7 Supporting low-carbon growth

The UK is playing a leading role on climate change, setting the agenda for the international negotiations and taking radical domestic action to promote low-carbon growth. The Government is committed to an ambitious global deal at the UN negotiations in Copenhagen.

The UK is at the forefront of a worldwide low-carbon economic recovery. The Pre-Budget Report provides a further £400 million to support business investment in low-carbon growth and help households reduce energy costs. Combined with policies announced since September 2008, this could support over £15 billion of additional public and private investment in the low-carbon and energy sectors over the next three years. **The Pre-Budget Report announces:**

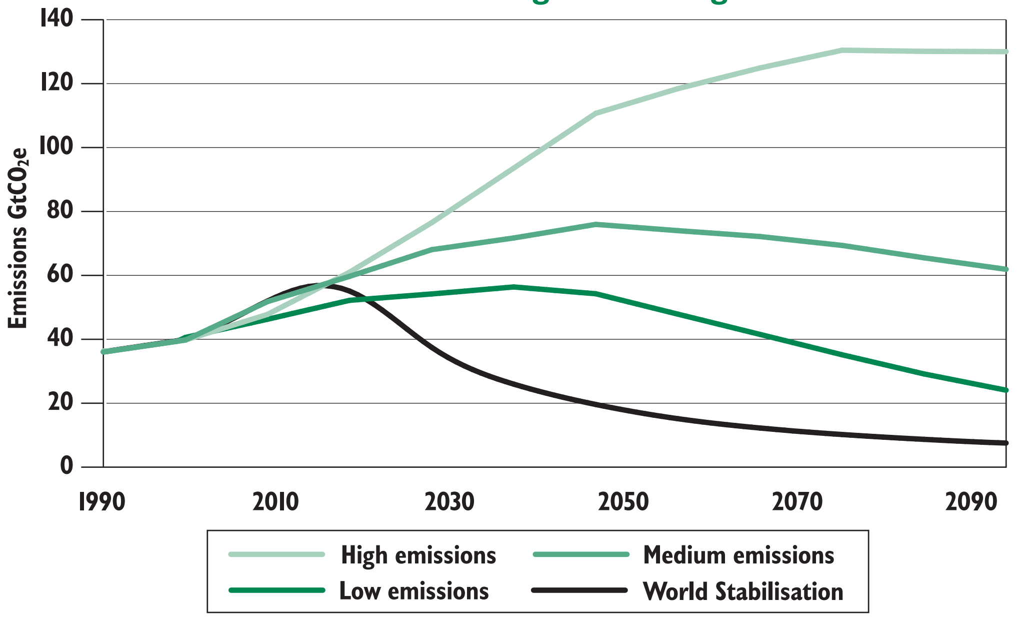
- **additional support for offshore wind projects accredited from April 2010 to March 2014 via the Renewables Obligation;**
- **doubling to four the UK's commitment to fund carbon capture and storage demonstration projects via contributions from electricity suppliers;**
- **establishing Infrastructure UK to leverage further investment in low-carbon projects including by: investing €100 million in a European Investment Bank-led fund to deploy up to €1.5 billion of equity and €5 billion of debt in low-carbon infrastructure; and considering the case for a low-carbon investment institution;**
- **£120 million for low-carbon industries in the UK, including new manufacturing and testing facilities for offshore wind, and support to improve energy use in the chemicals industry;**
- **£200 million to improve energy efficiency and tackle fuel poverty by: offering £400 for up to 125,000 households to upgrade their old boilers to the latest efficient models with a greener boiler incentive; and providing extra resources for Warm Front to help 75,000 of the most vulnerable households with heating and insulation;**
- **confirming that the income received by those who generate small-scale renewable electricity for their home through the clean energy cash-back scheme, worth on average £900 in 2010, will be tax free;**
- **helping one million more vulnerable households with discounts on their energy bills by increasing support provided by energy companies from £150 million to £300 million by 2013-14;** and
- **increasing support for low-carbon vehicles through exempting electric cars from company car tax from 2010, introducing a 100 per cent first-year allowance for electric vans, and investing a further £30 million on low-carbon transport projects.**

7.1 Climate change is the greatest long-term economic challenge facing the world today. The Stern Review on the economics of climate change showed that the benefits of strong and early action far outweigh the costs.[1] While failing to tackle climate change could threaten economic security, taking action presents economic opportunities. Tackling climate change will stimulate innovation and growth, providing jobs in new green industries, and encourage energy efficiency, reducing energy costs for businesses and households.

[1] *The Stern Review: The Economics of Climate Change*, Cambridge University Press, October 2006.

7.2 Only a global response can meet the challenge of climate change. As the Pre-Budget Report is published, world leaders are preparing to meet in Copenhagen to negotiate an ambitious, effective and fair global deal. This will be a critical step in ensuring global emissions start to decline by 2020 and fall to at least 50 per cent below 1990 levels by 2050 (Chart 7.1). Developed countries such as the UK will need to make a greater contribution and support developing countries through this global transition. The Pre-Budget Report sets out the Government's commitment to securing a global deal by providing funding for international climate finance.

Chart 7.1: Global scenarios of greenhouse gas emissions



Source: High, medium and low emissions scenarios correspond to the International Panel on Climate Change scenarios used in the UK Climate Projections 2009, and assume no action to tackle climate change. The world stabilisation scenario from the Committee on Climate Change is consistent with an ambitious global deal on climate change aimed at limiting global temperature increases to around 2°C above pre-industrial levels.

7.3 International action needs to be supported by continued action at home. The Government has established a comprehensive policy framework to ensure the UK will meet its carbon budget commitments, requiring a 34 per cent reduction in greenhouse gas emissions by 2020.[2] The UK is well prepared to make further carbon reductions once a global agreement is in place, in part through the continued support provided through the Pre-Budget Report.

7.4 The low-carbon economy requires a transformation in UK energy and transport infrastructure. This provides the UK with new opportunities for future business growth and the potential to be a world leader in the low-carbon and environmental sectors, estimated to be worth £3 trillion globally.[3] Budget 2009 provided £1.4 billion of targeted support during the downturn for low-carbon energy generation and advanced green manufacturing. The Pre-Budget Report builds on this by providing for further low-carbon investment across the economy, creating new highly skilled jobs in the UK and providing export opportunities, to support future growth (Box 7.1).

[2] *The UK Low Carbon Transition Plan*, HM Government, July 2009.

[3] *Low Carbon and Environmental Goods and Services: an industry analysis*, Innovas, March 2009.

