

# Government Response to the first annual Progress Report of the Committee on Climate Change

January 2010

# Government Response to the first annual Progress Report of the Committee on Climate Change

Presented to Parliament pursuant to  
Section 37 of the Climate Change Act 2008

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# CONTENTS

<b>Foreword</b>	<b>3</b>
<b>Executive Summary</b>	<b>5</b>
1. <b>Introduction</b>	<b>12</b>
2. <b>The Need for a Step Change</b>	<b>13</b>
3. <b>Low-carbon Power</b>	<b>20</b>
4. <b>Buildings and Industry</b>	<b>30</b>
5. <b>Surface Transport</b>	<b>40</b>
6. <b>Implications of the Recession and Credit Crunch for Meeting Budgets</b>	<b>47</b>
7. <b>Emissions Reduction Scenarios and Indicators</b>	<b>52</b>
8. <b>Conclusions and Next Steps</b>	<b>54</b>
<b>Annexes:</b>	
A <b>Key Messages in the CCC's Report</b>	<b>55</b>
B <b>Recent Policy Developments in the Devolved Administrations</b>	<b>59</b>
<b>Glossary</b>	<b>63</b>



# FOREWORD BY THE SECRETARY OF STATE



The independent Committee on Climate Change, created as part of the Climate Change Act 2008, plays a crucial role in the UK's transition to a low carbon economy. One element of this is the annual cycle of progress reports, designed to ensure that the UK stays on track as we go through a process of change that

will span many decades. Our target, set down in legislation, is an 80% reduction in emissions by 2050, with an interim target of a 34% reduction by 2020 over 1990 levels.

In this response to the Committee's first report, we set out the actions we are taking and will take that address the Committee's findings.

As the Committee makes clear, the UK has made significant progress down the low carbon track in the last year. This is part of our commitment to do as the Committee suggests, and deliver a step change in the rate of carbon reduction.

In the power sector we have prioritised the development of the clean energy technologies that will be central to our future. We have introduced the most radical clean coal policy in the world, with a levy to support the demonstration of carbon capture and storage on all new coal-fired power stations. On nuclear and large scale renewable projects, the Infrastructure Planning Commission will work to legally prescribed time limits and we are consulting on clear guidance about how to balance competing interests to ensure that the capacity we need is built on time. And we have made other important decisions to speed the development of onshore and offshore wind.

As well as taking the carbon out of the way we generate power, we also need to reduce the amount of power we use to keep our buildings warm. In the last year and a half our home energy efficiency programmes have helped

around 2 million consumers install insulation that has not just reduced demand for energy but also saved them money on their energy bills. But we know we need to do more, so in the coming weeks we will be publishing our new Household Energy Management Strategy.

We have also taken forward the plans set out in the Low Carbon Transition Plan on transport and the carbon footprint of our workplaces.

The Copenhagen conference in December came after the publication of the Committee's report. Like us, they will no doubt be disappointed that we did not secure a track to the comprehensive legally binding treaty the world needs to successfully tackle climate change. Nevertheless, the Copenhagen Accord does represent an important first step forward, which builds on the significant international progress made during 2009. We will continue to do all we can to maintain the momentum of this first step; redoubling our efforts to broaden, deepen and strengthen the commitments made in Copenhagen and to achieve an international legally binding treaty as soon as possible.

In the meantime we can reassure the Committee that we will not let international setbacks hold up the low carbon transition in the UK.

As the Committee makes clear, there is no time to waste as we seek to take the carbon out of our economy. So 2010 will be as busy in policy terms as 2009.

By the time of the Budget we will set out pathways for the low carbon transition in the longer term, spanning the period out to 2050. This sort of long term vision is vital because of the scale of change and investment needed. As the Committee recommends, we will also publish our initial assessment of whether the current structure of the electricity market is adequate for hitting our climate change and energy security targets.

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We will be announcing the way feed-in tariffs will work to support small-scale, low-carbon generation and we will be taking forward our work on the smart-grid and grid connection so we can better match low carbon electricity supply and demand. Every Government department will be setting out how they will monitor and manage their share of national carbon budgets, including continuing to reduce their own carbon footprint. We will also be announcing plans to encourage and support further action by local authorities to reduce carbon.

The Committee's report has been helpful in stimulating our planning for this coming year and I would like to thank all the members for their hard work and constructive advice. By providing Government and Parliament with external, impartial and evidence-based analysis they are a crucial part of the infrastructure that will ensure that the UK achieves its low carbon potential. Our environment, our economy and our security depend on it.

A handwritten signature in black ink that reads "Ed Miliband". The signature is written in a cursive style with a prominent underline for the name "Miliband".

Ed Miliband  
**Secretary of State for Energy and Climate Change**

# EXECUTIVE SUMMARY

We agree with the CCC that a step change in the pace of emissions reductions is needed. This need was reflected in the policy architecture set out in the 'UK Low Carbon Transition Plan', which will deliver emissions reductions to exceed our target of 34% over 1990 levels by 2020. Britain is the first country in the world to have such a detailed plan allied with statutory requirements for deep cuts.

We are determined to strengthen and sustain the momentum behind our white paper. Significant progress has been already been made, including in the key sectors of power generation, buildings and industry, and transport that the CCC focused on in its report.

In the power sector:

- We have set out the world's most ambitious plans for clean coal. There will be no new coal without carbon capture and storage and we are introducing a levy to fund four commercial scale demonstration projects.
- In November, we published for consultation the draft energy National Policy Statements, a key element of our reformed planning system, which will speed up decisions on low carbon energy infrastructure.
- We are working to ensure that access to the electricity grid is not a barrier to low carbon generation. Measures include introducing new grid access arrangements, a new offshore electricity transmission regime and setting out plans for a smart grid in the UK.
- We are acting to address constraints on finance for investment in the renewable energy industry as a result of the credit crunch, including a scheme operated by the European Investment Bank that is facilitating up to £9 billion of investment and establishing Infrastructure UK to support deployment of low-carbon infrastructure.
- We agree with the CCC on the need to assess energy market arrangements and will respond with initial findings at Budget 2010.

As well as making it easier to source low carbon power, we are addressing emissions from buildings and industry:

- Government programmes have supported the installation of insulation in around two million homes in the last year and a half, and we are trialling new community-based and whole-house approaches to ramp-up delivery.
- Building on this, we will shortly be publishing a 'Household Energy Management Strategy' that will set out new plans to help reduce emissions from households by 29% from 2008 levels by 2020
- We will shortly be setting out details of our 'clean energy cash-back' schemes for people and businesses that generate low carbon heat and electricity.
- We are looking at policy options to realise the significant potential for emissions reductions from small businesses.
- We are developing new ways to encourage and support local authorities to increase their role in the transition to the low carbon economy.



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To reduce emissions from transport:

- We agree that the electric car market needs support so we are providing from 2011 an incentive of between £2,000 and £5,000 to people who buy an ultra-low emission car, to stimulate early investment, and are helping cities and regions put the necessary infrastructure in place to recharge them.
- We are pleased that the CCC has noted the success of the Smarter Choices initiative and are encouraging more sustainable travel initiatives to be taken forward across the UK.
- We are investing further in public transport, building on the £4 billion invested in railways and around £2.5 billion invested in buses in 2007/08.
- We have also increased funding to support cycling to £140 million over three years.

We agree with the Committee that the reduction in emissions associated with the recession should not be 'banked', so we will not carry forward any over-achievement against the first carbon budget (2008-2012) arising from the downturn.

We are on course for reducing emissions from central Government offices by over 17% by 2011, exceeding our original target of 12.5%. We aim to save up to £300 million through energy saving measures across the public sector.

The CCC's work on indicators to monitor progress against carbon budgets is very welcome and we will follow a similar approach. We will publish our indicator set in the spring, when all Government departments will publish their 'Carbon Reduction Delivery Plans'. We will also shortly publish our '2050 Pathways' work, identifying routes to deliver our statutory target of an 80% reduction in emissions by 2050, while meeting our energy security goals.

1. **Under the Climate Change Act 2008, a system of legally binding carbon budgets has been established to set the trajectory towards our target to reduce UK greenhouse gas emissions by at least 80%**, against 1990 levels, by 2050. Each carbon budget lasts five years and the first three, covering the period 2008 to 2022, were set in May 2009. In October 2009, the Committee on Climate Change (CCC) published its first annual report on progress in meeting the budgets and the 2050 target. The CCC's key message is that a step change in the pace of emissions reduction is essential if we are to meet our carbon budgets. The Committee considers the measures required to achieve the step change, focusing on the key sectors of low-carbon power, buildings & industry, and transport. It also looks closely at the impacts of the economic downturn and the credit crunch on emissions both in the short and longer term. This publication responds to the points raised in the progress report, as required by the Climate Change Act.

