

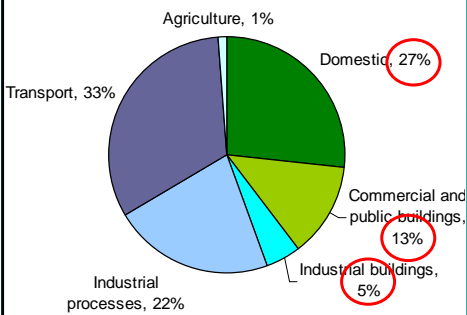
CLG's Primary Responsibilities concerning Climate Change - a personal view

M J Kelly, Chief Scientific Adviser, CLG
The Foundation for Science and Technology Meeting 4 June 2008
Royal Society

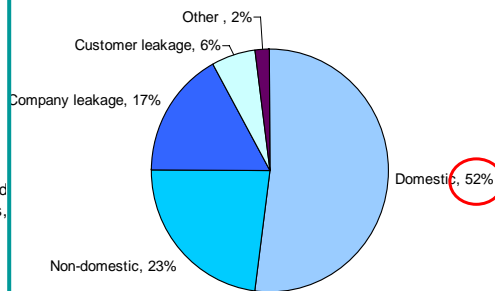
THERE IS ENOUGH SCIENCE IN
ALREADY

WHERE IS THE SOBER, ROBUST AND
INTEGRATED
ENGINEERING RESPONSE?

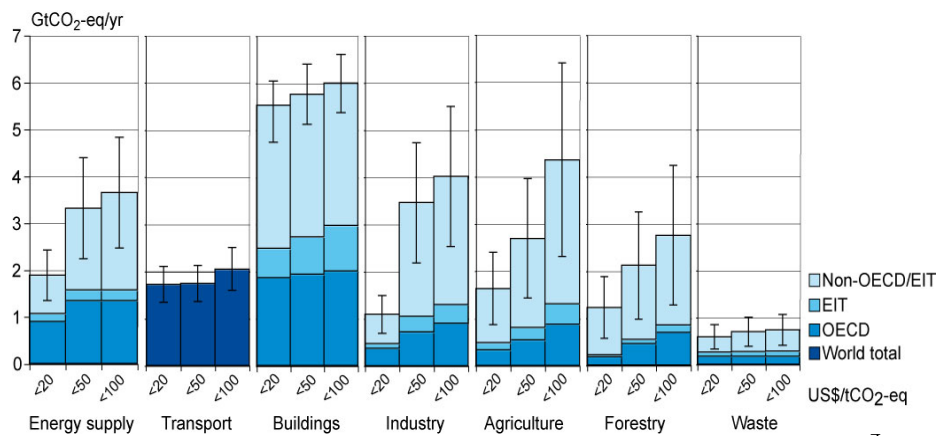
Carbon emissions from energy use in buildings account for 45% of UK emissions; our homes 27%



Water use in homes accounts for over half of public water consumption in England and Wales



Estimated sectoral economic mitigation potential in 2030 (IPPC4- May 07)



Carbon reduction and the built environment:

Three initial facts

- 1 HMG is about to commit to a 60% (and possibly 80%) reduction in carbon emissions by 2050
 - 2 45% of all present carbon emissions come from **existing** buildings and 27% from homes
 - 3 87% of **existing** buildings will still be here in 2050
- CLG is the single lead department of HMG concerning the built environment - planning, building regulations and code, etc
 - OGDs share the responsibility to square the circle implied by the first three facts.

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The 90% problem!

1990#:	154MtCO ₂ equivalent from housing 35% of energy saving interventions installed*
2005#:	147MtCO ₂ equivalent from housing 65% of energy saving interventions installed*
2020	114MtCO ₂ , HMG's <i>target</i> for housing

Must achieve savings at **six** times rate of recent history

Max 20% further reductions via 100% reach of * above.

