

Action to achieve environmental goals remains a high priority for the Government in current economic circumstances. The Government is putting in place policies and investment to support a low-carbon recovery, with new jobs and businesses created through green growth. Government policies are driving £50 billion of investment in the low-carbon sector over three years. The Climate Change Bill introduces a legally binding target to cut greenhouse gas emissions by at least 80 per cent by 2050, the most ambitious in the G7, building on the Government's plans to deliver a one-third reduction in emissions from 1990 levels by 2020.

The Pre-Budget Report contributes to meeting the UK's ambitious long-term environmental goals, while supporting low-carbon growth by:

- **introducing a green stimulus – ensuring part of the fiscal stimulus supports low-carbon growth and jobs by accelerating £535 million of capital spending on energy efficiency, rail transport, and adaptation measures.** 76,000 low-income households will benefit earlier from better heating and energy efficiency, up to 200 new rail carriages will be delivered earlier and 27,000 homes will benefit sooner from flood defences;
- **successfully securing inclusion of aviation in the EU Emissions Trading Scheme from 2012, and holding Europe's first Phase II carbon auction on 19 November 2008;**
- **retaining the Renewables Obligation to provide financial support for large-scale renewable electricity and extending it by at least ten years, ensuring investors can plan with confidence for the future.** This will complement the introduction of a feed-in tariff for small-scale renewable electricity and a renewable heat incentive to reward households and businesses that generate renewable energy on site; and
- **following a fall in pump prices of over 20 pence per litre from their summer peaks, the postponed two pence per litre fuel duty increase will go ahead on 1 December 2008.**

At the same time, the Pre-Budget Report shows how environmental policies can respond flexibly to help people and businesses through tough times, while reducing carbon emissions by:

- **installing 600,000 insulation measures this winter, up 70 per cent on last winter, through the £6.8 billion Home Energy Saving Programme,** half of which is funded by energy companies. This will help households save up to £300 a year on energy bills and reduce carbon emissions;
- **continuing to provide a clearer environmental signal through reform to vehicle excise duty, while ensuring that no driver in any given band will pay more than £5 extra in 2009 or £30 extra in 2010; and**
- **reforming air passenger duty from 1 November 2009, moving from two to four distance bands to improve environmental signals. The Government has decided not to proceed with a per-plane tax in order to ensure greater stability and protect competitiveness at a time of economic uncertainty.**

7.1 Following the unprecedented shocks that have affected the world economy over the past year, the Government is supporting the UK economy through these challenges. Action to achieve environmental goals remains a high priority for the Government in these circumstances. The Government is putting in place policies and investment to support a low-carbon recovery (Box 7.1), with new jobs and businesses created through green growth. Government policies are driving £50 billion of investment in the low-carbon sector over the three years to 2011. The sector already employs 350,000 people;¹ over the next 20 years, more than one million people could be employed in the UK's environmental industries.

Box 7.1 – Green stimulus

As part of the fiscal stimulus, the Government is providing £535 million of accelerated capital spending and additional resources to promote its environmental objectives and support low-carbon growth. This stimulus will help to sustain and expand the estimated 350,000 jobs in the low-carbon sector, alongside measures set out in the Pre-Budget Report to develop skills and attract low-carbon investment.

The green stimulus comprises:

- £100 million of new funding for Warm Front, on top of £50 million of spending on the programme brought forward now to support the economy. This will help around 60,000 low-income households cut their energy bills through insulation and improved heating systems;
- £60 million to provide 16,000 social houses with energy efficiency and heating measures as part of an accelerated Decent Homes programme (based on historical patterns of spending on energy efficiency);
- £300 million to accelerate the delivery of up to 200 new carriages to expand capacity on the rail network;
- £20 million of spending on flood defences, to deliver earlier protection for 27,000 homes; and
- £5 million of spending on British Waterways network infrastructure.

7.2 Climate change represents a significant economic and environmental threat for all countries. Unchecked climate change could increase global temperatures by more than 5°C, causing hundreds of millions of people to suffer hunger, drought and flooding and having serious impacts on world output. Strong action is required to put the world economy on a low-carbon path – both through coordinated global efforts and the leadership of individual countries and regions.

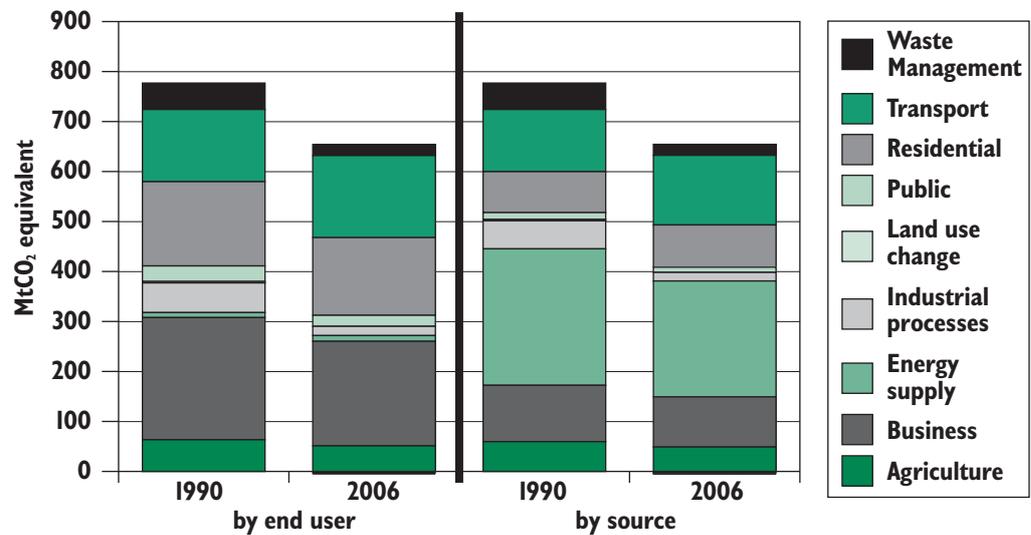
Progress to date

7.3 The UK is already on track to meet emissions reduction targets under the Kyoto Protocol. Greenhouse gas emissions fell from 780 MtCO₂e in 1990 to 619 MtCO₂e in 2006 – more than a 20 per cent reduction, compared to a target of 12.5 per cent reduction by 2008-2012.² Emissions reductions have been achieved alongside economic growth – greenhouse gas emissions per unit of GDP have fallen by 45 per cent since 1990. Much of the reduction to date has come about through changes in the power generation mix, in particular an increase in gas generation. Looking ahead, reductions will increasingly be driven by the framework of government policy.

¹ BERR, Innovas and K-matrix, 2008.

² This figure includes the impact of the EU Emissions Trading Scheme (ETS). Emissions from activity within the UK's borders – excluding the allowances purchased through the EU ETS – fell by around 16 per cent between 1990 and 2006. Emissions are given in million tonnes of carbon dioxide equivalent (MtCO₂e) and refer to the basket of greenhouse gases to which the Kyoto Protocol applies.

Chart 7.1: Contribution of economic sectors to emissions reductions to date



Source: UK Climate Change Programme Annual Report to Parliament, July 2008.

7.4 To drive greater reductions in greenhouse gas emissions, the UK has put in place the Climate Change Bill.³ This sets the UK a long-term legally binding target to reduce greenhouse gas emissions by at least 80 per cent by 2050 – the most ambitious target in the G7. The Bill introduces carbon budgets that set binding limits on emissions over consecutive five-year periods. Alongside other major reforms being put in place by the Energy and Planning Bills, the Climate Change Bill will drive progress towards a low-carbon economy in the UK, while demonstrating leadership to support UK efforts to secure a global deal.