### The need for a step change

2. Good progress had already been made before the introduction of carbon budgets, with UK greenhouse gas emissions being reduced by around 21% below 1990 levels in 2007.<sup>1</sup> Nevertheless, the Government agrees with the CCC that a step change is needed. That step change is embodied in the UK Low Carbon Transition Plan, published in July 2009, which set out how the budgets will be met, through a set of policies and measures in all sectors of the economy.

3. The Government is **committed to implementing the Transition Plan in full and has already made significant progress**. As well as responding to the CCC, this report summarises developments since the plan was published. It sets out how we will achieve the step change needed in the three sectors that the CCC has focused on, before going on to consider the Committee's findings on the impact of the recession and its proposed approach for monitoring progress in the future.

4. **On central projections, the Transition Plan will deliver emissions reductions of around 36% below 1990 levels in 2020, exceeding the 34% required to meet the carbon budgets**. Following the climate change negotiations in Copenhagen in December, we will continue

to push for an EU move from a 20% to a 30% emissions reduction by 2020 compared to 1990 levels, provided that others make comparable offers. Such a move by the EU will require us to tighten our carbon budgets; we will do so after the EU has agreed how to share its new target among Member States and in the light of further advice from the CCC.

### Low-carbon power

5. Government has a strategic role to play in ensuring the necessary investments in low-carbon power generation are made. The EU Emissions Trading System (EU ETS) is at the heart of our approach to reducing power sector emissions but it, and the carbon price it creates, is only one of many factors that influence investment decisions in new low carbon generation, including uncertainties in fossil fuel and electricity prices. That is why **measures additional to the EU ETS will be required to support innovation and to drive behavioural change**. The Transition Plan – and associated publications – set out the further action we are taking:

- Meeting our challenging targets for the deployment of **renewables**, especially wind, through the measures in the Renewable Energy Strategy. These include financial incentives such as the Renewables Obligation, which will be worth around £1 billion a year to the industry by 2010.
- Working to facilitate investment in new **nuclear power** through the Office for Nuclear Development. Energy companies have already announced plans to build over 16 Gigawatts (GW) of new nuclear capacity, which should start to come on stream from 2018. In November 2009, we listed in the draft Nuclear National Policy Statement ten sites as potentially suitable for new nuclear build by 2025.
- Putting in place the most environmentally ambitious package of measures for **clean coal** in the world, requiring any new coal power station to demonstrate carbon capture and storage at commercial scale, supporting four demonstration projects, and considering the need for further measures in a rolling review of progress to report by 2018.

<sup>1</sup> Taking into account the impact of emissions trading under the EU Emissions Trading System. The equivalent figure without emissions trading is 18%.

6. In addition, given the significant private sector investment required in low-carbon energy infrastructure, we continue to look at whether further action is needed to meet our low carbon obligations in the power sector. The Government agrees with the CCC on the need to assess the energy market framework and, as announced in the 2009 Pre-Budget Report, is **taking forward work to ensure that the framework can effectively deliver the low-carbon investment needed to meet our long-term goals**. Initial findings will be reported at Budget 2010.

7. Through the Planning Act 2008, we have reformed the planning system to allow the radical change in the pace of decision making on renewable and low-carbon energy developments that the CCC calls for. In November, we published for consultation the suite of six draft energy **National Policy Statements, which will guide planning decisions on energy by the Infrastructure Planning Commission (IPC)**. The IPC will start receiving applications for energy and transport projects from 1 March 2010 working to legally prescribed time limits and typically making its decisions in under a year from application.

8. We are also improving access to the electricity grid for new renewable and other low carbon generation. There is already an interim access arrangement in place to ensure that renewable generation is able to gain access to the network even where it is capacity constrained, and this will be **replaced by an enduring grid access regime by June 2010**, in line with the timescale recommended by the CCC. The Government and Ofgem published the Electricity Networks Strategy Group 'A Vision for 2020' report in March 2009. This set out the potential onshore transmission investments needed for 2020 and Ofgem is working with the Transmission Owner companies on the regulatory approvals for delivery of these strategic investments. **Connection for up to 40 GW of new offshore wind generation is a particular priority** and the Government, with Ofgem, has introduced a new and innovative regulatory regime for offshore electricity transmission to enable the necessary connections are delivered in the most timely and cost-effective way.

## Buildings and Industry

9. Improving the energy efficiency of homes and communities is a crucial part of our strategy for tackling climate change, and also brings benefits by reducing fuel bills, fuel poverty and our reliance on imported energy. The Carbon Emissions Reduction Target (CERT) has delivered

large volumes of low-cost measures like loft and cavity wall insulation, and has recently been increased in ambition and extended to the end of 2012. But we know that we will need to ramp-up delivery if we are to meet our carbon budgets, and are pleased that the CCC has acknowledged the significant delivery challenge.

10. We are already trialling new delivery models. The Community Energy Saving Programme (CESP), launched in September 2009, is a small but innovative community-based programme targeting hard to treat homes, through a "whole-house" and "street-by-street" approach. Our "Pay As You Save" pilots will test different approaches to financing the upfront costs of more expensive energy saving and low carbon measures, such as solid wall insulation. The Government will shortly be launching a new Household Energy Management (HEM) Strategy, which will set out how we will achieve a **29% reduction in emissions from homes and communities from 2008 levels by 2020**. The strategy will discuss the potential for new **finance mechanisms** and the support we will provide for householders to make it easier for them to take action, as well as setting out how local authorities can do more in reducing carbon.

11. Our zero carbon homes commitment – that all new homes in England should be zero carbon from 2016 – remains a key driver to keep industry focussed on the challenge to progressively reduce the carbon footprint of new build housing. Government is also working to reduce emissions from new and existing non-domestic buildings, with a particular focus on the public sector. The Pre-Budget Report announced that Government would seek to achieve **£300 million annual savings – about 10% – in the public sector energy bill, incentivising greater energy efficiency across the public sector**. In November 2009 we launched a consultation on zero carbon new non-domestic buildings, including leadership by the public sector.

12. We have plans in place to reduce emissions from central Government offices by over 17% by 2010/11, on a 1999 baseline, significantly exceeding our 12.5% target, and have set a target of 30% by 2020. The inclusion of departments' estates and operations in their individual carbon budgets will provide further incentive and these will be extended to include schools, further and higher education and the NHS by April 2010. We are also **assessing the emissions reductions available from small, non-energy intensive businesses and other**

**organisations** that are not covered by existing policies but which analysis suggests could deliver significant cost effective savings.

13. We are also introducing **clean energy cash-back** schemes. From April, **Feed-in Tariffs** will be introduced to support small scale low carbon generation, providing payment for electricity produced by homes and businesses both for their own needs, and any excess that they export to the grid. Following a consultation in 2009, we will finalise the policy shortly. To harness the significant potential of renewable heat to reduce emissions from buildings and industry, we are also introducing a **Renewable Heat Incentive** from April 2011 and will launch a consultation on it around the end of this month.

### Surface transport

14. The measures set out in *Low Carbon Transport: A Greener Future* together with existing policies will reduce domestic transport emissions by around 14% by 2020 compared to 2008; saving an additional 85 million tonnes of carbon dioxide (MtCO<sub>2</sub>) in the period 2018-2022. New EU vehicle emissions standards will make a key contribution, **reducing average emissions from new cars by 40% by 2020**. The Government is also pressing the EU to introduce ambitious and achievable standards for vans, and is currently analysing the European Commission's proposals in detail.

15. Electric and plug-in hybrid vehicles have enormous potential to reduce emissions from transport. We agree with the CCC that there is a need to support early market development and to ensure that the necessary charging infrastructure is put in place. **From 2011, we will provide an incentive of between £2,000 and £5,000 for people who buy an electric car**, and we are also supporting their public procurement. In November 2009, we launched the Plugged-In Places Infrastructure Framework, a £30 million support scheme to help lead cities and regions deploy and trial **electric car charging infrastructure**, and the Pre-Budget Report committed a further £30 million for low-carbon transport projects.

16. We are pleased that the CCC has noted the success of the Smarter Choices initiatives and Sustainable Travel Demonstration Towns in reducing emissions. We will use the positive results to support ongoing work to promote the uptake of **further sustainable travel initiatives** across the UK. The Government is investing significantly to support public transport and other sustainable travel options,

spending over **£4 billion on the railways** and together with Local Government **around £2.5 billion on buses**. We have also **increased funding to promote cycling, to £140 million over three years** and are working with the Driving Standards Agency and the Energy Saving Trust to reduce fuel consumption by promoting **eco-driving techniques** to both learner and existing drivers.

17. We also agree with the CCC that land-use planning will have potentially significant impacts for transport emissions. The planning system emphasises the need for spatial planning, where the transport consequences of new development are considered and investment and mitigation works planned. When preparing Local Development Documents, local authorities are required to have regard to Local Transport Plans to ensure this happens. This has been further reinforced at the regional level by the Local Democracy, Economic Development and Construction Act 2009, which introduced **integrated Regional Strategies**. The sustainability appraisal accompanying the strategies should include consideration of impacts on emissions.

