

Addressing climate change: the need for a step change

Julia King
Vice-Chancellor, Aston University Birmingham
Committee on Climate Change
www.theccc.org.uk

16th June 2010

Reasons to be gloomy...

- Copenhagen...
- Rate of progress...
- Aftermath of the recession...
- Public opinion...
- The scale of the emissions challenge...



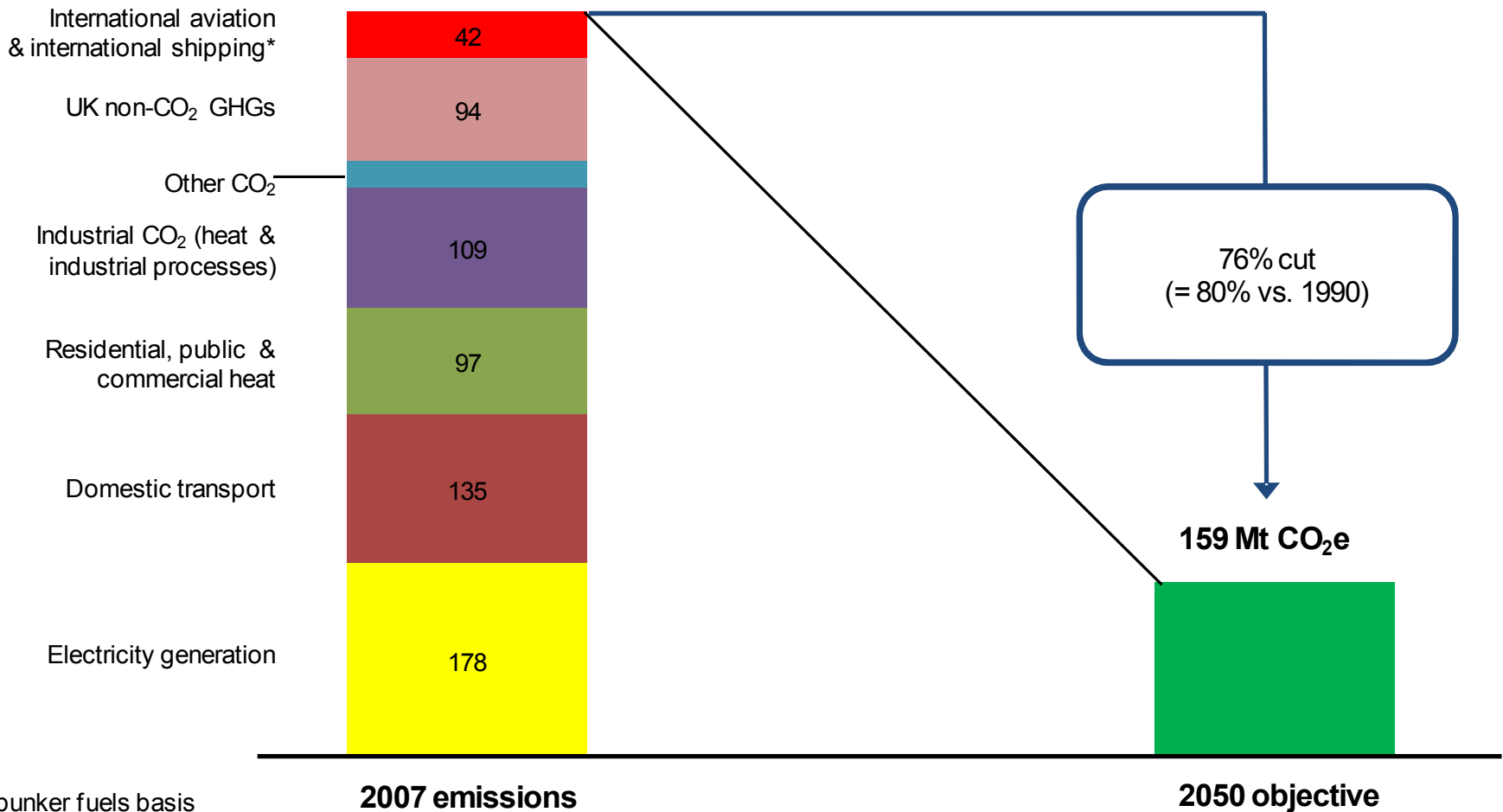
Your car emissions today = your total emissions in 2050 = ~ 2.5 tonnes CO₂ per annum

- ⌈ Already clear that some sectors will be unable to meet the 80% target: *aviation, farming...*
- ⌈ So others will need to exceed 80%: *power generation and land transport*

- Introduction: 2050 target and carbon budgets
- Progress in reducing emissions
- Key areas for new policies
 - Power, Energy use in buildings, Transport
 - Implications of the Coalition Agreement
 - Work of the CCC in 2010