Box 7.1: Supporting low-carbon growth

The Pre-Budget Report announces £400 million over the next two years (including funding reprioritised from other non-environmental programmes) to support green growth and the development of low-carbon technologies, building on the £1.4 billion package announced at Budget 2009. This will be part-funded through a £150 million increase to the Strategic Investment Fund for low-carbon projects. This new package will provide:

- £50 million to invest in the development of the UK offshore wind industry, including funding for new manufacturing and testing facilities;[a]
- £40 million support for low-carbon technologies, including additional support for small-scale and community level low-carbon generation;[a]
- £30 million for the chemicals industry, on Teeside to lead the way in demonstrating how to decarbonise the process industry across Europe, while maintaining its commpetitiveness;[a]
- £50 million to contribute towards the £90 million investment in a European equity fund for low-carbon infrastructure;[b]
- £30 million for green transport projects, including an expansion of the Technology Strategy Board's ultra-low carbon vehicles competition;[a]
- an exemption for electric cars from company car tax and the introduction of 100 per cent first-year allowance for electric vans from 2010;
- £150 million for Warm Front, which will provide better heating and insulation for an additional 75,000 of the most vulnerable households; and
- £50 million to fund the greener boiler incentive to encourage households to upgrade to more efficient heating systems.

Taken together, the measures announced since September 2008, including in this Pre-Budget Report, could support investment of more than £15 billion in the low-carbon and energy sectors over the next three years, taking into account the matched private sector funding leveraged as a result.

In addition, the Pre-Budget Report announces further long-term support for investments in low-carbon energy, including carbon capture and storage, and renewable energy.

[a] Funded from the Strategic Investment Fund.
[b] The remaining £40 million is being funded from the money allocated at Budget 2009 to support low-carbon technology.

SECURING A GLOBAL DEAL

Copenhagen 2009

7.5 The UK's overriding goal for a global agreement on reducing greenhouse gases at Copenhagen is to put the world on a path to limit global temperature rises to two degrees Celsius. The Government has worked through international fora to ensure that all major economies are ready to reach an ambitious agreement. In November, the UK chaired the G20 meeting of Finance Ministers and Central Bank Governors in St Andrews. At this meeting, the G20 committed to work towards an ambitious outcome at Copenhagen, and recognised the need to increase climate finance significantly.

7.6 To meet the two-degrees target, developed countries must take the lead and commit to ambitious economy-wide emissions reduction targets. EU member states have collectively agreed to move from their current aim of reducing emissions by 20 per cent by 2020, to a 30 per cent cut in the event of an ambitious global deal at Copenhagen. The Government believes that a global agreement should include firm caps on aviation and maritime transport emissions, and measures to reduce deforestation and degradation. To meet the two-degrees target, developing countries must also take action to limit their emissions, as they represent the largest future source of emissions growth.

Climate finance

7.7 For a fair global deal, international climate finance will be important to help developing countries take the necessary steps to reduce emissions growth and ensure that the poorest are helped to adapt. The UK has led the climate finance debate. At the October EU Council, the UK secured EU endorsement that public and private financial flows to developing countries should reach €100 billion per year by 2020. The UK will contribute its fair share of climate finance in the context of a global deal where all major economies participate in a full and fair manner. Recognising the additional costs that tackling climate change will place on developing countries, the Government is committed to putting forward some climate finance additional to existing official development assistance (ODA) commitments.[4]

7.8 Finance will be needed in the short-term to help developing countries address urgent climate challenges. **The Pre-Budget Report announces that for Copenhagen the Government will put forward a dedicated short-term climate finance package to address the urgent need to kick-start flows to developing countries**, as part of an ambitious global deal on climate change which includes comparable finance and mitigation offers from other major economies. Finance must be delivered efficiently by effective and legitimate institutions with robust mechanisms to measure results. In this context, a significant portion of this finance could be put into a new Green Fund established at Copenhagen, administered by an existing international financial institution.

Carbon markets

7.9 Private finance will play a critical role in supporting developing countries in the transition to a low-carbon economy. A truly global carbon market is the most efficient and effective way to deliver the scale of funds required. A well-designed carbon market could reduce the costs of addressing climate change by up to 70 per cent.[5] The carbon market already delivers finance at scale to developing countries with $6.5 billion mobilised in 2008.[6] These flows could increase significantly in 2020 in the event of an ambitious global deal which includes sectoral trading and crediting in developing countries.

CARBON BUDGETS IN THE UK

7.10 The UK is the first country in the world to have set legally binding carbon budgets. Budget 2009 set the levels of these carbon budgets, requiring a 34 per cent reduction in emissions by 2020 compared to 1990 levels. The UK has already reduced emissions by 21 per cent – nearly double the UK's Kyoto Protocol target. The UK Low Carbon Transition Plan published in July 2009 set out a comprehensive plan to increase the pace of emissions reductions to 1.4 per cent per year in order to reach 2020 target (Chart 7.2).[7,8] At the heart of the Government's approach is the EU Emissions Trading Scheme (EU ETS), which sets a declining limit for emissions and creates the biggest carbon market in the world (Box 7.2).

[4] The UK is committed to put forward 0.7 per cent of gross national income as ODA by 2013.

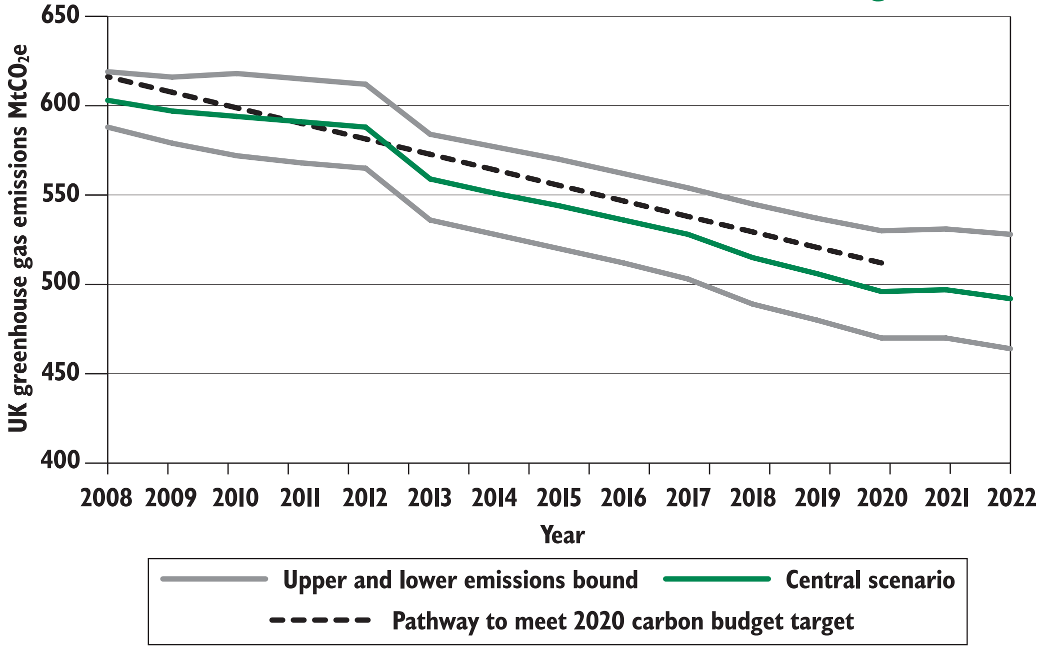
[5] *Lazarowicz Report: Global Carbon Trading: A framework for reducing emissions*, Office of Climate Change, July 2009.