### The impact of the recession

18. The Government recognises the impact of the credit crunch on the financing of renewable energy projects. We are closely monitoring the delivery of the package of targeted support for the low-carbon sector we announced at Budget 2009. In November 2009, **we launched a new lending scheme for small to mid-sized onshore wind projects**, bringing together the European Investment Bank (EIB), RBS, Lloyds Banking Group and BNP Paribas Fortis, **to facilitate investment of up to £1.4 billion over the next three years**. The 2009 Pre-Budget Report **established Infrastructure UK to leverage further investment in low-carbon projects**, including by investing £90 million in an EIB-led fund for low-carbon infrastructure. We are also working to stimulate the development of technologies that are not yet market-ready, in collaboration with bodies including the Energy Research Partnership and the Technology Strategy Board, boosted by a further £40 million of funding announced at the Pre-Budget Report.

19. The Government agrees with the CCC that the recession will reduce our emissions in the short term. The Transition Plan reflects forecasts of economic growth published at Budget 2009 in its underpinning analysis, as does the CCC's report. **Implementation of the measures in the Transition Plan will help to ensure that the**

**emissions reductions of around 2% per year, seen in the last two years, will continue as the UK returns to trend growth.**

20. The CCC recommends that – subject to its final view at the time – any overachievement of the first carbon budget will be largely due to the recession and should not be banked for use in the second period. We recognise that a proportion of any over-achievement of the first carbon budget (2008-2012) period will be caused by the recession and agree that this projected over-achievement must not detract from driving delivery of policy measures needed now to decarbonise in the future. To ensure that incentives to deliver remain strong over the remainder of the first budget, the **Government accepts the Committee's recommendation that any over-achievement arising from the downturn should not be carried forward to allow for higher emissions in future.** This decision is subject, as the Climate Change Act requires, to final advice from the CCC at the end of the budgetary period.

21. The CCC also finds that the recession will result in a significantly lower carbon price in 2020 than previously projected, and recommends considering measures to strengthen incentives for low-carbon investments. The Government believes that the best approach to give the long-term signal sought by investors is through setting the right, long-term regulatory framework with a reducing cap on emissions. Under the revised EU ETS Directive the EU ETS cap will fall by 1.74% (compared to the cap in the first carbon budget period) each year after 2013. Our efforts will now be focused on taking forward the work agreed at Copenhagen to secure an ambitious legal treaty this year. **We are committed to reviewing and tightening the cap further as part of a move from 20% to 30% in the EU emissions reduction target for 2020, in the context of a new global climate agreement.**

22. Tightening of the EU ETS cap would deliver a higher carbon price and provide clearer incentives for investors. It should also help to reduce regulatory uncertainty and therefore the cost of capital for low carbon investors. The Government is also taking forward an assessment of the continuing **effectiveness of the electricity market framework in delivering low carbon investment**, as described in paragraph 6 above.

## Indicators

23. **The Government welcomes the CCC's work on indicators for meeting carbon budgets, and we intend**

**to follow a similar approach in our own progress monitoring.** Emissions data alone are not enough to assess performance against carbon budgets. To be able to anticipate whether we are on track to meet budgets in time to resolve any problems, it is also important to monitor the design, implementation and delivery of policies, as well as underlying economic and other facts that affect emissions. **We will publish our indicator set for managing carbon budgets by the spring.** Like the CCC, we strongly believe that indicators should not be seen as firm targets but should be used in a pragmatic way, allowing for flexibility in the performance in different sectors as long as overall emissions reductions are on track.

## Next steps

24. Publication of the Low Carbon Transition Plan was not the end, but the beginning of a process of implementation and delivery to meet our carbon budgets. **We are fully committed to making the vision set out in the Transition Plan a reality, and look forward to working with the CCC in doing so.**

25. The COP15 negotiations in Copenhagen in December 2009 led to major developed and developing countries – covering over 80% of global emissions – reaching agreement on the Copenhagen Accord. The Accord recognises the importance of limiting global temperature increases to 2 degrees Celsius; and provides for major developed and developing countries by 31 January 2010 to lodge their detailed commitments and actions to limit emissions in an annex to the Accord. **The UK will continue to work hard to ensure that all countries show high ambition in taking forward their commitments under the Accord and in campaigning for a comprehensive, legally binding treaty to be agreed as soon as possible.**

26. By the spring, all Government departments will publish a **Carbon Reduction Delivery Plan**, setting out how they will meet their departmental carbon budgets. For departments with influence beyond their own public sector operations, the plans will set out sectoral indicators of progress, drawing on the CCC's proposed monitoring framework.

27. Also in spring, looking at the longer term, we will publish our **'2050 Pathways'** work, which will set out the pathways that we may need to follow to ensure we meet our long-term target to reduce emissions by 80% on 1990 levels by 2050. At Budget 2010 we will publish initial

findings of our assessment of whether current **energy market arrangements** will continue to deliver the low-carbon investment and secure energy supplies needed for the long-term.



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# CHAPTER 1

## INTRODUCTION

28. The Climate Change Act 2008 created a clear, credible framework for the UK to reduce its greenhouse gas emissions. It sets a number of legal requirements on Government to:

- reduce emissions by at least 80% below 1990 levels by 2050 and by at least 34% in the period 2018-2022;
- comply with a system of five-year carbon budgets, set up to 15 years in advance, to deliver the emissions reductions required to achieve the 2020 and 2050 targets; and
- monitor progress through regular reports to Parliament, by both Government and the independent Committee on Climate Change (CCC).

29. The first three carbon budgets, covering the period 2008 to 2022, were announced at Budget 2009 and set in law in May 2009 following their approval by Parliament. These budgets require a 22% reduction in emissions below 1990 levels in 2008-2012, a 28% reduction in 2013-2017 and a 34% reduction in 2018-2022.<sup>2</sup>

30. In July 2009, the Government published the 'UK Low Carbon Transition Plan', alongside a suite of other publications including the 'UK Renewable Energy Strategy', 'Low Carbon Transport: A Greener Future', and the 'Low Carbon Industrial Strategy'.<sup>3</sup> The Transition Plan sets out how the UK will meet its carbon budgets, describing the policies through which emissions will be reduced in all sectors of the economy.

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2 The Climate Change Act 2008 requires that average annual emissions in the carbon budget period around the year 2020 (i.e. the third period, 2018-2022) are at least 34% below the 1990 baseline. As a shorthand, this is referred to as 34% below 2020 throughout this publication.

3 Available from: [www.decc.gov.uk/en/content/cms/publications/lc\\_trans\\_plan/lc\\_trans\\_plan.aspx](http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx)

31. As required by the Climate Change Act, the CCC published its first annual report on the UK's progress towards meeting carbon budgets and the 2050 target, entitled 'Meeting Carbon Budgets – the need for a step change', in October 2009.<sup>4</sup> The CCC's key messages are reproduced at **Annex A**. We welcome the CCC's report as an important contribution to the UK's transition to a low carbon economy, which Government will draw on in ensuring that the policies and measures set out in the Transition Plan are implemented in order to meet the UK's carbon budgets and emissions reduction targets.

32. This report responds to the points raised in the CCC's report. In doing so, it also sets out policy developments since the publication of our Low Carbon Transition Plan and the Government's initial view on the outcome of the climate change negotiations at Copenhagen in December 2009.

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4 Available from: [www.theccc.org.uk/reports/progress-reports](http://www.theccc.org.uk/reports/progress-reports)

# CHAPTER 2

## THE NEED FOR A STEP CHANGE

### Summary

In order to meet our ambitious carbon budgets and targets set under the Climate Change Act, a step change is needed in the pace of emissions reductions in the UK. That step change is embodied in the UK Low Carbon Transition Plan, published in July 2009, which sets out a comprehensive plan for making the transition to a low carbon economy.

Following publication of the Plan, the Government is fully committed to, and focused on, its implementation, as demonstrated by the significant steps forward made since then in key sectors of the economy:

- In the *power* sector, the draft energy National Policy Statements, published in November 2009, will help remove planning delays that have faced large energy proposals, including by naming ten new sites as potentially suitable for new nuclear power stations. A new policy framework for clean coal published at the same time will drive the development of carbon capture and storage. There have also been further policy developments to speed the development of onshore and offshore wind power.
- In the *homes and communities* sector, the £350 million Community Energy Saving Programme, launched in September, will deliver whole house, whole street energy makeovers for some of the most vulnerable people in the UK. We will shortly be publishing our Household Energy Management Strategy, and announcements on clean-energy cash back schemes to pay people and businesses who generate their own low-carbon heat or electricity. Taken together, these will set out in more detail our plans to reduce emissions from homes and communities by 2020.
- In the *transport* sector, we announced £1.1 billion investment in rail network electrification in July 2009, which will help reduce emissions and create a better service for passengers. In November the 'Plugged-In Places' scheme was launched, which will provide up to £30 million to help establish charging infrastructure for electric vehicles in three to six cities.



