

The UK climate change strategy – economic aspects

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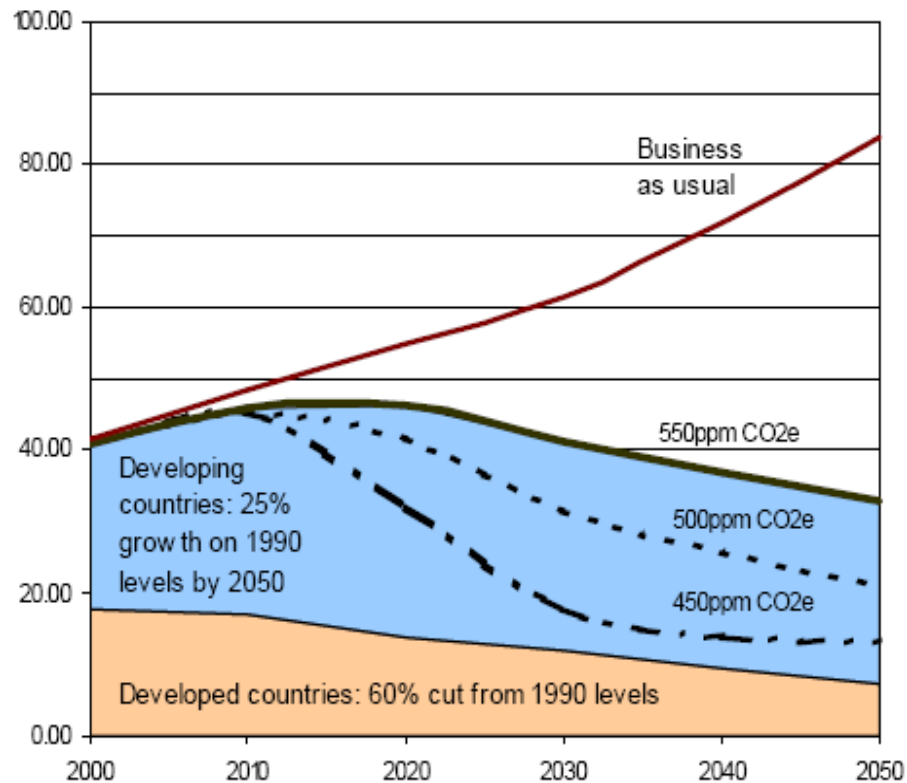
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Outline

- The UK strategy for international engagement – essential elements
- The UK strategy for domestic leadership – emission trends, targets and policy frameworks
- Insights from economics on strengthened UK action to tackle climate change

The UK's international objective is to stabilise GHGs at a level which avoids dangerous climate change, and to adapt to unavoidable climate change



- Stern recommends a stabilisation goal of between 450 and 550ppm CO₂e
- EU objective to limit global warming to no more than 2°C will require going well below 550ppm CO₂e
- For developed countries, a range of emission reduction target informed by consideration of equity is 60%-90% reduction by 2050

Stern Review (2006); 'ppm' = parts per million concentrations in the atmosphere.

The scale and nature of the problem requires a truly global response and global co-operation...

- If countries are to invest in making the transition to a low-carbon economy, they need to know that their action will be reciprocated by others.
- We need to make a reality of the UNFCCC principle of “common but differentiated responsibility”
- It is essential to secure international agreement to a realistic, robust, durable and fair framework of commitments for the post-2012 period

This framework should have five key building blocks...

- A **long-term** goal, providing clarity on the scale and timing of emission reductions, creating a more favourable environment for investment
- Creating a **global carbon price** through an effective carbon market
- Stimulating and rewarding **investment in low carbon technologies and energy efficiency** and creating opportunities for technology transfer
- **Avoid deforestation**
- **Support developing countries to adapt** to the unavoidable effects of climate change