INTERNATIONAL PROGRESS ON CLIMATE CHANGE

Post 2012 framework **7.5** Global action needs to be on a scale sufficient to deal with the urgency of the threat, particularly to the world's most vulnerable countries and communities. The UK is working closely with international partners to agree a durable, cost-effective and fair framework after the existing Kyoto term runs out in 2012. This needs to be agreed at the UN meeting in Copenhagen at the end of 2009.

7.6 President-elect Obama has recently announced his commitment to concrete steps the US will take to tackle climate change. This represents a significant step forward in building momentum internationally for the climate change negotiations. The Government welcomes this commitment, and looks forward to working closely with the United States and other governments through the UN Framework Convention on Climate Change negotiations, the G20 and other channels.

Carbon markets **7.7** Expanding carbon markets to increase investment finance for low-carbon technologies in developing countries is essential. The Climate Change Bill gives the UK flexibility to purchase international credits to meet carbon budgets, enabling the UK to demonstrate commitment to a global carbon market while ensuring emissions reductions are made in a cost-effective manner in the UK and internationally.

³ The Climate Change Bill has been agreed by both Houses of Parliament and is awaiting Royal Assent.

7.8 Development assistance also has an important role to play. The UK, through the G7 and G8 Finance Ministers' meetings, successfully led international negotiations this year on the creation of the \$6.1 billion Climate Investment Funds at the World Bank. Financing for climate change will be one of the key issues on which the Government seeks to build international consensus during 2009, and a core theme for the UK as chair of the G20 grouping of finance ministers and central bank governors, which brings together developed and emerging economies.

European action 7.9 The UK is playing a central role in the negotiations to agree a 2020 EU Climate and Energy Package. This package will ensure that Europe sets out a clear and coherent legislative framework to deliver its commitment to reduce greenhouse gas emissions by 20 per cent by 2020 against a 1990 baseline and by 30 per cent under a new international climate change deal. It also includes a target for 20 per cent of Europe's energy to come from renewable sources by 2020.

CARBON BUDGETS IN THE UK

7.10 At a time of global financial shocks and impacts on the real economy, it is more important than ever that Government policies reduce greenhouse gas emissions in the most cost-effective manner. By introducing a legally binding framework to keep the UK on a trajectory to meet its long-term goals, carbon budgets will require the Government to put the transition to a low-carbon economy at the heart of economic decision-making and policy appraisal (Box 7.2).

Carbon budgets 7.11 Budget 2008 announced that the Government would set the levels of the first three carbon budgets, covering the period 2008 to 2022, alongside Budget 2009. The Climate Change Bill also requires the Government to set out its policies and proposals to meet carbon budgets. **The Government now announces that it will fulfil this requirement in a final report, laid before Parliament, in mid 2009.** The report will:

- provide a comprehensive overview of the emissions savings required;
- set out the European and international context for our domestic action;
- build on existing measures and incorporate new proposals emerging from consultations on renewable energy, heat, and energy saving; and
- take account of the impact on the economy and overall fiscal position, on the competitiveness of particular sectors, and on energy security.

Box 7.2 – Explaining carbon budgets

What is a carbon budget? The Climate Change Bill requires the Government to set a limit on emissions of greenhouse gases covered by the Kyoto protocol over a five-year period. The limit is known as a carbon budget. The first three carbon budgets will cover the periods 2008-2012, 2013-2017 and 2018-2022.

How are budgets set? The Government will take into account advice from the Committee on Climate Change and must consider the emissions reductions targets for 2020 and 2050 set by the Bill. Both the Government and Committee on Climate Change must take into account scientific and technology developments; economic, fiscal and social circumstances; the impact of carbon budgets on energy policy and energy security; any different circumstances in Scotland, Wales and Northern Ireland; expected emissions from international aviation and shipping; and the European and international framework.

What is the Committee on Climate Change? The Committee is an independent, expert, advisory body established under the Climate Change Bill to advise the Government on its long-term emissions reduction targets, levels of carbon budgets and the potential for emissions reductions across the economy.

Who is responsible for ensuring the budget is met? Carbon budgets set a legal requirement on the Government to ensure that emissions fall, and the Government is accountable to Parliament and the public for ensuring carbon budgets are met.

How will carbon budgets lead to emissions reductions in the real world? Carbon budgets will require the Government to put in place the policies required to deliver emissions reductions across the economy, and will provide a very strong incentive to ensure that the Government places a high priority on monitoring the consequences of new and existing policies on reducing emissions.

What do carbon budgets mean for me as an individual? The policies put in place by the Government to meet carbon budgets should support individuals in reducing their own carbon footprint, as well as reducing the cost to them of doing so. For example, lower rates of vehicle excise duty for fuel efficient cars will reward those who choose to drive lower emission cars, while the Home Energy Saving Programme is expected to deliver over six million energy efficiency and heating measures to households.

Long-term emissions savings

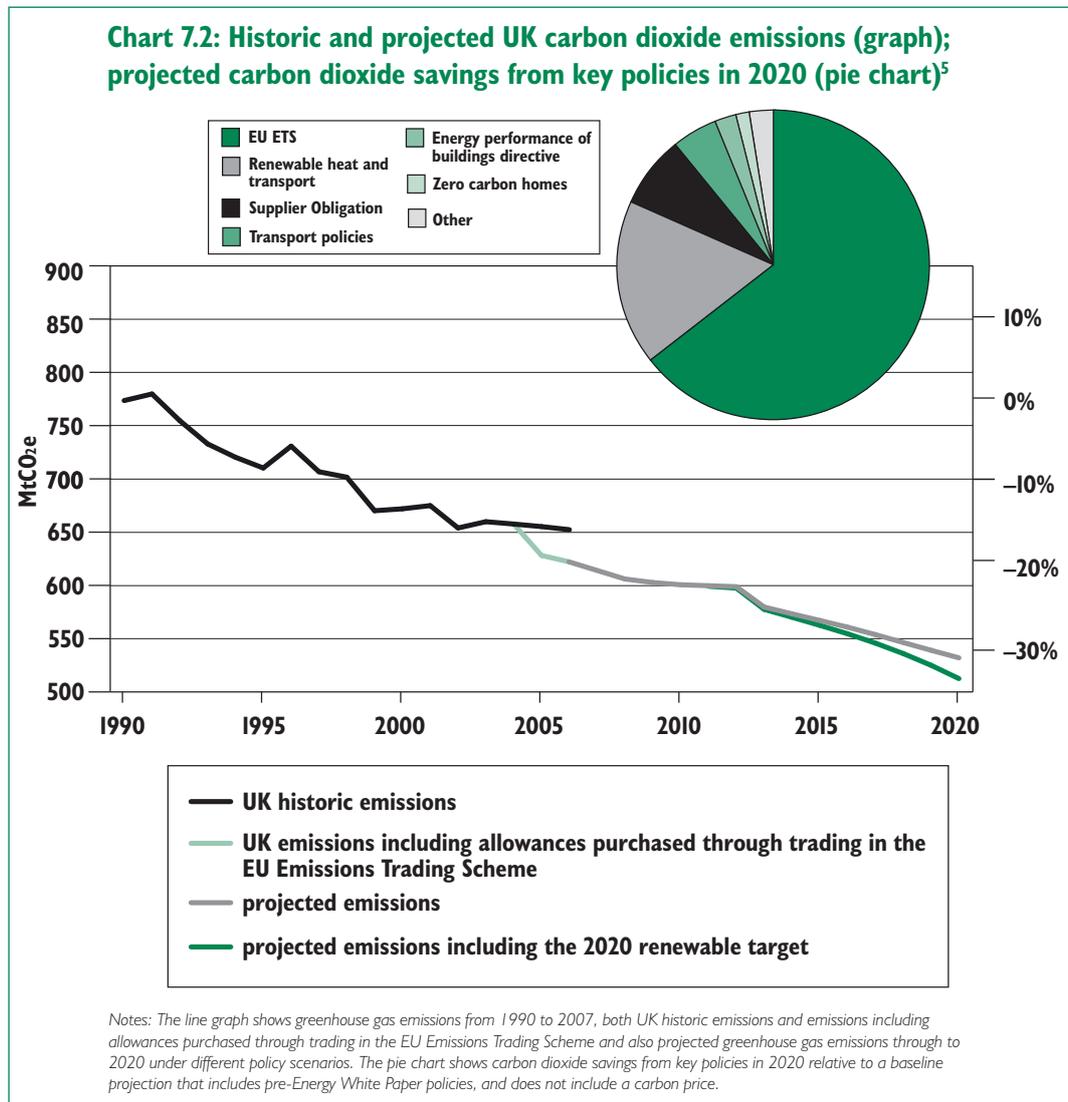
7.12 The UK's first three carbon budgets, covering the period 2008 to 2022, will be set alongside Budget 2009, taking into account advice from the Committee on Climate Change. The UK will need to make substantial emissions reductions over this period, with principal long-term policies expected to deliver between 114–128 MtCO₂e of reduction per year by 2020 (nearly a one-third reduction on 1990 levels) by:⁴

