

# Sustainable Buildings – The English Approach

Australian Sustainable Built Environment Council  
Sydney Town Hall, 2 March 2010

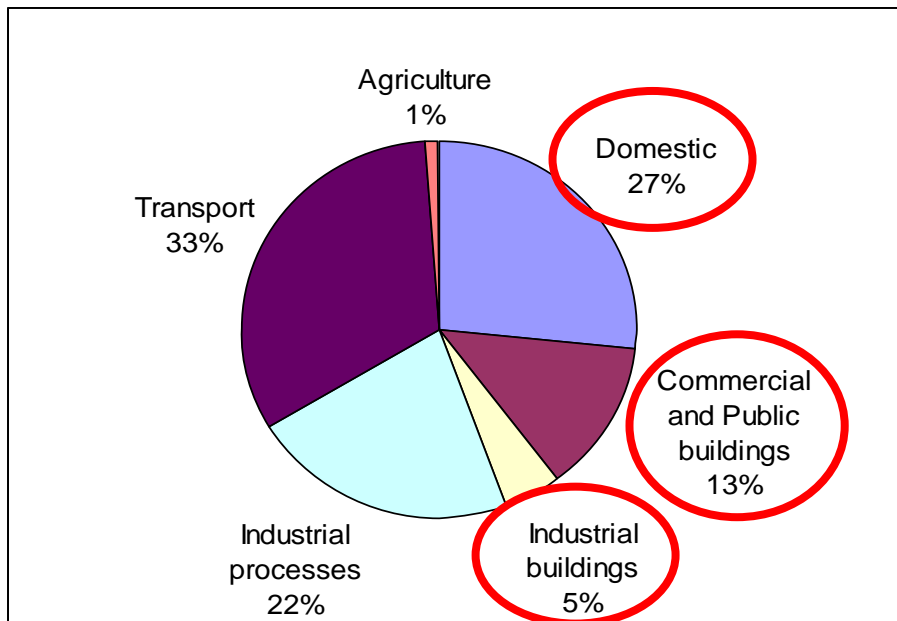
Sarah Sturrock, Deputy Director of Sustainable Buildings

- explain the policy position in England
- describe the policy tools & plans
- review impact to date and future challenges