A further £400 million was announced in the 2009 Pre-Budget Report to support low-carbon growth by driving further investment in low-carbon energy infrastructure and industries, while helping households to reduce energy bills. The Pre-Budget report also announced a further £30 million of funding for low-carbon transport, including an expansion of the Technology Strategy Board's ultra-low carbon vehicles competition.

A step-change is also needed at the international level, and the Copenhagen conference in December built momentum towards a more ambitious global effort to avoid dangerous climate change. The Copenhagen Accord – agreed by many developed and developing countries – represents an important step forward: recognising the importance of limiting global temperature increases to no more than 2 degrees Celsius; countries agreeing to set out by 31 January 2010 the commitments and actions they are taking to limit emissions; and significant commitments on global climate finance in the short and long-term. The UK will be working hard to ensure that all countries show ambition in taking forward their commitments under the Accord and in pressing for a comprehensive, legally binding agreement.

## A global step change

33. The global challenge to address climate change is enormous: as such it can only be addressed through a comprehensive global agreement. The UNFCCC Copenhagen conference in December 2009 (COP15) brought together 192 countries to address this challenge.

34. COP15 concluded – after two weeks of intense negotiations – with major developed and developing countries agreeing the Copenhagen Accord. This provides for:

- International commitment that global temperature increases should be limited to no more than 2 degrees Celsius;
- Countries pledging to put their emissions reduction offers into an annex to the Accord by 31 January 2010; and scrutiny and transparency measures to ensure emissions reduction targets are put into effect;
- Up to \$30 billion of immediate short-term funding from developed countries over the next three years to support developing country action on mitigation and adaptation;
- A commitment from developed countries to work towards long-term climate financing of \$100 billion per annum by 2020; and a high level panel to explore sources of finance.

35. The Copenhagen Accord represents an important first global step forward, building on significant progress during 2009. For the first time all developed and major developing countries have come forward with quantified emission reduction offers. The UK will work hard to ensure that all

countries continue to show high ambition; play its part in putting the Copenhagen Accord into effect; and argue for an international legally binding treaty as soon as possible. For the European Union, this means carrying forward our commitment to move from 20% to 30% emissions reductions by 2020, compared to 1990, provided other countries also show high ambition.

## The UK's contribution

36. We are determined to strengthen and sustain the momentum behind the low carbon transition in the UK. Just as the international negotiating process is seeking a step change globally, the Government agrees with the CCC that a step change is needed in the UK to achieve the emissions reductions necessary to meet the carbon budgets. To bring it about, we have put in place the world's first legally-binding long-term framework for emissions reductions, through the Climate Change Act. Having set out the legislative framework, Government published the UK Low Carbon Transition Plan, which set out the measures that will be required to meet the carbon budgets, in July 2009. The Transition Plan embodies the step change that the CCC calls for, describing the policies needed to make the UK a low carbon economy while maximising economic opportunities, maintaining secure energy supplies and protecting the most vulnerable in society. It is a vision for transforming all parts of the country and sectors of the economy to help make the UK a cleaner, greener and more prosperous place to live

37. The CCC's report welcomes the carbon budgets set by Government, the aim to meet them through domestic emissions reductions without purchasing offset credits from abroad and the commitment to tighten them in the context

of the EU agreeing to raise its offer to reduce emissions by 30% on 1990 levels by 2020. It also recognises the importance of the Transition Plan in setting out a comprehensive account of how emissions will be reduced to meet our carbon budgets.

38. Although it is true that larger year-on-year emissions reductions will be needed to meet our ambitious targets than those in the five years before 2007, significant progress had already been made before publication of the Transition Plan to put the UK on the pathway for a transition to a low carbon economy. A wide-ranging set of policies to reduce emissions was set out in previous Climate Change Programmes and Energy White Papers. These measures helped to reduce UK greenhouse gas emissions to around 21% below 1990 levels.<sup>5</sup>

39. Emissions projections published alongside the Transition Plan show that, on the basis of central forecasts for variables such as fuel price and economic growth and central expectations of climate change policy savings, it will deliver emission reductions of around 36% below 1990 levels in 2020, more than the 34% required to meet the budgets. We are confident that, as a result of the policies set out in the Transition Plan, the 2% reductions in emissions seen in 2007 and (based on provisional data) 2008 will continue as the UK returns to trend growth after the recession.

40. In the traded sector, performance against carbon budgets will be determined by the level of the UK's cap, or total allocation of allowances, under the EU Emissions Trading System (EU ETS) – whether the UK power sector and heavy industry have been net sellers or net purchasers of carbon units. The Government has consistently pushed for greater EU ambition in the ETS, including to set tight caps and to limit the allocation of free allowances, as the CCC recommends. As a result, from 2013, all allowances for the power sector in the UK will be auctioned and at least 50% of all allowances across the EU, rising to 60% by 2020. Furthermore, as set out in the Transition Plan and as described in more detail below, the Government is taking additional action in the power sector, on top of the EU ETS,

to enable decarbonisation of the power sector through the rapid development and use of low-carbon technologies.

## Delivering the step change

41. As the CCC makes clear, delivering all the measures that are needed to meet the budgets is a significant challenge, but the Government is committed to implementing the Low Carbon Transition Plan in full and is focused on delivery. A number of new policies were set out in the Transition Plan, but in some areas detailed policy was still being developed and there have been significant developments in key sectors since its publication in July.

42. In the **power sector**, a significant advance has been made through the publication in November of six draft National Policy Statements (NPSs) on energy infrastructure for consultation. The NPSs lie at the centre of a new, more efficient, transparent and accessible planning system and set out the national need for a low carbon secure energy mix, using the trinity of low-carbon fuels: renewables, nuclear and clean fossil fuels. The NPSs will provide the framework for planning decisions on energy infrastructure to be made by a new, independent body, the Infrastructure Planning Commission, and will help to avoid the delays that have faced some large energy proposals in the past.

43. As well as setting out why new nuclear power is needed, and that the Government is satisfied that effective arrangements will exist to manage and dispose of the waste that will be produced by new nuclear power stations, the draft Nuclear NPS also lists ten sites that the Government has judged to be potentially suitable for the deployment of new nuclear power stations by the end of 2025 to meet our pressing climate change and energy security goals.

44. Alongside the NPSs, a framework for the development of clean coal was published setting out the most ambitious set of coal conditions of any country in the world. Following a consultation in June 2009, the framework confirms that:

- all new coal power stations will have to demonstrate carbon capture and storage (CCS) from the outset on at least 300 MW net of their capacity.
- a rolling review process, which is planned to report by 2018, will consider the appropriate new regulatory and financial measures to further drive the move to clean coal; and
- in the event that CCS is not on track to become technically or economically viable, an appropriate

<sup>5</sup> Based on 2007 greenhouse gas emissions, taking into account the impact of emissions trading under the EU Emissions Trading System (in the same way that progress against carbon budgets will be monitored through calculating the net UK carbon account). The equivalent figure without emissions trading is 18%.

regulatory approach for managing emissions from coal power stations will be needed.

45. The 2009 Pre-Budget report announced that a programme of four commercial-scale CCS demonstrations, which will seek to demonstrate both pre-combustion and post-combustion capture technologies, will be funded by contributions from electricity suppliers. Legislation to introduce this is contained in the Energy Bill that is currently going through Parliament. The Bill also tackles fuel poverty and provides support for the most vulnerable consumers by providing mandatory social price support, such as in the form of an electricity bill rebate. Finally, it clarifies the requirement for the energy regulator Ofgem to include emissions reduction and energy security considerations in its assessment of the interests of consumers.

46. In the **homes and communities sector**, the Carbon Emissions Reduction Target (CERT) for the 2008 to 2011 period has been increased by 20%, from 154 to 185 MtCO<sub>2</sub>, which will deliver approximately 1.1 MtCO<sub>2</sub> of additional savings per year. A commitment has also been made to extend the scheme by 21 months to the end of 2012, with a strong focus on delivering loft and cavity wall insulation.

47. At the same time, new community-based models are being trialled. The £350 million Community Energy Savings Programme (CESP) will deliver whole-house treatments to around 90,000 homes, including more expensive measures in hard to treat homes. CESP will be targeted at the most vulnerable and will work on a whole street and neighbourhood delivery model; uptake will be maximised through the involvement of local authorities and community groups. Also drawing on the power of communities, the Low Carbon Communities Challenge, launched in September, is a two year programme that will provide financial and advisory support to 20 'test-bed' communities to reduce their emissions.

48. The Government has continued to drive forward its ambitious programme for reducing emissions from new buildings – most recently consulting on a new energy efficiency standard for zero carbon homes from 2016 and a programme for meeting its ambition for new non domestic buildings to be zero carbon from 2019.

