009.

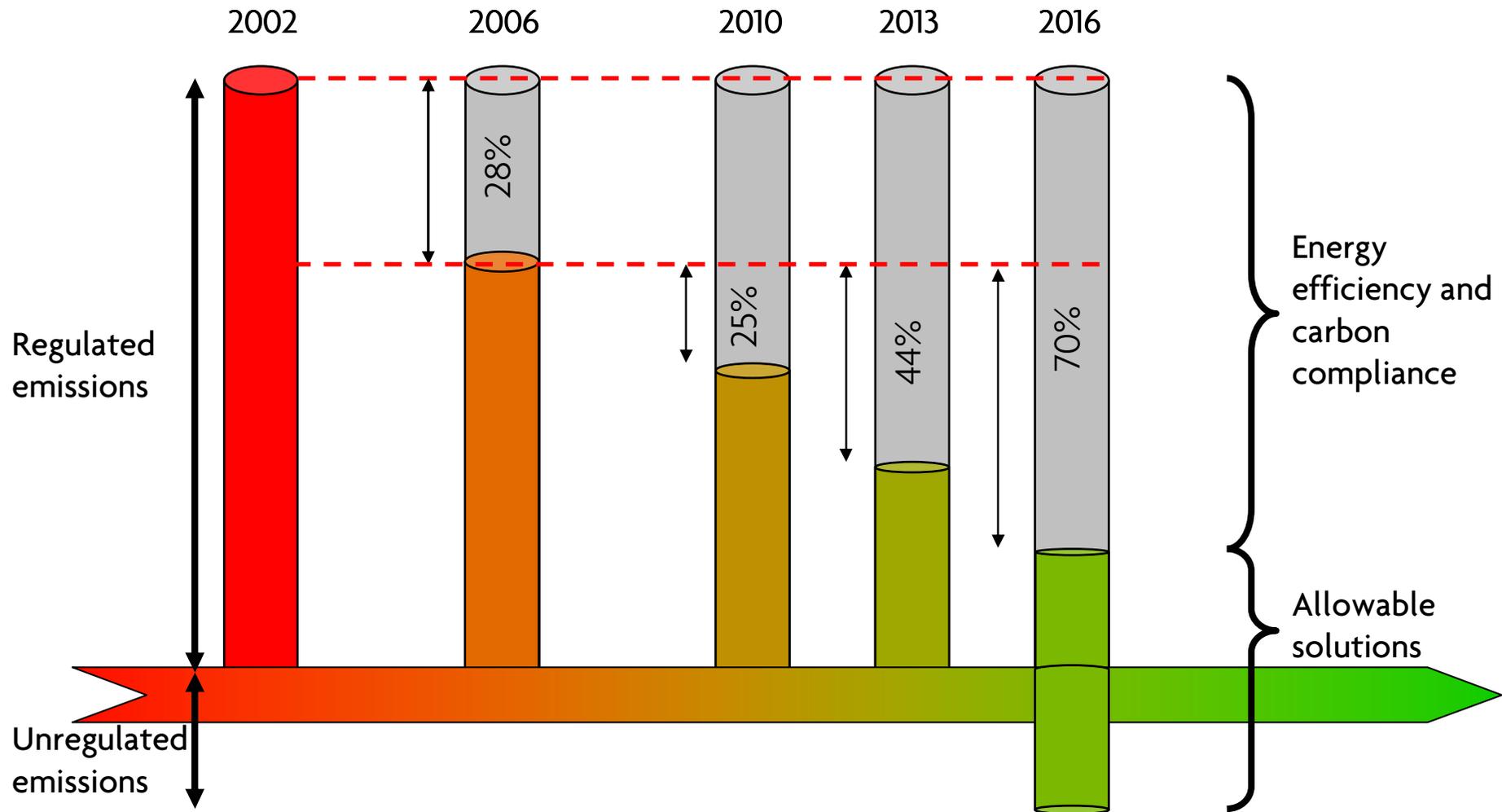


Carbon Compliance

- Requires a minimum level of carbon reduction, as set out by Part L, comprising of:
 - Energy efficiency measures.
 - Onsite LZCs.
 - Directly connected heat.



