

Reforming electricity market arrangements to support low carbon investment

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Structure of the presentation



- (i) Introduction - recap on carbon budgets and 2050 target
- (ii) Role of power sector decarbonisation
- (iii) Near term investment challenges
- (iv) Reform of the electricity market arrangements
- (v) Conclusions and future work of the Committee

(i) Climate changer science – remains intact

Science is uncertain

- For given emissions trajectory, probability distribution or temperature change
- Probability distributions will change as scientific understanding improves (e.g. Ocean absorption, aviation non-CO₂)

Controversies must be addressed

- UEA and IPCC controversies are problematic, particularly given impact on public opinion (e.g. 20-25% believe climate change is happening and man made)
- Must and will be addressed

Fundamental science is robust

- Climate change is happening, is highly likely to be man made, etc.
- Need to reaffirm message

(i) Moving towards a global deal

Copenhagen was disappointing

- Did not achieve objective of agreeing a legally binding global deal

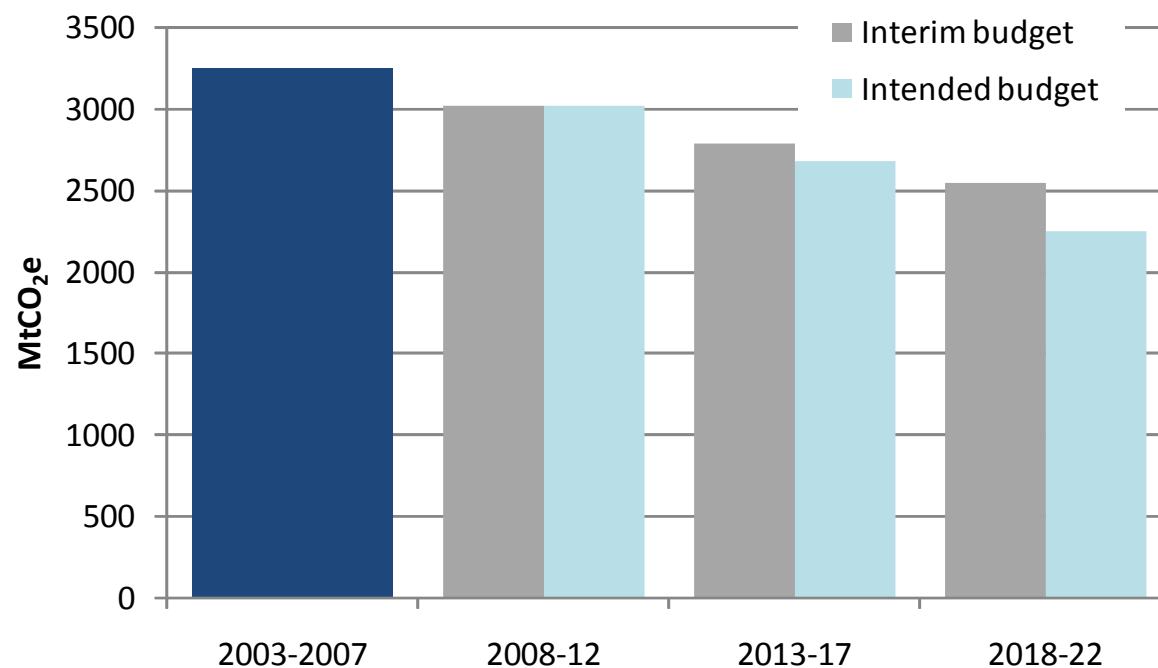
But Copenhagen Accord includes number of positive aspects

