

Meeting carbon budgets – The need for a step change

“Tougher targets on climate change”

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Committee on Climate Change

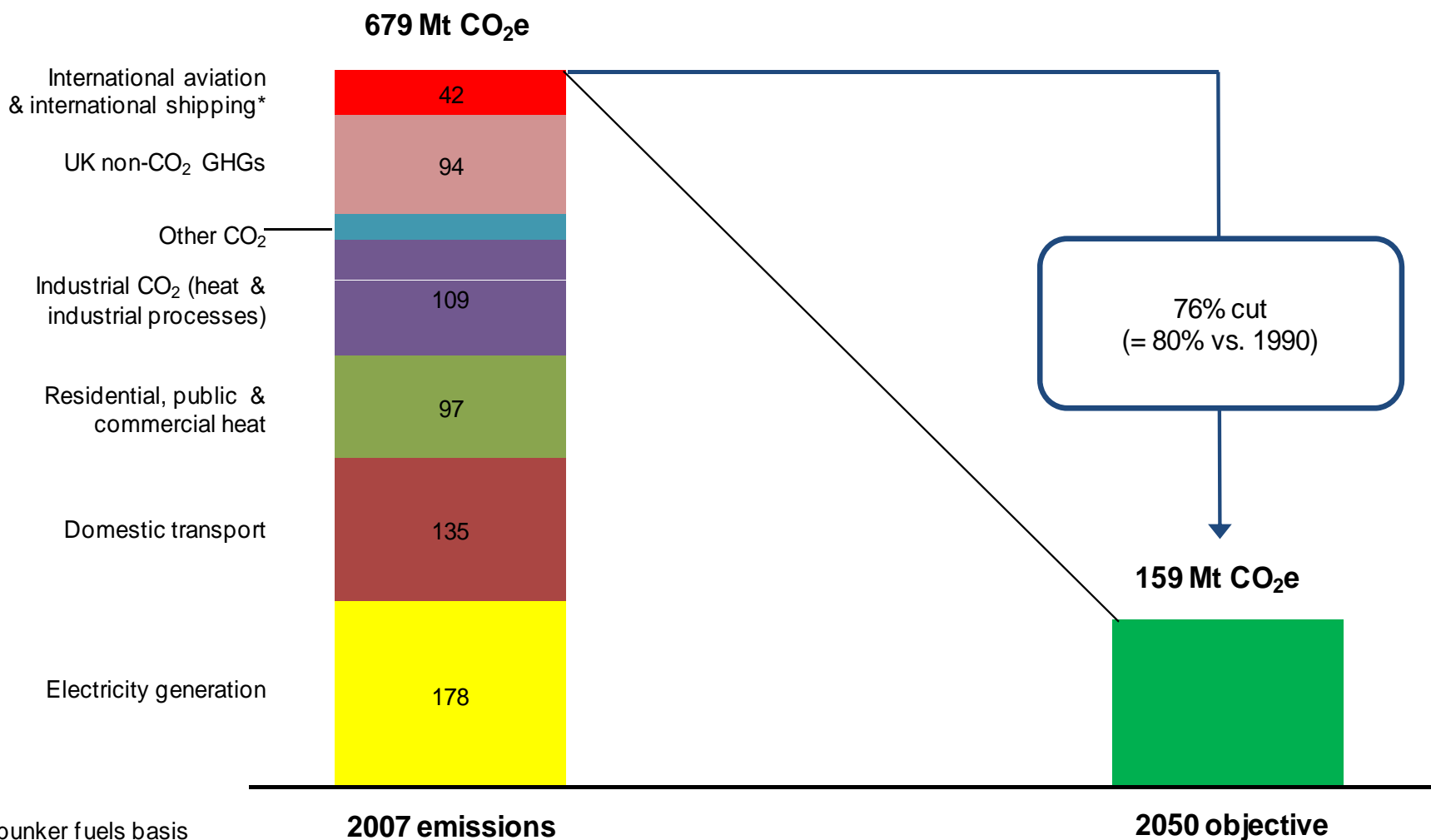
Westminster Energy Conference, 8 December 2009

Structure of the presentation

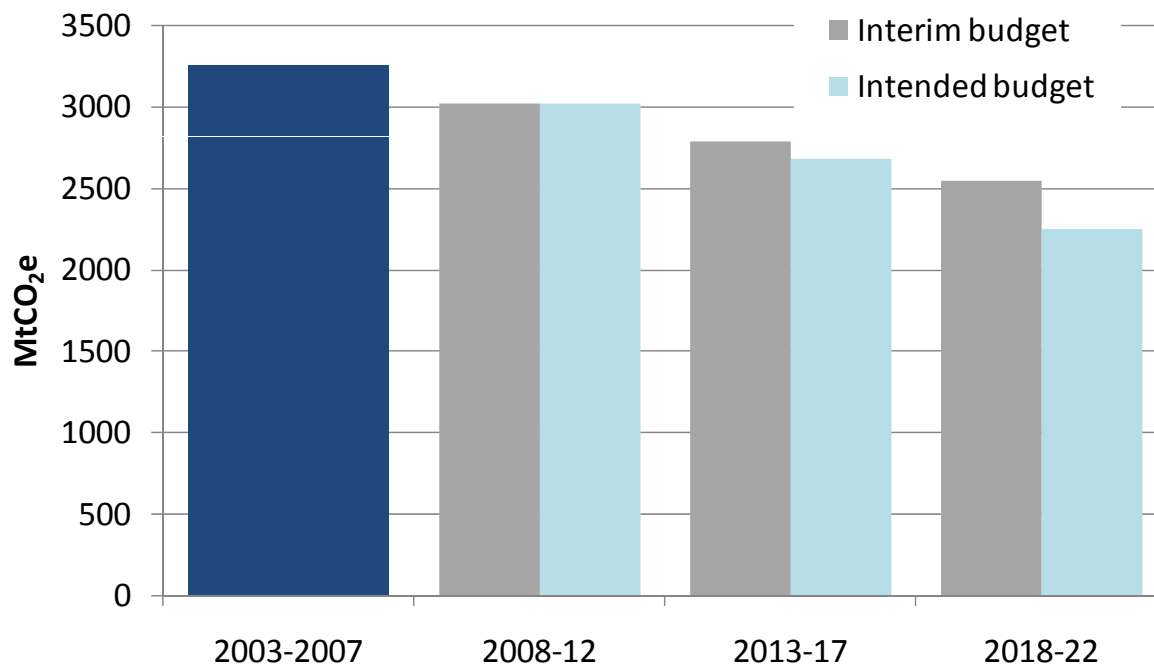


- (i) Introduction - recap on carbon budgets and 2050 target
- (ii) Progress in reducing emissions
- (iii) Impact of the recession on emissions
- (iv) Indicators of progress and policies required
- (v) Future work of the Committee

