



# The new report of the Committee on Climate Change

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EPRG Winter Research Seminar

Judge Business School  
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[www.theccc.org.uk](http://www.theccc.org.uk)

# Structure of the presentation



First Annual report to Parliament

- (i) Introduction - recap on carbon budgets and 2050 target
- (ii) Progress in reducing emissions
- (iii) Impact of the recession on emissions relative to carbon budgets
- (iv) Indicators of progress and policies required
  - Power, Energy use in buildings, Transport
- (v) Future work of the Committee

A few slides on the aviation report

## Focus of report



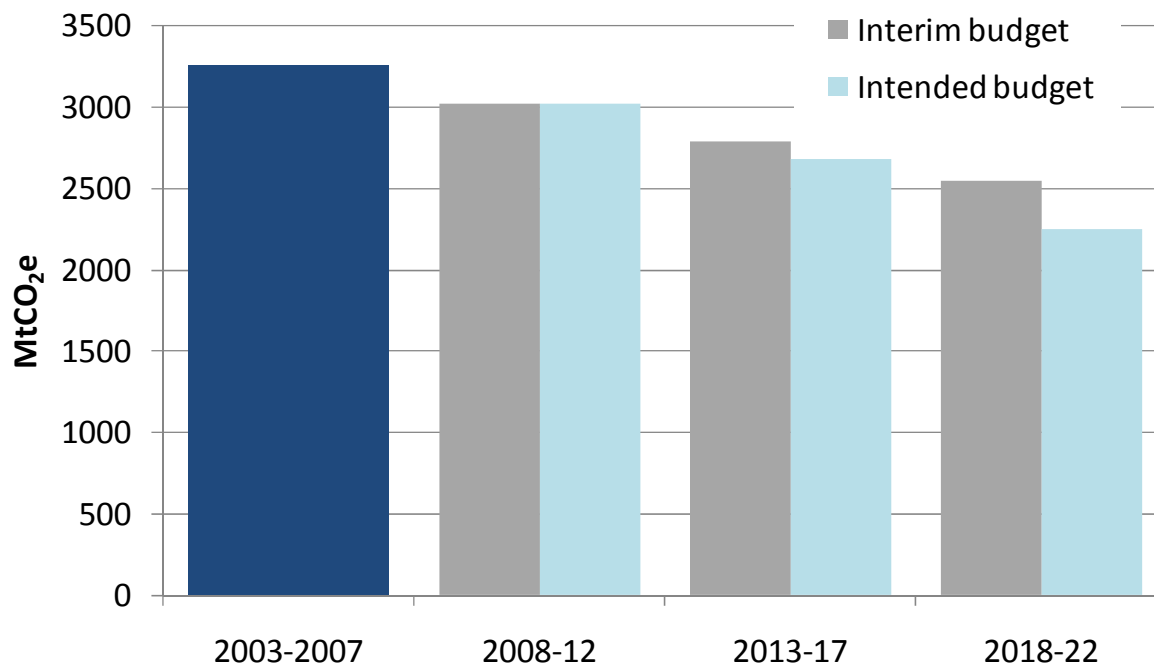
**Monitoring framework:** forward indicators as well as emission results