- 2 degree target
- 2020 commitments
- Finance mechanisms

Warrants cautious optimism

- Moving towards a global agreement consistent with climate objective

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

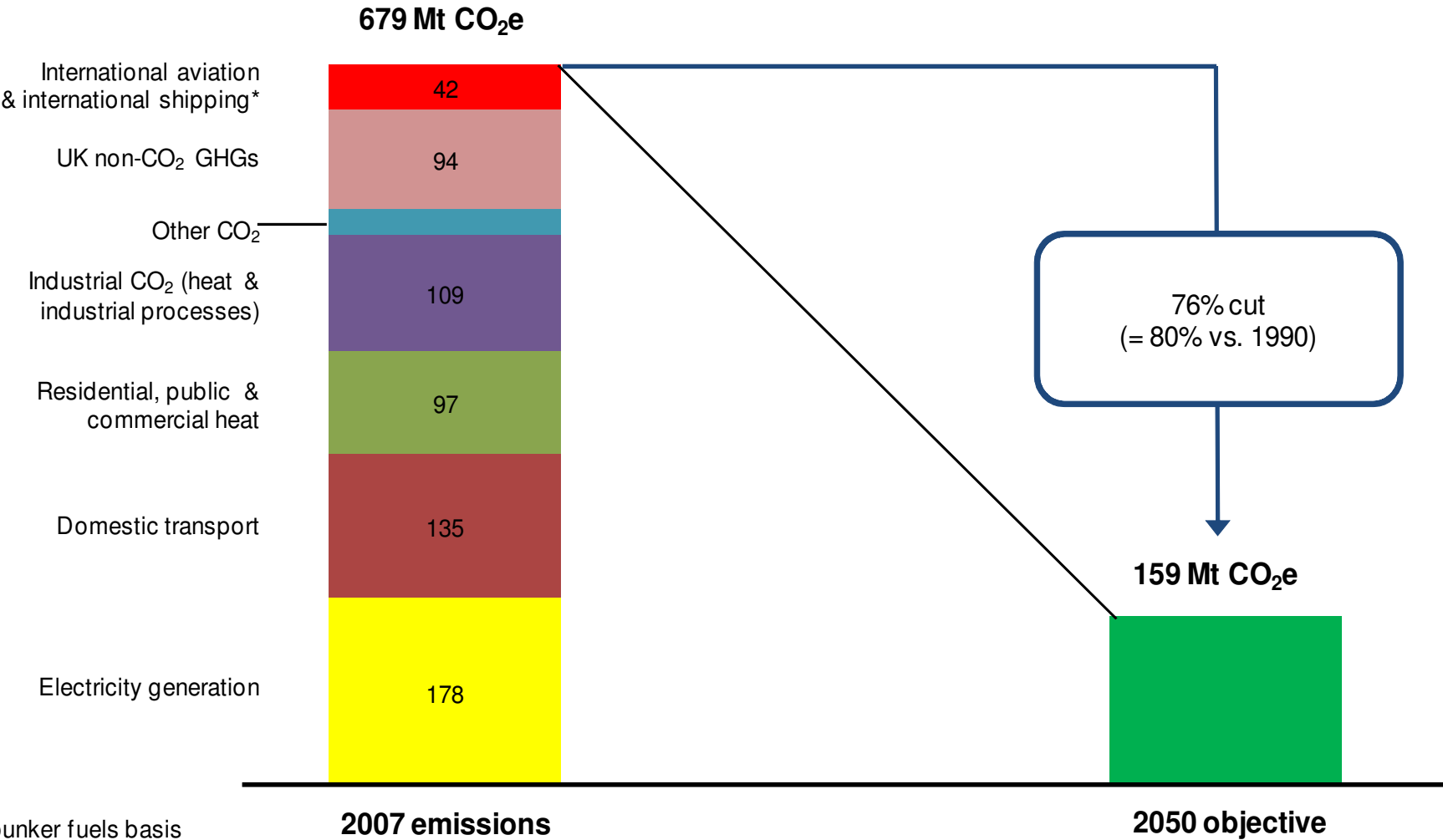


Interim: 34% cut in GHGs by 2020, relative to 1990 [20% on 2007 levels]