(i) The budgets put the UK on a path to reducing emissions by 80% by 2050



(i) The Interim budget was legislated in May 2009, the move to the Intended budget will be reviewed in 2010



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

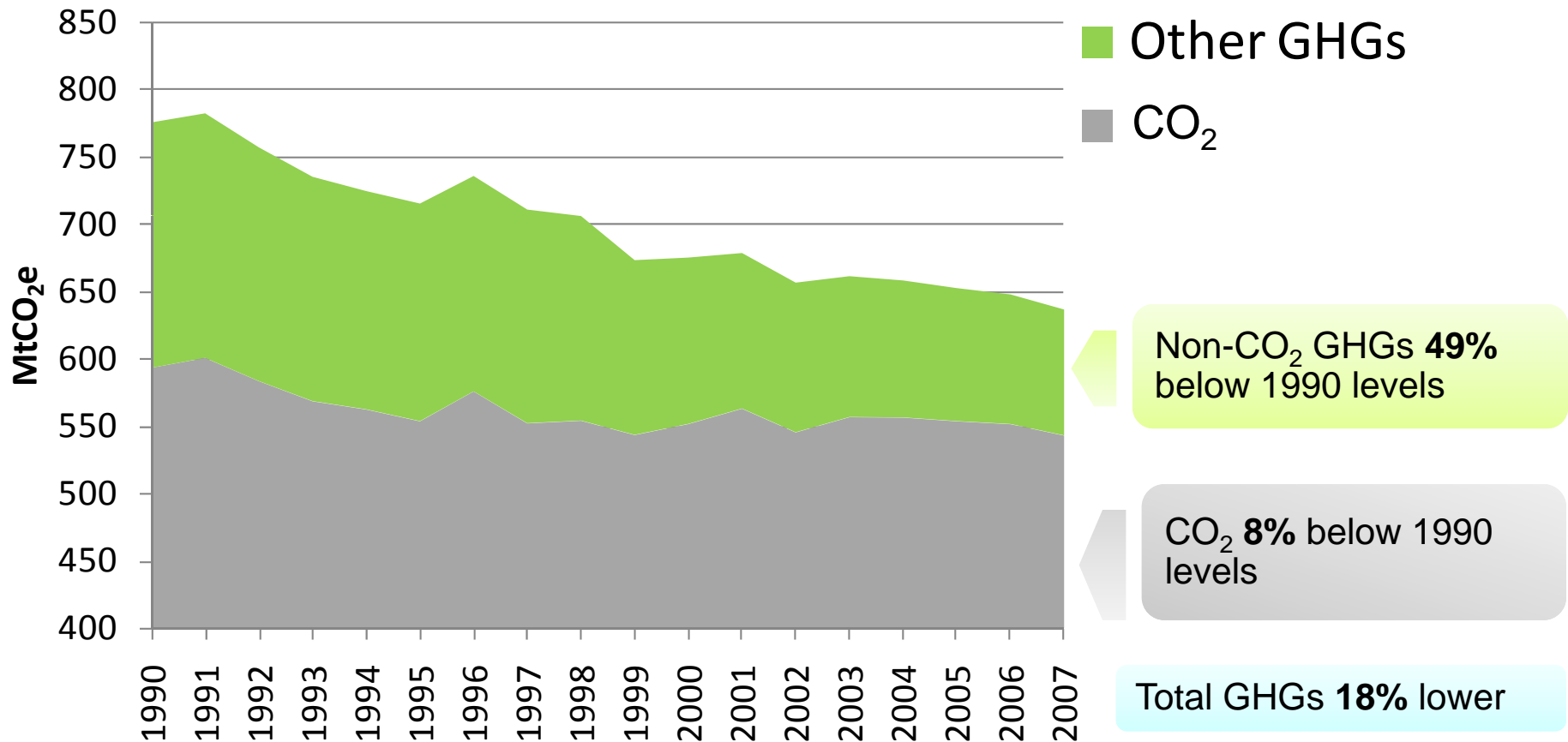
Global deal

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

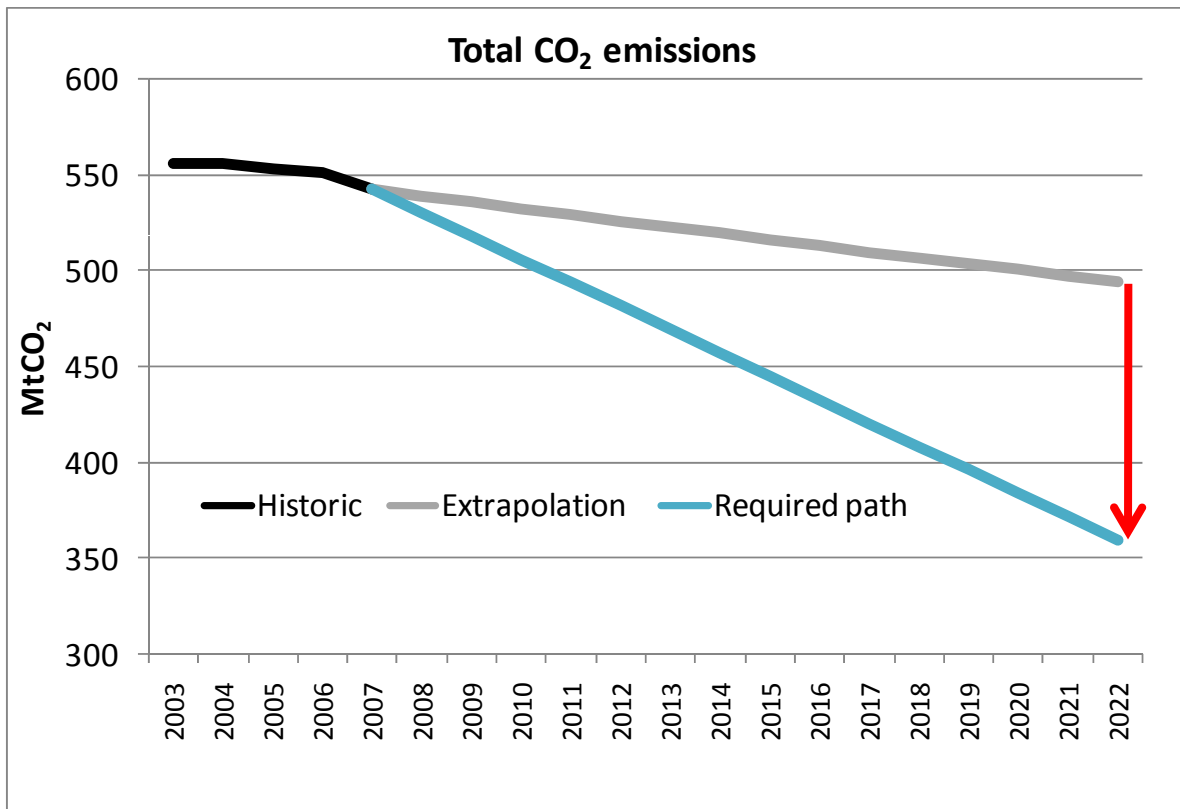
(ii) In 2007, GHG emissions were 18% lower than 1990 levels