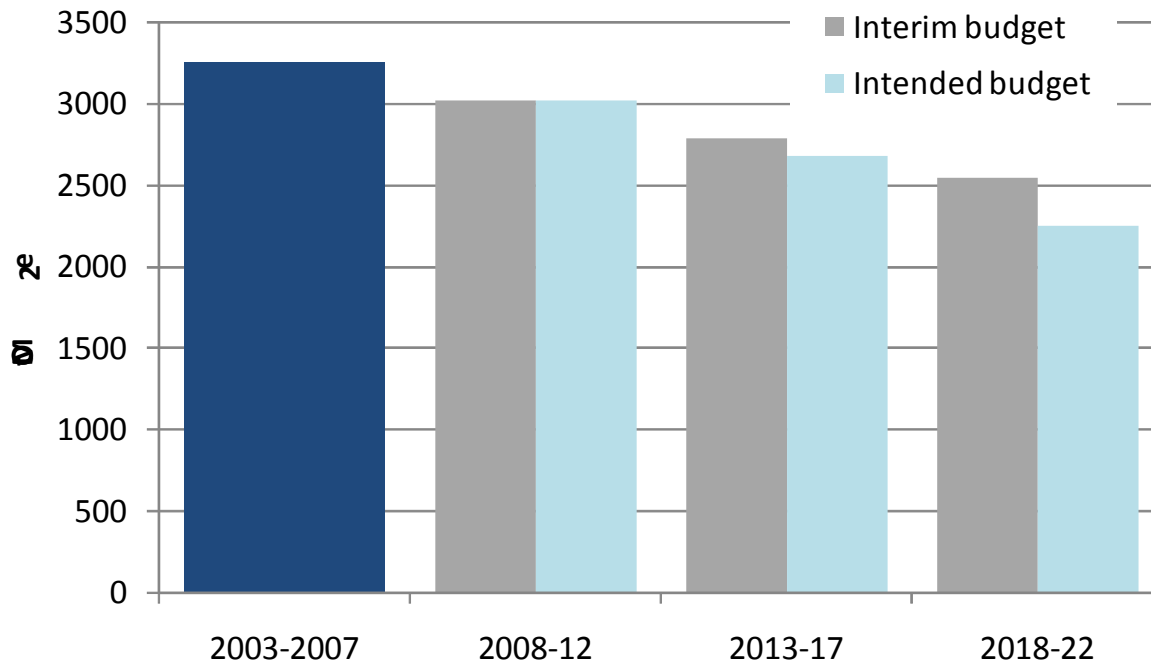
The UK challenge: 80% emissions reduction by 2050

679 Mt CO₂e



* bunker fuels basis

The Carbon Budgets: 'Interim' legislated in May 2009, move to the 'Intended' budget to be reviewed in 2010



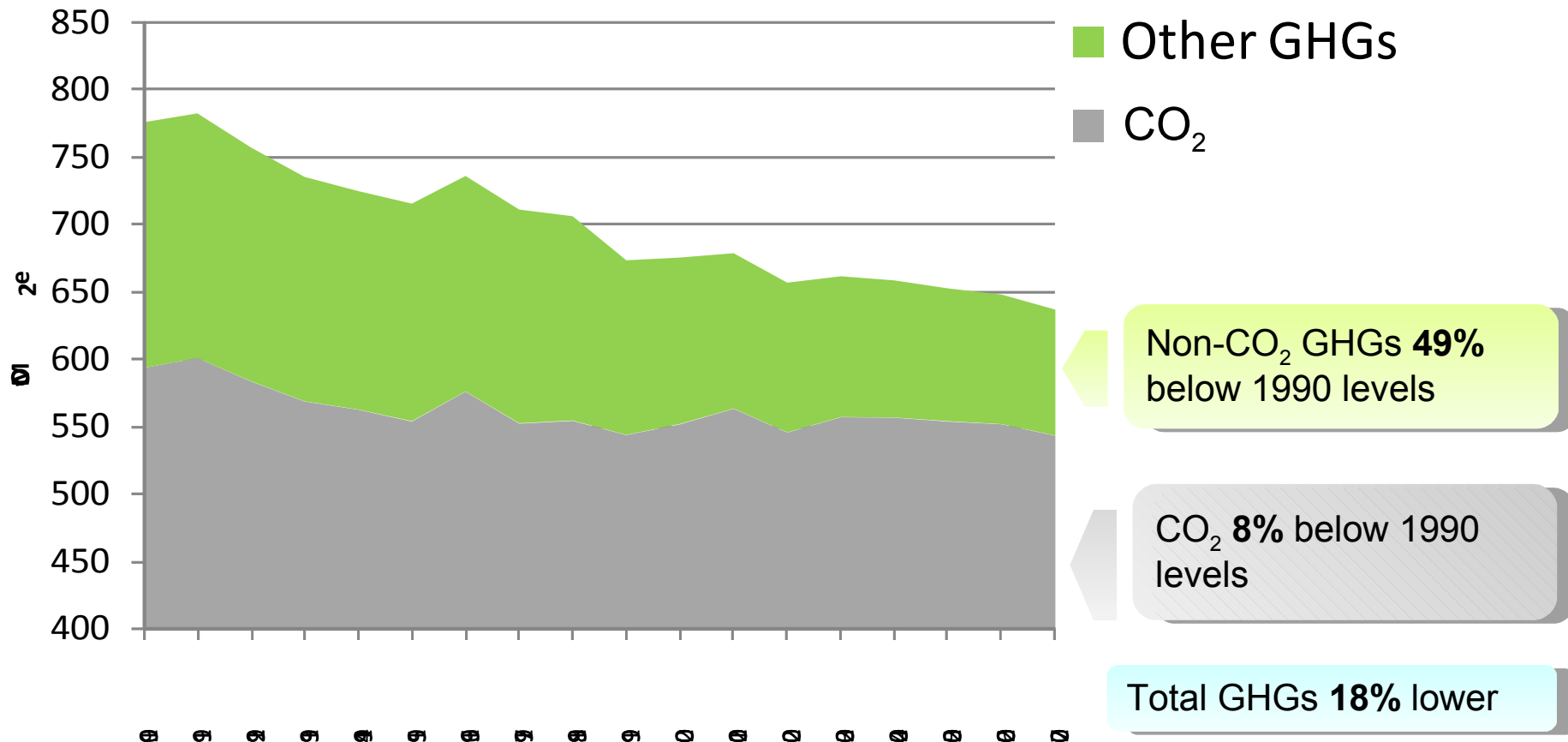
Interim: 34% cut in GHGs by 2020, relative to 1990 [20% on 2007 levels]