- capping emissions from power generation and heavy industry through the EU Emissions Trading Scheme, which covers around half of UK carbon dioxide emissions and is the centrepiece of the Government's climate change strategy;
- delivering a ten-fold increase in renewable energy in order to meet the UK's share of the EU's 20 per cent target for renewable energy by 2020;
- improving fuel efficiency in the transport sector by negotiating an ambitious long-term EU wide target for car fuel efficiency; and

⁴ This includes 19 MtCO₂e expected savings from renewable heat and transport to meet the UK share of the EU 2020 renewables target. The range spans the low to high estimates of policy delivery, and savings are compared to emissions in 2005.

- improving energy efficiency in households including through the Home Energy Saving Programme and obligations on energy suppliers.

7.13 The impacts of these policies are set out in Chart 7.2 below.



7.14 To ensure that the UK meets these domestic climate change targets in the most cost-effective manner, the Government has adopted the three pillars for policy action set out in the Stern Review:

- pricing carbon through trading, tax or regulation – ensuring that emissions reductions are delivered in the most cost-effective way;
- supporting investment in low-carbon technologies and infrastructure; and
- tackling barriers to action, including policies to encourage long-term behavioural change and energy efficiency.

⁵ Source for graph: *Updated energy and carbon emissions projections*, DECC, November 2008. Details of the pre-Energy White Paper policies in the baseline can be found in Table C1 of that document. Source for pie chart: DECC modelling.

PUTTING A PRICE ON CARBON

EU Emissions Trading Scheme

7.15 Carbon pricing is the central tool of climate change policy. The EU Emissions Trading Scheme (ETS) sends a price signal through the economies of Europe by capping emissions of energy generators and heavy industry. The UK strongly supports the European Commission's proposals to set an ambitious EU-wide cap on emissions under the ETS from 2013, with the cap reducing each year to 2020 and beyond, giving certainty to businesses to plan investment. The proposed cap would deliver 60 per cent of the cuts required for the EU to meet its 2020 emission reduction commitment.

7.16 **On 19 November, the UK was the first country to hold an auction of carbon allowances under Phase II of the EU ETS (2008-2012).** Four million allowances were sold, raising over £54 million. Auctioning carbon allowances removes the potential for windfall gains by ensuring companies pay the market price for allowances, in line with the polluter pays principle. The Government's forecast of revenue from auctioning Phase II EU ETS allowances, based on market prices, has been included in the Pre-Budget Report forecast.

7.17 The Government has also succeeded in its aim of obtaining unanimous agreement to include aviation in the EU ETS from 2012. This will enable the aviation sector to take responsibility for its carbon emissions in the most cost-effective way. The cap will be set at 97 per cent initially, with 15 per cent of allowances to be auctioned. Aviation emissions reductions⁶ across Europe will be 133 MtCO₂ a year in 2015, rising to 194 MtCO₂ a year by 2020.⁷

SUPPORTING LOW-CARBON TECHNOLOGY AND INFRASTRUCTURE

7.18 The development and deployment of low-carbon and energy saving technologies will be critical in meeting the Government's ambitious emissions reduction targets. A carbon price provides a strong incentive for investment in existing low-carbon technologies, but may not alone be sufficient to overcome barriers to the development and deployment of new technologies. The Government is therefore actively providing further support for the development of these technologies towards commercial deployment.

⁶ The reductions may not arise through abatement of aviation emissions, but through the purchase of allowances from the market by aircraft operators to account for any additional carbon dioxide that they emit over and above the cap. Any increase in carbon dioxide emissions from aviation above the 95 per cent cap will be effectively offset by reductions in carbon dioxide emissions from other participants in the EU ETS or from Clean Development Mechanism carbon dioxide reduction projects in developing countries.

⁷ These figures are based on the European Commission paper, *Impact Assessment of the inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community*, 2006. This paper gave an estimate of emissions reductions if the cap were set at 100 per cent. These figures have been adjusted to reflect the agreement reached in July 2008 that the emissions cap for aviation will be 95 per cent of average 2004-06 emissions from 2013 onwards.

Box 7.3 – The Government is supporting technology innovation through the stages of research, development, demonstration and deployment (RDD&D):

- **Research Councils** are supporting £300 million of energy research and postgraduate training over the CSR period, including large multidisciplinary research projects and blue-skies research;
- the business-led **Technology Strategy Board**, established by the Government, stimulates innovation through a range of activities, such as funding a £100 million low carbon vehicle programme;
- the **Energy Technologies Institute**, a partnership between the Government and industry (including BP, Caterpillar, EDF Energy, E.ON UK, Rolls Royce and Shell) aims to raise £1.1 billion over the next 10 years for applied research and development projects such as the £60 million 'Offshore Wind' and 'Wave and Tidal Stream' energy programmes;
- the **Carbon Trust** recently launched their Offshore Wind Accelerator Programme that aims to cut the cost of offshore wind energy;
- the **Energy Saving Trust** promotes energy efficiency in the domestic and public sector, providing technical support for innovative energy efficiency projects across the UK; and
- the £400 million **Environmental Transformation Fund** focuses on demonstration projects and the pre-commercial deployment of low carbon technologies, for example, project support for biogas generation from organic waste decomposition.

Carbon capture and storage 7.19 Carbon capture and storage (CCS) is a key technology for tackling global emissions and has the potential to reduce emissions from fossil fuel power stations by up to 90 per cent. The Government is supporting proposals in the EU to provide funding for up to 12 demonstration projects and to provide an EU-wide regulatory framework for the geological storage of carbon dioxide. The Energy Bill will provide the Government with the powers to permit offshore storage of carbon dioxide from electricity generation. In November 2007, the Government launched a competition to design and build a full-scale demonstration of the full capture, transport and storage chain. The procurement exercise is ongoing.