UK GHG emissions 1990-2007



(ii) Meeting budgets requires a step change relative to recent progress

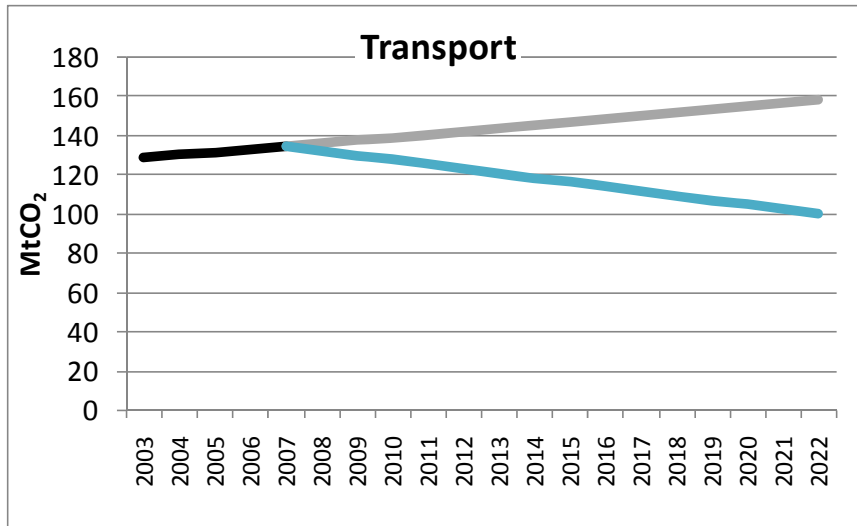
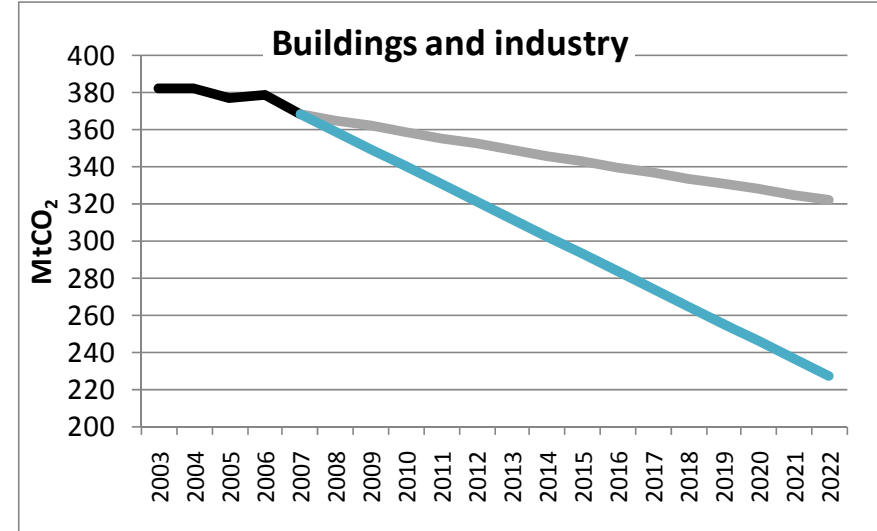
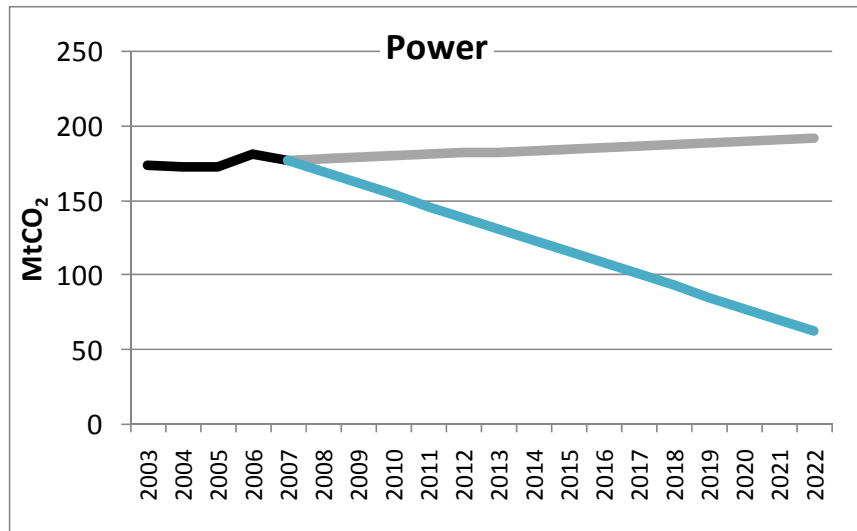