Global deal

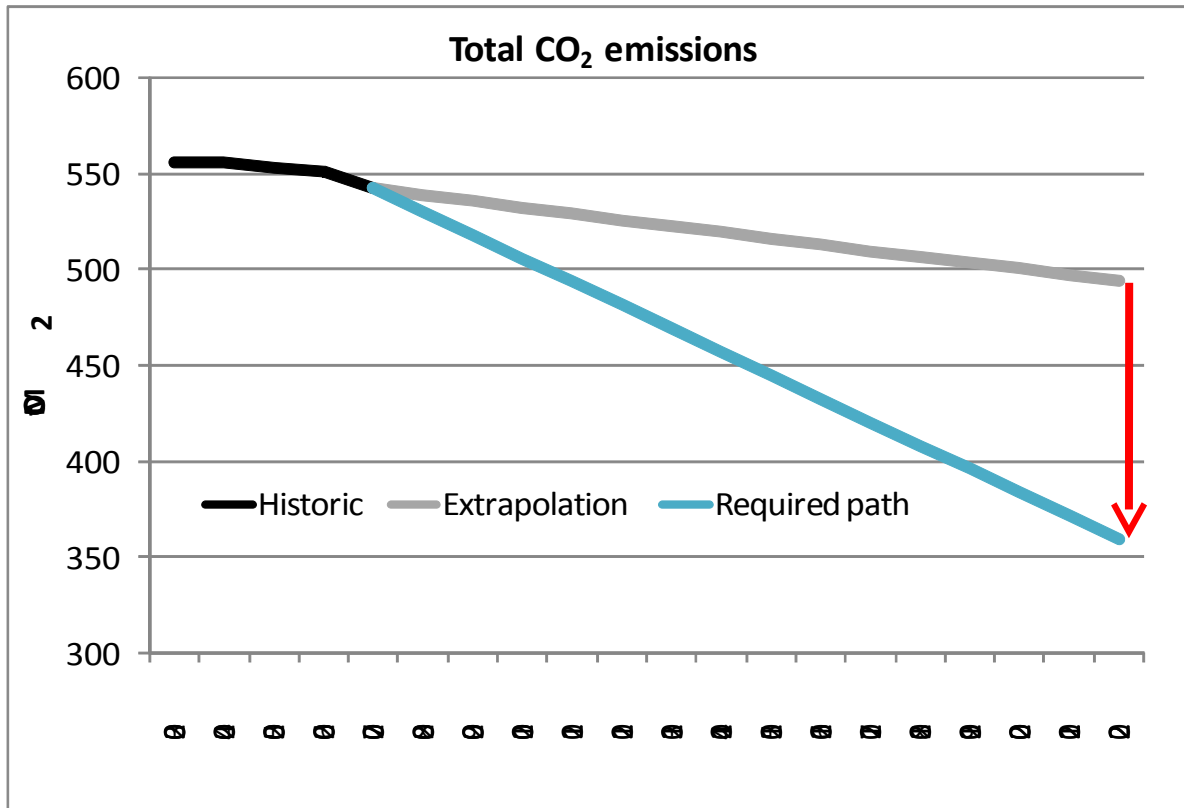
Intended: 42% cut in GHGs by 2020 relative to 1990 – to be reviewed following Copenhagen [29% on 2007 levels]