**Impact of recession:** distinguishing cyclical from underlying trends

**Fine tuning** estimates of feasible emissions reductions

**Trends** over last five years (2003-2007) compared with reductions now required

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

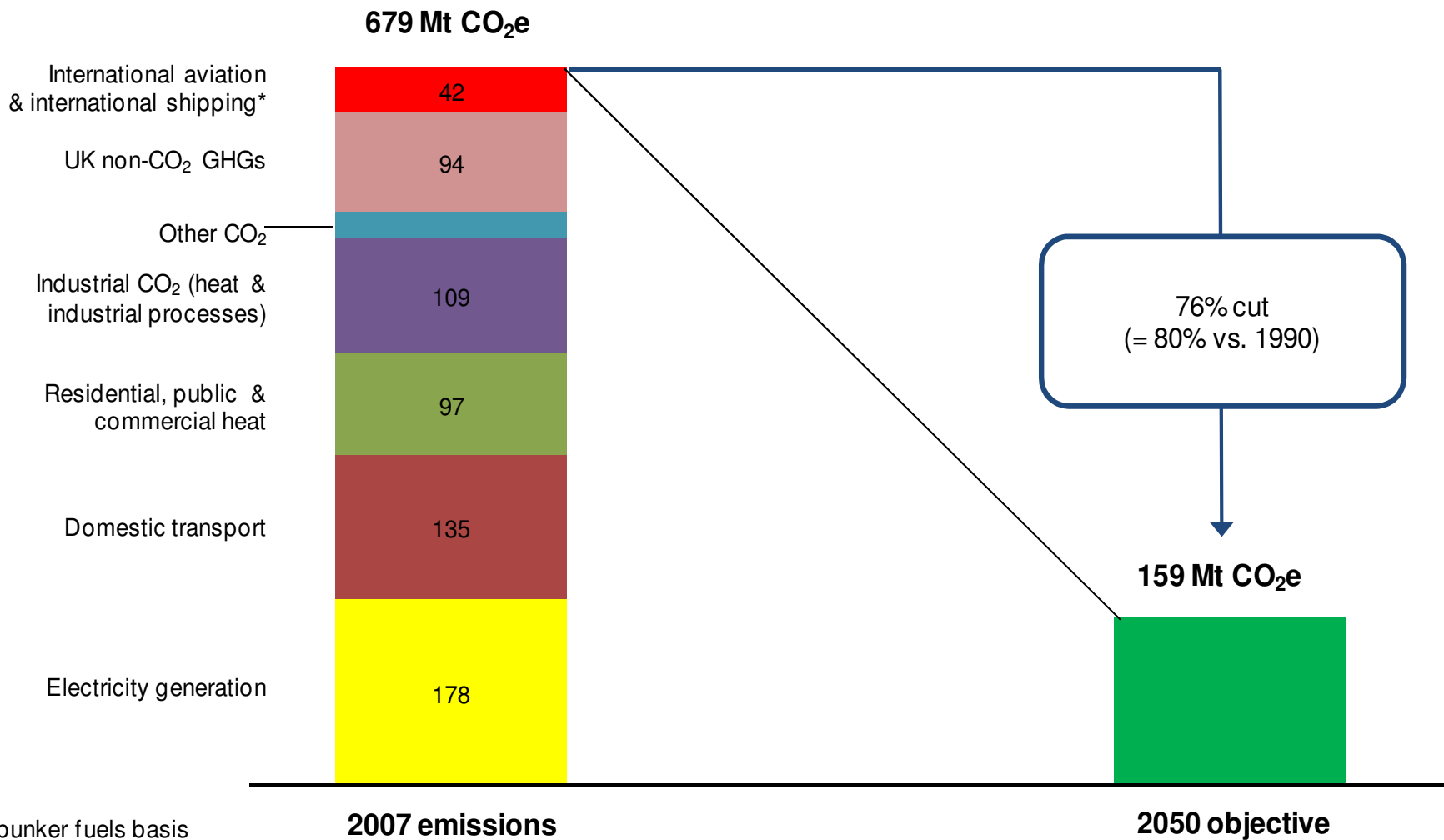


**Interim: 34% cut in GHGs by 2020, relative to 1990 [20% on 2007 levels]**

**Global deal**

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

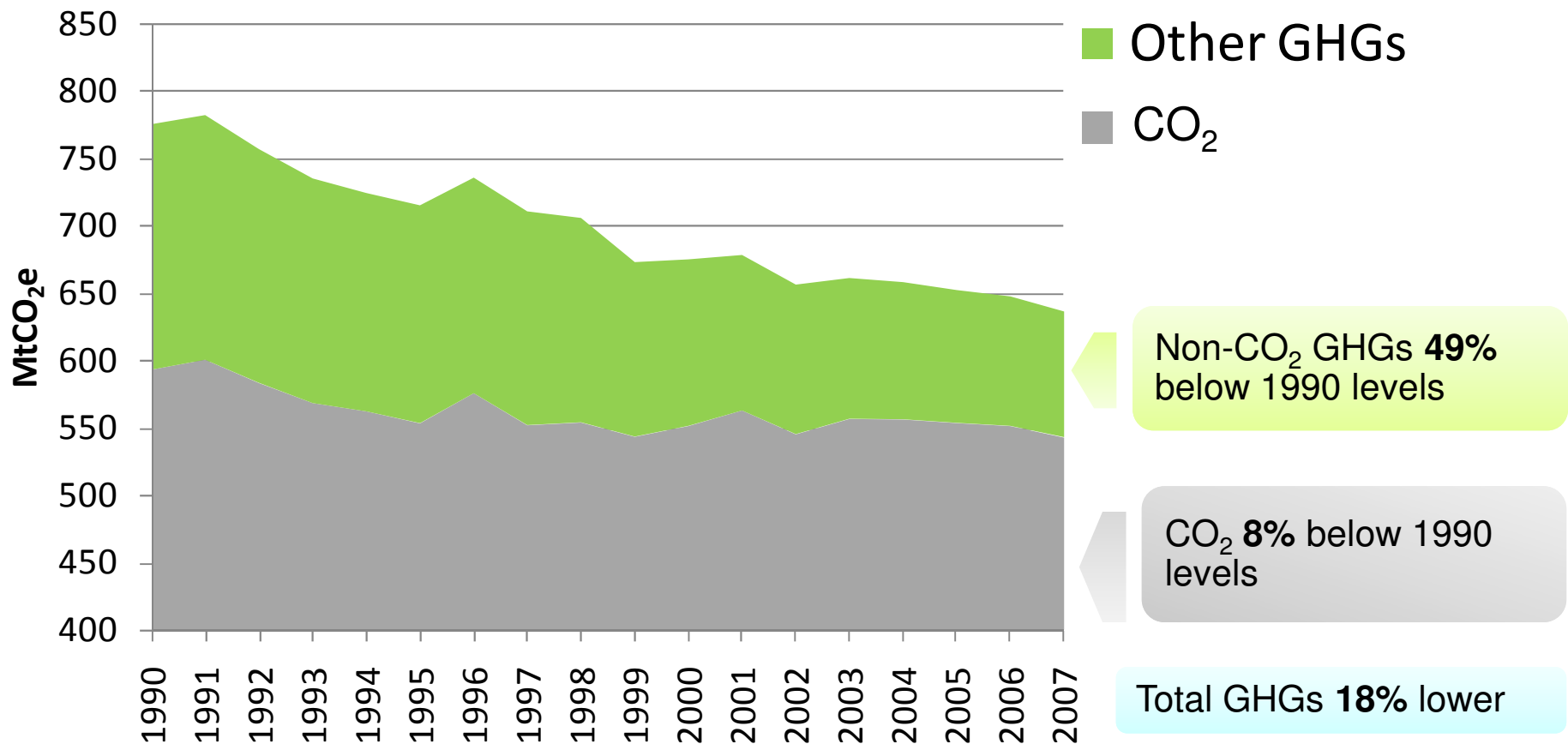
# (i) The budgets put the UK on a path to reducing emissions by 80% by 2050