Measured data, incontrovertible

* 3" loft insulation, >60% window double glazed, >60% rooms draught proofed, cavity wall insulation to modern standards



Low Carbon Transport
Innovation Strategy



May 2007

**Our Energy
Challenge**

Securing clean,
affordable energy for
the long-term





Greener homes
for the future



[Academy welcomes Gordon Brown's new focus on climate change](#)

20 November 2007

The Academy welcomes the Prime Minister's renewed focus on abating climate change as detailed in his first major speech on the issue yesterday. Last week's Intergovernmental Panel on Climate Change Synthesis Report clearly demonstrates that ***the need is for action to reduce emissions, not another round of even more detailed analyses and negotiations.*** Commenting on the Prime Minister's speech, Academy Vice President Dr Sue Ion OBE FREng said: "I welcome the Prime Minister's commitment to action given the stark warnings issued by the IPCC over the weekend - ***but we urgently need a roadmap that properly defines these challenges and begins to take practical steps to address them.*** There are massive opportunities for the UK's engineering sector and for young people to become excited by and engaged in 21st century engineering projects."

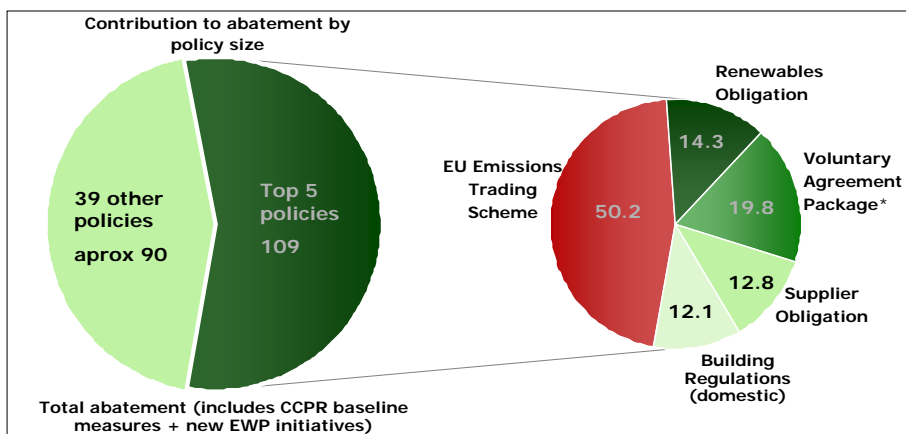
My italics/underlining for emphasis.

There are only two ways to reduce carbon emissions from existing buildings:

- (1) Changes in personal behaviour and
- (2) Re-engineering the fabric and energy sources