In 2007, GHG emissions were 18% lower than in 1990

UK GHG emissions 1990-2007



Meeting budgets requires a step change relative to recent progress



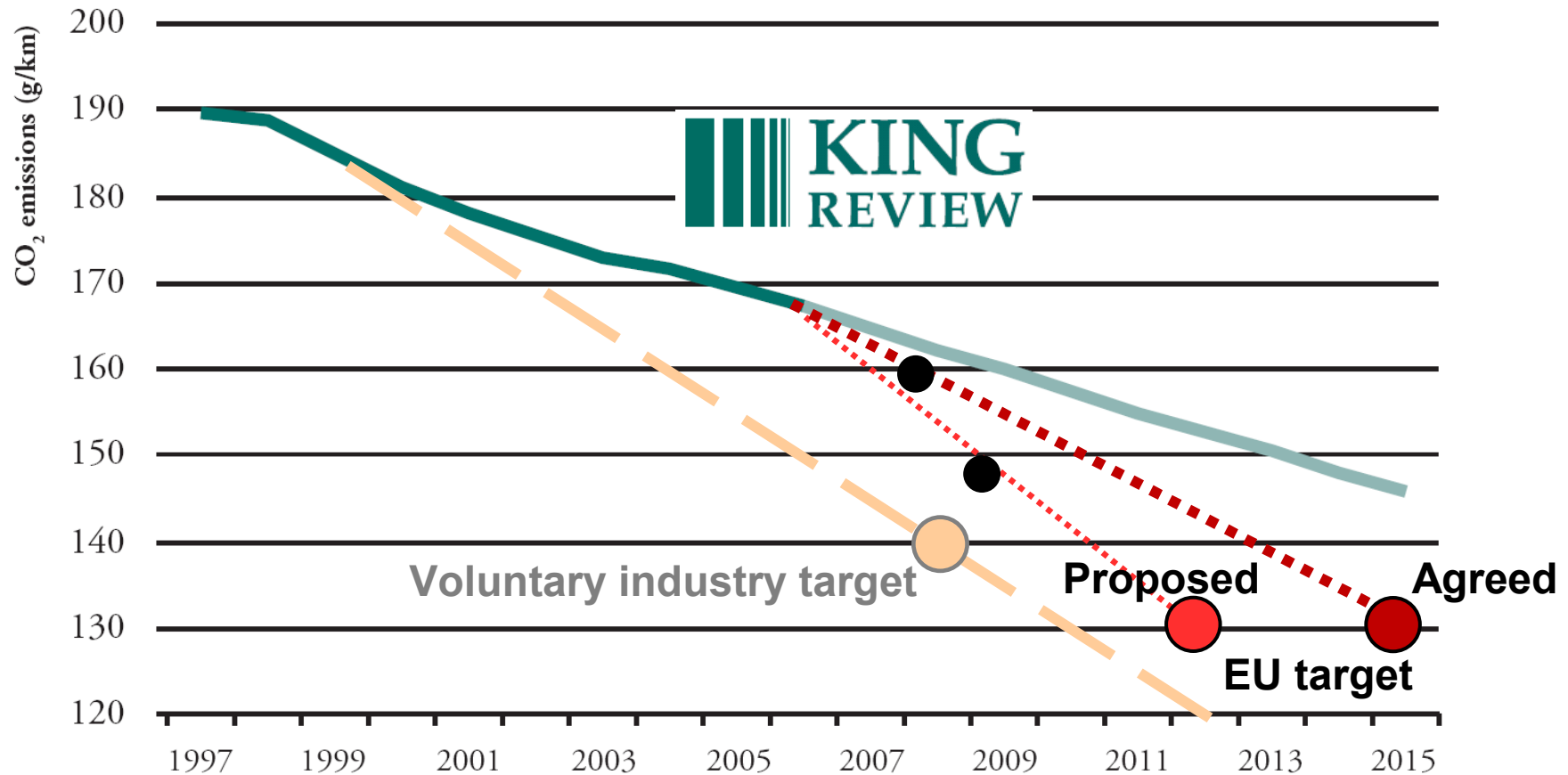
CO₂ emissions fell 0.5% annually 2003-07

Cuts of **2-3%** p.a. are required through first three budgets

A major shift in the pace of reduction is therefore required across **all** sectors

- ◌ 8.6% economy-wide reduction in emissions in 2009
- ◌ Power sector emissions fell 13%: high cost of coal, two nuclear plants came back on
- ◌ Reductions: recession and the generating mix effects
- ◌ Danger of a rapid rise as we recover
- ◌ UK's aim should be to outperform the first budget

Average new car emissions: falling fast

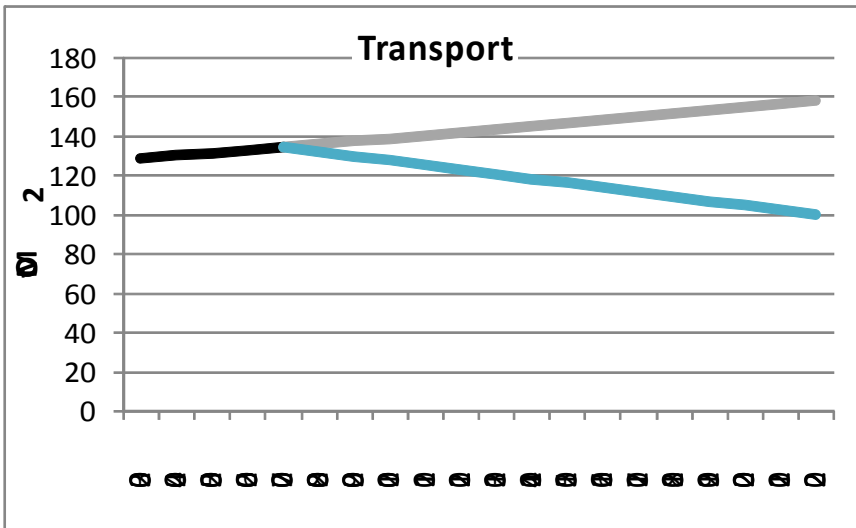
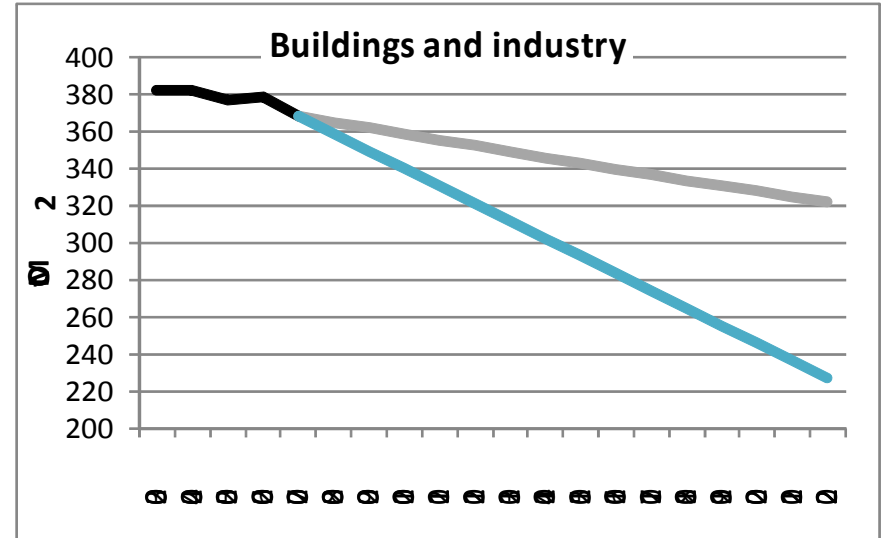
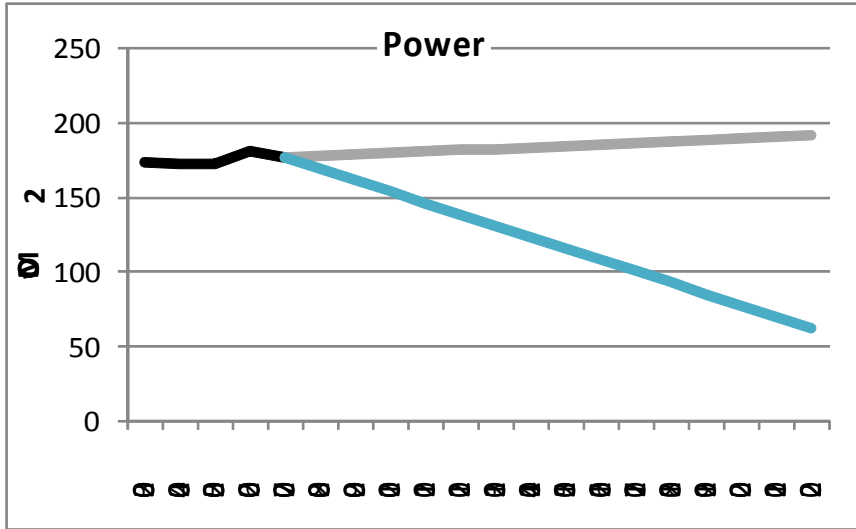