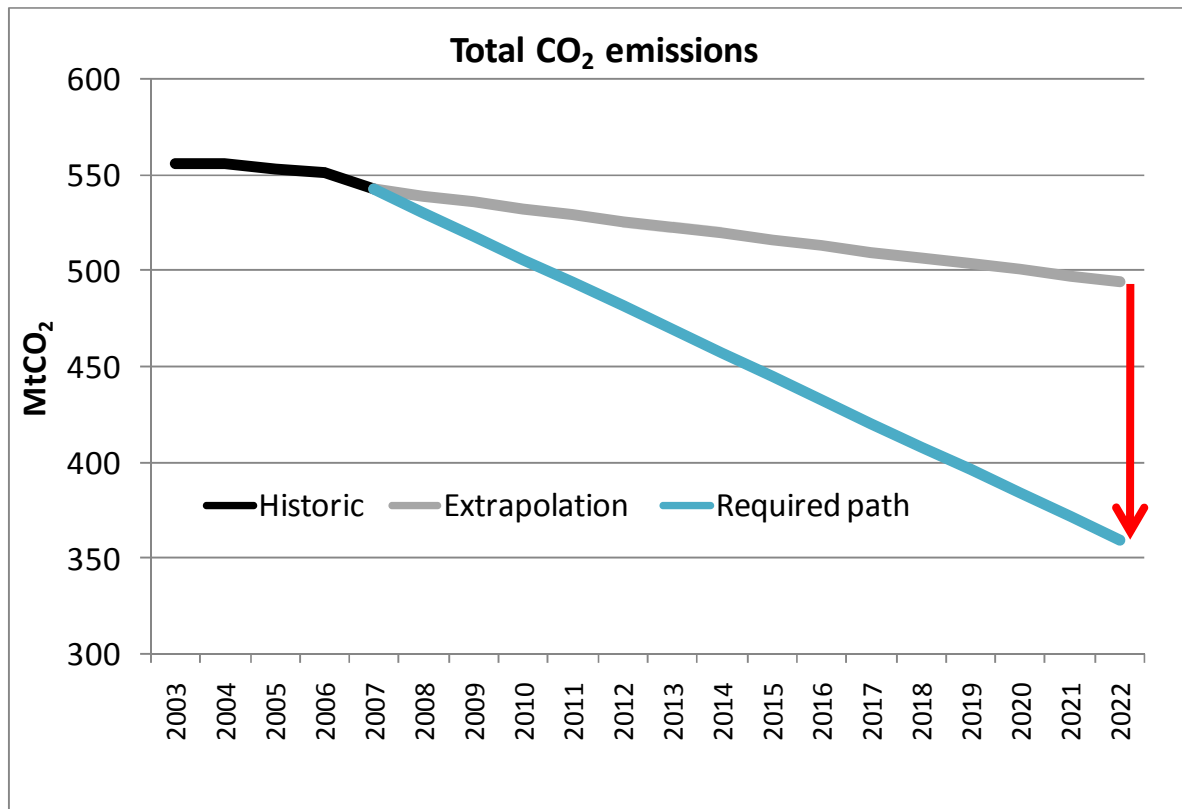
(ii) In 2007, GHG emissions were 18% lower than 1990 levels



## UK GHG emissions 1990-2007



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

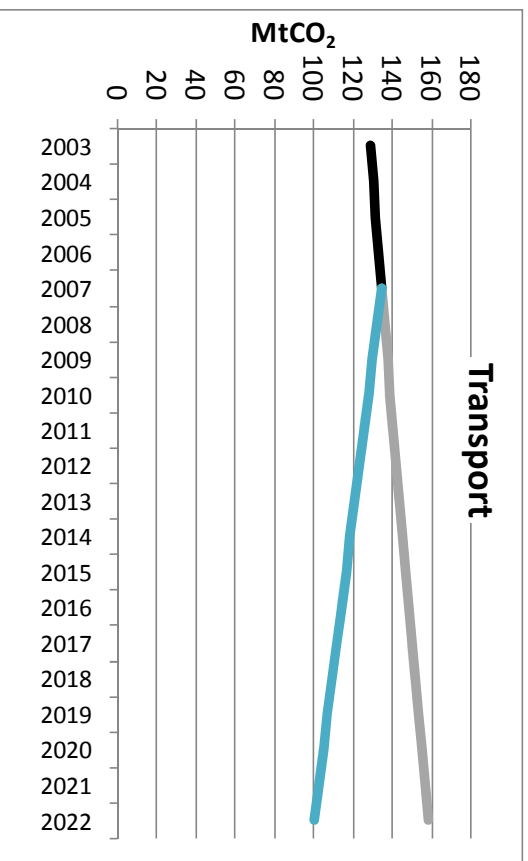
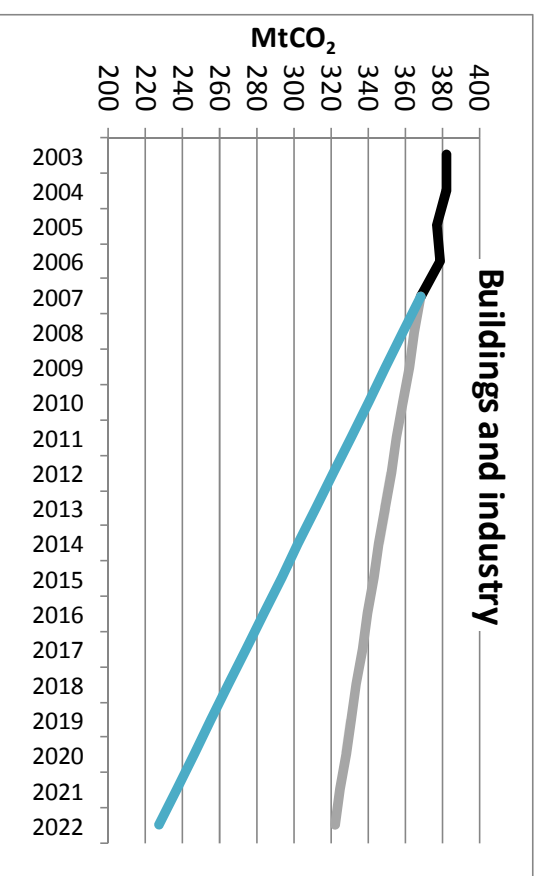
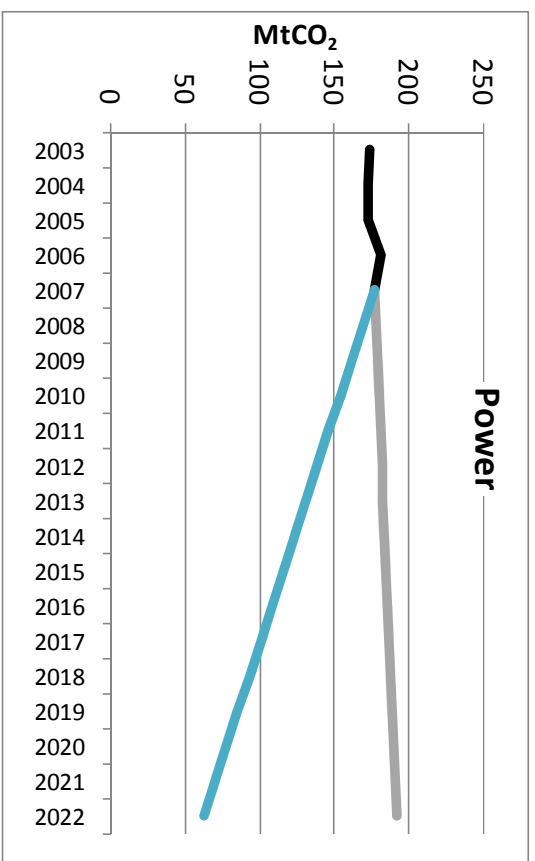