[6] *State and Trends of the Carbon Market 2009*, The World Bank, May 2009.

[7] *The UK Low Carbon Transition Plan*, HM Government, July 2009.

[8] Meeting the 34 per cent reduction by 2020 requires a 1.4 per cent annual reduction in the level of the UK carbon account. This account covers emissions reductions required in the UK taking account of purchases of allowances through the EU Emissions Trading System. The Committee on Climate Change first progress report, which recommended a 1.7 per cent average annual reduction, did not take into account the impact of emissions trading.

Chart 7.2: The UK is on track to meet its carbon budgets



Source: The UK Low Carbon Transition Plan, HM Government, July 2009.

7.11 The Government recognises that the economic downturn will affect the delivery of carbon budget targets, both through impacts of the global financial crisis on investment in the low-carbon sector, and the reductions in emissions due to lower economic growth. To ensure that short-term reductions in emissions do not detract from the urgency of delivering low-carbon investment, **the Government accepts the recommendation of the Committee on Climate Change that any overachievement against the first carbon budget arising from the downturn should not be carried forward to allow for higher emissions in future**. This chapter also outlines further support to drive forward investment in low-carbon infrastructure and energy projects building on measures announced at Budget 2009. Together these measures will ensure the Low Carbon Transition Plan remains on track as the economy emerges from the downturn.

Box 7.2: Auctioning carbon allowances and the UK carbon market

The UK is the only EU country to hold regular carbon auctions as part of Phase II of the EU Emissions Trading System (EU ETS). To date over £350 million has been raised. This revenue and future EU ETS receipts, which are estimated to reach £2 billion in 2013-14, are already included within the public finances forecast and committed to support Government spending priorities, including on the environment, and deficit reduction.

Competition at UK carbon auctions has steadily increased, with institutions from fifteen European countries and the United States regularly participating. Reforms to the auction model announced at Budget 2009 have secured a higher clearing price to the benefit of UK taxpayers.

During this period, London has consolidated its position as the global centre of the carbon market. Eighty seven per cent of all international carbon trading now occurs in London.[a] With its growing pool of financial expertise in carbon products, London represents the natural centre for innovation in the carbon market.

The success of carbon trading in London underpins the UK Government's position in favour of Member States' sovereign right to continue to hold national or joint auctions in Phase III of the EU ETS (2013-20). The Government is therefore opposed to a single centralised approach, as proposed by the European Commission, which would stifle competition and restrict access to the carbon market.

More ambitious emissions targets worldwide will lead to further growth in the global carbon market and increase its role in channelling public finance to the developing world. The Government will therefore actively seek to manage its carbon assets and liabilities.

[a] *State and Trends of the Carbon Market 2009*, The World Bank, May 2009.

Committee on Climate Change

7.12 The independent Committee on Climate Change published its first report on the Government's progress towards carbon budgets on 12 October.[9] The Government will respond to the report in full in January 2010. In the meantime, the Pre-Budget Report addresses the Committee's key economic and fiscal recommendations, including on outperforming the first carbon budget, supporting low-carbon investment through the downturn, and strengthening support for carbon capture and storage.

SUPPORTING A LOW-CARBON RECOVERY: BUSINESS GROWTH AND GREEN JOBS

7.13 Providing a strong and sustainable platform for future business growth is essential for the UK economic recovery. The UK is progressively moving towards a low-carbon economy, reducing emissions to meet carbon budgets while creating opportunities for business growth and jobs in the sectors of the future. The Pre-Budget Report provides further support to decarbonise energy production, lower the cost of new technologies and innovation, and help businesses use energy more efficiently.

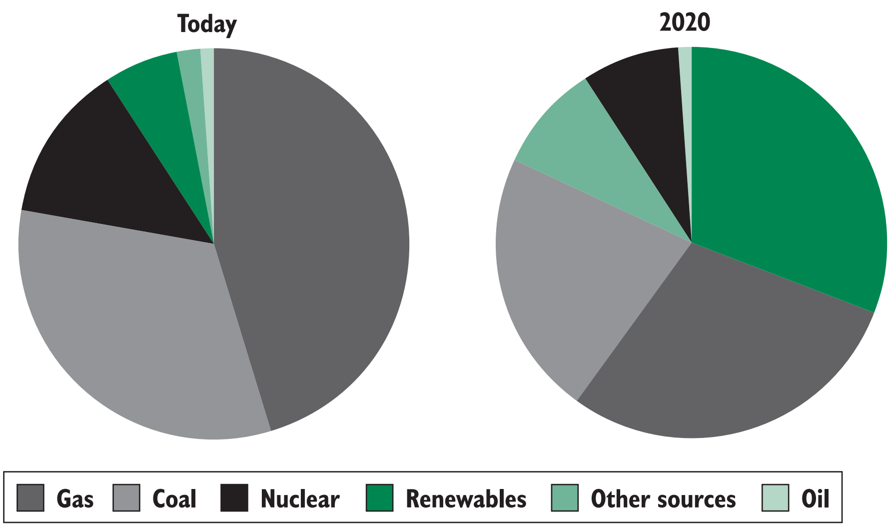
[9] *Meeting Carbon Budgets – the need for a step change*, Committee on Climate Change, October 2009.

Supporting deployment of low-carbon energy technologies

7.14 The Government has set out ambitious plans to decarbonise the UK's energy supplies, requiring a transformation of the UK's energy infrastructure (Chart 7.3).[10] This includes a target of supplying 15 per cent of the UK's energy from renewable sources by 2020 compared to 2 per cent today. The scale of the energy investment challenge is unprecedented in the longer term, with £200 billion of investment needed in energy infrastructure by 2025, requiring the sector to triple its annual rate of investment from 2008 levels.[11]

Chart 7.3: UK energy mix now and in 2020

Over two-thirds of the UK's electricity is currently generated from gas and coal; renewables will expand to around one-third of our generation by 2020[1]



Source: Energy Trends (2009 Quarterly) Department for Business Innovation and Skills (2009).
Source: Energy Trends (2020) Department of Energy and Climate Change.
[1] The 2020 chart is a projection of possible shares of electricity generated from different sources, from the DECC energy model which assumes existing nuclear power stations are closed in line with published retirement dates and 1.6 GW of new nuclear capacity is constructed by 2020. Estimated energy demand today and in 2020 is around 370 TWh.