49. In the **surface transport sector**, the Government announced £1.1 billion investment in rail network electrification in July 2009, to help reduce emissions at

the same time as creating a better service for passengers. In November 2009, we launched the 'Plugged-In Places' scheme, which will provide up to £30 million to help establish charging infrastructure for electric vehicles in up to six cities. We have also published guidance to local authorities on delivering low carbon sustainable travel, including making climate change a priority for local transport plans. The Pre-Budget report announced a further £30 million of funding for low-carbon transport, including an expansion of the Technology Strategy Board's ultra-low carbon vehicles competition.

50. Box 1 below summarises recent policy developments in the different sectors covered by the CCC report, and further detail on the specific sectors is provided in Chapters 3 to 5. Activity in the Devolved Administrations is set out in **Annex B**.

51. As all the progress since July 2009 shows, publication of the Low Carbon Transition Plan was not the end, but the beginning of a process of implementation of new policies and delivery of emissions reductions. In the coming months the process will continue, as described in more detail in Chapter 8.

52. Following consultation in 2009, we will shortly be publishing our new Household Energy Management (HEM) Strategy, which will set out how we will achieve a 29% reduction in emissions from homes and communities from 2008 levels by 2020.

53. We will also shortly announce the levels of the Feed in Tariffs, to pay people and businesses a fair price for generating their own low-carbon and renewable electricity, from this April and will launch a consultation on the Renewable Heat Incentive to be put in place from next year.

54. By the spring, each Government department will publish a Carbon Reduction Delivery Plan, which will include milestones and indicators to measure progress in each sector. Government will also publish pathways for the decarbonisation of the UK for the period 2020 to 2050, to complement the Low Carbon Transition Plan.

## BOX 1: POLICY DEVELOPMENTS SINCE LOW CARBON TRANSITION PLAN

### Power Sector

#### November 2009

- Introduction to Parliament of an Energy Bill to provide support for energy consumers, giving a greater amount of help to the poorest and most vulnerable, as well as introducing a new financial incentive for carbon capture and storage demonstration projects.
- Publication of draft National Policy Statements on energy infrastructure development for consultation, setting out guidance for the newly established Infrastructure Planning Commission to consider when making planning decisions on nationally significant energy infrastructure projects, and listing ten sites as potentially suitable for new nuclear.
- Announcement of the Government's framework for the development of clean coal, with the most environmentally ambitious set of coal conditions of any country in the world.

#### December 2009

- In the Pre-Budget Report, doubling to four the UK's commitment to fund carbon capture and storage demonstration projects via contributions from electricity suppliers, and work to ensure the electricity market framework can effectively deliver the low-carbon investment needed in the long term.
- Government's response to its consultation on smart meters published, setting out how smart meters will be rolled out across Britain by the end of 2020.
- *Smarter Grids: The Opportunity* published, which makes the case for developing smart grids in the UK. Smart grids will give operators and consumers much more information about supply and demand of electricity – enabling more effective interaction between consumer needs and fluctuating supplies.
- Announcement of first successful bids to encourage the development of a deep geothermal power sector in the UK via the £6 million Deep Geothermal Challenge Fund.

### Households and Communities

#### July 2009

- Announcement of details on the definition and standards for zero carbon homes and publication of a Planning Policy Statement (PPS) for eco-towns, including those locations with potential to have an eco-town and announcement of a £60 million Growth Fund to support early development.

#### August 2009

- A 20% increase in the Carbon Emissions Reduction Target so that an estimated 1.1 MtCO<sub>2</sub> per year of additional savings will be delivered by the programme in 2011. This brings the total annual savings to 5.3 MtCO<sub>2</sub> per year by 2011.

#### September 2009

- Launch of the Low Carbon Communities Challenge, a two-year programme to provide financial and advisory support to 20 'test-bed' communities in England, Wales and Northern Ireland that are seeking to cut carbon emissions.<sup>6</sup>
- Launch of the £350 million Community Energy Saving Programme to deliver whole-house, whole-street energy makeovers concentrating on some of the most vulnerable people in the UK.

6 For further information please see: [www.decc.gov.uk/en/content/cms/what\\_we\\_do/consumers/lc\\_communities/lc\\_communities.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/lc_communities/lc_communities.aspx)

## BOX 1: POLICY DEVELOPMENTS SINCE LOW CARBON TRANSITION PLAN (cont)

### November 2009

- Announcement of energy efficiency standards for zero carbon new homes from 2016 and allocation of £3.2 million funding to boost long-term research into how we design and build energy efficient homes.
- Announcement of results from the Strengthening Local Democracy consultation, which proposed the expansion of authorities' role in mitigating carbon. £3 million announced for the piloting of local carbon frameworks.

### December 2009

- The Pre-Budget Report announced £200 million to improve energy efficiency and tackle fuel poverty through a boiler scrappage scheme (launched in January 2010) and extra resources to help the most vulnerable households with heating and insulation.
- Home Energy 'Pay as you Save' pilots launched, to test new ways to finance whole house energy makeovers, giving households the opportunity to invest in energy efficiency and microgeneration technologies with no upfront costs.
- Consultation on updated Code for Sustainable Homes, to align it with zero carbon homes policy (including consulting on the energy efficiency standard announced in November). The consultation will close on 24 March 2010.
- Announcement of second wave of locations with potential to be developed to the eco-towns PPS standards, and £10 million in funding for studies and demonstration projects to help test the feasibility of eco-town standard development.

## Business and Public Sector

### October 2009

- Publication of guidance for businesses and organisations on how to measure and report their greenhouse gas emissions.

### November 2009

- Publication of *Can You Afford Not To?*, the business case for action on low carbon and wider resource efficiency. As part of the Low Carbon Industrial Strategy, the Government, working alongside Tomorrow's Company and other businesses, has set out actions that company boards need to take.
- Consultation on how to apply the overall zero carbon principles to new non-domestic buildings from 2019 (with new public sector buildings leading the way from 2018), reflecting the differences between homes and other buildings and also between the types and uses of non-domestic buildings in different locations. The consultation will close on 26 February 2010.

### December 2009

- The Pre-Budget Report announced £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.

## **BOX 1: POLICY DEVELOPMENTS SINCE LOW CARBON TRANSITION PLAN (cont)**

### **Transport Sector**

#### **July 2009**

- Announcement of £1.1 billion investment in rail network electrification programme, involving the London to Swansea and Liverpool to Manchester lines.
- Statutory guidance on Local Transport Plans gives climate change new priority in the third round of local transport plans.

#### **October 2009**

- Publication of European Commission proposals for standards for CO<sub>2</sub> emissions from new vans.

#### **November 2009**

- Guidance to local authorities on delivering low carbon sustainable travel to complement statutory Local Transport Plan guidance.
- Launch of “Plugged-In Places” scheme providing up to £30 million to help establish charging infrastructure for electric vehicles in three to six cities.

#### **December 2009**

- The Pre-Budget Report announced a further £30 million of funding for low-carbon transport, including an expansion of the Technology Strategy Board’s ultra-low carbon vehicles competition.

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# CHAPTER 3

## LOW-CARBON POWER

### Summary

Government has a strategic role to play in ensuring investment in low-carbon generation to meet our emissions reduction goals. We recognise that the EU Emissions Trading System is not enough on its own to enable the rapid deployment of low carbon technologies in the power sector. The UK Low Carbon Transition Plan set out the further action we are taking on renewable energy, new nuclear power, carbon capture and storage, and support for the development of the electricity grid. Our '2050 Pathways' work, to be published in the spring, will set out the pathways that we may need to follow to meet our long-term target to reduce emissions by at least 80% below 1990 levels. In parallel, the Government is taking 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 reformed planning system will allow swift, consistent and effective decisions to deploy low carbon energy while protecting legitimate environmental and local concerns. The draft energy National Policy Statements (NPSs), published for consultation in November 2009, will play a vital role as the basis on which individual planning decisions are made by the new Infrastructure Planning Commission.

The measures in the Renewable Energy Strategy will help us to achieve ambitious levels of renewables deployment over the next decade, removing barriers that have slowed progress in the past.

The Office for Nuclear Development is working to facilitate investment in new nuclear power, which should allow new nuclear generation from 2018. Energy companies have already announced plans to build over 16 GW of new nuclear capacity, and the draft nuclear NPS lists ten sites as potentially suitable for new nuclear build.

The Government's Framework for the Development of Clean Coal sets out the most environmentally ambitious package of measures for clean coal of any country in the world. Any new coal power stations must incorporate a commercial-scale carbon capture and storage (CCS) demonstration, with financial support through the CCS incentive available for four demonstration projects. A rolling review of progress with CCS will report by 2018, and will consider the appropriate regulatory and financial framework to further drive the move to clean coal. In the event that CCS is not on track to become technically or economically viable, an appropriate regulatory approach for managing emissions from coal power stations will be needed.