CO<sub>2</sub> emissions fell 0.5% annually 2003-07

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



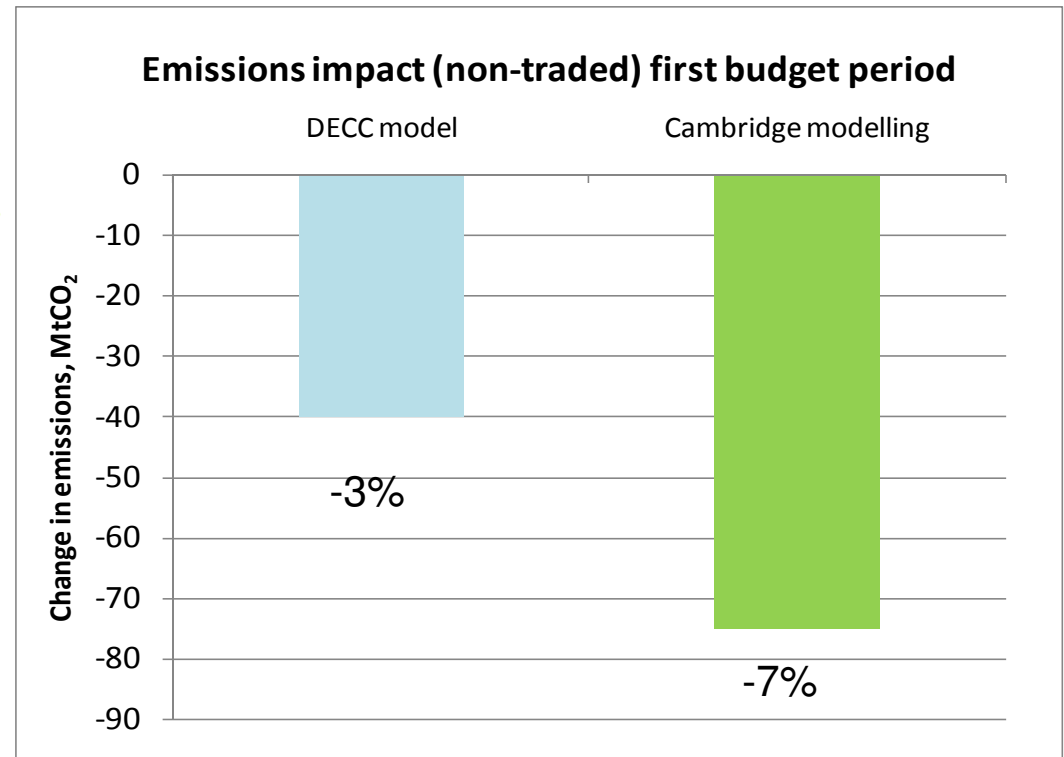
— Historic  
 — Extrapolation  
 — Required path



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

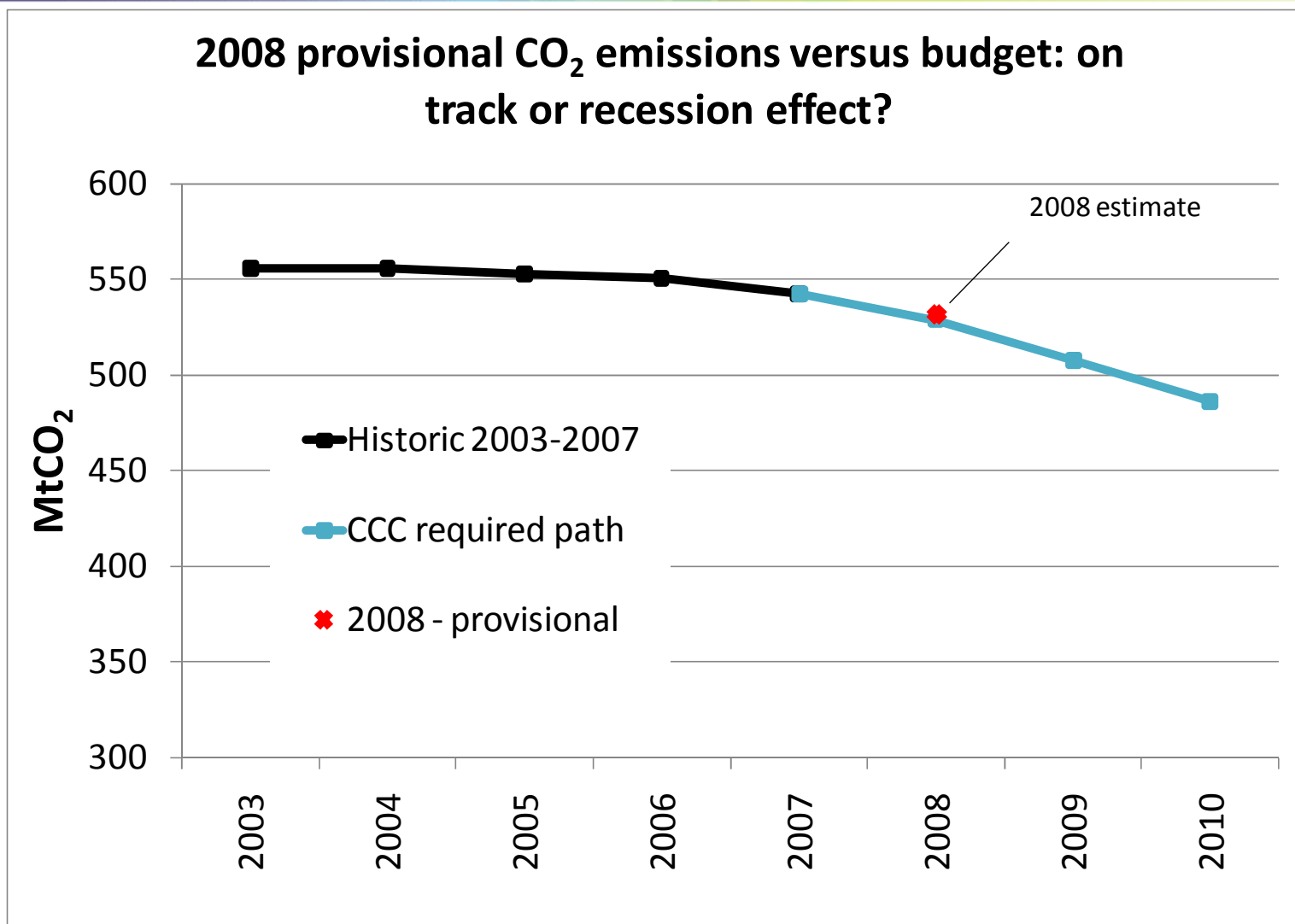
Estimates of recession impact vary, but likely that **first budget** could be met *purely* as a result of recession, with **limited emissions reduction effort**