Renewable energy 7.20 The UK has made substantial progress in increasing the contribution made by renewables to its energy mix. For example, the UK recently overtook Denmark to be the world-leader in offshore wind capacity. Existing policies, together with those brought forward from the renewable energy strategy consultation, will bring about a ten-fold increase in renewable energy generated in the UK. These are expected to generate around £100 billion of investment, and deliver carbon savings of around 67 MtCO₂ per year by 2020, of which 19 MtCO₂ will be additional to the EU ETS cap.

7.21 The Government is bringing forward measures to increase certainty and incentives for investment in renewable technologies. In the Energy Bill, the Government is taking powers to introduce:⁸

- banding to the Renewables Obligation to provide more targeted support for newer technologies, such as offshore wind; and
- a renewable heat incentive and feed-in tariffs for electricity below 5 MW. These provisions will ensure communities, households and businesses can receive financial reward for the renewable heat and electricity they generate.

⁸ The Energy Bill is nearing Parliamentary approval, and is expected to receive Royal Assent shortly.

7.22 Large-scale generation will make up most of the new renewable electricity capacity needed. **The Secretary of State for Energy and Climate Change today confirms that the Government is committed to retaining the Renewables Obligation to provide financial support for large-scale renewable electricity and will extend it to at least 2037.** This will ensure that investors can plan with confidence and underpin growing investment in renewable electricity.

Grid infrastructure 7.23 A major investment is underway in Britain's energy networks that will provide the necessary infrastructure to deliver security of supply for electricity and gas, as well as supporting the move to a low-carbon economy. Ofgem has approved £5 billion of revenue allowances until 2012, just under £4 billion of which is for National Grid. There is flexibility in the current settlement for a further £1 billion of investment in electricity transmission. In addition, Ofgem has approved a further £5.7 billion for electricity distribution (from 2005-2010) and £5 billion for gas distribution (from 2008-2013). The regulator will be ensuring that the National Grid and the other transmission and distribution companies meet their commitments.

7.24 Further investment in electricity networks will be needed in order to connect new renewable and other low-carbon and conventional generation. Ofgem expects to consult shortly on revised incentives for the network companies that will enable timely, strategic investment in network reinforcements and extensions.

Nuclear power 7.25 New nuclear build is a key element of the Government's energy strategy for a secure low-carbon energy supply. The Government is looking to facilitate investment in this technology through the recently created Office of Nuclear Development (OND), which will work to enable companies to bring forward new nuclear power stations in the UK from the earliest possible date. The OND will help to create and support a globally competitive supply chain for nuclear build.

Opportunities from a low-carbon economy

7.26 Chapter 4 sets out action to help businesses respond to the downturn caused by global economic shocks, and new measures to ensure that UK businesses are well placed to meet long-term global challenges.⁹ In this context, the Government's ambitious climate change targets provide an opportunity for significant expansion in low-carbon goods and services, leading to significant job growth in the sector, and helping with economic recovery. The UK is well placed: it is estimated that 350,000 people are already employed directly in the sector. Over the next 20 years, more than one million people could be employed in the UK's environmental industries. Next year, the Government will publish its low-carbon industrial strategy, providing a vision for how companies can adapt and take advantage of the growing business opportunities from a low-carbon economy.

7.27 Appropriate skills will be needed for a low-carbon economy – this is one of the strategic priorities for the Government's National Skills Academies (NSAs). NSAs bring together employers and networks of specialist training providers to tackle the key skills challenges facing their sector. The Government will convene a forum on low-carbon skills to identify the action needed to ensure that the right training and vocational qualifications are in place to successfully manage the transition to a low-carbon economy.

⁹ *The UK Economy: Addressing long term strategic challenges*, published alongside the 2008 Pre-Budget Report sets out the challenges and opportunities facing the UK, including the transition to a low-carbon economy.

7.28 The Government is calling for the EU budget to be reoriented towards supporting Member States to ensure the EU has the skills to compete in a low-carbon, global economy, maximising the opportunities for growth and jobs. As a first step towards this, the UK is working to improve the European Globalisation Adjustment Fund, which aims to help workers made redundant as a result of changing global trade patterns, accordingly.

Attracting low-carbon investment

7.29 Building international partnerships and developing export markets will help the UK take advantage of the global shift to low-carbon goods and services. The Government will publish a new low-carbon marketing strategy in early 2009, promoting the UK as a global hub for low-carbon solutions. Earlier this month, the Government announced a long-term strategic partnership between the UK and Qatar, involving an agreement between the Carbon Trust and the Qatar Investment Authority to set up a new £250 million Clean Technology Investment Fund, and to investigate the creation of a Low Carbon Innovation Centre in Qatar. The Fund will seek to make venture capital investments in clean energy businesses primarily located in the UK.

CHANGING BEHAVIOUR IN TRANSPORT

7.30 Transport is of fundamental importance for both private and business travel, and is a key building block of the economy. Road transport is also a large source of greenhouse gas emissions, accounting for 19 per cent of emissions.¹⁰ As set out in Chapter 4, the Department for Transport will publish *Delivering a sustainable transport system*, which will consult on the transport goals and priorities for the future. To ensure a long term framework for cleaner road transport is in place, the Government is pushing for an ambitious EU wide 2020 target for new car emissions to be included in the EU CO₂ from cars directive. The UK consultation on the directive, published in July 2008, estimated savings in the region of 6-11 MtCO₂ per year by 2020, depending on the design of the regulation.

7.31 To deliver this target and help motorists and businesses manage the short-term impacts of the current downturn caused by global shocks, the Government continues to ensure fiscal policy encourages greater fuel efficiency. This will help people and businesses reduce fuel bills, while ensuring transport contributes to long-term environmental goals.

Vehicle excise duty

Post-2001 cars

7.32 Since 2001, vehicle excise duty (VED) has been based on different rates depending on carbon dioxide emissions from cars. The Government announced further reforms of vehicle excise duty at Budget 2008 to incentivise the purchase and manufacture of more fuel-efficient cars. These included an increase in the number of VED bands from seven to thirteen, from April 2009. These new bands will reflect changes in the fuel efficiency of vehicles and will also provide a greater incentive for drivers choosing a lower-carbon version of car within their preferred class, whether purchasing in the new or second-hand market.

7.33 The Pre-Budget Report confirms the introduction of the new bands in 2009. However, it also announces that to reduce pressures on motorists during the current economic downturn, there will be no significant rate changes until 2010, and no driver in any given band will pay more than £30 more in that year. Details of this reform include:

- from April 2009, six new bands of VED will be introduced, taking the total to 13. However, VED rates will not increase by more than £5 for any car in this year;

¹⁰ Emissions from road transport are reported by source rather than by end user.

- **from April 2010, in order for the new bands to create an environmental incentive, the Government will start to separate out the 13 differential rates.** As a result, cars below 150 g/km will see a real terms cut in their VED, of up to £30. Cars up to 175 g/km will see no real terms increase in their VED. Cars of 176 g/km and above will see a tax increase of between £20 and £30;
- **from April 2010, a differential First-Year Rate for new vehicles will be introduced** as announced in Budget 2008, in order to provide a stronger signal for consumers at the point of purchase; and
- **cars that emit over 225 g/km, but were registered between 1 March 2001 and 23 March 2006, will be moved into the new band K in 2009 and stay there in 2010.** This will mean that they maintain their exemption from the top rate of VED.

7.34 As a result of these reforms to graduated VED, no driver in any given band will pay more than £5 extra in 2009. In 2010-11, when more significant rate changes are introduced, a majority of drivers will either pay less or the same as in 2009. When the Government introduces First-Year Rates for newly purchased cars in 2010, new cars under 130 g/km will pay no VED at all in the first year of use, whereas the very highest emitting cars will pay £950. The full set of rates is set out in Table 7.1 below.