To tackle transmission constraints, the Government has put in place an interim access arrangement for new renewable generation, and is using Energy Act 2008 powers to put in place an enduring regime by June 2010.



## Decarbonising the power sector

55. The CCC has said that the EU Emissions Trading System (EU ETS) will not automatically bring forward the low-carbon investment to deliver required emissions cuts in the power sector in the 2020s and beyond. The Government agrees that, while the EU ETS is at the heart of our plan to reduce power sector emissions, it will not be enough on its own to enable the rapid development and use of low carbon technologies. We therefore set out in the Low Carbon Transition Plan the further action we are taking on renewables, nuclear, CCS and support for the development of the electricity grid.

56. The Committee has also concluded that there is not a tension between high levels of renewables and the economics of nuclear new build. The Government welcomes this conclusion. It agrees that, to 2020, the modelling by Redpoint and Pöyry suggests that the levels of renewables we are likely to see do not undermine the case for nuclear new build.<sup>7</sup> At higher levels of renewables, the situation also appears manageable; however this will depend on the evolution of the market to provide appropriate levels of flexibility, such as interconnection and demand side management. We issued a call for evidence last year to ensure that we can maintain a robust electricity system, the response to which will feed into both work on the energy market framework and the development of our '2050 Pathways', which will be published in the spring.

57. The CCC has therefore designed a new scenario for power sector decarbonisation over the first three budget periods, complementing those it set out in its December 2008 report, which it has incorporated into its economy-wide Extended and Stretch Ambition scenarios. This new scenario includes high levels of both wind generation (23 GW new capacity in 2020) and nuclear new build (three new plants by 2022). It also includes 4 GW of new non-wind renewables and four CCS demonstration plants but does not include a Severn tidal power project (see Box 2 below). The Government agrees that such a scenario to 2022 would be one way of ensuring we are on track to meet our 80% emissions reduction target for 2050.

58. It is encouraging to see that the level of renewables in the scenario is similar to that in the lead scenario in the

Renewable Energy Strategy (RES). However, it is important to recognise that the breakdown in the scenario is purely indicative, based on a range of assumptions and should not be used as a sector or technology target. There is nothing to stop industry groups expanding further than this illustrative mix, if supply chains and build rates can deliver faster than the assumptions underlying the analysis.

59. Some 8 GW of existing coal plant will close by the end of 2015 and we could see a significant proportion of this replaced by 2020 through the CCS demonstration programme. As discussed below in more detail, the framework for the development of clean coal outlines a programme of four commercial scale CCS demonstrations.

60. The CCC's new scenario includes up to three new nuclear plants by 2022 and they also conclude that we will require around 20 GW of additional low-carbon generation capacity in the period 2020-2030. It should be noted that energy companies have already announced plans to build over 16 GW of new nuclear capacity.

## Investment in new wind and other renewable generation

61. Based on an analysis of current capacity at different stages of the project cycle, time required for project development and construction, and barriers to project implementation, the CCC concludes that up to 23 GW of new wind capacity could be added by 2020, comprising 12 GW of onshore wind and 11 GW offshore. They say that delivering this is dependent on four key factors:

- i. Planning system reform to reduce the planning period and increasing the planning approval rate;
- ii. Providing access to a power transmission network without bottlenecks;
- iii. Supply chain adjustments to accommodate more than a threefold expansion in annual installation capacity; and
- iv. Projects being able to secure finance (see Chapter 6).

62. The Government recognises the challenge, and the risks to the ambitious level of renewables deployment planned over the next decade, but believes that the measures described in the RES will help to achieve this. We have a range of financial incentives to accelerate the deployment of renewable energy sources. The Renewables Obligation (RO) is the Government's main financial incentive for renewable electricity and, since its introduction in 2002,

7 Pöyry Energy Consulting, 2009: "Impact of Intermittency" and Redpoint Energy, 2009: "Decarbonising the GB power sector", both available from: [www.theccc.org.uk/reports/progress-reports/supporting-research-](http://www.theccc.org.uk/reports/progress-reports/supporting-research-)



it has succeeded in tripling the level of renewable electricity in the UK. The RO will be worth around £1 billion a year to the renewable electricity industry by 2010. As well as the RO we are now looking to introduce a feed-in tariff (FITs) to support small scale generation (below 5 MW). We published our proposals in the summer and we will introduce FITs from April 2010. We are also currently working to develop a Renewable Heat Incentive scheme, which we are aiming to have in place by April 2011.

63. On 8 January 2010, the Crown Estate announced Zonal leases for up to 32 GW of offshore wind generation capacity by 2020, under Round 3 of their leasing programme. This is in addition to 8 GW of potential already awarded under Rounds 1 and 2 of the programme. The Government has carried out a Strategic Environmental Assessment for up to 25 GW of offshore wind generation. The SEA concluded that it would be acceptable, subject to appropriate mitigation measures. Further SEAs will be carried out as necessary.

64. We have launched the Office for Renewable Energy Deployment (ORED) to speed up the deployment of renewable energy technologies. ORED will work with the big energy companies, investors, communities, small-businesses and individuals to help everyone understand the need for, and the opportunities coming from, renewable energy. ORED will also work to remove the barriers to deployment, as set out in more detail below.

65. The Government is also working to encourage the development in the UK of deep geothermal energy, a low carbon and non-intermittent renewable energy technology. The RES committed £6 million to exploring the potential for deep geothermal power, and in December 2009 we announced the first successful bids for the 'Deep Geothermal Challenge Fund'.

### Investment in nuclear new build

66. The CCC considers nuclear new build to be a cost-effective form of low-carbon generation, and concludes that its early entry into the mix will contain the costs of decarbonisation through the 2020s and beyond. The Committee includes up to three new nuclear plants by 2022 in its scenario for power-sector decarbonisation. As set out in the Nuclear White Paper published in January 2008,<sup>8</sup> the

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<sup>8</sup> Available from: [www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/nuclear/white\\_paper\\_08/white\\_paper\\_08.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/white_paper_08/white_paper_08.aspx)

Government is taking active steps to establish and cement the right policy framework, and create the right conditions in the UK, for investment in new nuclear power stations. The Office for Nuclear Development (OND) is acting to enable investment in the UK from the earliest possible date.

67. With regard to the amount of generating capacity that may result from the new build programme, the Government's approach has been to remove the barriers to investment in new nuclear power and allow energy companies to come forward with projects if they consider it in their interests to do so. The action taken by Government so far has resulted in real interest in new nuclear in the UK, with energy companies announcing plans to build over 16 GW of new nuclear capacity.

68. The programme of facilitative actions set out in the Nuclear White Paper should, subject to regulatory approvals, enable companies to begin operation of new nuclear power stations from 2018. A major milestone in this process has been reached with the publication in November 2009 of the draft Nuclear National Policy Statement (NPS)<sup>9</sup>. The draft NPS contains a list of 10 sites deemed to be potentially suitable for the deployment of new nuclear power stations by the end of 2025 and represents the output from the Government's Strategic Siting Assessment (SSA) process. The draft Nuclear NPS also sets out the Government's preliminary conclusion that it is satisfied that effective arrangements will exist to manage and dispose of the waste that will be produced by new nuclear power stations in the UK.

69. The risks highlighted by the CCC on the functioning of the Infrastructure Planning Commission (IPC), the Funded Decommissioning Programme and supply chain and skills issues have already been identified by the Government and are actively monitored as part of the OND's ongoing assessment and management of strategic risks associated with the new nuclear programme.

### Getting planning approval for low carbon energy investments

70. The planning system will play a vital role in delivering the infrastructure we need to reduce our carbon emissions and ensure a continued secure energy supply. We agree with the CCC on the need for a radical change in the pace at which decisions on renewable and low carbon energy development are made. The Planning Act 2008 reforms

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<sup>9</sup> See: [www.energyngpsconsultation.decc.gov.uk/nuclear/](http://www.energyngpsconsultation.decc.gov.uk/nuclear/)

the way planning decisions are taken at the national level and in the RES the Government considered how local and regional decision-making could be supported. As the CCC's report recognises, these measures are designed to ensure swift, consistent and effective decisions to deploy low-carbon energy while at the same time protecting legitimate environmental and local concerns.

71. At the national level the Government has established the IPC, which will determine applications for nationally significant infrastructure in accordance with the suite of energy National Policy Statements (NPSs). The IPC will help reduce the average time taken to decide an application for nationally significant infrastructure, by applying strict statutory time limits.