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

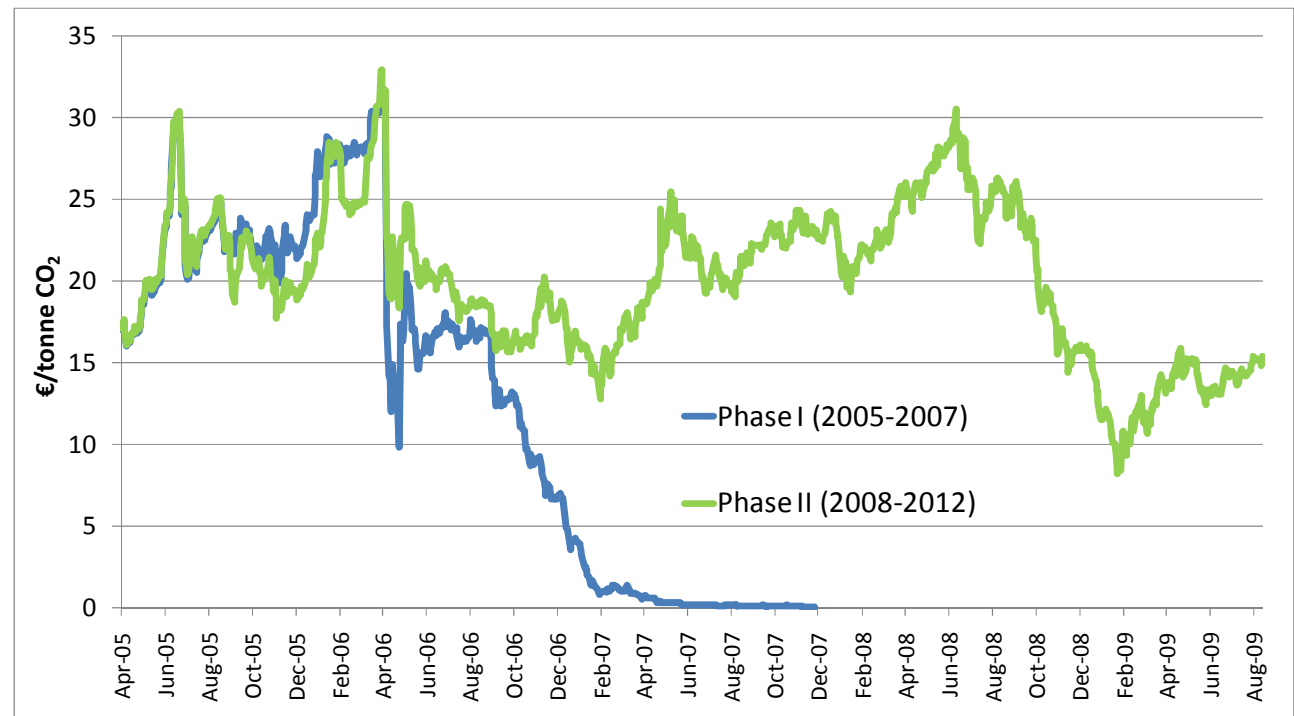
### (iii) Recession impact versus budget



### (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/tCO<sub>2</sub>** compared to €50/tCO<sub>2</sub> 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**