Global deal

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

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

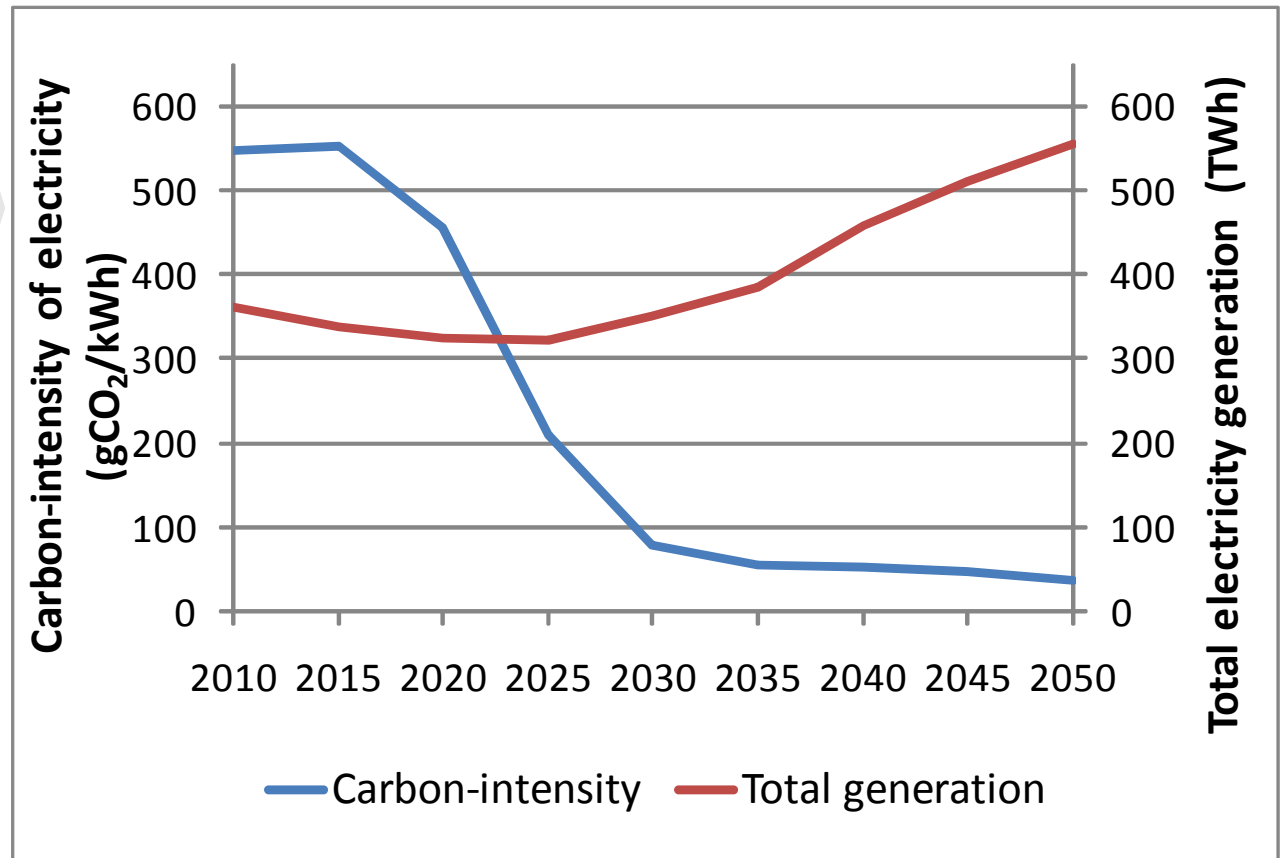