Table 7.1: Vehicle excise duty for cars registered from March 2001 onwards; 2009-10, 2010-11 rates

VED band	CO ₂ emissions (g/km)	Standard rate 2009-10*	Standard rate 2010-11*	First-year rate 2010-11
A	Up to 100	£0	£0	£0
B	101-110	£35	£20	£0
C	111-120	£35	£30	£0
D	121-130	£120	£90	£0
E	131-140	£120	£110	£110
F	141-150	£125	£125	£125
G	151-165	£150	£155	£155
H	166-175	£175	£180	£250
I	176-185	£175	£200	£300
J	186-200	£215	£235	£425
K**	201-225	£215	£245	£550
L	226-255	£405	£425	£750
M	Over 255	£405	£435	£950

*Alternative fuel discount: 2009-10, A-I £20, J-M £15; 2010-11 onwards, £10 all cars

** Includes cars emitting over 225g/km registered between 1 March 2001 and 23 March 2006

Pre-2001 cars and vans

7.35 Cars registered before 2001 – which account for around a third of the fleet – are not subject to the graduated VED regime, because comprehensive data on their carbon dioxide emissions is not available. In Budget 2008, it was announced that in 2009 the lower rate of VED for these vehicles would be frozen and the higher rate would be increased by £15. **In line with the changes to main VED rates, this change will be postponed for a year, and on 1 April 2009 both rates will instead increase by £5. These rates will also apply to light goods vehicles registered before 2001.**

Post-2001 vans 7.36 Budget 2008 also announced the standard VED rate for light goods vehicles registered after 2001 would increase by £15 from 1 April 2009. **This change will now instead take place from 1 April 2010, with rates increasing by only £5 in 2009-10. The discounted VED rate for light goods diesel vehicles that met Euro 4 emissions standards before these became mandatory will be increased by £5 to £125 in 2009-10.** From 1 January 2009, vans that meet Euro 5 emissions standards, and are first registered between this date and 31 December 2010, will also be eligible for the discounted rate.

Motorbikes and HGVs 7.37 The Government also announces that VED rates for motorbikes and heavy goods vehicles will be frozen in 2009, as will all related rates including special types vehicles, combined transport vehicles and all vehicle categories linked to the basic goods rate.

Fuel duty

7.38 It is the Government's policy that fuel duty rates should rise each year at least in line with inflation as the UK seeks to reduce polluting emissions and fund public services. However, in response to record peaks in fuel prices earlier this year, the Chancellor announced that the 2 pence per litre increase planned for April 2008 would be postponed.

7.39 As a result of falling oil prices, pump prices have now fallen by more than 20 pence per litre from their July peaks. **The Pre-Budget Report therefore announces that the 2 pence per litre increase in fuel duty planned for 2008 will now take place on 1 December 2008.** However, as a result of the 2.5 per cent cut in VAT this December, the cost of petrol and diesel will fall for private motorists who should see no increase in the price they pay at the pump this year from this measure.

7.40 The Pre-Budget Report also confirms that, as pre-announced in Budget 2008, main fuel duties will further increase by:

- 1.84 pence per litre on 1 April 2009; and
- 0.5 pence per litre above indexation on 1 April 2010.

7.41 Duty rates for rebated oils will also rise in proportion to main road fuel duties on these dates. The duty differential for compressed natural gas will be maintained until 2010-11 and the differential for liquefied petroleum gas will decrease by 1 pence per litre on these same dates.

Low-carbon vehicles

7.42 The Government recognises that low-carbon and electric vehicles will have an important role to play as the UK reduces emissions from road transport. The public sector has invested £100 million to date into the Technology Strategy Board's research, development and demonstration programme for low-carbon vehicles. The Government has also acted to ensure that electric vehicles are incentivised through the tax framework. Pure electric vehicles are exempt from VED, while hybrid electric vehicles are also incentivised through lower rates of graduated VED. In addition, the less conventional fuel a car uses, the bigger the incentive offered to motorists in reduced fuel duty, and therefore reduced running costs.

7.43 The Government's response to the King Review of low-carbon cars will be published shortly. As part of this, the UK and India will jointly sponsor a workshop early in 2009, bringing together governments, business and academia from the two countries to consider how collaboration on developing low-carbon, low-cost cars should be taken forward.

7.44 The Government is calling on the European Investment Bank to double its financial support for the next generation of greener cars by making available €8 billion over the next two years. This support should target significant carbon dioxide reductions through research, development and innovation expenditure as well as improving the energy efficiency of related infrastructure and production. The funds should be made available quickly on a fair, equitable and commercial basis across all EU Member States.

7.45 The Department for Transport DfT has consulted on changes to the bus service operators grant, aiming to modernise bus services and align incentives to wider climate change objectives. **The Pre-Budget Report announces that reforms to the grant will introduce incentives for low-carbon buses, smartcard ticketing and global positioning systems (GPS).** These steps will bring benefits for passengers – with smartcard ticketing systems offering an easier journey and quicker boarding; and GPS helping to improve punctuality and real-time information. DfT is also challenging the industry to improve its fuel efficiency and will announce further measures shortly.

Biofuels

7.46 In light of emerging evidence on indirect impacts from biofuels production, the Government in spring 2008 asked Professor Ed Gallagher to lead a study into the wider environmental and economic impacts of biofuels. Professor Gallagher reported that biofuels could contribute to a sustainable transport system, but that there is a risk that current policies could lead to a net emissions increase; loss of biodiversity; and contribute to rising prices for some commodities, notably oilseeds. As a consequence he recommended that the rate at which biofuels are incentivised through the Renewable Transport Fuel Obligation should be slowed, reaching 5 per cent only in 2013-14. The Government accepted this recommendation and recently published a consultation on the change, which will close on 17 December 2008. In addition, the Government is negotiating in Europe to ensure sustainable biofuel criteria across the EU.

Taxation of business travel

7.47 Over half of new car purchases each year are made by business and over 10 per cent of journeys are made for work. The Government is therefore committed to supporting businesses that both purchase and use cleaner cars. For this reason, company car tax and fuel benefit charge were reformed and placed on a carbon dioxide basis in 2002.

7.48 Budget 2006 announced that HMRC would carry out a review into the taxation of employee car ownership schemes (ECOS). **A report summarising the findings of this review is published today.**¹¹ This sets out the background to the Government's decision not to impose a specific tax on ECOS, or alter the structure of AMAPs at the current time, but to continue to provide a clear and simple system for business and employees.

Capital allowances for business cars

7.49 At Budget 2008 the Government announced its intention to modernise the tax relief for business expenditure on cars by adopting a carbon dioxide emissions based approach. **The Pre-Budget Report confirms this reform will take effect from 1 April 2009 for corporation tax and 6 April 2009 for income tax. A technical note and draft legislation will be published shortly.**

¹¹ *Report on company cars, employee car ownership scheme cars and mileage allowance payments*, HM Revenue and Customs, November 2008.

Disabled driver relief **7.50** Disabled company car drivers of automatic cars are able to use the carbon dioxide emissions figure of an equivalent manual car when calculating their company car benefit charge. **The Government today announces that from 6 April 2009 these drivers will also be able to use the list price of an equivalent manual car when calculating their company car benefit charge.**

AVIATION AND REDUCING EMISSIONS

7.51 The Government recognises the contribution that the aviation industry makes to the UK economy: providing around 200,000 jobs directly in the industry, employing up to 500,000 people in the supply chain, and contributing at least £11.4 billion to national GDP¹². The Government believes that aviation taxation should ensure the sector pays its fair share towards public services and provide better environmental signals.