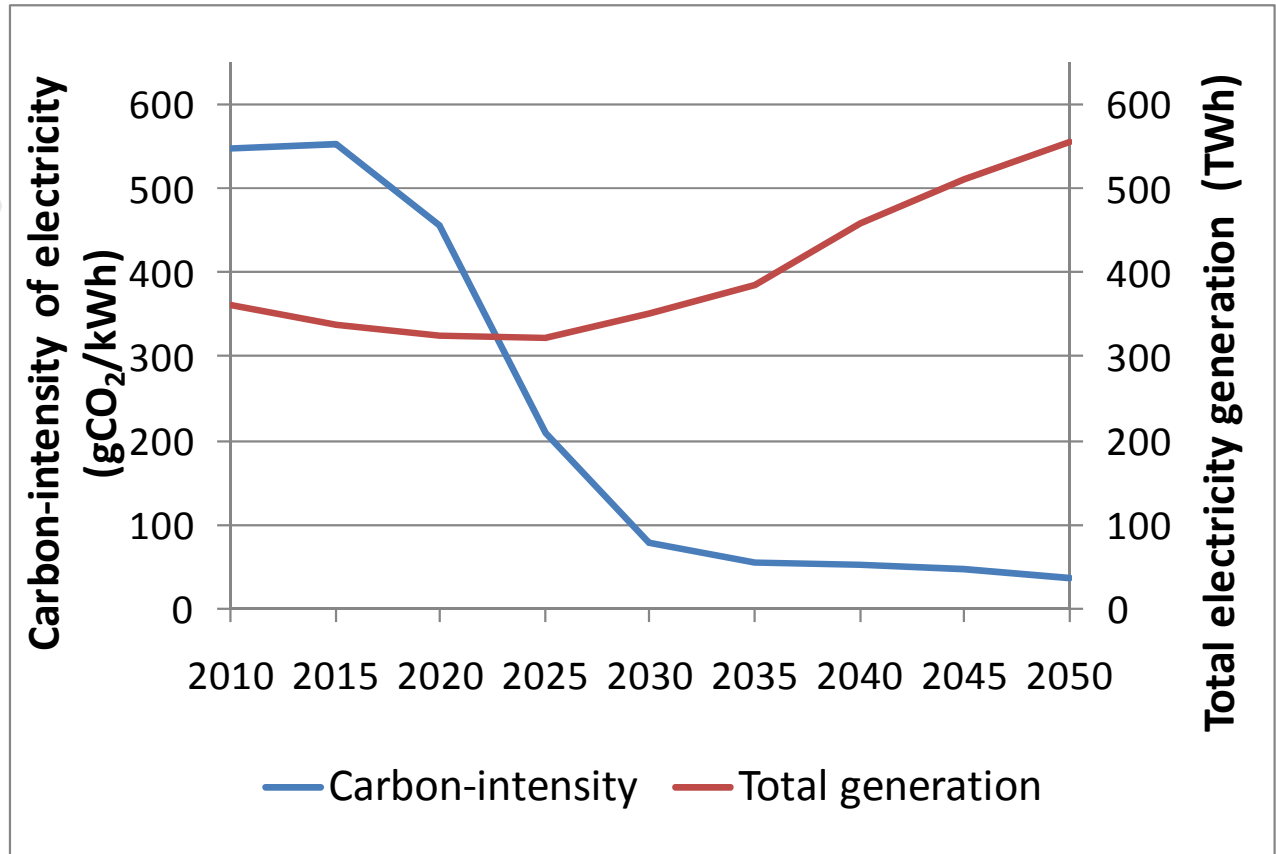
The Committee will use the indicators for its **annual assessments of progress** as required under the Climate Change Act

## iv) Power is central to wider economy decarbonisation



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

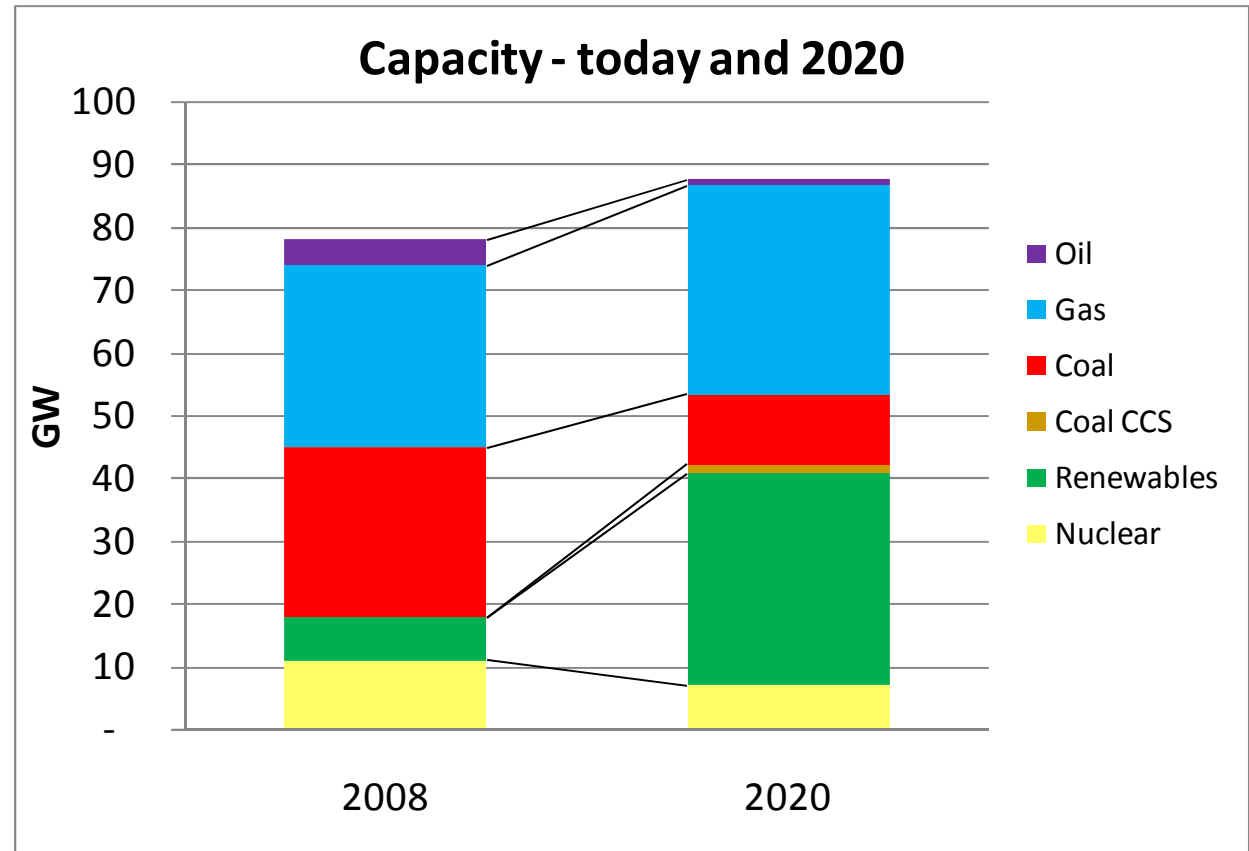
Therefore we need to **significantly** decarbonise electricity generation by 2030



## 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) Power sector : analytical support



### Commissioned reports:

- Poyry Energy Consulting (2009) Carbon Capture and Storage: Milestones to deliver large-scale deployment by 2030 in the UK
- Redpoint Energy (2009) Decarbonising the GB power sector.
- Poyry Energy Consulting (2009) Timeline for wind generation to 2020 and a set of progress indicators.