(ii) Power is central to wider economy decarbonisation

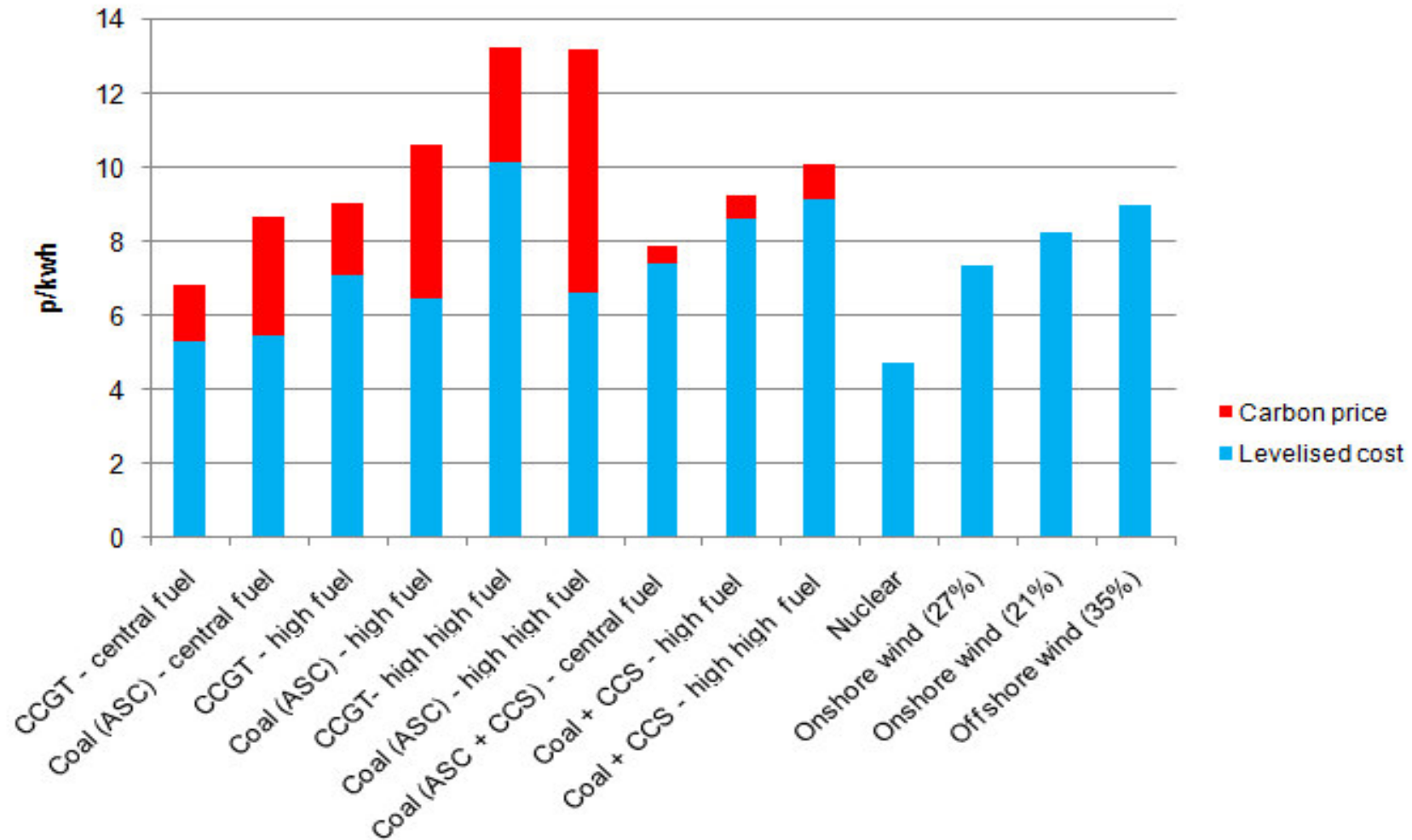


The **electrification** of other sectors will see demand increase in 2020s and 2030s