7.52 The Air Transport White Paper (2003) set out the Government's support for the sustainable growth of aviation. In 2006 the sector accounted for around six per cent of the UK's carbon dioxide emissions; however this share is forecast to grow to around 10 per cent by 2020, and by 2050, it is estimated that the sector will account for 35 per cent¹³ of the UK's carbon dioxide emissions.

Aviation in EU ETS **7.53** Aviation is by its nature international, so the Government believes that action at an international level is needed to ensure the sustainable development of this sector. For this reason, in Budget 2005, the Government highlighted its commitment to aviation joining the EU ETS. The Government made this a priority for the UK's presidency of the EU in 2005. The Government has succeeded in its aim of obtaining unanimous agreement to include aviation in the EU ETS from 2012 at a cap of 97 per cent of 2004-06 emissions. Phase III details are being negotiated as part of the EU Climate and Energy package.

Air passenger duty **7.54** At the 2007 Pre-Budget Report, the Government announced it would consult on proposals to replace air passenger duty (APD) with a per plane tax. Since the 2007 Pre-Budget Report:

- agreement has been successfully reached to include aviation within the EU ETS, as set out above; and
- the Government has completed a formal consultation exercise.¹⁴

7.55 The Government has listened to the points made during the consultation process, and in particular recognises the need to ensure greater stability in tax policy at a time of economic uncertainty, while maintaining its environmental objectives. **The Government has therefore decided to reform the air passenger duty regime rather than proceed with a per plane tax.** Reforming APD avoids the disruption and costs associated with the transition to a new tax, while continuing to send environmental signals to passengers and the industry alike, and ensuring that the sector contributes fairly to public services.

7.56 **From 1 November 2009, APD will be structured around four distance bands, set at intervals of 2,000 miles from London.** This reform will ensure that those flying farther, and therefore contributing more to emissions from aviation, will pay more. Table 7.2 provides details of the reformed APD rates.

¹² Oxford Economic Forecasting, *The Economic Contribution of the Aviation Industry in the UK*, December 2006.

¹³ This is based on UK aviation carbon dioxide forecasts from the Department for Transport (DfT) and assumes the UK domestic target for carbon dioxide reductions in 2050 is 80 per cent below 1990 levels and that abatement effort to meet the target is predominantly in the rest of the economy. These estimates are based on central emissions forecasts. DfT is currently updating its forecasts of aviation emissions for all years to 2050 and these are expected to be published before the end of the year.

¹⁴ A summary of the responses to the consultation exercise is published today, alongside the Pre-Budget Report.

Table 7.2: Air passenger duty rates

Band and approximate distance in miles from the UK	In the lowest class of travel (reduced rate) from:		In other than the lowest class of travel (standard rate) from:	
	1 November 2009	1 November 2010	1 November 2009	1 November 2010
Band A (0-2000)	£11	£12	£22	£24
Band B (2001-4000)	£45	£60	£90	£120
Band C (4001 - 6000)	£50	£75	£100	£150
Band D (over 6000)	£55	£85	£110	£170

* If only one class of travel is available and that class provides for seating in excess of 40" then the standard (rather than the reduced) rate of APD applies.

7.57 Reforming APD takes account of the need in the present economic circumstances, to mitigate the potential impact on the air-freight sector, the impact on employment in this sector, and the wider business community which relies on air-freight services; as well as mitigating the potential regional employment and connectivity impacts.

7.58 Recognising the short-term economic pressures and consequential reduction in demand for air travel, revenues from the aviation industry have also been revised in the short-term from Budget 2008 forecasts. The Government estimates the carbon dioxide impacts of this reform of APD to be 0.6 MtCO₂ in 2011-12, and when a radiative forcing factor is applied, this rises to 1.2 MtCO₂.¹⁵ Coupled with savings from the doubling of APD rates in 2007, this will achieve a combined reduction of 2.4 MtCO₂ in 2011-12.

CHANGING BEHAVIOUR AT HOME AND AT WORK

7.59 Homes, businesses and the public sector together account for around 59 per cent of UK greenhouse gas emissions by end user, primarily through the use of gas and electricity for heating, lighting and to run appliances and equipment. Emissions from heating are particularly significant, accounting for half of total carbon emissions and 60 per cent of the average energy bill. Saving energy and increasing the supply of low-carbon heating therefore helps to reduce emissions, cut bills, and enhance energy security.

7.60 Energy costs provide a direct incentive for households and businesses to install energy efficiency measures. Policy interventions can help to overcome barriers to the uptake of energy saving measures. The Government has put in place a range of policies, including improved building regulations, challenging energy efficiency targets for energy suppliers, moves to enhance product standards, and information campaigns about how to save money and carbon.

7.61 **The Government will shortly bring forward proposals to support householders and businesses further in improving the energy efficiency of their properties, and installing low-carbon heating in existing buildings. In addition, the Government will also shortly set out its proposals for new zero-carbon homes and non-domestic buildings.**

7.62 The Government welcomes the European Commission's work examining where economic instruments, including VAT rates, can have a role to play to increase the use of energy efficient products, and calls on the Commission to bring forward a proposal to introduce reduced VAT rates for these products as soon as possible, for rapid adoption by the European Council.

¹⁵ The radiative forcing factor is the additional impact of emissions when released at altitude. The Government's latest estimate is a radiative forcing multiplier of 1.9.

Home Energy Saving Programme **7.63** Many of the most cost-effective opportunities for the UK to reduce carbon emissions between now and 2020 are in the household sector. The Home Energy Saving Programme (Box 7.4) will substantially increase the number of homes receiving subsidised insulation and other energy saving measures. The programme was substantially enhanced in September to support higher take-up of energy efficiency measures. This winter, this will lead to the installation of 600,000 insulation measures, up 70 per cent on last winter.

Landlords Energy Saving Allowance **7.64** Landlords in the private rented sector may be deterred from installing insulation because cost savings from investing in energy efficiency are difficult to recover in increased rent. In 2004, the Government took action to correct this by introducing the Landlords Energy Saving Allowance (LESA), which provides an allowance of up to £1,500 for landlords who invest in improvements such as cavity wall and loft insulation. **Following receipt of state aids approval from the European Commission, LESA has been expanded to corporate landlords from 8 July 2008. The Government is continuing work to raise awareness of this allowance.**

Box 7.4 – Home Energy Saving Programme (£6.8 million over three years)

The Government recently announced an additional £1 billion to the Home Energy Saving Programme to increase energy saving and help vulnerable households heat their homes:

- twenty per cent higher targets proposed for energy suppliers under the **Carbon Emissions Reduction Target (CERT)**, an obligation on energy suppliers to achieve reductions in carbon emissions by installing energy efficiency measures such as loft and cavity wall insulation over the period 2008-2011. Including this proposed increase, CERT is expected to deliver emissions savings of 185 MtCO₂ over the projected lifetime of the measures, equivalent to annual savings of around 5 MtCO₂ a year by 2011. Measures such as loft and cavity wall insulation are now available to all households at a discount of 50 per cent, saving those householders that install insulation up to £300 a year on fuel bills. A priority group of eleven million households, comprising those on qualifying benefits and the over 70s, qualify for these measures at no cost;
- a proposed new **Community Energy Saving Programme**, which will take a whole house approach to energy efficiency, in areas of high deprivation. Energy suppliers and electricity generators are expected to deliver around £350 million of energy efficiency measures under the programme, delivered with local partners, which could include local authorities, community organisations and social enterprises. It is hoped that this will deliver up to 100 schemes across the country, potentially benefiting some 90,000 homes over the next three years;
- a **£74 million increase** in funding for the Government's Warm Front programme, which provides free central heating and energy efficiency measures to vulnerable low income households. In addition, the Pre-Budget Report announces £100 million of new funding for Warm Front on top of £50 million of spending on the programme brought forward now to support the economy;
- **measures to help vulnerable groups** including a tripling of cold weather payments to £25 a week for this year, as well as the already announced one-off additional payments this winter for households over 60, and increased social assistance provided by energy suppliers; and
- a major information campaign across press, radio and TV to publicise the help available.