## Starting with a national statutory driver ...

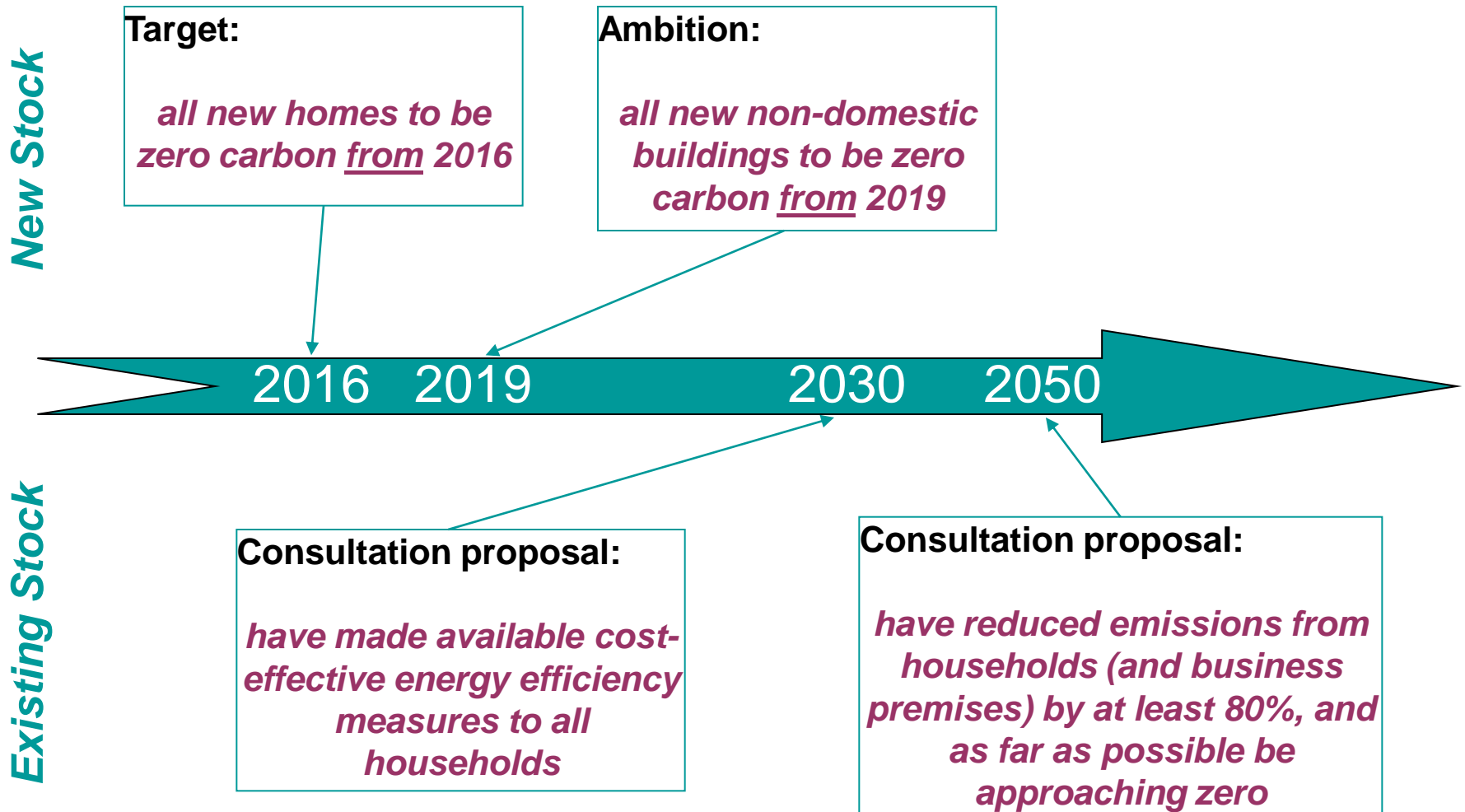
### *Climate Change Act 2008:*

*target to reduce greenhouse gas emissions by 80% by 2050  
(against 1990 levels)*



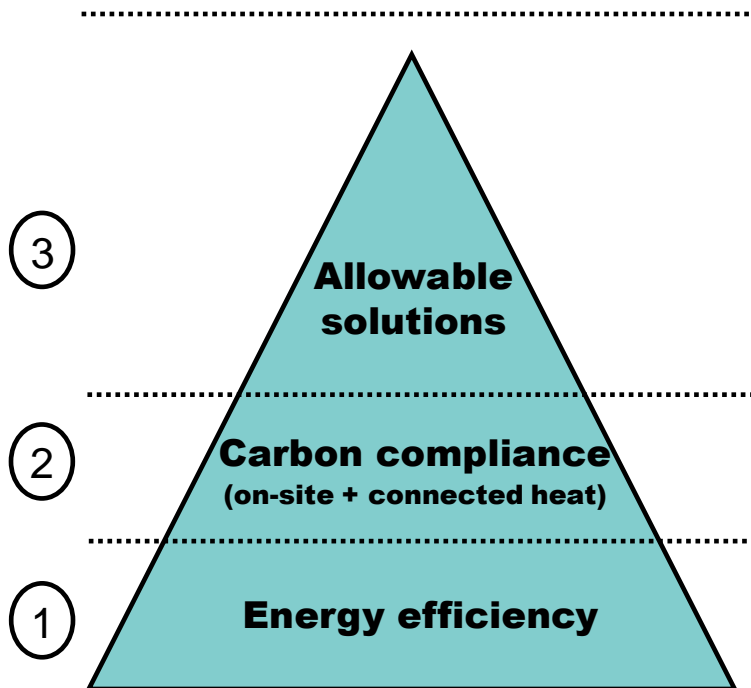
- buildings need to contribute at least 80% reductions to achieve this – maybe more
- even with assumptions about Grid decarbonisation, still need:
  - challenging targets for new buildings and
  - extensive retrofitting of existing buildings