7.15 To ensure that the required private sector investment comes forward to support low-carbon energy, the Government has put in place a long-term policy framework that encourages investment in low-carbon energy generation. This includes the EU Emissions Trading Scheme (EU ETS), which places a firm cap on emissions from the power sector and heavy industry, and support for specific low-carbon technologies, such as the Renewables Obligation, which requires electricity suppliers to source an increasing percentage of electricity from renewable sources.

7.16 The global financial crisis has had a significant impact on the availability of finance for energy investments, particularly for small to medium-sized renewables projects. The Government acted to protect investment in these projects during the downturn. The Pre-Budget Report provides an update on these actions (Box 7.3) and sets out the Government's plans to further strengthen the policy framework for energy investments going forward, both through support for specific low-carbon technologies and by ensuring a competitive energy market framework facilitates low-carbon investment.

[10] *The UK Low Carbon Transition Plan*, HM Government, July 2009.
[11] *Project Discovery – Energy Market Scenarios*, Ofgem, October 2009.

7.17 The Government is also taking action to tackle non-financial barriers to investment, such as streamlining the planning system to reduce delays and give investors greater certainty. Last month, the Government published new Energy National Policy Statements for consultation. These will be the foundation of an improved planning regime.[12]

Box 7.3: Progress on low-carbon targeted energy measures from Budget 2009

Budget 2009 announced over £1.4 billion additional targeted support for the low-carbon sector, over 5 years. Good progress has been made in delivering this support to date:

- following the Budget 2009 announcement to consult on an uplift in support through the Renewables Obligation for offshore wind, projects confirmed include the London Array, which will be the world's largest offshore wind farm;
- over £300 million out of the £405 million of additional funding directed towards low-carbon technologies has been allocated (with the remainder to be allocated over the coming months), including:
  - up to £120 million to support the development of a UK-based offshore wind industry;
  - up to £60 million to help accelerate the development and deployment of wave and tidal energy in the UK;[a] and
  - £45 million for research and technology development of low-carbon aerospace engines.

Significant progress has also been made with the package of European Investment Bank (EIB) lending, to enable up to £9 billion of investment in UK energy projects, comprising EIB direct lending and matched private sector lending. In November, the EIB signed deals with three banks to launch an intermediated lending scheme to small and medium-sized UK renewable projects, with an initial focus on onshore wind.

Energy investment has also been supported through the downturn by action the Government has taken across the economy. A number of energy companies have benefited from improved conditions in the corporate bond market, partly as a result of the Asset Purchase Facility. Energy sector investments have received a major share of the support provided through the temporary enhanced first-year capital allowances of 40 per cent (see Chapter 4).

[a] This includes £8 million from the Environmental Transformation Fund.

Renewable electricity

7.18 Renewable energy generation will play an important part in the UK's future energy mix. Budget 2009 announced the Government's intention to consult on temporarily increasing the support available for offshore wind projects under the Renewables Obligation. After completing the consultation, **the Pre-Budget Report announces that the eligibility criteria will be amended so that two Renewables Obligation Certificates will be available to all projects accredited between April 2010 and March 2014**, providing at least an additional £400 million of support for investment in offshore wind. **The Pre-Budget Report also brings forward technical changes to the Renewables Obligation** to provide those investing in renewable energy projects with greater certainty around the value of the incentive.[13]

[12] *Consultation on draft National Policy Statements for Energy Infrastructure*, DECC, November 2009.

[13] This includes increasing "headroom" to 10 per cent from 2011-12 rather than gradually. Further details will be set out in the Government's response to the consultation, to be published by the Department of Energy and Climate Change later this week.

Carbon capture and storage

7.19 Carbon capture and storage (CCS) is the process of capturing carbon dioxide from fossil fuels and storing it instead of releasing it into the atmosphere. This will enable fossil fuels to continue to play a role in a low-carbon energy mix. **The Pre-Budget Report announces that the Government is doubling its commitment to this important technology in order to fund four demonstration projects**. The Government intends to phase in these projects over the period 2014-18. The Government has introduced legislation in this Parliamentary session for a mechanism to fund these projects through contributions from electricity suppliers. These enabling powers will be capable of raising funds to retrofit CCS onto any generating units of the power station not fittted with the equipment from the outset.

7.20 Subject to receiving suitable bids and being able to reach appropriate terms, it remains the Government's intention to proceed with the current competitive procurement for a CCS demonstration project to contract award. As with any long-term procurement, final funding approval for this will depend on decisions taken at the next Spending Review.

Energy market framework

7.21 As well as strategies to help develop and deploy particular low-carbon technologies, the Government is committed to ensuring the energy market and policy framework supports private sector investment. Building on the Low Carbon Transition Plan to 2020, the Government comitted to publish decarbonisation pathways to 2050, consistent with secure, low-carbon energy. This will require significant private sector investment in low-carbon energy infrastructure. With this large investment challenge, the Government – working with Ofgem – needs to ensure that consumers get a fair deal. As part of this work, **the Department of Energy and Climate Change and HM Treasury will take forward work to ensure the electricity market framework can most effectively deliver a fair deal for the consumer and the low-carbon investment needed in the long term**. The work will take account of the available analysis and evidence, such as Ofgem's Project Discovery work and the advice of the Committee on Climate Change. This work will report back with initial findings at Budget 2010.

Facilitating investment in low-carbon infrastructure

7.22 Given the scale of the energy investment challenge, the Pre-Budget Report announces further action to support companies in accessing the necessary finance to underpin investment in low-carbon energy by establishing Infrastructure UK, to bring together commercial and financial expertise and help the Government identify and attract further investment in infrastructure, including low-carbon energy projects (see Chapter 4).

7.23 Infrastructure UK will work collaboratively with the Government to ensure the energy market framework facilitates private sector investment. A supportive framework should help investors better understand the opportunities, incentives and policy frameworks for green infrastructure. As a first step, **Infrastructure UK will support the Government in its work to ensure the energy market framework can most effectively deliver a fair deal for the consumer and the low-carbon investment needed in the long term. Their contribution will focus on the commercial and financing aspects of energy investments. This will explore, amongst other options, the case for a low-carbon investment institution**.

7.24 Infrastructure UK will also provide a route for Government investments to support the deployment of low-carbon energy infrastructure. **The Pre-Budget Report announces the Government's intention to invest €100 million (£90 million) in the 2020 European Fund for Energy, Climate Change and Infrastructure, to be overseen by Infrastructure UK**. This will establish the UK as a core sponsor of the Fund, alongside the EIB, enabling the UK to build on an already strong relationship with the EIB, and facilitate more support for vital energy projects. The innovative, diversified fund is intended to act as a model for the introduction of new private sector equity investment into key sectors including wind, biomass, gas storage, transmission and CCS. The 2020 Fund will soon start to provide equity to low-carbon infrastructure of national importance and is the fastest route open to support these projects.