Climate change levy and climate change agreements **7.65** For business and public sectors, the climate change levy (CCL) has been successful in reducing energy demand by nearly 15 per cent a year.¹⁶ Climate change agreements (CCAs) complement the CCL by allowing energy intensive industries to pay a reduced rate of the levy in return for making improvements in the efficiency of their energy usage, saving £1.5 billion and 16.4 MtCO₂ in 2006. The Government will shortly consult on the form and content of new CCAs, including a proposal to split CCA targets where they overlap with EU ETS, simplifying the scheme. **This proposal will not result in a change to eligibility for the CCL discount.**

Low-carbon heating **7.66** Low-carbon heating, such as solar water heating, sustainable biomass or good-quality combined heat and power (CHP) can also play its part in reducing carbon emissions. It can also contribute to enhanced security of supply by reducing the UK's dependence on gas. As set out above, the Energy Bill brings forward powers to introduce a renewable heat incentive, which will provide financial support for households or businesses that install renewable heating. CHP is already used in industrial settings or to supply domestic heating in heat networks. The Government has put in place a range of support measures to encourage CHP investment, including through fiscal incentives and favourable treatment under the EU ETS, and will consider remaining barriers in the forthcoming heat and energy saving consultation.

Energy prices and fuel poverty

Fuel poverty **7.67** Households which need to spend more than 10 per cent of their income to maintain satisfactory heating are defined as being in fuel poverty. Fuel poverty fell between 1996 and 2004 but rising energy prices since then have increased the numbers of households in fuel poverty, now estimated at 3.5 million in the UK as a whole. The Government remains committed to tackling fuel poverty and has provided increased support for vulnerable households. Winter fuel payments were increased at Budget 2008 for this winter from £200 to £250 for over-60s households and from £300 to £400 for over-80s households. **The Government is accelerating £110 million of capital spending on the Decent Homes and Warm Front programmes and providing a further £100 million for Warm Front, which will bring forward benefits for household energy bills and contribute to the wider fiscal stimulus.** This funding will assist 76,000 low-income households with better heating and energy efficiency.

7.68 In the medium to longer term, competitive energy markets are the best way to deliver lower energy prices. Ensuring that all households can benefit fairly from the competitive energy market will contribute to tackling fuel poverty. To address concerns about the operation of the competitive retail markets for electricity and gas, Ofgem recently carried out a detailed study of the markets.¹⁷ Ofgem concluded that many customers have benefited from lower prices and better service. However, certain groups of consumers – including many at risk of fuel poverty – have not benefited fully from the market and are disproportionately affected by practices such as unjustifiable differential pricing. The Government welcomes Ofgem's report and looks to Ofgem and the energy companies to address the issues identified. **As announced by the Secretary of State for Energy and Climate Change on 18 November 2008, the Government stands ready to consult on legislation to tackle unfair pricing differentials between methods of payment for energy, if there is not a speedy and satisfactory resolution to the issues identified in Ofgem's probe.**

7.69 Clear and transparent information is needed for all consumers to manage their own energy costs through engaging effectively with the energy market. In addition to the measures already proposed by Ofgem in its study, **the Chancellor and Secretary of State for Energy and Climate Change have asked Ofgem to publish quarterly reports over the coming year**

¹⁶ *Modelling the Initial Effects of the Climate Change Levy*, Cambridge Econometrics, March 2005, available at www.hmrc.gov.uk

¹⁷ *Energy Supply Probe – Initial Findings Report*, Ofgem, 2008.

showing the relationship between wholesale prices, estimated hedged wholesale costs and average retail prices for gas and electricity. This will make it clearer when companies are passing the benefits of downward price changes through to their consumers and will ensure greater transparency over future price changes.

Smart meters 7.70 Smart meters are a more advanced type of electricity or gas meter that can provide businesses and households with visible, real-time feedback on their energy usage and the amount it is costing them. They also allow communication between the meter, the energy supplier and the consumer, which ensures more accurate billing to manage and prevent debt. The Government has recently concluded its consultation on introducing smart meters for businesses. **During the progress of the Energy Bill, the Government committed to mandating a roll out of electricity and gas smart meters to all households.** The Government's indicative plans would see smart meters available to all by the end of 2020, to align with delivery of the renewables targets.

ADAPTING TO CLIMATE CHANGE AND PROTECTING NATURAL RESOURCES

7.71 The Government is committed to preparing the UK for the challenges posed by the physical impacts of a changing climate and the increased incidence of extreme weather events such as heat waves, storms and floods. To embed better climate risk management in all public spending, the Government is reviewing its own appraisal guidance (the Green Book) to ensure that policy and investment decisions incorporate adaptation. The Government will develop the first national Climate Change Risk Assessment by 2011 and a national adaptation programme by 2012, as required by the Climate Change Bill.

Flood management 7.72 The Government has recognised the importance of flood risk management by providing substantial uplifts in spending reviews to fund flood defences and adaptation measures. Public expenditure has increased from £427 million in 2002-2003 to £599 million in 2005-2006, and will rise to £800 million in 2010-2011. This level of investment will reduce the risk of flooding and coastal erosion for over 145,000 households, and maintain 39,000 kilometres of flood defences around the country. As part of the fiscal stimulus, £20 million of this investment will be brought forward to 2009-10, delivering earlier protection for 27,000 homes. A draft Floods and Water Bill, to be published in spring 2009, will deliver improved management of flood risk and streamline current legislation. £5 million of improvements to the network infrastructure of British Waterways will also be brought forward in the fiscal stimulus.

Protecting natural resources

7.73 The Government is taking steps beyond its carbon commitments to put in place the right policies to protect the environment and natural resources.

Landfill tax 7.74 Landfill tax increases the price of waste sent to landfill, encouraging sustainable ways of managing waste. The tax – working alongside other measures such as the Landfill Allowance Trading Scheme – has been successful with overall quantities of waste recorded at landfill sites registered for the tax falling by around 32 per cent. The UK is on track to meet its 2010 targets to reduce biodegradable municipal waste to 75 per cent of 1995 levels under the Landfill Directive.

7.75 As announced in Budget 2007, from 1 April 2008 and until at least 2010-11, the standard rate of landfill tax will increase by £8 per tonne each year. The Government expects the standard rate to continue to increase beyond 2010-11. In Budget 2007, the Government also announced that the lower rate, applying to inactive waste, would increase from £2 to £2.50 per tonne from 1 April 2008, but would be frozen at £2.50 per tonne in 2009-10. (1410) Following the announcement in Budget 2008 and a subsequent consultation in the summer, **the Government has legislated to phase out the landfill tax exemption for waste arising from the clearance of contaminated land. The revenue derived from removing this exemption will be used to extend land remediation relief. The exemption will be phased out by 1 April 2012.**

Land remediation relief 7.76 Following the announcement in Budget 2008, **draft legislation to extend land remediation relief to expenditure on long-term derelict land will be published for comment by stakeholders today.** This legislation will also include a number of changes to give companies greater certainty about what categories of expenditure qualify for relief for the remediation of land contaminated by previous industrial activity. In particular, the costs of eradicating Japanese Knotweed will qualify for relief.