CO₂ emissions fell 0.5% annually 2003-07

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

ii) Required progress in major sectors

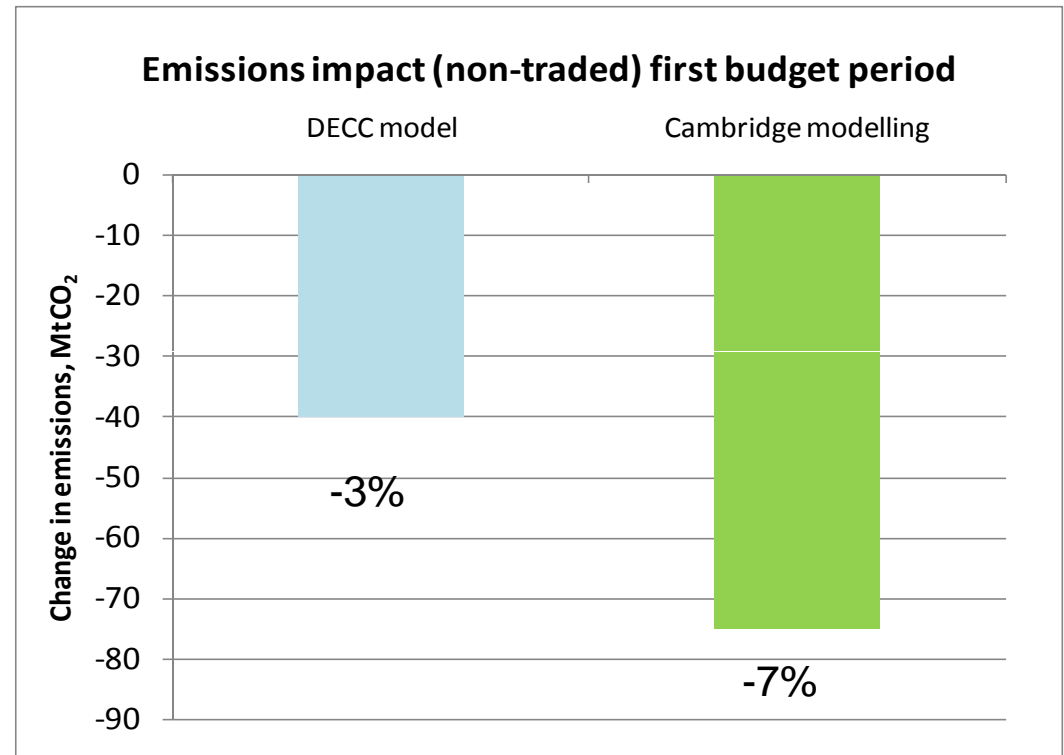


— Historic
— Extrapolation
— Required path

(iii) The recession is likely to reduce emissions, both in traded and non-traded sector

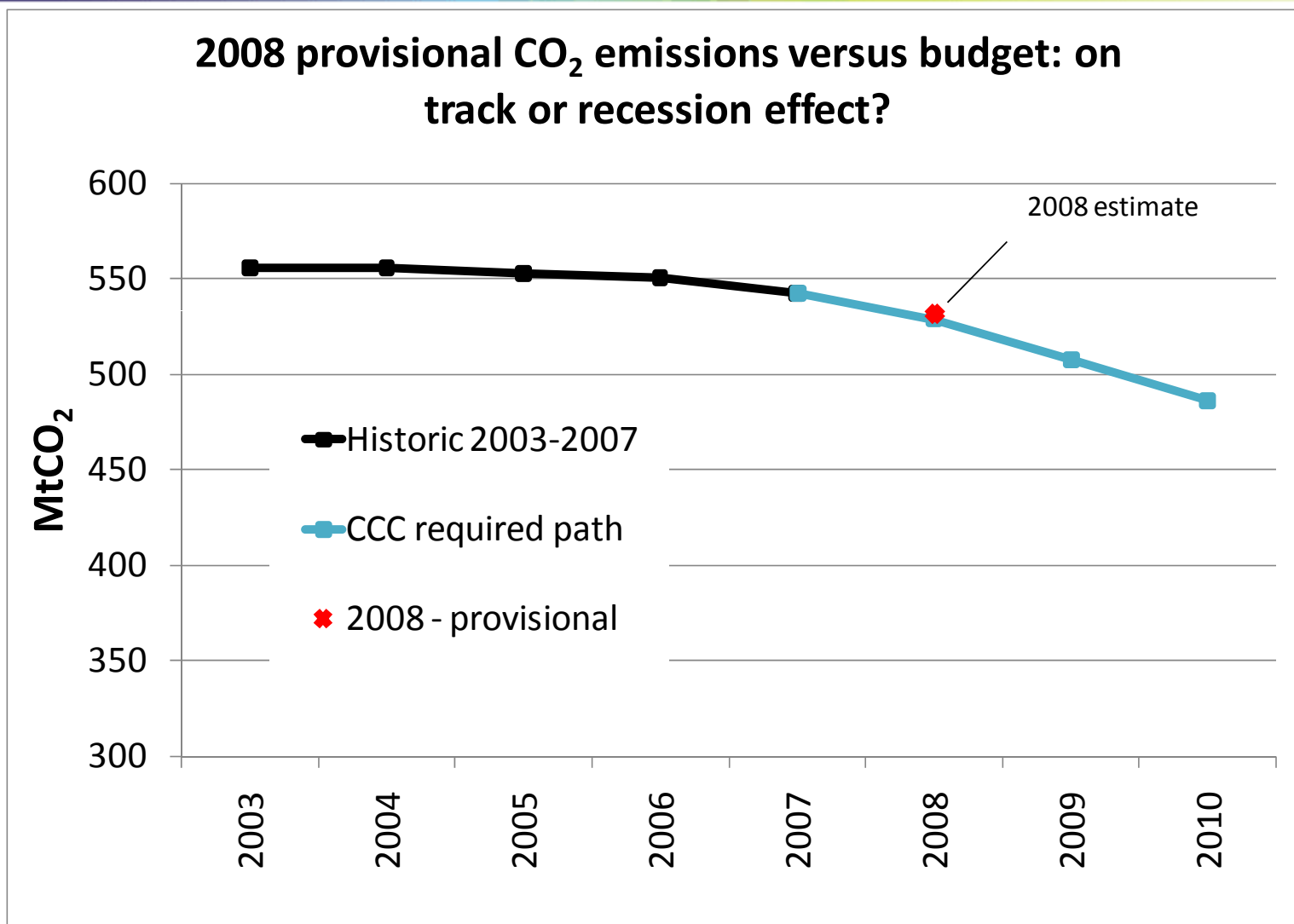
Estimates of recession impact vary, but likely that **first budget** could be met *purely* as a result of recession, with **limited emissions reduction effort**

However, ambitious **implementation of measures needed now** to lay the foundation for **deeper cuts** in later periods



Recommendation: aim to out-perform first budget, and do not bank for use in future periods