Source: Actual emission figures from SMMT

Factors:

- Technological improvements
- Consumer shift towards “best in class”
- Consumer shift towards smaller cars

Required progress in major sectors



- Historic
- Extrapolation
- Required path

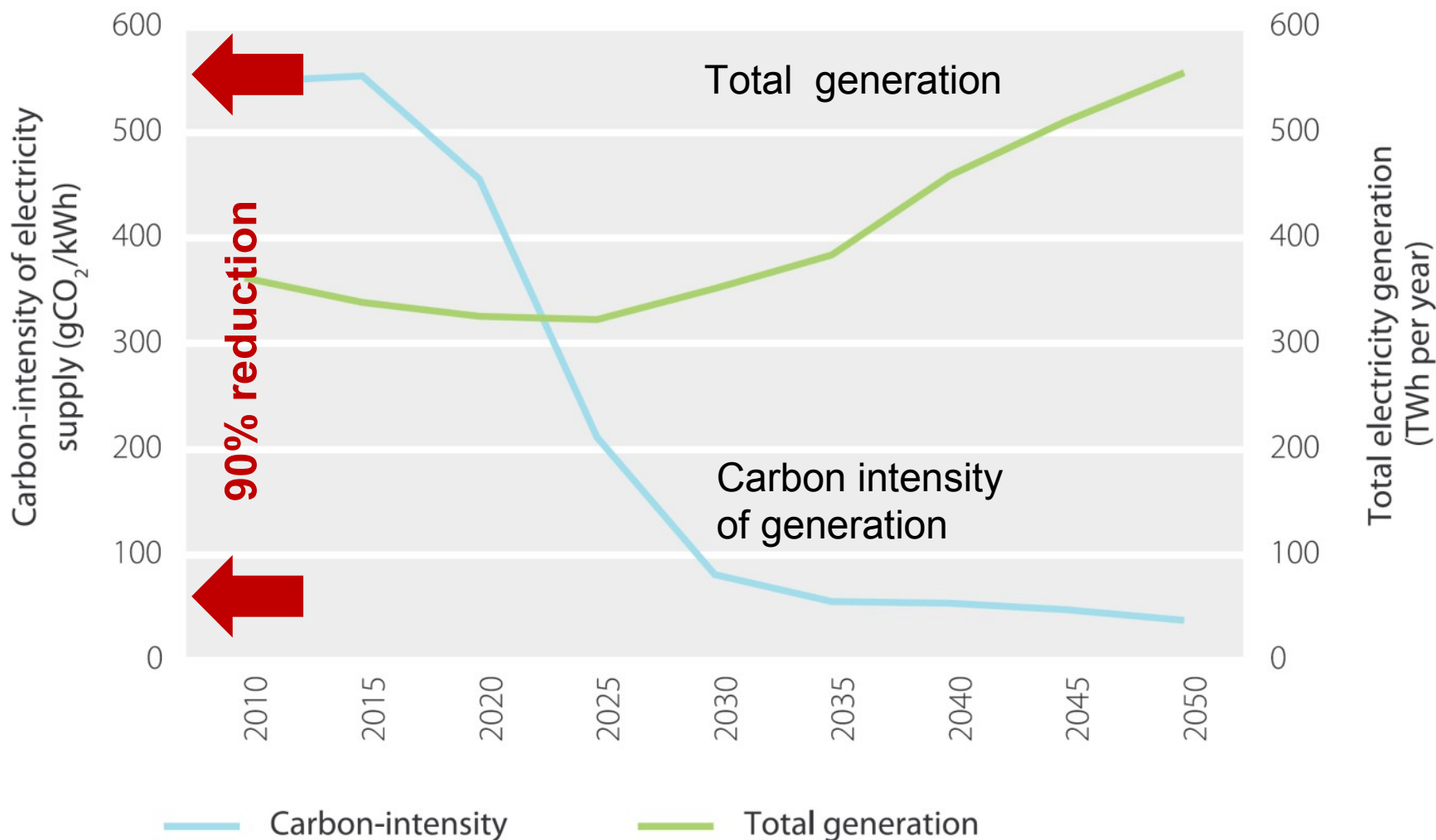
Three areas where new approaches are required:

Electricity and carbon markets

Energy efficiency in buildings: residential and the rest

Support for electric car penetration

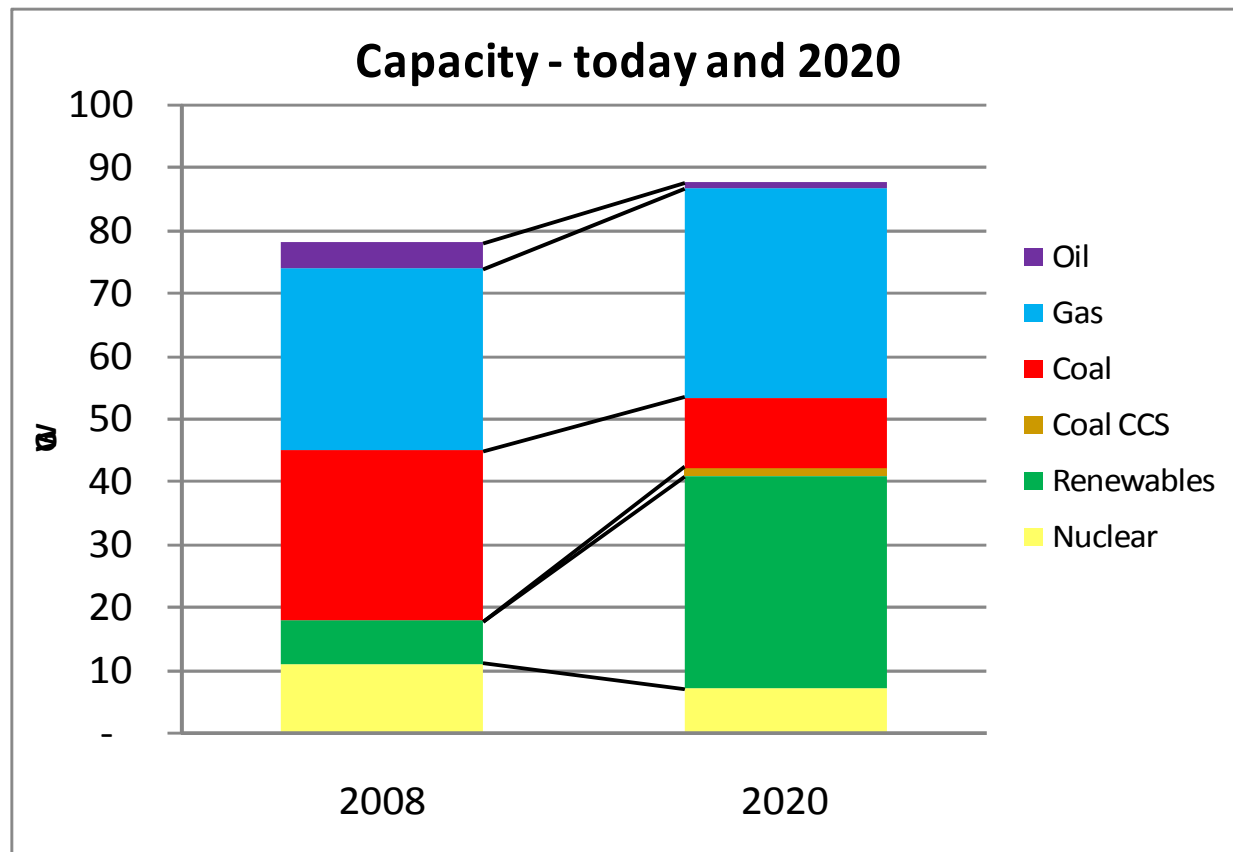
Required power sector emissions reduction