72. The overarching NPS and suite of energy NPSs, one each for renewables, nuclear, fossil fuels, transmission networks and oil and gas pipelines, were published for consultation on 9 November, and are expected to be designated in 2010<sup>10</sup>. Also on 9 November we published the ports NPS and we plan to publish further NPSs covering national transport networks, airports, waste water supply and hazardous waste infrastructure over the rest of this year and early 2011. These areas also have key roles to play in the move to a low-carbon economy and all the NPSs will be consistent with carbon budgets, implementing key duties in the Planning Act for NPSs to contribute to sustainable development and specifically address climate change mitigation and adaptation.<sup>11</sup>

73. The renewable energy NPS will help ensure decisions on renewable energy infrastructure are taken consistently whether they are large, in which case decisions will be taken at national level, or small, where decisions are taken at local level.

74. To encourage effective and proactive strategic planning by local and responsible regional authorities the Government is supporting regions to take an evidence-based approach to reviewing their renewable energy targets, through:

- Providing around £1 million of support to ensure all regions are able to put in place a robust, evidence-based assessment of their capacity for energy projects;
- Bringing together industry, NGOs, Devolved Administrations, regional and local planners, statutory advisors on the environment and other planning stakeholders to develop a robust methodological approach and criteria for identifying the opportunities and constraints for renewable deployment in any given area at a strategic level. The methodology is currently being prepared and once published will inform the preparation of the new Regional Strategies.

75. The Government has already introduced reforms to the local planning process in England: tightening up the appeals process, awarding costs for unnecessary delays, and calling in decisions, to central Government where needed. But there is a need to do more to help local authorities make these decisions, which can be complex and difficult. The Government will provide support to planners and other local authority staff in England engaged in climate change activities to help increase their skills and knowledge.

76. The RES committed the Government to merging and updating the planning policy statements on climate change and renewable energy to ensure that the revised statement sets a clear and challenging framework for delivering energy infrastructure and cutting carbon emissions. The RES also recognised that the revised statement would need to reflect the importance of planning to adapt to the climate change that is already inevitable.

77. We have established the Renewables and Low Carbon Energy Deployment Taskforce (which will have a Ministerial Chair shared between CLG and DECC) to bring co-ordination and leadership to the various tiers of Government involved in planning and ensure regional renewable energy targets are set at a level which reflects both the potential in the region and national level ambitions.

78. The Government wants to encourage the uptake of small-scale renewable and low-carbon energy technologies by removing unnecessary planning constraints. In November 2009 we launched proposals that will permit homeowners to install their own on-site wind turbines, and air source heat pumps, without the need for planning permission. The new rules will apply also to commercial and business premises, which will also for the first time be able to install

<sup>10</sup> See [www.energynpsconsultation.decc.gov.uk/](http://www.energynpsconsultation.decc.gov.uk/).

<sup>11</sup> More information about the new planning regime and the other NPSs can be found on CLG's website: [www.communities.gov.uk/planningandbuilding/planning/planningpolicyimplementation/reformplanningsystem/planningbill/](http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyimplementation/reformplanningsystem/planningbill/).

other renewable technologies such as solar panels. We expect to introduce the new regulations in 2010 following a three month statutory consultation period.

79. At a local level, we are also:

- Encouraging and funding the wider use of Planning Performance Agreements (PPAs) for renewable energy. These will improve the quality of the decision making process and provide certainty over the timescale for determining the outcome of development applications.
- Encouraging the use of Local Development Orders giving local planning authorities the freedom to allow new development and changes of use without the need for individual planning applications.

80. We have also established a new UK-wide high-level board – the Renewable Energy Deployment, Environmental Issues Project Board – to bring together representatives from the main consenting bodies and statutory consultees. The board will have a remit to deliver strategic solutions to environmental issues encountered during the consenting process for renewable energy projects.

## Transmission Access

81. The Government recognises that improved access for new renewable and low carbon generation is essential in helping to tackle climate change. As the Committee has recognised, Ofgem has already taken the decision to put in place an interim access arrangement to ensure that renewable generation is able to gain access to the network even where it is capacity constrained. However, we agree with the Committee on the importance of putting in place an enduring regime for grid access by mid-2010. That is why the Government is intervening using Energy Act 2008 powers to see the grid access reform process started by industry through to a timely and successful conclusion. We are working to get this in place by June 2010.

## Onshore transmission network

82. New transmission network is the enduring answer to capacity constraints for new renewable and other low carbon generation. The CCC recognises the work undertaken by the Transmission Companies and published by the Electricity Networks Strategy Group (ENSG), a senior industry group chaired by DECC and Ofgem, in developing scenarios of the potential onshore transmission investments

### Box 2: Severn Tidal Power

The Government is conducting a two-year feasibility study on whether we could support a tidal power project in the Severn estuary, which will conclude later this year. The study is considering the power output, costs and impacts of five tidal power schemes. The largest scheme being studied could provide around 5% of the UK's electricity supply from an indigenous renewable source. In addition, we are funding the development of three embryonic technology options through the Severn Embryonic Technologies Scheme, which could also be applicable outside the Severn. Alongside the work on traditional technologies and the estuarine environment, this will also be a useful resource for those considering developing power schemes in the UK's other estuaries and bays with a tidal range resource, such as the Mersey and the Solway Firth.

The CCC report concludes that costs for a Severn scheme are at the high end for low carbon technologies, but are low enough that it could play a role if other technologies did not perform as expected. The report usefully highlights key issues in the consideration of Severn tidal power:

- Cost-effectiveness against other technologies;
- Use of appropriate discount rates to reflect the estimated 120-year lifetime of a Severn scheme;
- Considering delivery risks of the other low carbon technologies; and
- Whether it is appropriate to build a small scheme if a larger scheme may be needed in the future.

These are all areas which will be considered when deciding whether the Government could support a tidal power scheme in the Severn as one of the means of meeting our energy and climate change goals.

needed to connect the large volumes of onshore and offshore wind generation required to meet our 2020 renewables target, at the same time as facilitating the connection of other essential new low carbon generation. These scenarios were published in the March 2009 report *Our Electricity Transmission Network: A Vision for 2020*.<sup>12</sup>

83. The Government agrees with the importance of timely delivery of the necessary transmission investments to enable the connection of renewable and other essential low carbon generation, and that the scenarios in the ENSG 2020 Vision are a valuable contribution to the work required to deliver these investments. Both the Government and Ofgem are committed to ensuring that the regulatory process enables the timely and efficient delivery of the necessary investments. Ofgem is working with the Transmission Owner companies<sup>13</sup> on the required regulatory approvals. In November 2009 Ofgem published a consultation document setting out proposals for the funding of pre-construction costs and further measures to facilitate critical investments within the current Transmission Price Control period (TPCR4), with future funding arrangements for priority investments being addressed as part of the next price control applicable to gas and electricity transmission companies, TPCR5. Ofgem's final proposals will be published in January 2010.

84. Ofgem has recently decided to delay the commencement of TPCR5 to allow the incorporation of the outcomes of the RPI-X@20 project.<sup>14</sup> This project is a fundamental review of the regulatory regime for energy networks. The Government sees the RPI-X@20 review as a valuable opportunity to help ensure that the networks are able to meet future challenges such as facilitating the connection of large amounts of renewable and low carbon generation, meeting security of supply needs and providing innovative solutions at the same time as value for money to consumers.

### Offshore Transmission Network

85. As the Committee has recognised, an estimated £15 billion of investment in transmission assets will be required

<sup>12</sup> Available from: [www.ensg.gov.uk/index.php?article=126](http://www.ensg.gov.uk/index.php?article=126)

<sup>13</sup> National Grid Electricity Transmission, Scottish Power Transmission Limited and Scottish Hydro-Electric Transmission Limited.

<sup>14</sup> For further information please see: [www.ofgem.gov.uk/NETWORKS/RPIX20/Pages/RPIX20.aspx](http://www.ofgem.gov.uk/NETWORKS/RPIX20/Pages/RPIX20.aspx)

to connect up to 40 GW of offshore wind generation. The Government has decided on an innovative approach for a new offshore transmission regulatory regime to enable this to happen in the most cost effective way – this new regime was developed by the Government and Ofgem and launched in June 2009. Under the new regime Ofgem E-serve runs competitive tenders to grant Offshore Transmission Owner (OFTO) licences to connect offshore generation projects to the National Electricity Transmission System (NETS).

86. Ofgem E-serve commenced the first transitional tender round for nine transmission connections to offshore wind farms in late July 2009. The value of the assets being tendered under this round is about £1.1 billion. In December 2009, following strong competition in the first tender, Ofgem E-serve made a decision on a short list of firms for each of the first nine projects. The first phase of the tender has been characterised by strong competition between new entrants and existing network companies, with some attractive offers from new entrants, putting the project on course to achieve the predicted £1 billion of savings to consumers from all phases of the programme. Also, the European Investment Bank is considering making over £300 million available for the first tender phase. The first project-specific OFTO licences will be granted at 'Go-Live', which is expected to be in June 2010.