(iii) Recession impact versus budget

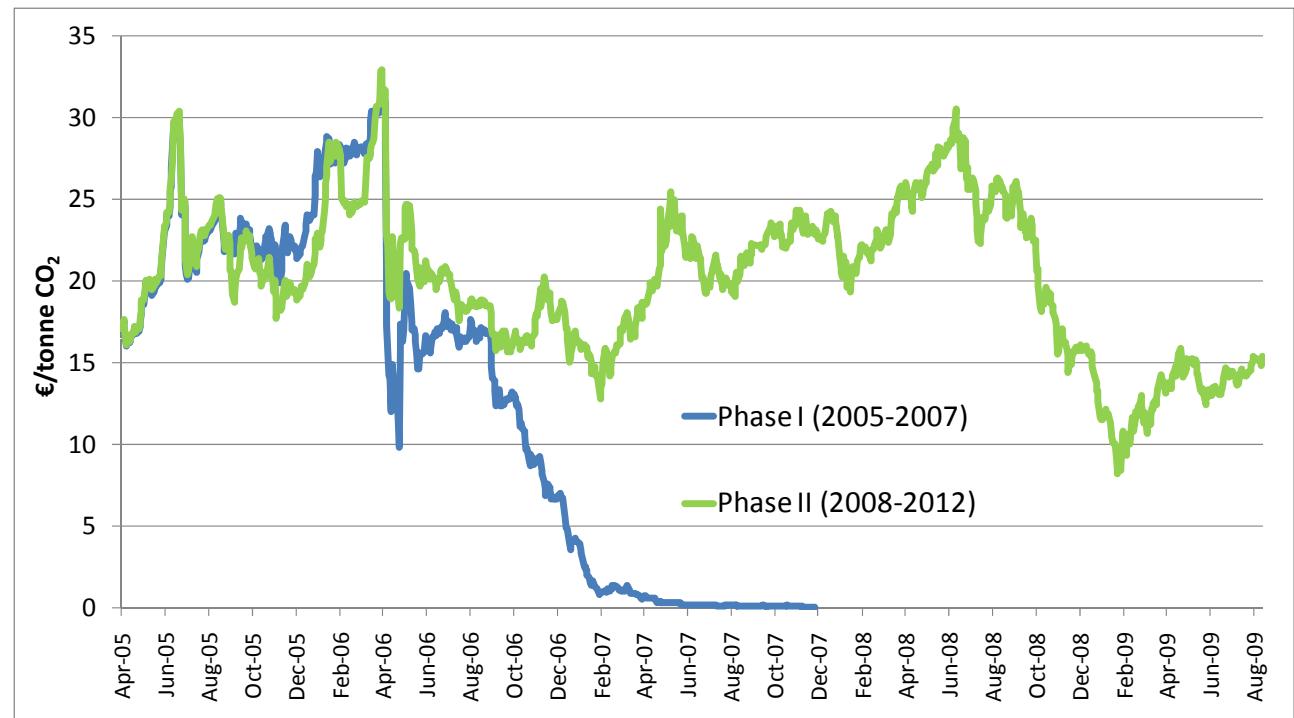


(iii) Recession and the need to strengthen the carbon price



The recession has had **major impact** on EU ETS price

We now project the 2020 price at **€20-30/tCO₂** compared to €50/tCO₂ in our previous report)



Recommendation: Consider options to **strengthen the price**, e.g. **tightening EU ETS cap**, a **UK carbon price underpin** or intervention in the **electricity market arrangements**

iv) Indicators & policies for meeting carbon budgets



The Committee's **indicators** comprise measures and policies (i.e. strengthening of existing policies / introduction of new policies) to **drive emissions reductions** in:

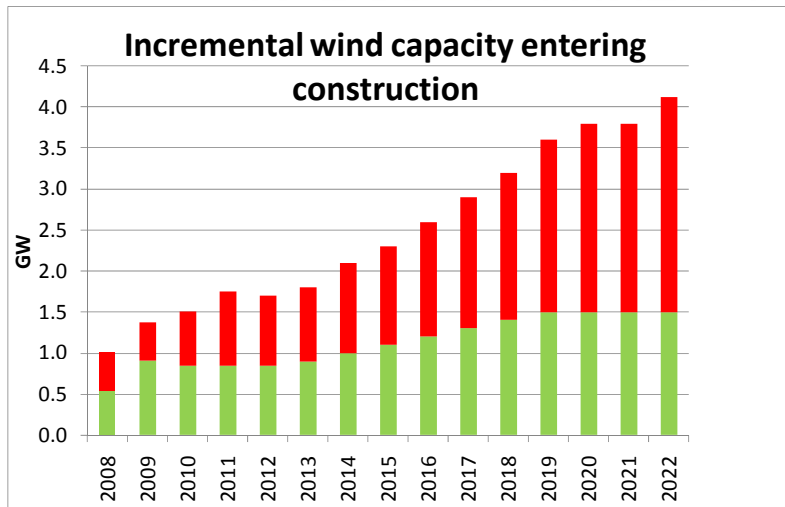
- Power
- Energy use in buildings and industry
- Transport

Not fixed targets, but a framework for:

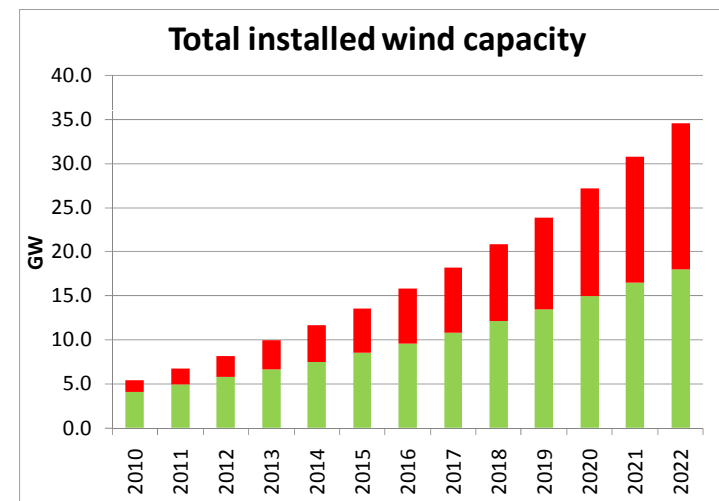
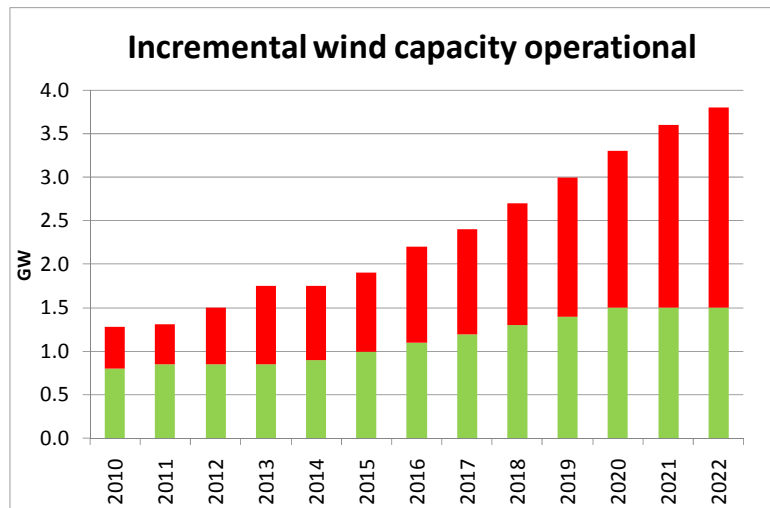
- Identifying whether combination of measures is **on track**
- Spotting early signals of **slippage**

The Committee will use the indicators for its **annual assessments of progress** as required under the Climate Change Act

iv) Example of indicators - trajectory for new wind capacity entering construction and operation



We monitor progress of all stages of project cycle (e.g. planning, grid access, construction) in deploying up to **23 GW** of new wind by 2020 (**27 GW** in total)