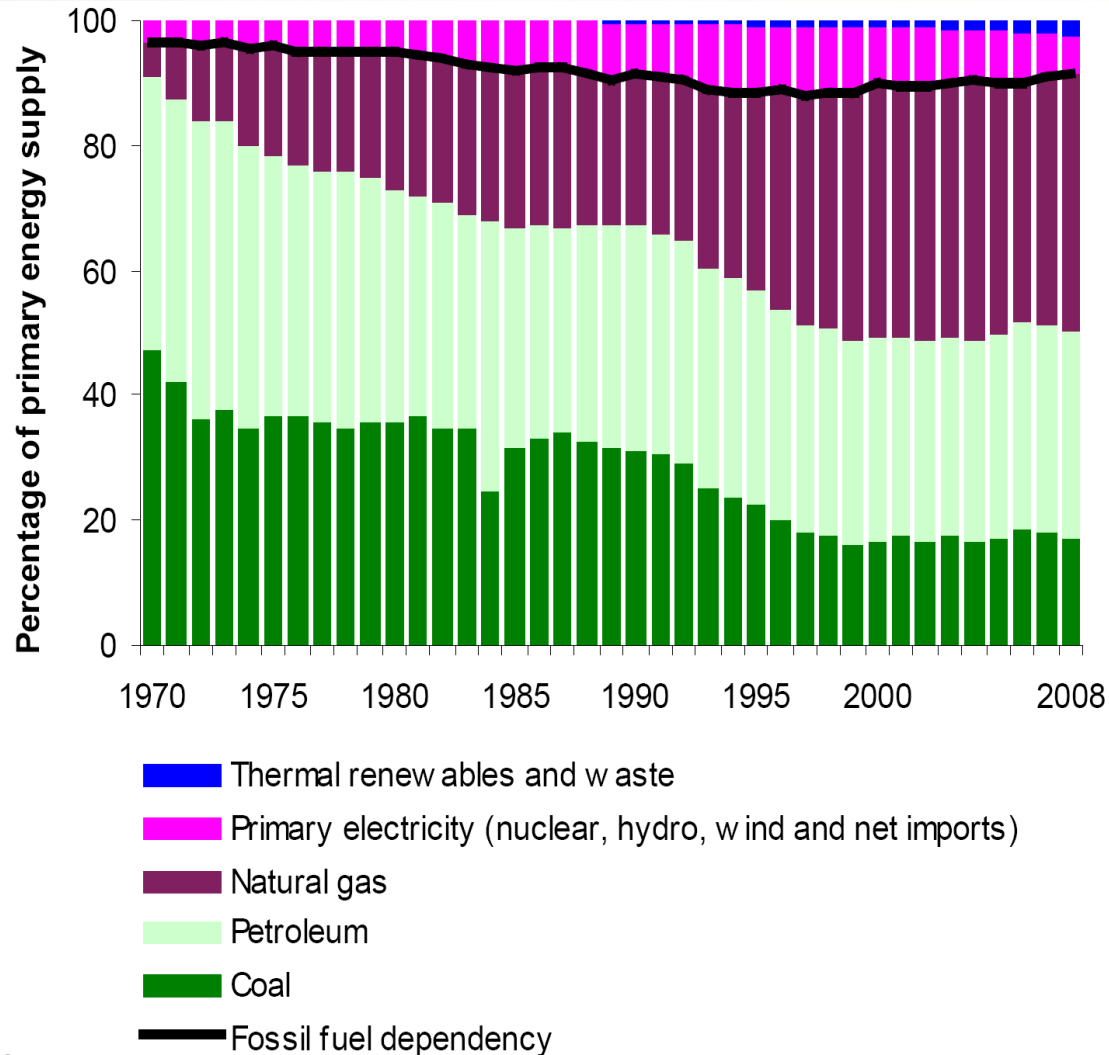
Significant change in the next ten years

We present an indicative scenario in which, by 2020 we see:

- 23 GW new wind
- Up to 4 new coal CCS demonstrators
- Up to 2 new nuclear plants, a third by 2022



Primary energy supply in the UK



Buildings: a major shift in ambition is needed

Insulation measures	Total needed to achieve carbon budgets (from 2008)	Delivered under CERT in 08/09	Installations needed per year to achieve carbon budgets
Lofts	10 million (by 2015)	0.7 million	1.3 million
Cavity walls	7.5 million (by 2015)	0.5 million	1 million
Solid walls	2.3 million (by 2022)	8600	165,000

Three pillar approach:

- ☾ **Whole house approach:** one stop shop covering all cost effective measures
- ☾ **Neighbourhood approach:** national government leadership, (e.g. strategy, legislation); area-based delivery with key role for local government and energy companies. Need to regulate private rented sector
- ☾ **Financing:** pay as save with some grants/subsidies to encourage uptake amongst fuel poor and more generally

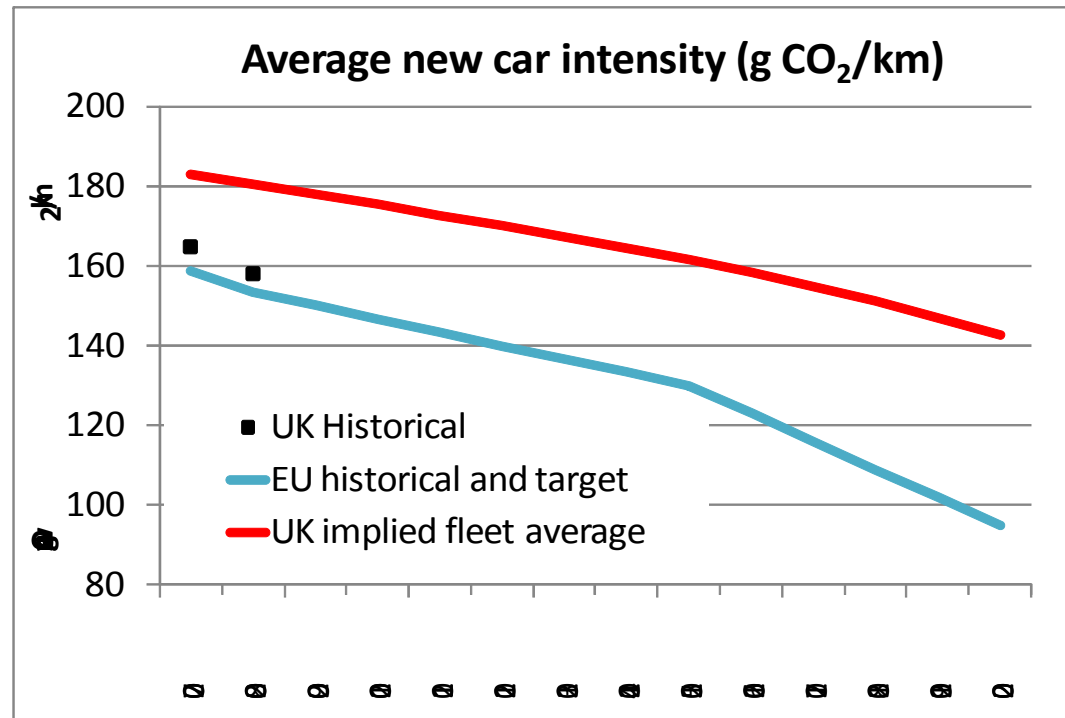
Consumer behaviour change

(total savings over 13 MtCO₂)

