

Presentation to the Chelsea Society on Home Energy Efficiency and Town Planning

David Prout

Executive Director of Planning and Borough Development



THE ROYAL BOROUGH OF
KENSINGTON
AND CHELSEA

The Public's Perception of Climate Change

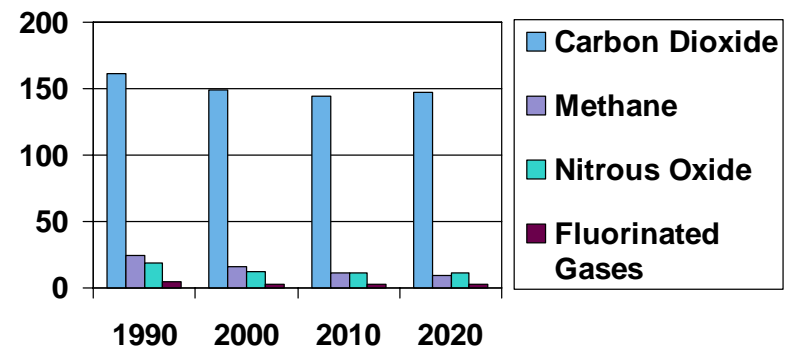
- Nationally, over 35% of people say the most serious threat to the future well-being of the world is global warming.
- When asked which issue people were most concerned about in their local environment, climate change came bottom with 25%.
- In Kensington and Chelsea (2005), 45% of people want us to encourage energy efficiency through siting, landscaping, design and use of materials
- 30% want renewable energy to be a requirement on larger developments



National Greenhouse Gas Emissions

- Carbon dioxide (CO₂) is the main greenhouse gas in the UK. It contributed around 77% of the UK's total emissions of greenhouse gases in 1990 or 161million tonnes of carbon (MtC). National CO₂ emissions are expected to decline to 2010 but then rise again by 2020.
- The other greenhouse gases are Methane, Nitrous Oxide and Fluorinated Gases.

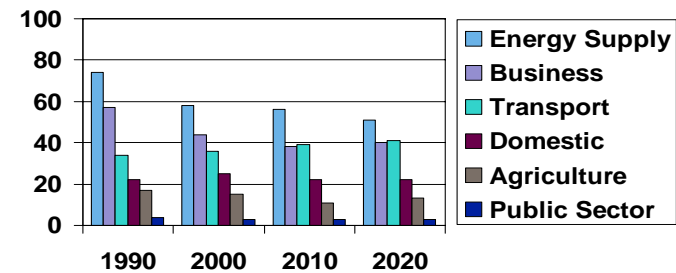
UK Greenhouse Gas Emissions,
MtC



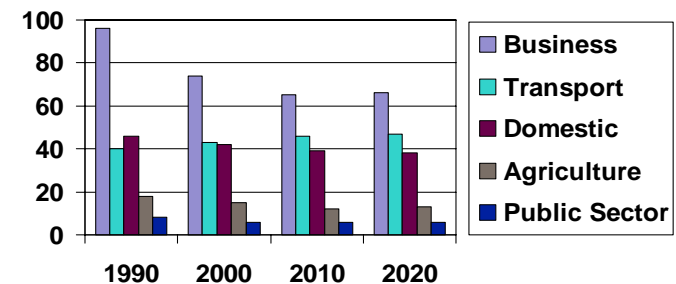
Sources of National Emissions and Consumption

- UK domestic greenhouse gas emissions in 2004 were 25 Million Tonnes of Carbon (MtC) or 14% of all sources.
- In 2004, UK domestic consumption was 44 MtC, 24% of all consumption.
- In 2010, UK domestic consumption is expected to fall to 39MtC, 23% of all consumption.