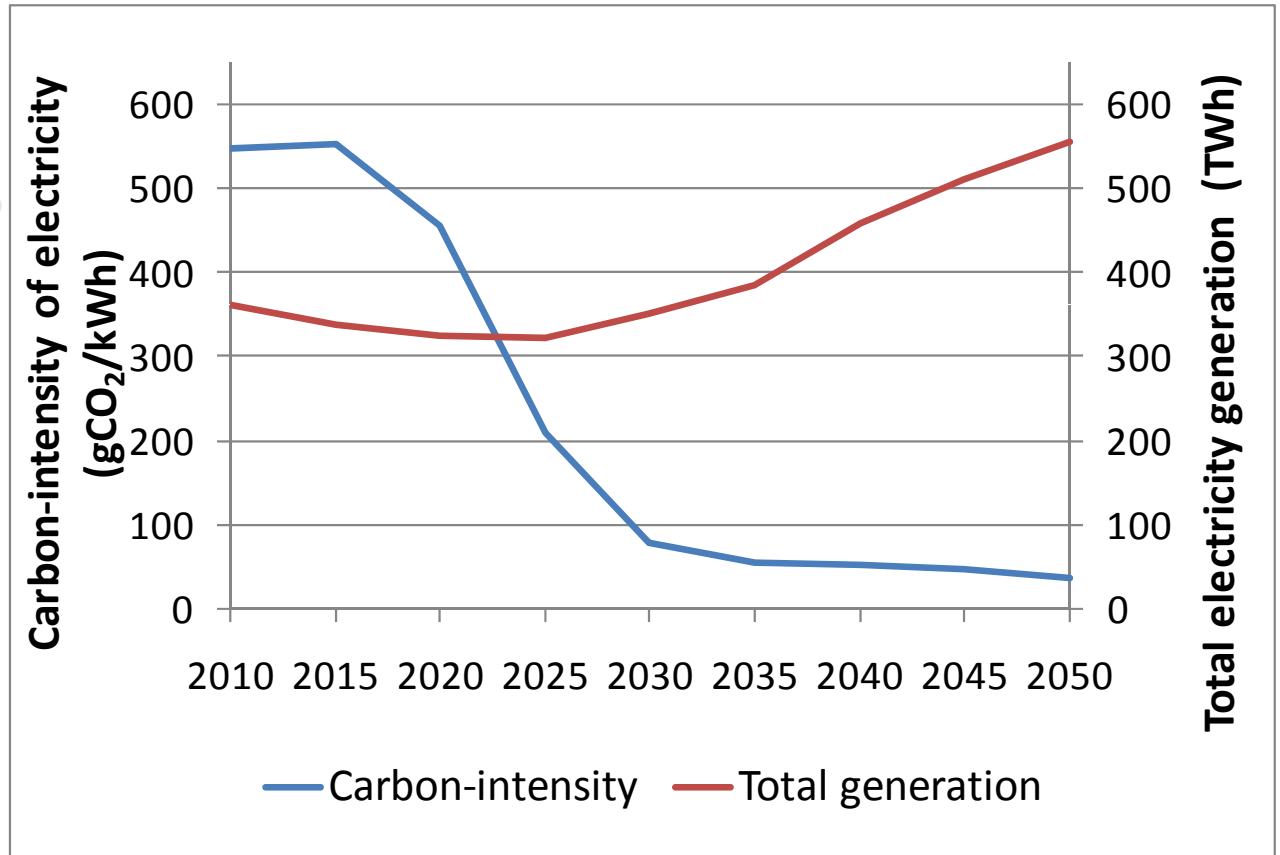
■ Offshore ■ Onshore

iv) Power is central to wider economy decarbonisation



The **electrification** of other sectors will see demand increase in 2020s and 2030s

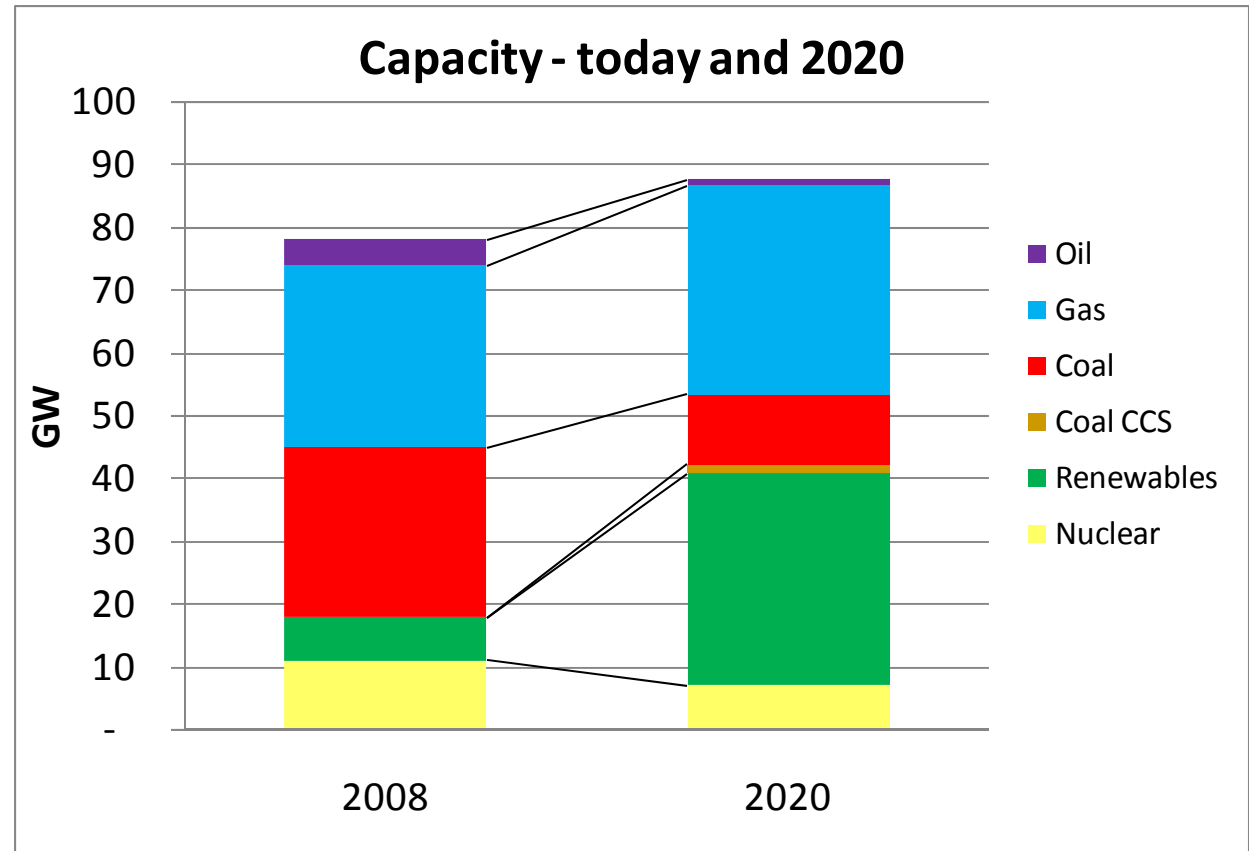
Therefore we need to **significantly** decarbonise electricity generation by 2030



iv) Over next decade we need to deliver significant investment in low-carbon generation