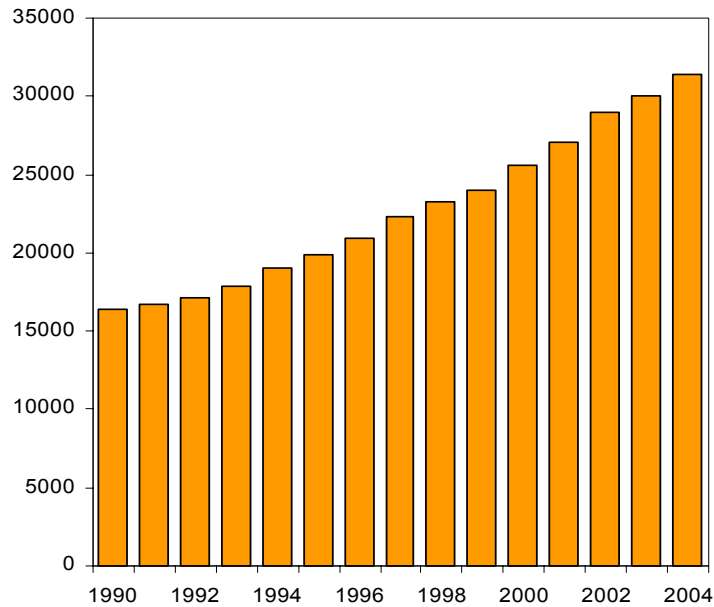
2007 is a crucial year to lay the foundations for a future framework ...

- To avoid a 'gap' between the existing first Kyoto Protocol commitment period (2008-12) and later periods, we need to have achieved a global consensus by 2009
- Key international meetings are moving us forward towards this consensus:
 - **EU Spring Council** (8-9 March) has already set EU ambition and leadership
 - The **G8 Summit** in Heiligendamm (June) could lead to the agreement of key elements of a new framework
 - **UNFCCC** in Bali (December) should launch formal, comprehensive negotiations

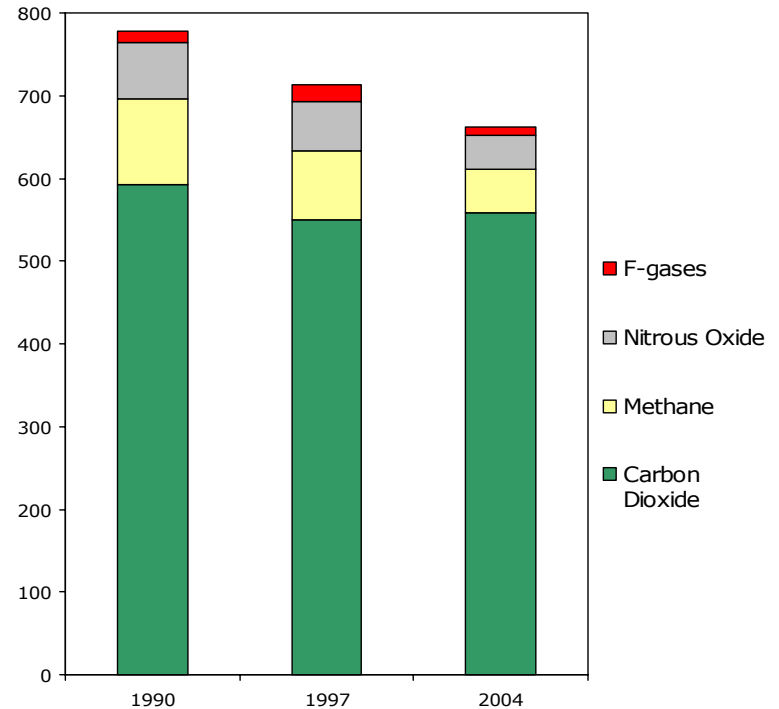
The UK will continue to play its part through:

- **High-level political engagement** – making climate change and energy security a matter for heads of State and key Government departments
- **Science and economics of climate change** – build on Stern Review to analyse costs and benefits of action compared to BAU, continue to support the international scientific community
- **Investing in low carbon technologies and demonstration projects**, e.g. support for the World Bank's Energy Investment framework and demonstration of CCS
- **Domestic action to show leadership** – commitment to emission cuts beyond Kyoto targets, demonstrate that the transition to a low-carbon economy needs not be at the expense of economic growth and social welfare

In the UK we have already reduced emissions whilst maintaining strong economic growth...