Packaging 7.77 The Government will publish a new packaging strategy in early 2009, setting out how packaging policy can help the UK move towards a low-carbon economy by reducing waste at source and increasing recycling. In 2007, an estimated 10.6 million tonnes of packaging was placed on the UK market of which more than 6.7 million tonnes of packaging waste was diverted from landfill.

Carrier bags 7.78 Budget 2008 announced that the Government would introduce legislation to impose a charge on single-use carrier bags if there was not sufficient progress on a voluntary basis, and the Government has done so in the Climate Change Bill. Responses by major retailers have been encouraging with all the major supermarkets making plans to reduce the bags they issue by around 50 per cent from 2006 levels by 2009, and other retailers also taking action, for instance by introducing their own charging schemes. These welcome developments build on progress already made by retailers in reducing the environmental impact of the bags they issue. Discussions with the British Retail Consortium about the scope for further voluntary action are continuing.

Competition in water markets 7.79 The Government welcomes the interim report of the Cave Review for Competition and Innovation in Water Markets, published on the 18 November 2008, which recommends changes aimed at providing better prices, more choice and better service for consumers, as well as encouraging more efficient and sustainable use of water. In response, the Government has announced a package of measures to extend and enhance retail competition for large non-domestic customers in England and this is described in Chapter 4.

7.80 There is £7 billion of capital investment planned in the water sector up until April 2010 under the existing price review process. The UK could also see a further £1 billion come forward in the time period, consisting of investment that has previously been delayed and new investment that water companies have applied to undertake in the interests of long term value for money for their customers. The Government strongly encourages water companies to proceed with their planned investment. It also encourages them to work with Ofwat within its existing regulatory framework to bring further investment forward where this would be in the interests of water customers.

Table 7.3: The environmental impacts of measures in the 2008 Pre-Budget Report

Sector	Environmental impact ¹	Overall annual saving in 2020 from cap/target ²
Power Generation and Heavy Industry		72 MtCO₂ – UK's share of the EU Emissions Trading Scheme (ETS) cap.
First auction of ETS allowances	Auctioning strengthens the incentives for companies to reduce emissions by making them pay the full financial cost of the allowances	Based on an estimate of the implications for the UK of the current EU Commission proposal. This is under negotiation and subject to change.
Renewables and Low Carbon Technology		19 MtCO₂ – from renewable target, additional to EU ETS savings
Carbon capture and storage (CCS)	CCS has the potential to reduce carbon dioxide emissions from power stations by up to 90 per cent. The CCS demonstration will deliver savings of 0.7 MtCO ₂ per year by 2020 (not additional to EU ETS cap).	Savings come from renewable heat and transport carbon dioxide reductions outside of the EU ETS cap. Savings based on meeting an ambitious 15% renewable energy target for the UK.
Introduction of feed-in tariffs and a renewable heat incentive	Feed-in tariffs and renewable heat incentive reduce carbon dioxide emissions by providing financial support for small-scale electricity generation and generation of heat from renewables. Policies in the renewable energy strategy consultation as a whole are expected to save around 67 MtCO ₂ in 2020, with one-third additional to the EU ETS cap. ³	
Renewables Obligation (RO)	An extended RO would deliver up to 46 MtCO ₂ in 2030 – these savings will be part of a future EU ETS cap assuming the ETS continues beyond 2020.	
Transport		5.4 MtCO₂
Fuel duty increases in December 2008, April 2009 and April 2010	Fuel duty increases up to 2010-11 are expected to result in carbon savings of around 0.5 MtCO ₂ in 2010-11	Illustrative saving from the successor to EU voluntary agreements on new car CO ₂ emissions, plus illustrative saving from the UK domestic aviation in the EU ETS.
Duty rates for rebated oils increasing in proportion with main fuel duty rates	Increasing rebated oil rates in proportion to main fuel duty rates will help deliver small CO ₂ and local air pollution benefits through less use of rebated oils which are more polluting.	
Staged implementation of VED reform	Reforms to VED including the introduction of new bands from April 2009 and First-Year Rates from April 2010 is estimated to result in a cumulative saving of 1.0 MtCO ₂ by 2020, including the impacts of staggering the reforms. This assessment only includes impacts in the new car market but the measure will also apply in the second hand market.	
Freight best practice	Freight Best Practice continues to help hauliers improve operational efficiency and reduce costs. Best practice and smarter driving techniques have helped companies make real savings and a small reduction in emissions.	
Incentives for low-carbon dioxide buses	This package will deliver carbon dioxide and other pollutant savings, depending on the level of take-up. If low-carbon buses made up 10 per cent of the UK bus fleet, the expected saving would be around 0.1 MtCO ₂ per year.	
Inclusion of aviation in ETS	Estimated CO ₂ savings across Europe will be 133 MtCO ₂ per year in 2015 and 194 MtCO ₂ per year in 2020. ⁴	
Reform of air passenger duty regime (APD)	The reformed APD delivers savings of 0.4 MtCO ₂ in 2010-11, compared to current APD, and with radiative forcing applied this rises to 0.7 MtCO ₂ . APD will deliver savings of 0.6 MtCO ₂ in 2011-12 (1.2 MtCO ₂ with radiative forcing applied). Coupled with savings from doubling APD rates, in 2007, this achieves a combined reduction of 2.4 MtCO ₂ (with radiative forcing applied) in 2011-12. ⁵	
Energy Saving and Heating		13 MtCO₂ from (i) the supplier obligation, (ii) zero carbon homes⁶ and (iii) Energy Performance of Buildings Directive
Home energy saving programme	Existing CERT obligation expected to deliver annual savings in 2011 of 1.8 MtCO ₂ within the EU ETS cap and 2.4 MtCO ₂ outside. Updated figures including the impact of the proposed 20% uplift will be published shortly.	A further energy supplier obligation will replace CERT when it comes to an end in 2011, and the level of ambition is committed to be equal to that under CERT. Savings assume rate of new house building will be in line with the Government's projected house building estimated savings to 2016.
Extension of Landlords Energy Saving Allowance	Small reduction in carbon dioxide emissions	
Natural resources		
Landfill tax escalator announced in Budget 2007 increasing standard rate to £8 per tonne each year until at least 2010-11.	Landfill tax is expected to save up to 0.7 MtCO ₂ e a year by 2010. Households recycled or composted 34% of their waste in 2007-08.	
Removal of exemption from landfill tax for waste arising from the clean up of contaminated land to extend land remediation relief.	The extension of land remediation relief will enable more than 10,000 hectares of long-term derelict land to be developed and brought back into use.	

¹ All CO₂ savings, unless otherwise stated, come from HMG modelling.

² CO₂ savings in 2020 are based on UEP32 emissions projections. Savings are relative to a baseline projection that includes pre-Energy White Paper policies and does not include a carbon price. For further detail of the UEP32 please see Updated Energy and Carbon Emissions Projections, DECC, November 2008.

³ Renewable energy strategy consultation, 2008.

⁴ Based on European Commission estimates (2006) and a cap of 95 per cent of 2004-2006 emissions. UK estimates will be available in due course.

⁵ The radiative forcing factor is the additional impact of emissions when released at altitude. The Government's latest estimate is a radiative multiplier of 1.9.

⁶ Zero carbon homes: savings as estimated in 'Building a greener future: towards zero carbon development', December 2006.