UK Greenhouse Gas Emissions by Source, MtC

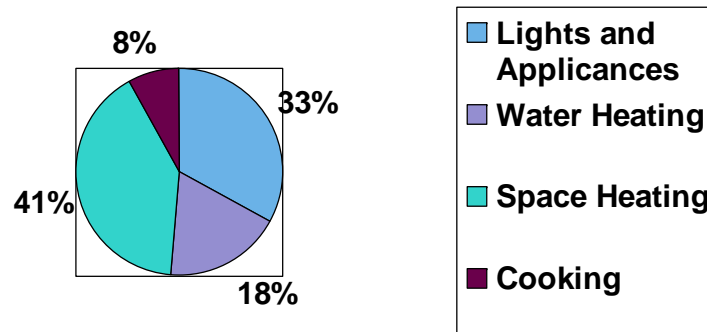


Greenhouse Gas Emissions by Consumption, MtC

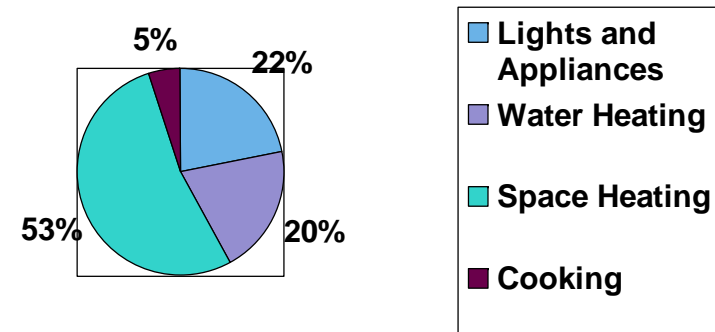


UK Carbon Dioxide emissions from Homes

UK Domestic CO2 Emissions by Consumption, 1990



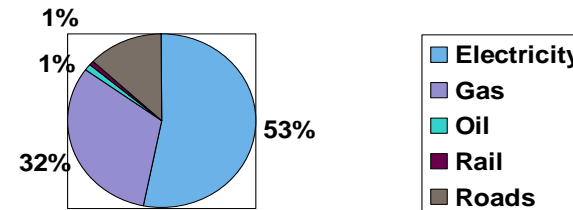
UK Domestic CO2 Emissions by Consumption, 2003



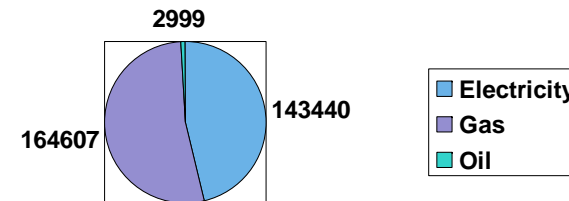
RBKC Carbon Dioxide Emissions

- In 2003, 993,830 tonnes of CO₂ was consumed in the Royal Borough. 311,198 tonnes was from homes (31% of total). This compares to homes being responsible for 42% of national CO₂ emissions.
- 85 per cent of the borough's CO₂ is from the consumption of electricity and gas.
- Of the energy consumed by homes, 46 per cent of CO₂ is from electricity consumption whilst 53 per cent is gas.

RBKC CO₂ from Energy Consumption 2003 (%)



RBKC Domestic CO₂ from Energy Consumption 2003 (in MtC)



Analysis of RBKC CO2 Emissions from Existing Homes

RBKC Survey of 5 Wards Private Housing Stock, 2006 by Fordham Research.
 The wards are Brompton, Colville, Courtfield, Pembridge and Queens Gate
 CO2 and Energy Bills estimates based on Energy Saving Trust online checker
 SAP is Standard Assessment Procedure for calculating energy efficiency in homes

Age of Property	No. Existing Dwellings (5 Wards)	SAP Rating per dwelling	CO2 (tonnes/yr) per dwelling	Energy Bills (£) per dwelling
Pre-1919	17,916	58	1.8	1,310
1919-1944	1,550	75	-	-
1945-1964	1,335	63	-	-
1965-1980	1,255	60	1.5	921
Post 1980	1,935	71		
1990			0.3	391
TOTAL	23,991	Average for 5 Wards= 60		

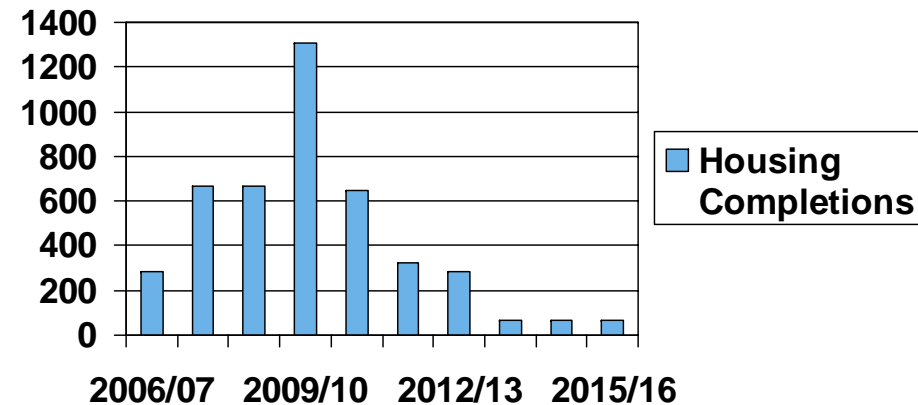


Analysis of RBKC CO2 Emissions from New Homes

From Building Regulations Part L Conservation of Heat and Power

- Energy Efficiency Standards for New Homes are now 40% better than before 2002 and 70% better than in 1990.
- The Government propose revising the Building Regulations to move to zero carbon new homes by 2016. This would involve a 25% energy/carbon improvement on the 2006 Building Regulations by 2010 and 44% by 2013.
- There currently 83,751 dwellings in the borough (2001 census).