The Fund plans to attract up to €1.5 billion of equity from a range of investors and has up to €5 billion (£4.5 billion) of associated debt co-financing waiting to be deployed.

Supporting investment in low-carbon innovation and manufacturing

Low-carbon manufacturing

7.25 The Government wants the UK to be a world leader in low-carbon innovation and manufacturing. As well as reducing the costs of meeting carbon budgets, this will underpin future low-carbon growth in the UK, creating new green jobs in highly skilled sectors and positioning the UK at the forefront of the export market for green technologies. In the offshore wind sector alone, this could support an additional 30,000 UK green jobs by 2020.[14] To support these aims, the **Pre-Budget Report announces**:

- **an additional £50 million investment in the development of the UK offshore wind industry, including funding for new manufacturing and testing facilities.** The Government will provide £15 million[15] at the New and Renewable Energy Centre in Northumberland to develop a world-leading UK capability for the testing of wind turbine blades, enabling businesses in the supply chain to gain affordable access to testing facilities;
- **an additional £40 million of support for the low-carbon energy and advanced green manufacturing sector in the UK,** building on the support made available to these sectors at Budget 2009. Amongst other projects, the funding will enable additional support for small-scale and community-level low-carbon energy generation; and
- **Manchester city region has been designated as the UK's fourth Low Carbon Economic Area, specialising in the built environment**. This will deliver accelerated economic growth, carbon abatement, increased employment and enhancement of the low-carbon supply chain (see Chapter 6).

Low-carbon innovation

7.26 Businesses in the low-carbon sector seeking to commercialise new innovations face several barriers, including the large scale of capital required, long lead times involved, and difficulties in capturing sufficient returns on investment. The Government has acted to support investment in the sector. The £500 million network innovation fund announced earlier this month by Ofgem will enable electricity distribution companies to make substantial investments in new technologies over the next five years. The Pre-Budget Report sets out further measures to help overcome the investment challenges that these businesses face.

Low-carbon venture capital

7.27 The Government is offering additional financial support to businesses with new technologies at the pre-commercial stage seeking to exploit opportunities in the low-carbon economy. In June 2009, the Government announced it was establishing a new equity finance vehicle, the UK Innovation Investment Fund (UKIIF) which will provide at least £125 million of targeted investment to clean technology, including low-carbon business.[16] The Government has also announced £18 million investment in venture capital through Carbon

[14] *Offshore wind power: big challenge, big opportunity*, The Carbon Trust, October 2009.

[15] From the original allocation to the low-carbon Strategic Investment Fund. This also includes £3.5 million from ONE North East.

[16] The Government has invested £25 million for low-carbon technologies in the UKIIF, which has leveraged £100 million of private sector investment.

Trust, together with existing investments, this will enable at least £160 million of private and public equity support for innovative low-carbon businesses.[17]

Growth Capital Fund

7.28 In response to the recommendations of the Rowlands review, the Government is announcing the new Growth Capital Fund which will focus on providing capital for SMEs for whom bank finance is not available or appropriate. This will help address the financing gap faced by innovative UK clean energy businesses, along with other sectors of the economy, by providing them with better access to the capital needed to grow their businesses (see Chapter 4).

Supporting energy efficiency in business

Energy and resource efficiency

7.29 Improving energy efficiency can help all businesses save money and become more competitive. Most UK businesses could save energy, reduce emissions and save money by making relatively simple changes to their processes and products. The Government seeks to support this behaviour by building a carbon price into the energy market, and by providing advice on how businesses can reduce their carbon footprint, for example through the Carbon Trust. In recognition of the upfront costs of some energy efficiency investments, Budget 2009 announced further support to small and medium-sized businesses, helping more than 500 firms to date.

Energy intensive businesses

7.30 Energy-intensive sectors have an important role to play in reducing emissions. The Government recognises the challenges that face some energy intensive users by the transition to a low-carbon economy, and is committed to ensuring that its climate change policies do not adversely damage their competitive standing relative to international counterparts. **The Pre-Budget Report announces £30 million of support focussed on the Teesside chemicals industry, to help the sector demonstrate new technologies and techniques to decarbonise their industrial processes**, which could be applied across the sector in the UK and abroad.

7.31 Climate Change Agreements (CCAs) have been an effective way to reduce emissions in energy-intensive sectors while giving the sectors a discount from the Climate Change Levy (CCL). **The Pre-Budget Report announces that from 2011 the discount obtained from the CCL by participating in a climate change agreement will be reduced from 80 to 65 per cent**, enabling the CCA scheme to continue to operate within the EU framework for energy taxation. The Pre-Budget Report also announces the entry of the plastics and laundries sectors to the CCA scheme.

Public sector

7.32 Rapid progress in reducing public sector emissions can play a valuable role in demonstrating new energy-saving and low-carbon technologies to the public. Reducing the public sector's spending on energy – currently around £3.2 billion – will improve the efficiency of delivery of public services, as well as creating business opportunities for the sector. **The Government is therefore committing to a 10 per cent saving in public sector energy spend by 2012-13, delivering savings of up to £300 million per year** (see Chapter 6).

HELPING HOUSEHOLDS WITH ENERGY COSTS

7.33 Reducing household energy bills helps consumers and reduces carbon emissions. The Government is helping all households control their energy bills through support with insulation and energy efficient heating, and advice on energy use while providing extra help for the most vulnerable. The 2008 Pre-Budget Report and Budget 2009 provided new

[17] Carbon Trust investment criteria require at least matched private sector funding, so the Government's investment of £18 million announced in October 2009 will leverage a further £18 million. Taken with the UKIIF £125 million of public and private investment, this provides £161 million in total.

resources to accelerate progress. Box 7.4 provides an update on these measures. The Pre-Budget Report sets out further action to:

- help households heat their homes using the most efficient and low-carbon technologies; and
- help the most vulnerable households with energy costs.

Box 7.4: Progress on energy efficiency and fuel poverty

The 2008 Pre-Budget Report and Budget 2009 announced £365 million additional funding for schemes that will help businesses, households and the public sector use less energy and generate low-carbon energy. As a result:

- 38,000 vulnerable households have received new efficient central heating systems, insulation and other measures as a result of additional resources allocated in the 2008 Pre-Budget Report for the Warm Front programme, with almost 235,000 households benefiting from the programme in total in 2008-09;
- cavity wall insulation is planned for 108,000 properties in the social sector by the end of 2010-11, which will save households £13 million a year;
- local authorities will build over 2,000 new energy efficient social homes through support provided at Budget 2009 and since, with construction work expected to begin early in 2010;
- fourteen low-carbon community heating schemes are being planned and constructed in London, Birmingham, Leeds, Exeter, Southampton and other communities around the country;
- energy-saving technologies have been installed in 640 small businesses and 540 projects in public sector organisations, including schools, hospitals and colleges, funded by interest-free loans averaging £30,000 to £50,000; and
- £15 million has been committed to support the installation of low-carbon energy technologies, such as solar panels and heat pumps, in more than 4,000 homes and public buildings.