## A developing policy landscape ...



- new homes to be zero carbon from 2016
- zero carbon = “net carbon emissions from all energy use in the home will be zero” (excludes embodied energy)
- a design/build standard, but factoring in assumptions about in-use energy – ie 100% reductions + further 50% to count for appliances
- 3 steps:
  - 2010 25% improvement on 2006 regulatory standards
  - 2013 44% improvement on 2006 regulatory standards
  - 2016 zero carbon
- Stamp Duty Land Tax relief for new homes built to zero carbon standard for 5 years (1 October 2007 – 30 September 2012)

*June 2009 – policy  
statement on definition of  
zero carbon*



## Zero carbon for new homes ...

- **energy efficiency standard** – to drive fabric improvements (industry task force asked to develop – proposed a passive standard of 39/46 kWh/m<sup>2</sup>/yr – Govt currently consulting)
- target of 70% reduction for '**carbon compliance**' ie further energy efficiency + on site renewables, including connected heat
- tackle remaining carbon emissions by choosing measures from a limited list of "**allowable solutions**" eg further on-site, high energy efficiency appliances, exports of low carbon or renewable heat, investments in low and zero carbon community infrastructure (& ongoing consideration of a 'buy-out fund')

### *Budget 2008 ambitions:*

- *all new non-domestic buildings to be zero carbon from 2019*
- *public sector to lead the way ie from 2018*

### **Current consultation (ends late Feb):**

- common policy principles with homes, but adapted as appropriate to reflect diversity of non-domestic building types and performance (supermarkets, offices, hotels, ...)
- open consultation – not setting out firm proposals on targets and trajectory, but exploring and seeking views on options – including whether to push for on-site or to see non-domestic buildings more for their potential as ‘anchor-loads’ for community energy & heat schemes
- underpinned by strengthened modelling of different building types, locational impacts, technological options and cost implications
- greater challenge about whether and how to cover unregulated energy
- recognising other policy tools impacting on businesses eg EU ETS

## Building Regulations changes 2010

Finalising changes to Part L (conservation of heat & power) in March 2010, to come into force in October 2010:

- 25% improvement on 2006 standards for homes and non-domestic buildings (consultation proposed 'flat' improvement for homes, but 'aggregate' for non-domestic buildings ie different requirements for different types to deliver overall 25% most cost-effectively)
- tightening standards for replacement of various building elements eg boilers, windows, etc
- consultation sought views on whether to remove current exemption for conservatories
- strengthening of systems to support and drive compliance, including more testing requirements & development of Accredited Construction Details
- Parallel changes to Part F (ventilation) and Part J (combustion appliances) in response to challenges of increasingly airtight buildings – but further research needed on building and health implications

Cost-benefit analysis for consultation proposals showed minimal additional capital cost to developers. 8

## Other tools to support the regulatory route

- Code for Sustainable Homes (see later) – and monitoring of post-construction performance
- Zero Carbon Hub – joint industry/Government funded body to support delivery of zero carbon. Current/recent work has included:
  - Task Force to develop proposals for energy efficiency standard
  - sustainable homes marketing strategy for housebuilders
  - skills & capacity
  - proposals for future development of assessment tools (SAP for homes, SBEM for non-domestic)
- Technology Strategy Board – Low Impact Buildings Innovation Platform (£10m + over 3 years to fund innovation to support future market development)
- Low Carbon Construction Innovation & Growth Team (BIS led) – joint Govt/industry review to identify barriers & opportunities to low carbon economic growth for construction (focuses include skills & capacity, supply chain & logistics, etc)
- Low Carbon Skills Strategy (DECC led)
- Looking at options for non-domestic buildings (some of above will cover) – but also considering public sector leadership eg exemplar programme
- Eco-towns – new towns with high sustainability standards, including for individual buildings

## Encouraging the development of more sustainable homes ...



Just under 3000 homes with completion certifications, 300,000+ registered for future certification.