### Participation in multi-client study:

- Poyry Energy Consulting (2009) Impact of Intermittency: How wind variability could change the shape of the British and Irish electricity markets

## iv) Power sector indicators: CCS



### The Government approach:

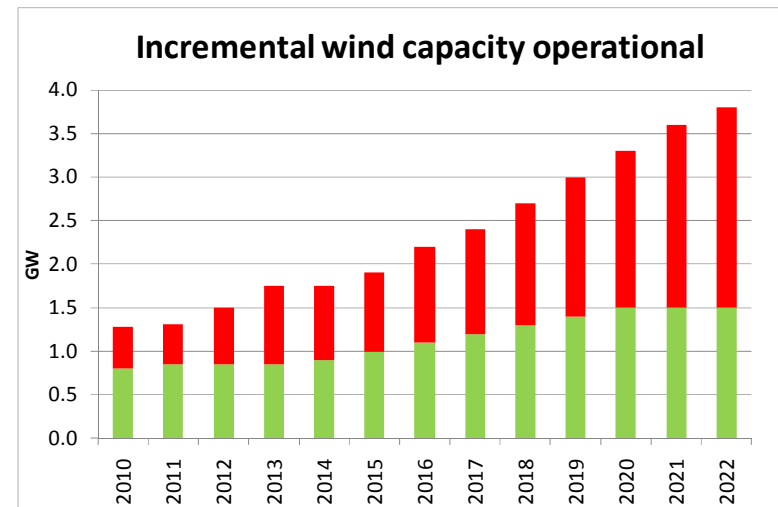
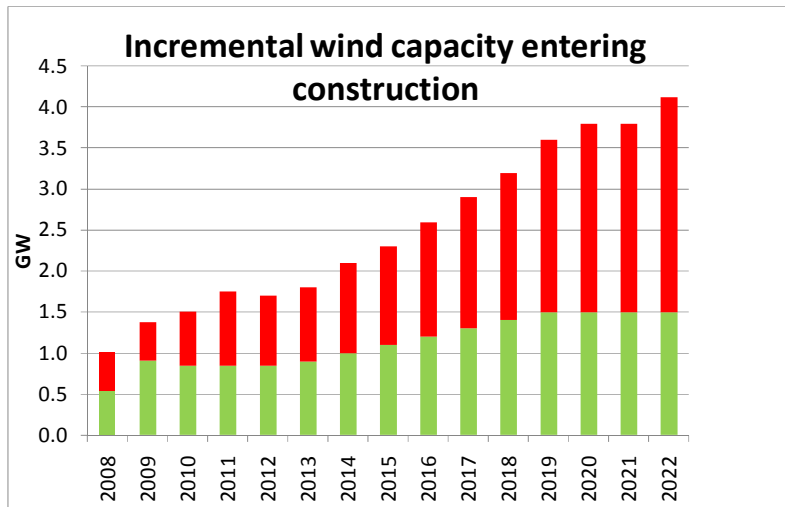
- Support for CCS demonstration (up to 4 by 2020)
- Review in 2020 of whether technically viable and economically proven at prevailing CO<sub>2</sub> price
- Possible limits for unabated coal generation

### The Committee recommends:

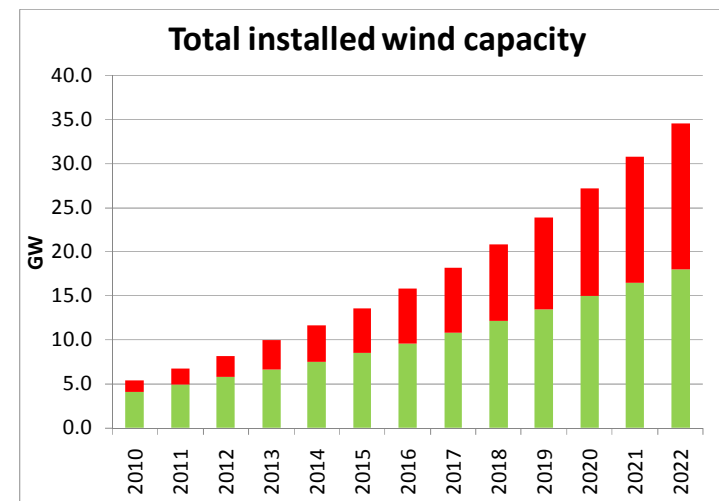
- Support for CCS **accelerated** demonstration (3 or 4 operational by 2015/16)
- Early review of technical viability and **required financial support** for next phase of investment (e.g. no later than 2016 – to support next investments from 2018)
- Very strong signal that there will be **no role for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