Keeping energy bills low

7.34 A competitive and efficient energy market helps keep energy prices low. As wholesale energy prices have fallen, suppliers have cut prices by an average of seven per cent so far this year. The Government is keen to ensure that suppliers recognise pressures on consumers and pass on reductions in wholesale costs where possible, and for this reason asked Ofgem to report regularly on wholesale and retail prices. In line with their recent report, the Government expects retail prices to come down further and welcomes the changes being made by Ofgem to improve fairness and competitiveness in energy pricing.[18] The Government is actively monitoring the situation to see whether further action is required.

7.35 All households can take action to cut their bills by using energy more efficiently, for example installing loft and cavity wall insulation can save the average household up to £250 a year.[19] The Government's Home Energy Saving Programme has already helped 1.9 million households to be insulated since March 2008.[20] The Government's ambition is that by 2030 all homes will have undergone a whole-house retrofit.

[18] Ofgem reports can be found at http://www.ofgem.gov.uk

[19] For an average three-bedroom semi-detached house installing both cavity wall and loft insulation.

[20] Analysis by the Department of Energy and Climate Change.

Greener boiler incentive

7.36 Installing an efficient heating system can be another cost-effective way to cut household energy bills and carbon emissions, as domestic heating accounts for 13 per cent of UK greenhouse gas emissions. Replacing an older boiler with the latest efficient models can reduce a household's energy bill by around £230 a year. **The Pre-Budget Report announces a £400 incentive to help up to 125,000 households upgrade their boiler**, available to those who buy a new boiler or renewable heat unit to replace a working G-rated boiler. The Government will work with industry to launch the scheme at the earliest opportunity in 2010.

Clean energy cash-back

7.37 Households can also play a part in generating low-carbon energy by installing small-scale renewable electricity generation on site. Feed-in tariffs, worth on average £900 in 2010 for households, will provide a financial incentive to install renewable technologies, allowing homes to generate around half of their own electricity. **The Pre-Budget Report confirms that households who use renewable technology to generate electricity mainly for their own use will not be subject to income tax on feed-in tariffs**. This will save households paying the basic rate of tax £180 in 2010. If necessary, legislation to ensure this treatment will be introduced with effect from 1 April 2010.

7.38 The Government wants all households to play a part in generating renewable energy. Although feed-in tariffs and the Renewable Heat Incentive will make payments over the life of installations, low-income households may still find it difficult to meet upfront costs. Building on the experience of pilot projects for Pay as You Save financing and Warm Front, **the Government will consult next year on measures to help low-income households take advantage of clean energy cash-back**.

Help for the vulnerable

7.39 Vulnerable households need greater help. Higher energy prices have led to an increase in the number of households in fuel poverty. The Pre-Budget Report announces additional resources to help these households:

- **£150 million for Warm Front, which will help an additional 75,000 of the most vulnerable households in 2010-11**. The Warm Front programme provides heating systems and insulation to vulnerable households, and has helped over two million since its launch in 2000, including almost 235,000 households last year alone. The average household assisted saved over £300 a year as a result; and
- **an increase in the amount of help provided by energy companies from £150 million currently to £300 million a year by 2013-14**. These resources could provide discounts for an additional one million households. The Government is bringing forward new legislation to mandate the provision of this support from the end of the current voluntary agreement in March 2011. Around 750,000 households are already being helped through the voluntary agreement.

LOW-CARBON TRANSPORT

7.40 Transport plays an important role in the economy but can also have adverse environmental impacts. The Government is committed to moving towards a low-carbon transport system, through supporting the development of green technologies and providing the right signals to allow consumers to make efficient choices.[21] The Pre-Budget Report announces further measures to encourage the development and take-up of lower-emission vehicles and support the public finances while sending stronger signals through the

[21] *Low-carbon Transport: A Greener Future*, Department for Transport, July 2009.

transport taxation system. This includes a package of measures to further support the uptake of ultra-low carbon vehicles (Box 7.5).

EU emissions targets

7.41 At European level, the Government has been a strong proponent of a long-term emissions target for cars. In December 2008 the EU agreed to set binding targets on carbon emissions from new cars. This is one of the most ambitious targets in the world and is forecast to save the UK 7.6 million tonnes of carbon dioxide ($MtCO_2$) per year by 2020. The Government strongly supports the principle of similar regulation to reduce carbon emissions from vans, which is currently being proposed.

Support for the motor sector

7.42 The Government has taken temporary measures to support the transport sector during the downturn, including through the introduction of a vehicle scrappage scheme. As well as bringing forward sales and supporting the industry, the scheme has also led to the scrapping of less fuel-efficient cars – with an average of 179 grammes of carbon dioxide per kilometre (g CO_2 per km) – and the purchase of cars that are, on average, more fuel-efficient – with an average of 134g CO_2 per km. Average new car emissions in 2008 were 158g CO_2 per km.

7.43 The Government has worked with the European Investment Bank (EIB) to support the approval of loans worth £515 million to UK automotive companies for green projects this year. The Government will continue to work with the automotive sector and the EIB to help enable more companies to access EIB funding for R&D related activity in the UK.

Box 7.5: Support for low-carbon transport

The Government has committed over £15 billion to support investment in the rail network between 2009-14, including increasing capacity and a major electrification programme, both bringing passenger benefits and encouraging further shift from road to rail.

The Government has also committed £400 million of support to encourage the development, manufacture and uptake of ultra-low emission vehicles. Delivered by the Office for Low Emission Vehicles, this support is being targeted to create new jobs in a low-carbon automotive sector and to cut carbon from UK road transport.

Support includes the £30 million 'Plugged in Places' scheme, launched on 19 November, to support the development of charging infrastructure in three to six cities and regions across the UK. From 2011, consumer incentives worth £2,000 to £5,000 will be available to reduce the purchase price of electric and plug-in hybrid cars. In addition, Government support will enable 180 ultra-low carbon vans to be demonstrated in the public and private sector over the next 18 months.

To further support the development of low-carbon vehicles, Chapter 4 sets out details of **an additional £30 million, including an expansion of the Technology Strategy Board's ultra-low carbon vehicles competition.**

To encourage their use, the Government has already made electric vehicles exempt from vehicle excise duty (VED). To further encourage the purchase of electric vehicles by business, **the Government announces that, from April 2010, they will also be exempt from company car tax (CCT) for five years.** This will benefit both the companies that provide a company car, and the employees who drive them. **The Government will also exempt electric vans from van benefit charge from April 2010 for five years** supporting the purchase of electric vans for provision to employees.