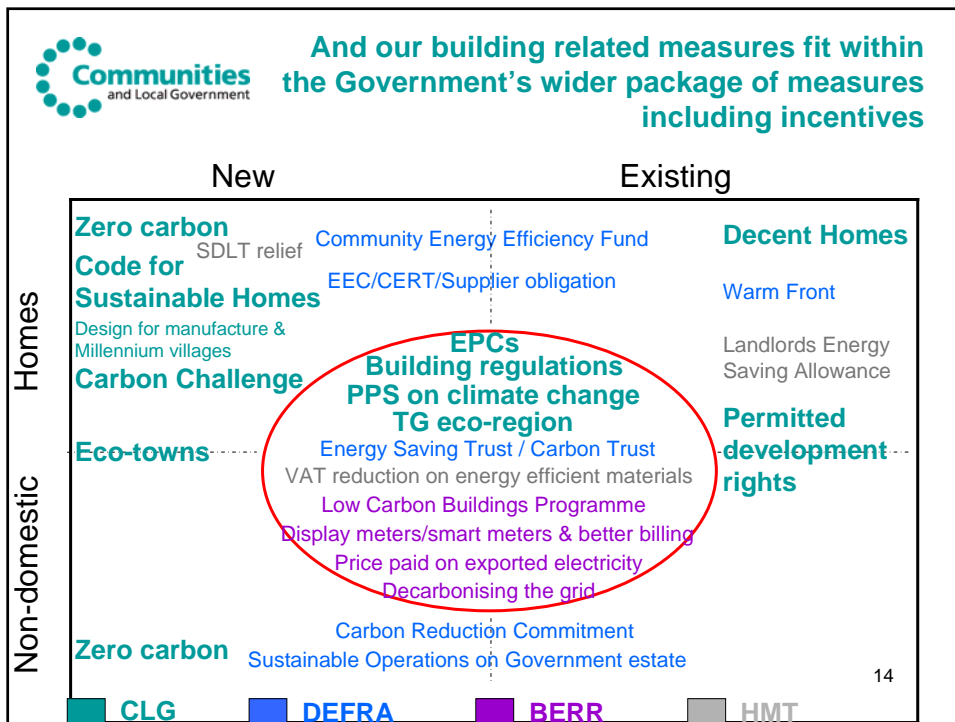
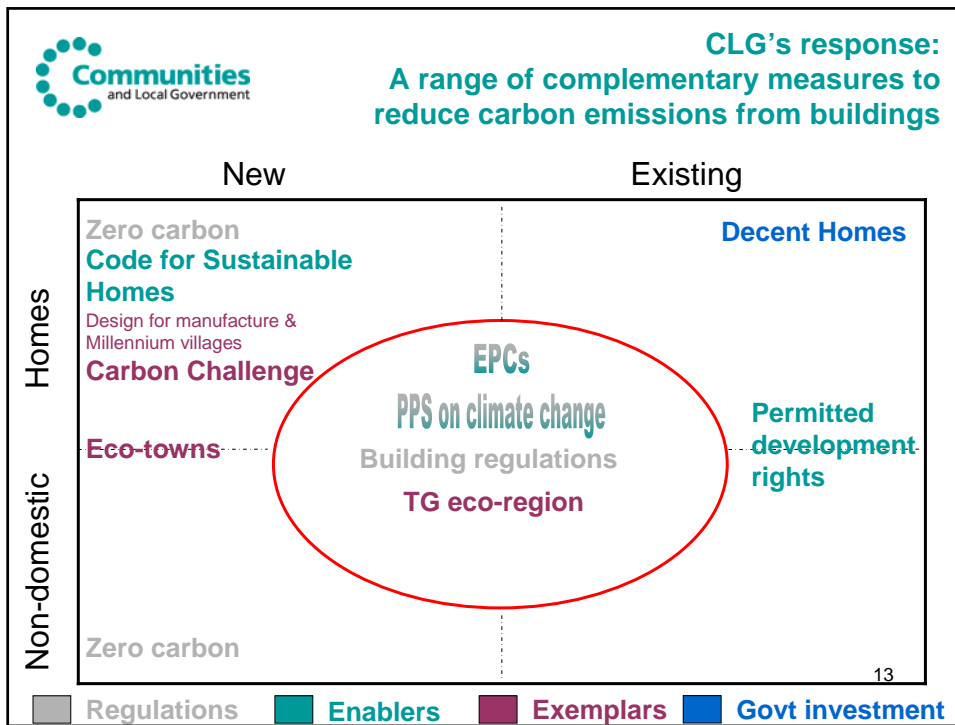
Policy must be aimed at either of these.

OCC: Five policies are expected to deliver over half of our emissions savings – but we also have many small measures



Sources: CCPR 2006; EWP 2007

*Includes extension to a mandatory target beyond 2009, the level of which is to be agreed



- (1) What do all these measures really and robustly add up to, in actual carbon savings?
- (2) What data for 2010 would convince us that we are on a satisfactory emissions reduction trajectory for 2015, 2020 and 2050?
- (3) Do we have the sensors in place to do the necessary measurements?

- A ROUTE MAP FOR LOCAL AUTHORITIES
 - devolved responsibility to deliver
 - LARCI vehicle
- A RETROFIT CONSORTIUM
 - aim to kick-start the retrofit market
 - breadth of players
 - water, air, waste and energy
 - scale of project – mitigate and adapt
 - market pull for research outputs
 - skills needs and gaps
- MANDATE HE/FE SECTOR TO GET THERE FIRST?

Too many small players?

The Existing Homes Alliance – launched yesterday – sets out action required to put UK housing stock on road to deep cuts in emissions and energy bills.

Energy for Sustainable Development	Places for People
Sustainable Energy Academy	Energy Savings Trust
Environmental Change Institute	UK Green Building Council
Energy Efficiency Partnership for Homes	AECB
Association for the Conservation of Energy	PRP Architects
The Housing Corporation	Green Alliance
Sustainable Development Commission	UCL: The Bartlett School
WWF	Chartered Institute for Housing

Up to half a million homes must be refurbished every year starting now, if we are to cut UK carbon emissions by the necessary 80 per cent by 2050.

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Is there a practical thermodynamic upper limit to what we can do in principle to (i) the fabric of a building and (ii) its contents, to reduce emissions?

Scale of the national challenge – is a ‘war-time’ footing needed?

How to develop real leadership in the retrofit sector?
–eco-build and new build can look after itself (?)

Do we have enough glass and glaziers, etc?

What about robust trajectories and associated metrics?

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