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



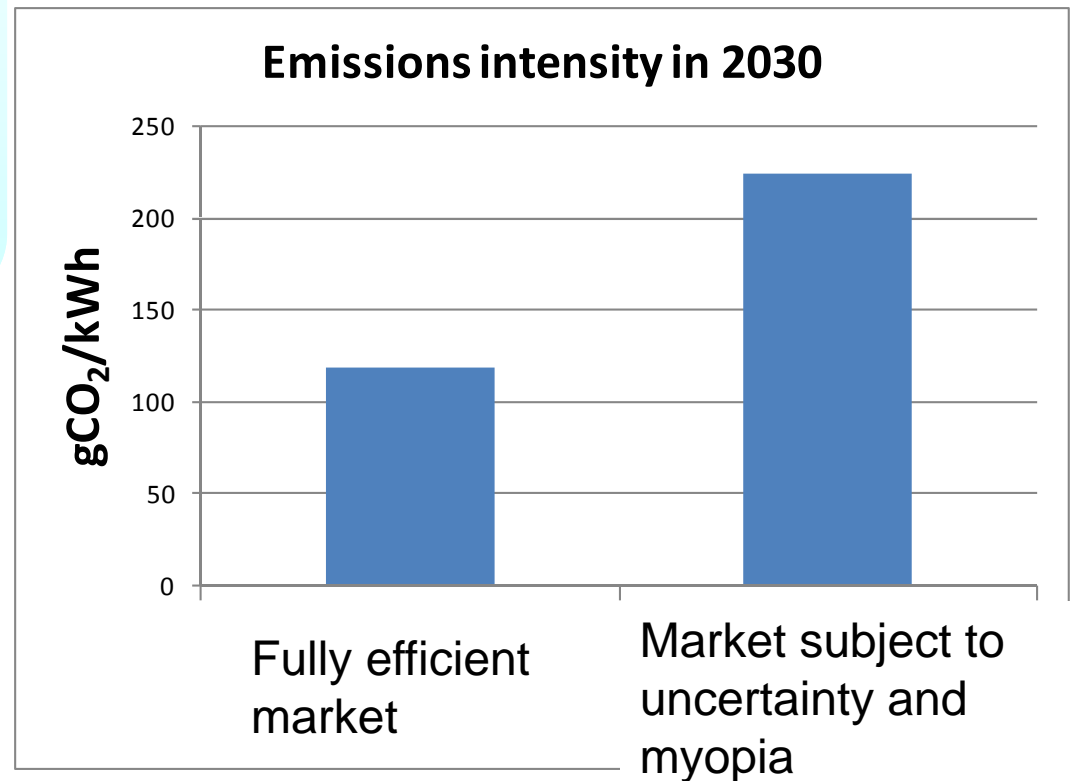
iv) Will the current power market arrangements deliver?



Social and **private** risk are not aligned:

- **Society:** Costs of alternative low carbon technologies?
- **Private investors:** Fossil fuel prices, carbon prices, electricity prices, technology costs?

Our analysis suggests that in a **risky, uncertain world**, even with very high carbon prices, the market may not deliver necessary low-carbon investment, resulting in **high emissions intensity** (and high costs for consumers).



iv) Power - the need for market reform



Committee recommends a review of the regulatory and market arrangements governing the power sector

3 sets of options:

- Carbon price strengthening (e.g. underpin)
- Measures to provide **confidence about price** for low-carbon generation (e.g. Feed-in tariffs, tendering for generation)
- Measures to **ensure investment** in low carbon capacity (e.g. low-carbon obligation, emissions performance standard)

Review to be **carried out in 2010**, in parallel with understanding implications of Copenhagen, to allow new arrangements in time for investment decisions

iv) Power sector indicators: CCS



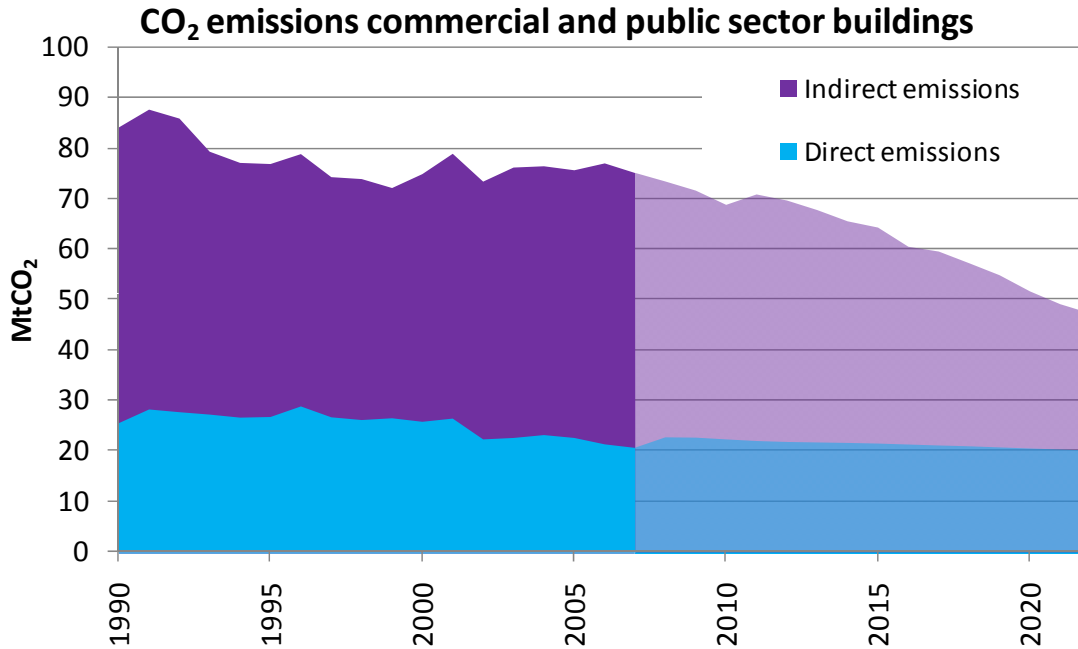
The Government approach:

- Support for CCS demonstration (up to 4 by 2020)
- Review in 2020 of whether technically viable and economically proven at prevailing CO₂ price
- Possible limits for unabated coal generation

The Committee recommends:

- Support for CCS **accelerated** demonstration (3 or 4 operational by 2015/16)
- Early review of technical viability and **required financial support** for next phase of investment (e.g. no later than 2016 – to support next investments from 2018)
- Very strong signal that there will be **no role for unabated coal** beyond early 2020s

iv) Commercial and public sector buildings



Emission reductions
1990-2007: **11%**

Required emission
reductions 2008-2022: **30%**

- Much of sector to be covered by **Carbon Reduction Commitment (CRC)** – CCC to advise on cap in 2010
- In addition, need to:
- Roll out **Energy Performance Certificates (EPCs)** and **Display Energy Certificates (DECs)** by 2017
 - Realise all cost-effective measures in **public buildings** by 2018
 - Develop new framework to incentivise emission reductions by **SMEs**

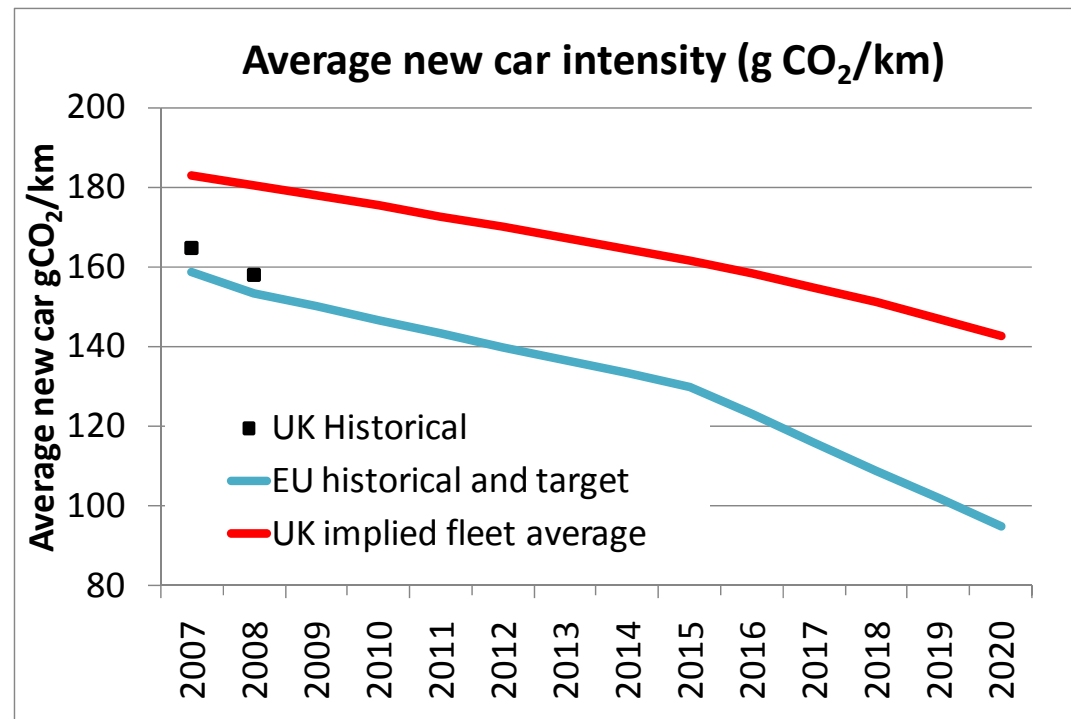
iv) Road transport

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

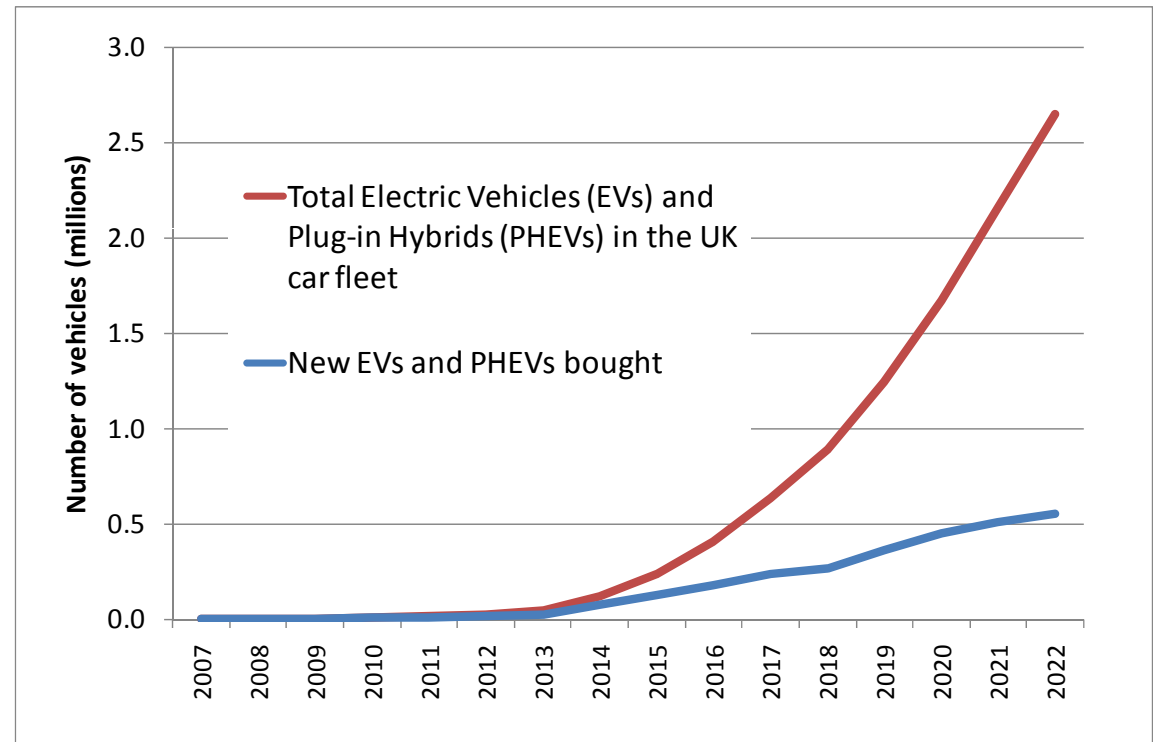
Improving the car fleet

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



iv) Electric car policies

- 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**.



iv) Summary - conclusions



Our analysis has led us to **two important conclusions**:

Recession induced emissions reductions could:

- Produce over rosy impression of progress
- Undermine long-term progress through lower carbon price

Recent progress (2003-2007) far slower than we now require

- Step change essential

(v) Future work of the Committee



- Ⓒ UK aviation review (8th December 2009)
- Ⓒ Advice on Scottish targets (February 2010)
- Ⓒ Progress report to Parliament (June 2010)
- Ⓒ Review of low carbon R&D (Summer 2010)
- Ⓒ Advice on the fourth budget, including review of latest science and implications of Copenhagen (December 2010)