Since 2002, electric cars have been eligible for a 100 per cent first-year allowance, in order to provide businesses with an incentive to buy cars with lower CO2 emissions. **The Pre-Budget Report announces that a 100 per cent first-year allowance will also be provided for the purchase of electric vans, from April 2010,** subject to confirming compatibility with state aid rules. This will help to catalyse the market for electric vans, as manufacturers continue to develop electric vehicle technology.

Transport tax

7.44 The principal role of transport taxes is to fund public services but they can also play an important role in encouraging fuel-efficient behaviour and the development of low-carbon vehicles. As part of the Government's medium-term fiscal consolidation strategy, transport taxes will be used to ensure that the burden of taxation falls in such a way as to support the transition to a low-carbon economy.

Fuel duty

7.45 Main road fuel duty rose by two pence per litre on 1 September this year. As announced at Budget 2009, fuel duty will also increase by one penny per litre in real terms on 1 April each year from 2010 to 2013. In addition to supporting the public finances in the medium-term, these increases will together save 2 $MtCO_2$ per year by 2013-14.

7.46 Budget 2008 announced that the 20 pence per litre duty differential for biofuels would cease in 2010-11, as the tax discount cannot distinguish between sustainable biofuels and those that increase greenhouse gas emissions or raise wider sustainability concerns. The Pre-Budget Report confirms that the duty differential will cease from 1 April 2010.

7.47 Support for biofuels will continue through the Renewable Transport Fuel Obligation, which provides a guaranteed demand for biofuels, with a sharper environmental focus through its carbon and sustainability reporting criteria. To support the value of biofuel production, the price for "buying out" of the Obligation will increase to 30 pence per litre from the 2010-11 obligation year. Biofuel from used cooking oil is used outside the Obligation, and is highly sustainable. **The Pre-Budget Report announces that the duty differential will continue for used cooking oil biofuel for two years.**

Vehicle excise duty

7.48 Budget 2009 confirmed reforms to vehicle excise duty (VED) for cars first registered from 1 March 2001 onwards, to encourage the purchase and manufacture of lower-carbon cars. From April 2010, new differential first-year rates of VED will be introduced, to further strengthen the environmental signal at the point of purchase. **The Pre-Budget Report announces the VED rates for motorbikes in 2010. From 1 April 2010, the top two bands by engine size will increase by £2 and £4 to £50 and £70 respectively. Rates for motorbikes in the lower bands will be frozen.**

Company car tax

7.49 Company car tax was reformed in 2002 and is now based on carbon emissions. Budget 2009 announced a number of reforms to respond to rapidly advancing vehicle technologies, as well as to support the public finances. This included indicating that, in 2012, the Government intends to remove the 10 per cent category for cars emitting 120g of CO_2 per km or less, and instead extend the system of bands so that they increase by 1 percentage point with every 5g CO_2 per km increase in emissions, from 10 per cent. **The Government can now confirm that from April 2012 the 10 per cent rate will apply to cars that emit 99g or less CO_2 per km.** This will ensure that, as EU targets come into force, bands continue to reflect advances in fuel efficiency.

Fuel benefit charge

7.50 The provision of free fuel to company car drivers provides a perverse environmental incentive. The Government is committed to increasing the fuel benefit charge multiplier – which is used to calculate the tax payable on free fuel – at least in line with inflation each year. **The Pre-Budget Report announces that to support the public finances and encourage more fuel-efficient travel, from 6 April 2010, the multiplier will increase from £16,900 to £18,000. The van fuel benefit charge – on which tax on free van fuel is payable – will also increase from £500 to £550.**

Heavy goods vehicles and road freight

7.51 Government policies continue to support the road haulage industry to increase safety and environmental performance. Hauliers will benefit from a range of Government measures on vans, including in particular the new Van Best Practice Programme, launched on 10 November; the extension of the scrappage scheme with shorter qualifying time for vans; and the 100 per cent first-year allowances for the purchase of electric vans outlined in Box 7.5. Other recent measures include the refresh of the Foreign Vehicle Data Survey, with provisional results to be published on 17 December, and the development of a new action plan on lorry parking.[22] In addition, the Graduated Fixed Penalty and Deposit Scheme allows authorities to issue on-the-spot fines to all road traffic offenders, regardless of whether they reside outside the UK or not; to date over 17,000 fixed penalty notices have been issued since 1 April 2009.

NATURAL RESOURCES AND ADAPTATION

Waste **7.52** Households and businesses generate around 100 million tonnes of waste each year. Just over half of this ends up in landfill, creating methane emissions and loss of material that could be put to more productive uses via re-use and recycling. The Government is committed to promoting sustainable waste management practices that will help reduce the impact of waste. Budget 2009 provided £10 million additional funding to divert waste from landfill through increased take-up of anaerobic digestion and in-vessel composting. Half of this funding has already been committed to projects that together will divert 200,000 tonnes of waste from landfill.

Landfill tax **7.53** Budget 2009 launched a consultation on reforms to landfill tax legislation to ensure the tax remains robust in the long term and continues to reduce the amount of waste sent to landfill. Over 100 responses were received and a summary of responses was published on 4 December.[23] The Government will now undertake further discussions with landfill operators on the proposals relating to what is a taxable disposal. Given the potentially significant impact on certain sectors of industry, the Government will also work with the relevant environmental authorities to understand in more detail the characteristics of materials the consultation proposed should no longer be covered by the lower rate of tax. Further details will be outlined in the Government response to the consultation next spring.

Single-use carrier bags **7.54** In December 2008, Britain's leading supermarkets, represented by the British Retail Consortium, entered into a voluntary agreement to reduce the number of single-use carrier bags they distribute by 50 per cent. By July 2009, retailers had achieved a 48 per cent reduction. The Government and retailers aspire to a 70 per cent reduction over the longer term. Progress will be reviewed in summer 2010.

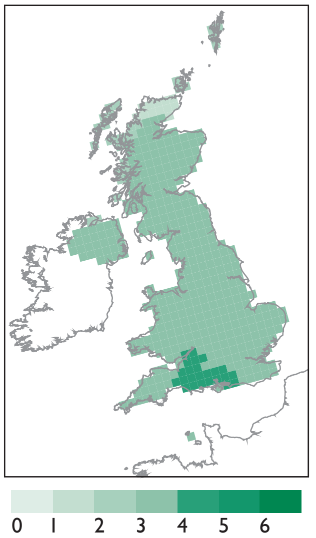
Adaptation **7.55** Cutting carbon emissions will avoid making the problems of climate change worse, but individuals, businesses and public authorities will also need to adapt to an altered climate. In July, the UK Climate Projections 2009 were published showing:[24]

- all areas of the UK will get warmer, with greater warming in summer than in winter (see Chart 7.4);
- little change in the amount of precipitation that falls annually, but likely that more of it will fall in the winter, with drier summers for much of the UK; and
- sea levels will rise, and to a greater degree in the south of the UK than the north.