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



(ii) Low carbon generation costs

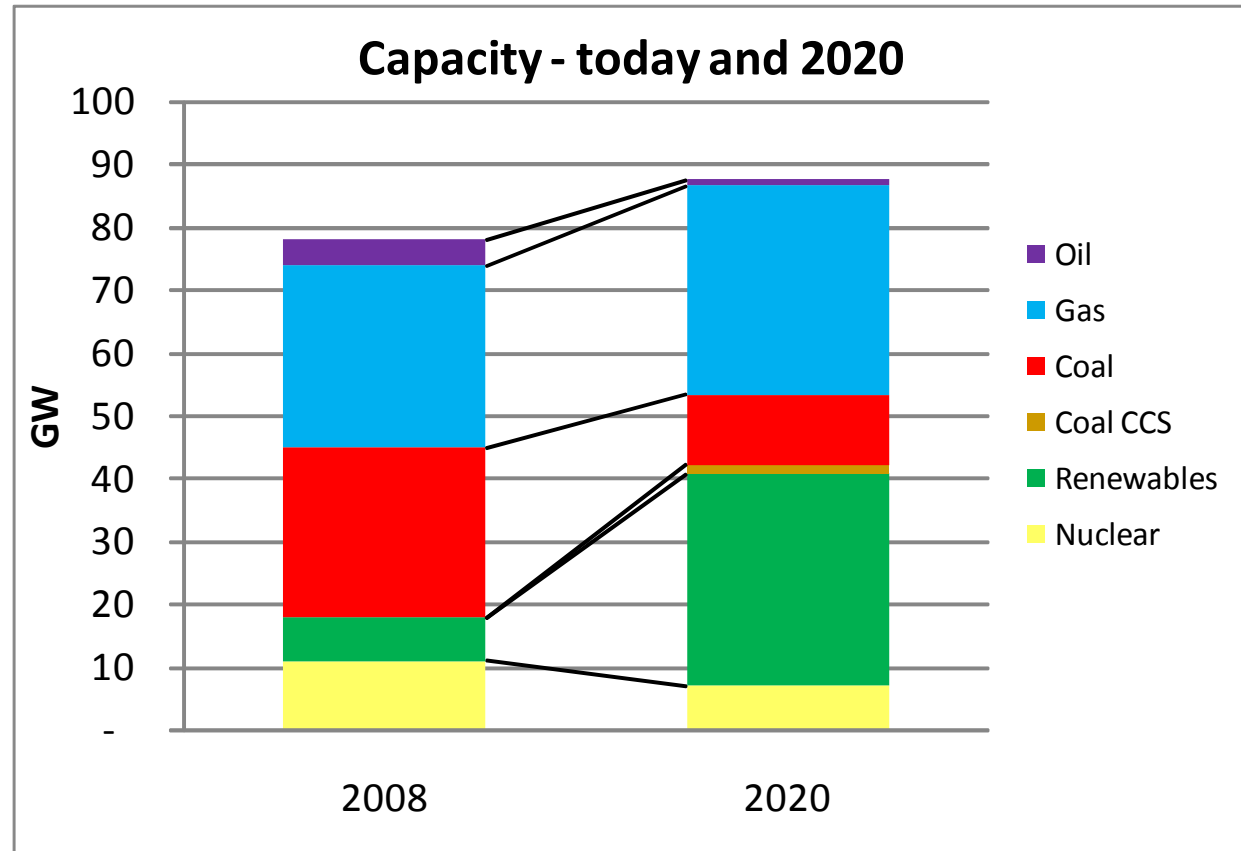


Source: IPCC (2005), Redpoint et al (2008), CCC estimates of the carbon price

(iii) 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



(iii) Near term challenges to develop a portfolio of low carbon options



Planning approval

- Local consensus approach to onshore wind
- Final design and implementation of planning framework for large scale investments

Financing

- Final design of financing framework for renewable generation
- Carbon price support for first nuclear investments

CCS demonstration

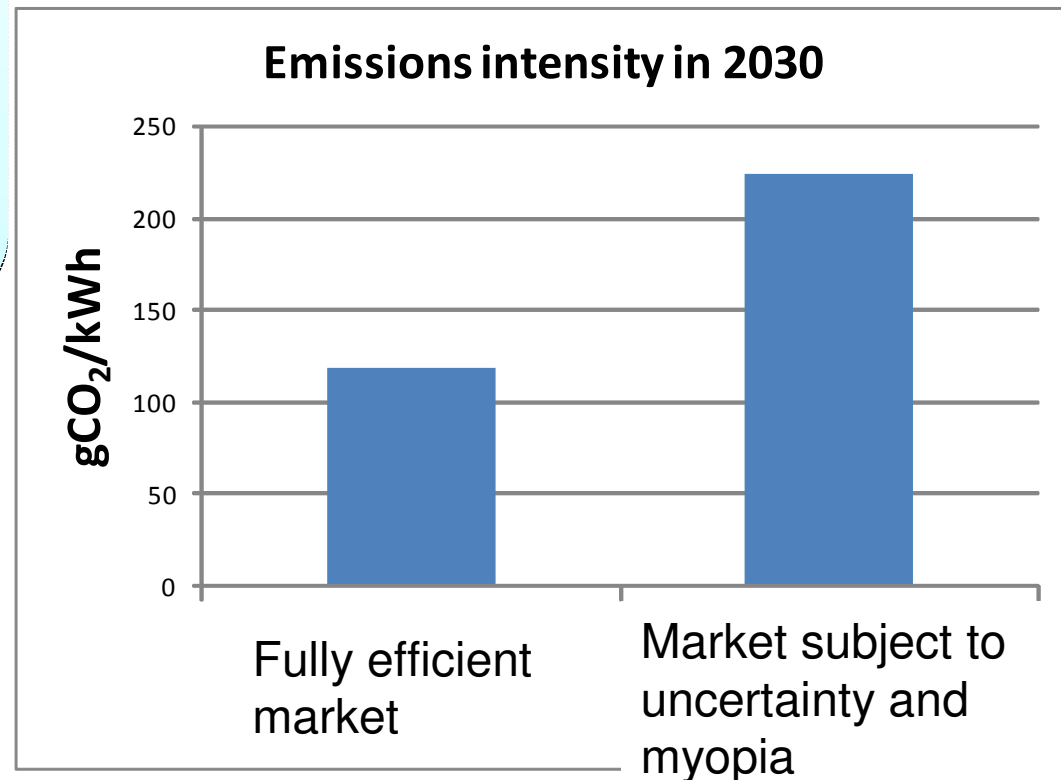
- Progress on competitions for four demonstration plants
- Development of CCS infrastructure strategy

(iv) Will the current power market arrangements deliver a new low carbon fleet through the 2020s?

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) The Government's Electricity Market Assessment



(v) Conclusions



Power sector decarbonisation is key to wider economy decarbonisation:

- We have the opportunity to replace the current conventional fossil fuel fleet with relatively low cost clean generation.

Three sets of challenges:

Planning and financing to unlock the path to 2020

Demonstration of CCS for deployment in the 2020s

Electricity market reform to support deployment through the 2020s

(v) Future work of the Committee on the electricity sector



- Options for decarbonisation (e.g. Gas CCS, marine)
- Flexibility options (interconnection, load smoothing, etc.)
- The path to 2030
- High level assessment of options to drive the path
- Implications for the first three budget periods (e.g. Support for gas CCS demo.?)