RBKC Projected Housing Completions

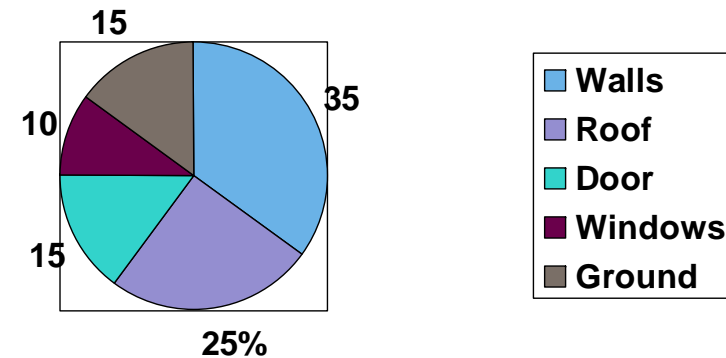


Insulation - Estimated Costs and Carbon Savings

The average UK household carbon dioxide emission is 1540 kilograms of carbon per year.

Insulation Type	Average Cost (£) per home	Cost Saved (£/yr) per home	Carbon Saving (kgC/yr) per home
Hot Water Cylinder	14	29	53
Cavity Wall	342	133	242
Loft	284	104	190
Solid Wall	3150	380	694

Home Heat Loss



Energy Saving Measures

The average UK household carbon dioxide emission is 1540 kilograms of carbon per year.

Energy Saving Type	Cost (£)	Bills Saving (£/yr)	CO2 Saving (kgC/yr)
Boilers	1,500	168	177
Micro CHP	1,571	230	508
Double Glazing	4000	41	26
Light Bulbs	From 2	24	100
Micro Wind Turbine	2,363	224	263
Solar Water Heating	2,625	48	88
Solar Electricity Panels	9,844	212	249



Planning Considerations

Based on an unlisted single family dwellinghouse in a conservation area (covers 72% of the borough):-

- Internal works do not require planning permission eg. Replacing boiler and lightbulbs or adding insulation internal to the building
- Planning permission is only needed if building work materially affects the external appearance and some building works are allowed without planning permission as 'permitted development'. The Government is currently consulting on proposals to allow Renewable Energy equipment to be installed on houses without requiring planning permission.
- Solar panels for heating or electricity may be permitted development for single family dwellinghouses
- Building regulations approval is required for building work that affects structure, fire and access eg. Part L (Conservation of Heat and Power) limits heat loss through the walls, roofs and floors of buildings; requires thermostatic and timing controls for space and water heating systems; insulation of hot water vessels pipes and efficient lighting systems. The revised Part L (2006) now requires a building to be designed as if it were built to 2002's standard using a gas condensing boiler as a notional heat source, but with it's CO2 emissions reduced by 20%.



Local Examples of Energy Saving

- 'Renewing the Legacy' 21 Projects eg. To refurbish St Joseph's RC Primary School Cadogen Street - environmentally-friendly new school. Energy usage and carbon emissions reduced by use of solar power, wind power, solar water heating and recycling its own water
- The 'Flagship Home' project at 36 Beaufort Gardens in 2006 – conversion of HMO in a conservation area to 18 bedsits and 1 flat. Includes condensing gas boiler and hot water cylinders using gas or solar power, external wall drylining insulation reduces heat loss through walls by 65%. Rear elevation double glazed windows. Energy costs have fallen by 67 per cent from approximately £3,400 to £1,100. CO2 emissions have been cut by 63 per cent from a level of 25.74 tonnes per year to 9.58 tonnes
- 2002 & 2004 Planning permissions for subterranean house at 95a Oxford Gardens. 1.8 metres above ground, 6.6m below ground. Includes green roof that holds 60% of rainwater. Solar water heating and solar panels providing energy. Electric car recharging point.
- There are at least 7 cases of planning applications submitted for renewable energy equipment in the since 2001 that have been granted planning permission



What the Council is doing - Strategies

- The Royal Borough Environment Day 12 June 2007. Workshops on how people can utilise energy saving and renewable energy technology and how what the Council is doing eg. Presenting the Green Development Guide.
- Supplementary planning guidance on permit-free and car-free residential developments (2004) supporting UDP policies to encourage walking, cycling and use of public transport.
- Environmental Strategy 2006-2011: decrease the Council's energy consumption by 2 per cent per annum, consumption of fossil fuels by 5 per cent by 2008 and increase investment in clean energy efficient technologies by 10 per cent by 2011.
- In January 2007 the Council signed the Nottingham Declaration on Climate Change acknowledging its existence, helping to meet the Kyoto target of CO2 reduction by 2010 and deliver action to tackle climate change through plans and on the ground
- One of the 6 themes of the Local Development Framework will be Sustainable Development



Key Evidence Sources

- Climate Change the UK Programme (DEFRA, 2006)
- Draft Planning Policy Statement: Planning and Climate Change (DCLG, 2006)
- London Energy and CO2 Emissions Inventory 2003 (GLA, 2006)
- DCLG Review of sustainability of Existing Buildings: The Energy Efficiency of Dwelling – Initial Analysis (DCLG 2006)
- Environment Strategy 2006-2011 (RBKC, 2006)
- RBKC Housing Study, 2005
- RBKC Stock Condition Survey of 5 Wards Private Housing Stock, 2006 by Fordham Research
- 2001 Census Standard Tables produced using SASPAC