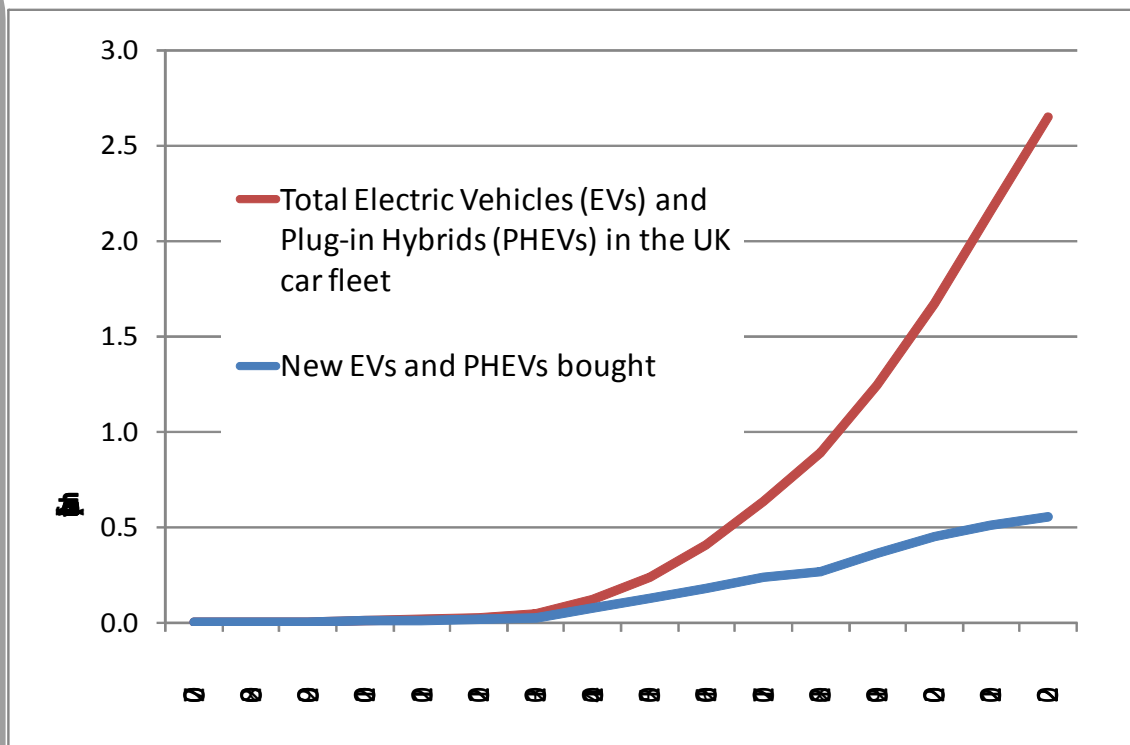
- Roll out of **Smarter Choices** based on Sustainable Travel Town pilots (3 MtCO₂)
- 4 million drivers trained and practising **eco-driving** by 2020 (1 MtCO₂)
- Enforce **speed limit** at 70 mph (1.4 MtCO₂)
- Integrated **transport and land use planning** strategy (2 MtCO₂)
- Road pricing could save additional 6MtCO₂ in 2020

Improving the car fleet

- Meet EU target for new car emissions of **130g/km** in 2015 and **95g/km** in 2020
- Would save **11MtCO₂** in 2020



- Models expected to come to market in next few years.
- Scope for substantial **battery cost reduction**.
- Government has committed price support of £2,000-5,000 per car totalling £230 million; CCC analysis suggests **up to £800 million may be required**.
- Government **support for development of charging infrastructure** is required.
- Pilot projects targeting 240,000 cars in 2015, on way to **1.7 million in 2020**.
- **Limited impacts on power networks to 2020**.



A step change in the rate of emissions reduction:
from 0.5% to 2-3% reduction in CO₂ per annum

Three areas where new approaches are required:

Electricity and carbon markets

Building energy efficiency

Support for electric car penetration

The coalition agreement: environment



The parties agree to implement a full programme of measures to fulfil our joint ambitions for a low carbon and eco-friendly economy, including:

The establishment of a smart grid and the roll-out of smart meters.

The full establishment of feed-in tariff systems in electricity – as well as the maintenance of banded ROCs.

Measures to promote a huge increase in energy from waste through anaerobic digestion.

The creation of a green investment bank.

The provision of home energy improvement paid for by the savings from lower energy bills.

Retention of energy performance certificates while scrapping HIPs.

Measures to encourage marine energy.

The establishment of an emissions performance standard that will prevent coal-fired power stations being built unless they are equipped with sufficient CCS to meet the emissions performance standard.

The provision of a floor price for carbon, as well as efforts to persuade the EU to move towards full auctioning of ETS permits.

Mandating a national recharging network for electric and plug-in hybrid vehicles.

Continuation of the present Government's proposals for public sector investment in CCS technology for four coal-fired power stations; and a specific commitment to reduce central government carbon emissions by 10 per cent within 12 months.

We are agreed that we would seek to increase the target for energy from renewable sources, subject to the advice of the Climate Change Committee.

Liberal Democrats have long opposed any new nuclear construction. Conservatives, by contrast, are committed to allowing the replacement of existing nuclear power stations provided they are subject to the normal planning process for major projects (under a new national planning statement) and provided also that they receive no public subsidies

- ② **Progress report to Parliament (June 2010)**
- ② **Review of low carbon R&D (Summer 2010)**
- ② **Advice on the fourth budget, including review of latest science and implications of Copenhagen (December 2010)**
- ② **Advice on achieving power targets without nuclear**