Domestic Carbon Compliance Reduction Targets

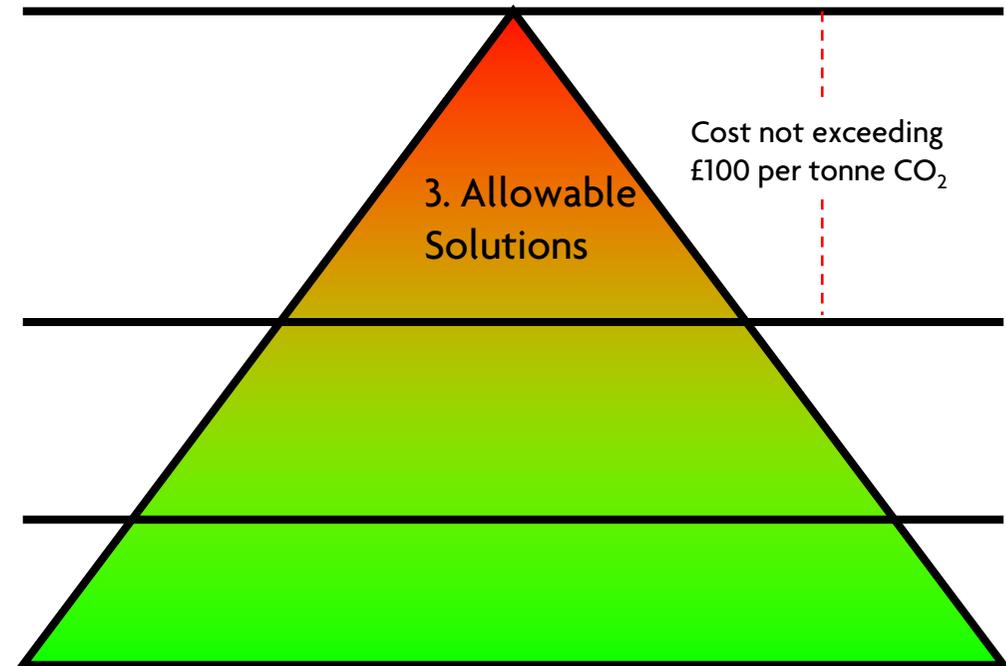


Onsite vs. Offsite

- The Government proposes that only onsite LZCs and directly connected heat (not necessarily onsite) be counted towards carbon compliance.
- LZC energy installations built within the development would count (as directly connected heat).
- Offsite renewable electricity is excluded as most offsite renewables will tend to be connected via the existing transmission network. Directly connecting these renewables to the development may involve additional work and unnecessary expense.
- Thus, offsite electricity generation may be included as part of the package of Allowable Solutions, whether directly connected or connected via existing transmission network.

Allowable Solutions

- Designed to address residual CO₂ emissions.
- Intended to promote innovation in low carbon built environment.
- Intended to engage local authorities with regard to reducing the emissions of the surrounding area.
- Will cover emissions from home for 30 years after build.
- Capped at £100 per tonne (£0.1 per kg) based on future price of ROCs.



Max cost of Allowable Solutions = residual CO₂ emissions (kgCO₂/m²/year) x area of development (m²) x 30 (years) x 0.1 (£/kgCO₂)