## iv) 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

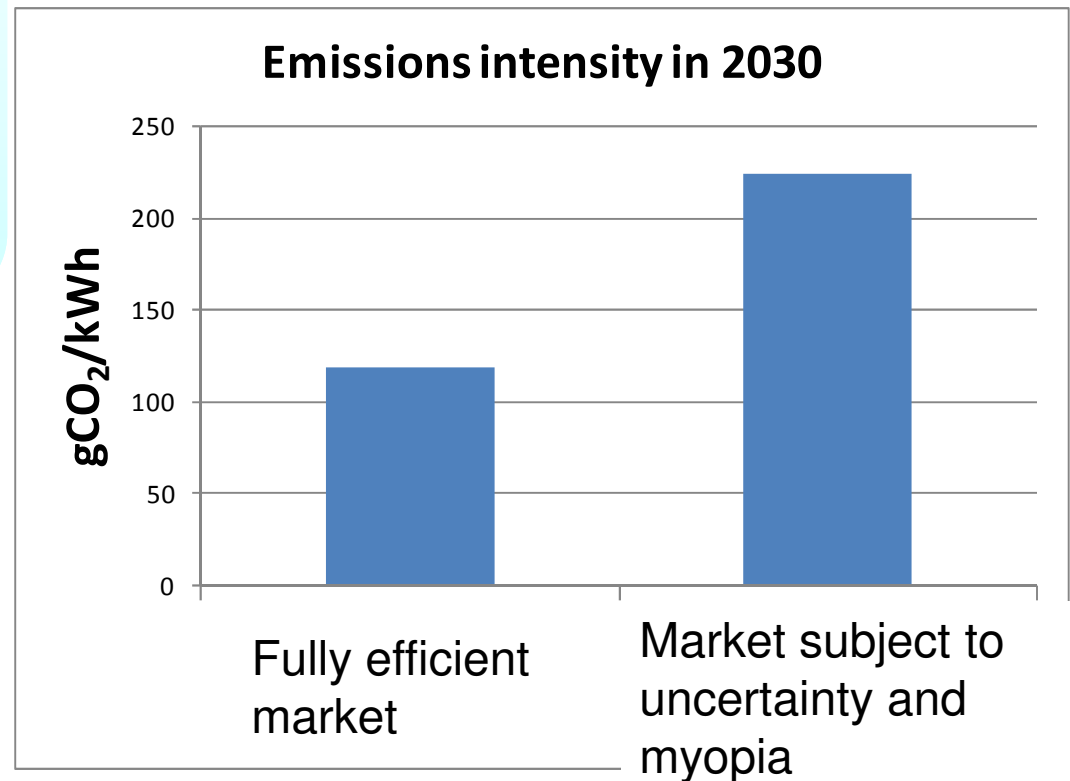
## iv) Will the current power market arrangements deliver?



**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) Renewable heat



Government ambition:

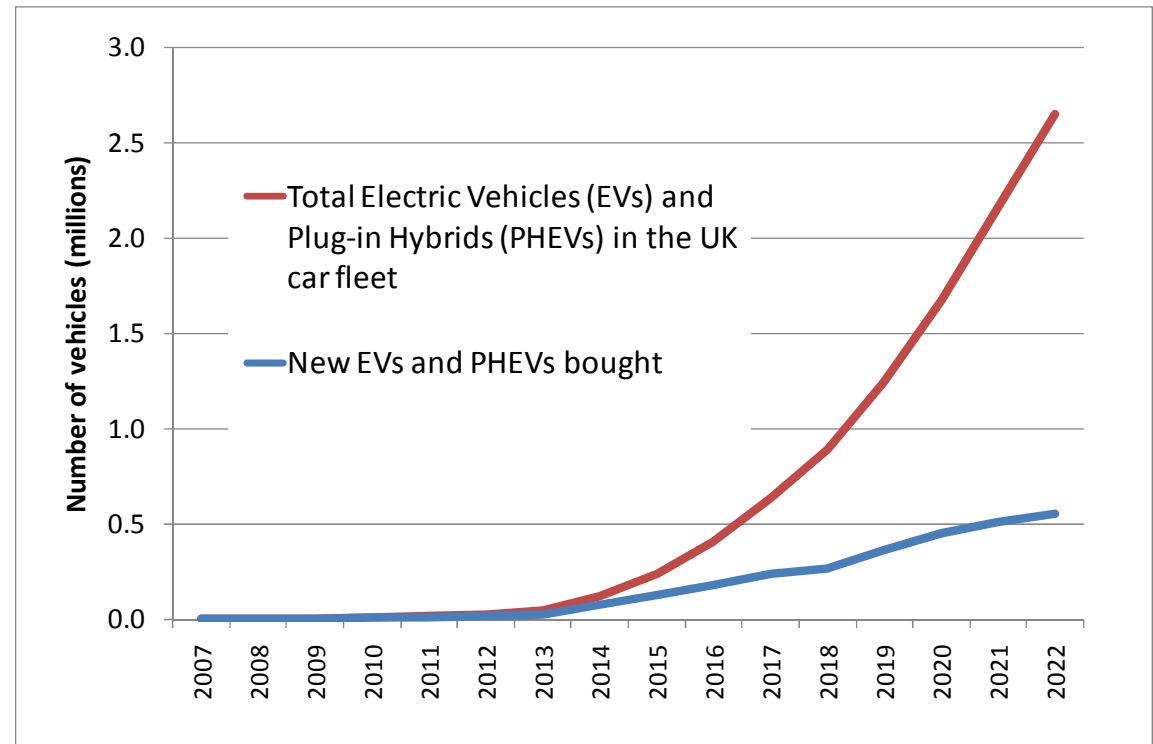
- **12% renewable heat penetration** by 2020, compared to current 1%
- Can make useful contribution to carbon budgets (up to **18 MtCO<sub>2</sub>**)
- But could be very expensive at the margin

Policy needs to:

- Prioritise most **cost-effective options** (e.g. heat pumps in off-gas grid homes, biomass combined heat and power)
- Raise **consumer awareness** of renewable heat options
- Develop a **portfolio of options** for possible roll-out in the 2020s

## 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

## iv) New policy approaches



**Three areas** where new approaches are required:

Electricity and carbon markets

Residential energy efficiency

Support for electric car penetration

## (v) Future work of the Committee



- Ⓒ UK aviation review (8<sup>th</sup> December 2009)
- Ⓒ Advice on Scottish targets (February 2010)
- Ⓒ Progress report to Parliament (June 2010)
- Ⓒ Review of low carbon R&D (Summer 2010)
- Ⓒ Recommendation on the cap for 2<sup>nd</sup> Phase of the Carbon Reduction Commitment (Autumn 2010)
- Ⓒ Advice on the fourth budget, including review of latest science and implications of Copenhagen (December 2010)