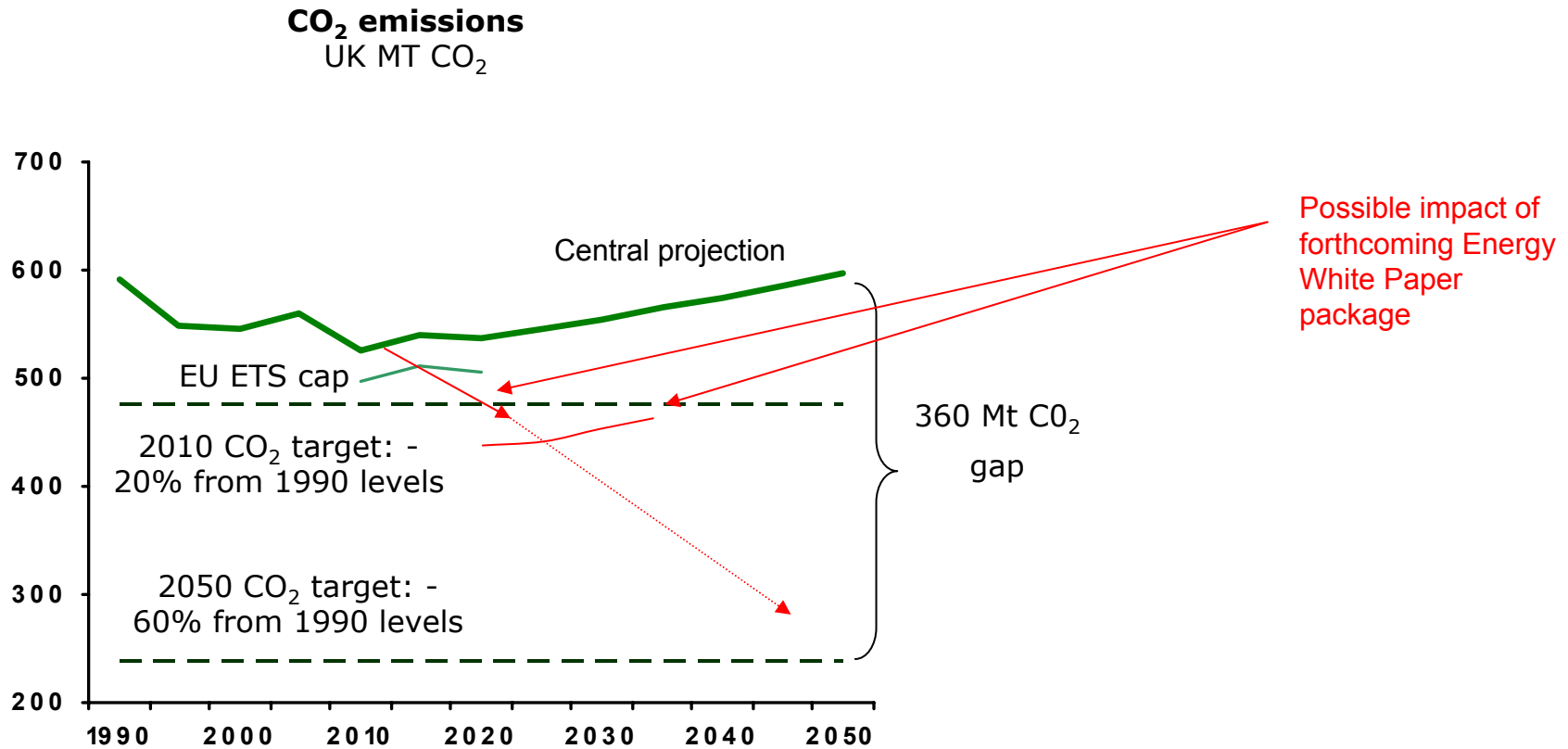
UK GDP per capita, 1990-2004
(US\$)*



UK greenhouse gas emissions
(MtCO₂e)

* Source: OECD

But more needs to be done to remain in line with the UK's long-term CO₂ goal of 60% reduction by 2050...



Source: Updated Energy Projections, 2006

To show leadership internationally and minimise the costs of moving to a low carbon economy the UK is strengthening its domestic policy framework...

- Current policies in all key sectors (business, households, public sector, electricity generation, transport and agriculture) are described in detail in the **UK Climate Change Programme 2006** and **4NC**
- Forthcoming **Energy White Paper (EWP)** will also set out a range of new policies and measures to significantly narrow the CO₂ gap
- Energy policy aims at tackling the twin challenges of reducing carbon dioxide emissions and securing, clean energy at affordable prices in a context of increased dependency on imported sources
- The new **Climate Change Bill** (draft published March 2007) proposes a robust framework to ensure the UK stays within set emission limits

Key elements of the draft Bill

Targets and budgets

Long and medium term targets: CO₂ emission reductions of 60% by 2050 and 26-32% by 2020, through action in the UK and abroad

Five-year carbon budgets to set out UK trajectory

Committee on Climate Change

An independent body to advise Government on its carbon budgets and where least cost savings could be made

Enabling Powers

To introduce emissions trading schemes more quickly and easily

Reporting

The Committee on Climate Change to report annually on progress towards targets and budgets

Government to report at least every 5 years on adaptation

Modelling work for EWP 2003 and 2007 suggests that the long-term costs of meeting the UK CO₂ targets are not prohibitive...