Allowable Solutions

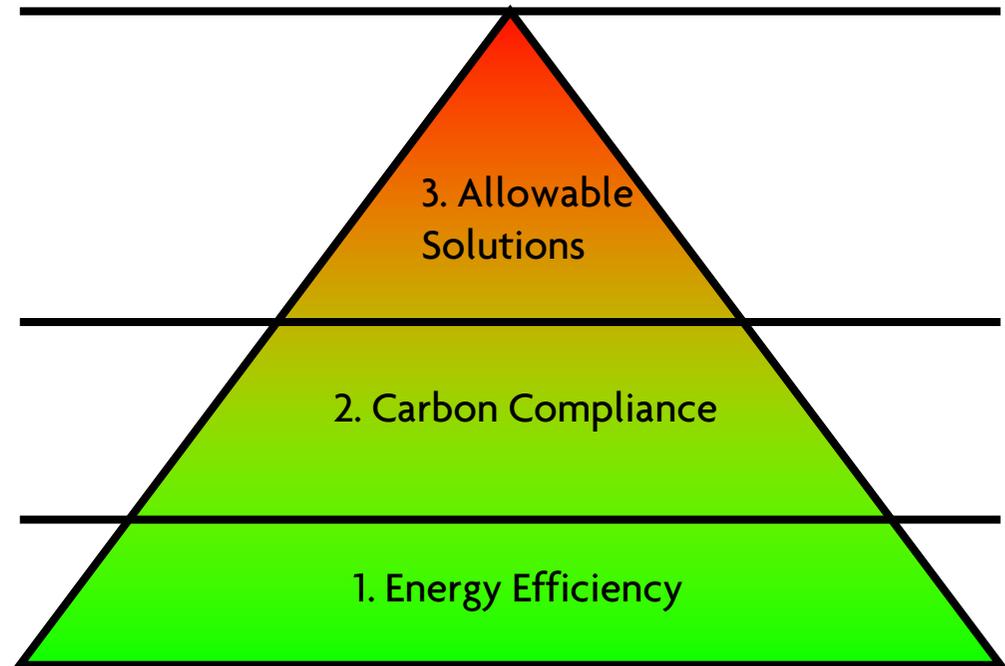
- Favoured solutions:
 - Carbon compliance to account for building and appliance emissions.
 - Credit for energy efficient appliances or systems installed by house builder.
 - Export of LZC heat (or cooling) to existing properties previously treated by fossil fuel technology.
 - Credit for S106 Planning Obligations paid by developer towards local LZC infrastructure.
- Other possible solutions:
 - Offsite renewable electricity directly connected to the development.
 - Retrofitting works undertaken by developer to improve energy efficiency of existing buildings in vicinity of development.
 - Investment by developer in LZC energy infrastructure.
 - Any other measures to be announced in future...
- Implementation yet to be defined – further explanation expected early 2010.

Non-Domestic Buildings

- Non-domestic buildings are far more varied in terms of size, shape and usage than homes, leading to a wide range in levels of energy consumption.
- Construction goals are more varied:
 - Speculative development.
 - Owner occupier.
 - Long term community involvement.
- Definition of ‘zero carbon’ should at least cover regulated emissions.
 - This differs from housing definition as it does not include appliance loads.
 - To prevent incentivising changes of use.
 - However this does not send out a consistent message, as appliance loads are often the highest contributors to emissions.

Non-Domestic Buildings

- Initial proposal is to follow the same hierarchy of measures as those suggested for homes.
- Additional consultation has been published on regulatory aims and milestones for zero carbon non-domestic buildings – currently under review
- Approach for CO₂ reductions will be similar to that for homes.
 - 25% in 2010.
 - Different targets from homes from 2013 onwards



Conclusion and Next Steps

- As described above, the proposal is for a hierarchy of solutions.
 - First two levels are similar to what we have now.
 - Third level will require additional definition and mechanisms of enforcement.
- A similar approach is proposed for non-domestic buildings, however this is being consulted on in more detail and more information will be available shortly
- Further definition on standards and Allowable Solutions is expected early 2010.
- Feed in Tariffs and Renewable Heat Incentives will improve the financial viability of onsite LZCs.
- Costs of Allowable Solutions will need to be compared against Carbon Compliance measures
- Code for Sustainable Homes will need to be revised to be consistent with these changes. Consultation expected in 2010.