A **single national standard** to cover aspects of sustainable design and construction of a home

Enabling **developers** to demonstrate the sustainability (above regulatory requirements) of their homes and differentiate themselves from their competitors

Aims to empower **home buyers** to drive demand for more sustainable homes

Came into effect at beginning of **April 2007**

**Some aspects** show the future direction of regulations

**Required for Government-funded social housing and by some local planning authorities.**

Code Level	Energy (% better than Part L 2006)	Water (litres/person/day)	Other Points required
☆	10%	120	33.3
☆☆	18%	120	43.0
☆☆☆	25%	105	46.7
☆☆☆☆	44%	105	54.1
☆☆☆☆☆	100%	80	60.1
☆☆☆☆☆☆	Zero Carbon	80	64.9

## 9 categories for the Code:

energy efficiency

surface water run-off

pollution

water efficiency

waste

management

materials

health & wellbeing

ecology

(Consultation on revisions due shortly)

**Expects** planning authorities to:-

- engage constructively and imaginatively with developers and others to encourage delivery of sustainable buildings;
- support innovation and investment in sustainable buildings and not deter novel/cutting-edge developments.

**Recognises** that there will be situations where appropriate to expect higher levels of building sustainability than set through building regulations.

**Enables** Local Planning Authorities to set local requirements for sustainable buildings for known opportunities where:-

- warranted/allowed by demonstrable local circumstances.
- viable and consistent with delivery against housing trajectory;
- brought forward in development plan documents to ensure examination by Inspector
- specified in terms of the achievement of nationally described sustainable buildings standards – Code for Sustainable Homes in case of homes

## What does a sustainable home look like?

### Illingworth Estate, Halifax



With the exception of the solar panels, these homes look no different on the outside to the others in the development. Note the thickness of the walls on the inside.



The first “saleable” Code homes in the country to have been completed.

Part of an original “Ecohomes” development for the Pennine Housing 2000 built by Bramall Construction Ltd

## What does a sustainable home look like?

### Mid Street, Nuffield in Surrey by Osborne for the Raven Housing Trust



These two homes have been designed and built to achieve Code level 5, incorporating a 100% reduction of carbon emissions compared to existing Building Regulations. Photovoltaic panels and rainwater harvesting are two of the sustainability features in this development.

*Photographs: Jeannette Henderson and Geoffrey Osborne Ltd*

## What does a sustainable home look like?



### Norbury Court, Staffordshire



Norbury Court is a social housing development in Staffordshire by Staffordshire Moorlands District Housing Association. It is a terrace of 9 homes built to Code level 3 standards.

# What does a sustainable home look like?

## Ecotessey, Norfolk



Ecotessey Park is a private sector development of 22 three and four bedroom family terraced houses in the village of Costessey in Norfolk. It is designed to meet Code level 3 standards.

## What does a sustainable home look like?



## CO2Zero, Bristol



CO2zero is a private sector development of live-work units in Bristol. There are 9 two story live-work units built to Code level 5 standards.

## Household Energy Management Strategy (due in March)

Issues under consideration from consultation last year:

- prioritising cost-effective measures (given high UK energy prices) - by 2015, to have implemented all measures like loft and cavity wall insulation where possible
- supporting development of solutions and capacity to deliver comprehensive whole house solutions to at least 400,000 homes per year, aiming to deliver in a significant number of homes (c. 7m in consultation) by 2020
- considering regulatory options for the future
- considering options for social housing stock, linked to a 'Decent Homes 2' programme
- by 2050, have reduced emissions from households (and business premises) by at least 80%, and as far as possible be approaching zero

## **Energy Performance Certificates:**

- Reflect potential energy performance of the building, based on available technologies, building control systems, etc
- in part, UK implementation of EU Energy Performance of Buildings Directive
- required for homes and non-domestic buildings at point of sale & rent
- including rating and tailored advice on possible steps to improve energy performance of buildings
- reported to central database

## **Display Energy Certificates:**

- reflect actual energy performance over a year
- only currently required for public buildings – but some calling for extensions on the basis of them being a powerful information tool that could help affect organisational behaviour & prioritisation

## Impacts & challenges

### Impacts ...

- significant improvement in energy performance of new buildings in last decade
- innovation drive
  - higher sustainability buildings
  - processes and technologies
- industry buy-in to the direction of travel
- signs starting to show that initial cost-estimates of zc are coming down
- cross-sectoral engagement in working through practical and technological issues - & learning from the Code for regulatory steps

### Challenges ...

- current economic conditions in UK – supply v. quality balance
- skills and experience across industry
- evaluating impact, particularly given the pace of change
- ensuring compliance with regularly tightening regulations
- potential for demand side ‘pull factors’ eg getting sustainability reflected in valuations
- user behaviour

# Thank You

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