- In the run-up to publication of the **Energy White Paper 2003** long-run costs of reducing CO₂ emissions by 60% by 2050 were estimated at **0.5% - 2%** of GDP in 2050 (Source: UK MARKAL model)
- Preliminary analysis for the **Energy White Paper 2007** points to long-run costs of **~0.3-0.7%** of GDP depending on the fossil fuel-prices scenario (Source: new UK MARKAL-MACRO model)
- Note: these costs assume a least cost transition, a degree of international action in developing low-carbon technologies (reflected in assumptions on future technology costs) and omit policy administration costs. Nonetheless they are well within the Stern range of 1% of GDP $\pm 3\%$

In the short and medium term (up to 2020), costs could be higher, but are highly dependent on the choice of transition path and policy mix ...

- Forthcoming scenario analysis using Oxford Economics model
- Cost estimates highly sensitive to emission reduction pathways, cost and availability of low-carbon and energy efficient technologies and to a lesser degree costs of fossil fuels
- Sensitivity to different degrees of mitigation by other countries less understood but would have important implications on distribution of costs, specially for energy intensive sectors exposed to international competition
- Continued emphasis on trading within the EU and internationally is key to mitigate short-medium costs and risks

To meet our goals and to meet them at affordable costs we need a policy mix that acts on all three pillars identified by the Stern Review

Carbon pricing

The first of Stern's market failures: the damage costs imposed on the world by greenhouse gas emissions are an 'externality' that needs to be reflected in the prices of goods

Technology policy

The second of Stern's market failures: uncertainty and knowledge spill-overs mean that carbon pricing alone will not be enough to induce low carbon technology at the pace and scale needed

Removing other barriers

The third of Stern's market failures: imperfections such as information asymmetry and capital constraints mean that abatement will be more costly if you rely on carbon pricing alone



Carbon pricing is a necessary but not sufficient tool for a low-cost transition

Cost effectiveness analysis has an important role to play in designing a least-cost policy mix...

- Every sector of society will have to contribute to the move to a low-carbon economy. Specific roles for Government, Business and individuals
- But different sectors may not need to move at the same speed or go the same distance
- Cost-effectiveness analysis can help get the most carbon savings for any given amount of money and/or achieve any given targets at least cost
- Inter-temporal dynamics are important (avoid lock-in in carbon intensive technologies that appear cheap today, consider future evolution of costs of technologies that appear expensive)

Flexible regulatory approaches are also important ...

- Important role for market-based instruments and flexible regulatory approaches such as emission trading, as opposed to technology-prescriptive regulatory approaches
- Avoid “picking winners” in terms of low carbon technologies...
- But technologies at different stages in the innovation cycle may need different degrees of support (e.g., technologies at the demonstration or early commercialisation phase may need greater support and more targeted incentives than technologies at the diffusion stage)

Economic analysis key in ensuring that mitigation is consistent with growth and prosperity

Economic insights for UK action

International cooperation overcomes risks of free-riding, as the climate is a 'public good'

Credibility can reduce abatement costs if policy is enduring, enforceable and realistic

Multiple instruments to tackle multiple barriers and market failures

Flexibility over 'what', 'where' and 'when' abatement takes place will minimise costs

Focus on cost-effectiveness and flexible regulatory instruments

Summary

- It is urgent to achieve a global consensus on a realistic, durable and fair framework of commitments post-2012
- 5 key building blocks - long-term goal, global carbon price, technology support, prevent deforestation and support for adaptation
- UK domestic action and commitments aim to demonstrate that transition to a low carbon economy can be consistent with economic growth and prosperity
- The UK is strengthening its domestic policy framework to meet its long-term goals (Climate Change Bill and forthcoming Energy White Paper)
- Further UK action will need to act on all three pillars identified by Stern – carbon price, technology policy and removal of barriers – and carefully design and assess policy interventions

Useful links

- UK international action on climate change on Defra's website:
<http://www.defra.gov.uk/environment/climatechange/internat/index.htm>
- UK domestic action on climate change on Defra's website (including Climate Change Programme)
<http://www.defra.gov.uk/environment/climatechange/uk/index.htm>
- Climate Change Bill and Climate Change Strategic framework:
<http://defraweb/environment/climatechange/uk/legislation/index.htm>
- Energy Review report on DTI's website:
<http://www.dti.gov.uk/energy/review/page31995.html>