[22] *Strategy for Lorry Parking Provision in England*, Department for Transport, launched on 24 November 2009.
[23] http://www.hm-treasury.gov.uk/bud_bud09_landfilltax.htm
[24] UK Climate Projections, UKCP09: http://ukcp09.defra.gov.uk/

Chart 7.4: Estimated change in summer temperature in the UK

Across the UK, estimates of the average regional summer (June, July, August) temperature rise in the 2080s are between 3 and 4°C.[1]



[1] *Central estimates of temperature change in °C from the 1961-1990 baseline, (2080s, for the medium emissions scenario).*

Source: UK Climate Projections 2009.

7.56 To prepare for these impacts, the Government is already investing more in flood and coastal erosion risk management, building adaptation into the planning system, and requiring priority public bodies and regulated utility companies to consider the risks from a changing climate. It has also established the Adapting to Climate Change programme in order to develop the evidence base, raise awareness and embed adaptation in Government policies and systems.[25] All Government departments will be producing Adaptation Plans by Spring 2010.

[25] http://www.defra.gov.uk/environment/climate/programme/index.htm

Table 7.1: The environmental impacts of measures in the 2009 Pre-Budget Report

Total sector savings in 2020 and measures by sector[1]	Environmental impact[2]
The Government does not plan to bank any over-achievement against first carbon budget	Ensures that any over-achievement against first carbon budget is not countered by increased emissions in second carbon budget, reducing UK's total emissions over first two carbon budget periods.
Power and heavy industry (EU ETS) – 51 $MtCO_2$[3]	
Extend increased support for offshore wind projects through Renewables Obligation	Designed to support 3 GW of investment in offshore wind, contributing to achievement of the UK's renewable energy target in the electricity sector.
Doubling commitment to four CCS demonstration plants	CCS has the potential to reduce CO_2 emissions from power stations by up to 90 per cent. Four demonstration plants will save around 6.7 $MtCO_2$ per year by 2020, comprising 2.9 $MtCO_2$ from precombustion demonstrations and 3.8 $MtCO_2$ from post-combustion demonstrations.
Infrastructure UK facilitating private sector financing of low-carbon energy investment, including overseeing Government's €100 million (£90 million) investment in EIB-facilitated equity fund, delivering more equity to support the development of low-carbon infrastructure	This will help bring forward new renewable energy projects, making a contribution to the achievement of the UK's renewable energy target in the electricity sector.
£50 million investment in UK offshore wind industry, including setting up new facilities for testing and development of offshore wind technologies	These measures are designed to help leverage additional private sector investment in the offshore wind industry, helping increase the deployment, and bring down the costs of the technology. This will make a contribution to the achievement of the UK's renewable energy target in the electricity sector.
Increasing the reduced rate of Climate Change Levy (CCL) for sectors in the Climate Change Agreement (CCA) scheme from 20 to 35 per cent across all taxable commodities, and extending CCAs to the plastics and laundries sectors	By 2010, CCL is estimated to reduce energy demand in the business and public sector by around 15 per cent a year, and reduce emissions by 12.8 $MtCO_2$ per annum. Increasing the reduced rate will provide savings of 0.2 $MtCO_2$ over the next 5 years that will contribute to the achievement of the EU ETS cap, whilst the entry of the two new sectors into the CCA scheme will provide additional savings of 0.05 $MtCO_2$ per annum.
£30 million to support the demonstration of decarbonisation technologies and techniques in the chemicals industry	This will help reduce emissions from the chemicals sector. It will support investment in new low-carbon techniques and technologies, helping to reduce future costs of tackling climate change.
Businesses and public sector – 9.2 $MtCO_2$[4]	
£40 million to support the development of low-carbon technologies including continued support for small-scale generation	This will help accelerate the development of low-carbon technologies ensuring the UK is a low-carbon technology and manufacturing hub.
Reducing public sector energy use	10 per cent reduction in public sector energy use is expected to give lifetime CO_2 savings of around 4.4 $MtCO_2$ across the traded and non-traded sectors.
Households – 12.9 $MtCO_2$[4]	
Greener Boiler Incentive	Reduced energy use as a result of old boilers being replaced by more efficient units is expected to save around 0.1 $MtCO_2$ per year by 2011-12.
Clarifying tax treatment for Feed in Tariffs	Small reduction of carbon emissions but clarification will ensure that the savings from the clean energy cash-back scheme are realised.
Social price support for energy bills	Intended to help tackle fuel poverty. Expected to lead to a small increase in emissions, due to assumed higher demand elasticity amongst low-income/fuel-poor households.
Additional support for Warm Front, providing heating and insulation to low-income and vulnerable households	Reduced energy use through energy efficiency and more efficient heating systems. Estimated savings from additional measures are 0.07 $MtCO_2$ per year in 2011-12.
Transport – 17.8 $MtCO_2$[4]	
£30 million funding for green transport projects	Investment including an expansion of the Technology Strategy Board's ultra low-carbon competition will encourage the uptake of low-carbon transport.
Extending for two years duty differential for used cooking oil biofuel	Additional support for a highly sustainable biofuel will contribute to CO_2 emissions reductions achieved through the Renewable Transport Fuel Obligation (RTFO).
Exempting electric cars from company car tax (CCT) for 5 years from 2010 and extending CCT bandings in 2012	Strengthening the incentive in CCT for businesses to own the lowest-emitting cars will help to reduce emissions in company car fleets and reward manufacturers of the cleanest vehicles, helping them to meet new EU car emissions standards.
Exempting electric vans from van benefit charge for 5 years and introducing a 100 per cent first-year allowance for business expenditure on electric vans	Encouraging business to purchase electric vans will help to reduce emissions from vans in business fleets.
Increase in fuel benefit charge (FBC) multiplier	Increasing the FBC multiplier should reduce the incentive for employers to provide unlimited free fuel to their employees, and for employees to take the fuel.
Managed motorways scheme: M1 junctions 10-13	Reduces carbon emissions per vehicle, but expected to lead to a 0.014 $MtCO_2$ increase in emissions in the year after scheme completion, due to increased vehicle kilometres travelled.

[1] *Savings in 2020 are estimated emissions savings from policies presented in Government's UK Low Carbon Transition Plan, published in July 2009. For further detail, see Tables A2, A3, A4, A5 and A6 of the UK Low Carbon Transition Plan.*
[2] *All savings come from Government modelling.*
[3] *Based on savings from the EU Emissions Trading System, Phase III. Savings from these measures contribute to achievement of the EU ETS cap.*
[4] *Savings from the non-traded sector, outside the EU ETS cap.*