87. The Government agrees with the CCC that delivering timely and cost effective network connections is a vital part of achieving the necessary deployment of offshore renewable generation. We are working with Ofgem E-serve to ensure the success of the new regime and monitoring its delivery of these offshore connections. This includes ensuring that offshore grid connections are developed in the most efficient way. National Grid Electricity Transmission (NGET) is responsible for operating and co-ordinating both onshore and offshore grid connections and in this role published an Offshore Development Information Statement in December 2009. This document presents potential long term scenarios and NGET's best view of the development of the transmission network offshore to 2025 including estimated costs. The information will be essential for interested parties planning generator developments and connections in offshore waters. The Statement will be updated on an annual basis.

## Interconnections

88. In the longer term, electricity interconnections between parts of the UK and Europe to allow for the import and export of electricity and grid connections between offshore windfarms could become an important element of the UK's electricity supply. This would allow for more efficient generation, particularly when the capacity from intermittent or variable sources of electricity, such as onshore and offshore wind, has a greater role to play in the UK's electricity mix. It also has the potential to help provide security of supply for the UK. The case for more interconnection is included in wider engagement with EU partners on the potential need for and cost effectiveness of expanding the electricity networks offshore.

## Smart Grids

89. The Government considers that a smarter grid, which employs more information communications technology than we see on the grid today, will be integral to the transformation of the electricity system. A Smart Grid can provide more information to operators. This can be used to help shift demand at peak times or during low generation periods – assisting the management of intermittent supplies. More dynamic flows of information will facilitate increased distributed generation and help operators to manage any change in demand profile that comes from increased electricity-based heat and the use of electric vehicles. The Government set out how a smart grid can help us make the low carbon transition in its publication of December 2009 "Smarter Grids: The Opportunity".<sup>15</sup> The Government will elaborate on how we could realise a smart grid in spring 2010.

## Supply chain constraints

90. The CCC notes the need for the supply chain to adjust to accommodate the anticipated expansion in annual installation capability, and particularly potential supply chain barriers for offshore generation. The UK is the number one offshore wind market and will continue to be well into the next decade, with a skilled and flexible labour force, strong research base, and existing capability in offshore operations that are readily transferable to this sector. We are well placed to take a sizeable proportion of the new jobs in the renewable sector; for example, the Carbon Trust has estimated that 70,000 jobs could be created in the offshore

wind industry by 2020, which would be associated with £75 billion of investment. The Government has secured short-term support through access to finance through the current economic downturn and will ensure that there is a clear, stable, long-term market for renewables in the UK so that business has the confidence to invest.

91. Budget 2009 announced £405 million to support the development of world-leading low carbon energy and advanced green manufacturing sector in the UK, with a further £150 million announced at 2009 Pre-Budget Report. Funding will deliver targeted support for sectors with high growth potential such as offshore wind, wave and tidal energy, and remove barriers to low carbon investment in the UK. We see three key priorities to support the development of the offshore wind industry:

- To support investment in new offshore wind energy manufacturing facilities in the UK. We will also ramp up the promotion of the UK as a place to do business in the renewable sector around the world, building on the existing work of ORED's 'UK Renewables' service;
- We will invest in the development of next-generation and near-market offshore wind technologies. Building on our July 2009 announcement of a £10 million scheme for the development of innovative and lower cost offshore wind technology, we have recently awarded a further £8 million to a range of innovative manufacturing companies;
- We are examining how to improve the UK's capability in integrated offshore wind testing including through dedicated testing facilities within the funding we have earmarked.

92. The £50 million announced at the Pre-Budget Report will encourage further manufacturing and testing facilities in the UK's growing offshore wind industry, including £15 million investment (including £3.5 million from ONE North East) at the New and Renewables Energy Centre (NaREC) in Northumberland, to develop a unique UK capability for the testing of wind turbine blades.

## Demonstration and roll-out of carbon capture and storage technology

93. The CCC welcomes the Government's proposals on coal generation and makes a number of recommendations on specific aspects of the policy. Since their report, the Government has published a framework for the

<sup>15</sup> Available from: [www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/network/smart\\_grid/smart\\_grid.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/network/smart_grid/smart_grid.aspx)



development of clean coal,<sup>16</sup> which sets out how we intend to enable the transition to clean coal as part of the UK's move to a decarbonised electricity system. In developing our new policy, we have considered the advice from the CCC as well as the many responses from our recent consultation. Our new policy framework is designed to contribute to the pathway to decarbonisation of the power sector and our 2050 target. As we develop this work further, we will in particular take account of the CCC's advice on emissions reductions to 2030.

94. Our objectives are to:

- Advance the global development of CCS technology.
- Improve the affordability of CCS investment.
- Deliver a diverse and secure low carbon energy mix in the UK.
- Help create jobs and economic opportunities for UK-based businesses.

95. In summary, our policy framework comprises a programme of four CCS demonstration projects, to be phased in over the period 2014 to 2018, representing a substantial contribution to the global efforts to develop CCS technology, which will lay the foundation for a long term framework for the transition to clean coal. Figure 1

outlines the indicative timeline for CCS demonstration and deployment in the UK.

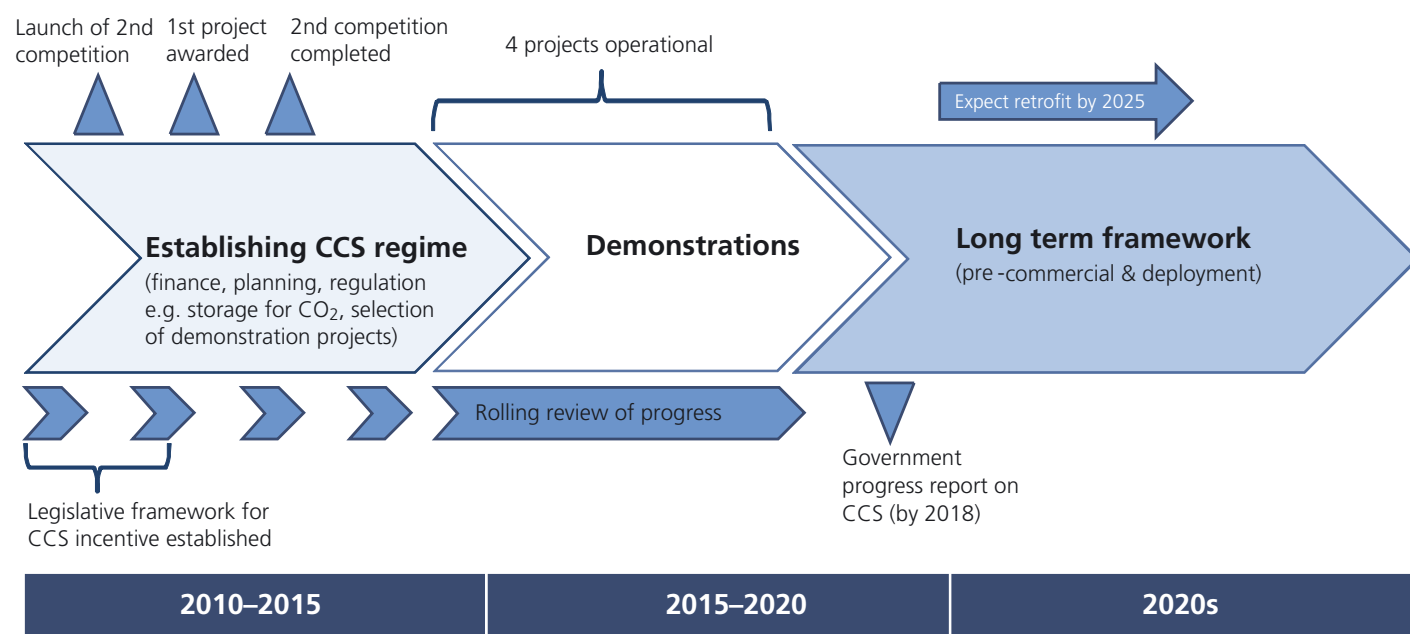
**No new coal without CCS**

96. The Government plans to support a programme of four commercial-scale CCS demonstration projects, funded through a new dedicated CCS incentive mechanism. This new mechanism will require new legislation, which is included in the Energy Bill currently progressing through Parliament. Any new coal power station in England and Wales must incorporate a commercial-scale CCS demonstration (minimum 300 MW net) covering all three parts of the CCS chain – capture, transport and storage.

97. The programme of four projects will seek to demonstrate both pre- and post-combustion capture technologies (which could include oxyfuel), with a maximum of two of the projects demonstrating post-combustion capture. Support will be open both to coal power stations serving the grid and those serving industrial installations.

98. In November 2009, we received two outline bids to proceed to the next stage of the competition for the first CCS demonstration competition. These bids are currently being assessed, and subject to that assessment and the agreement of suitable terms, we have the option of funding

**Figure 1: Timeline for CCS demonstration and deployment**



16 Available from: [www.decc.gov.uk/en/content/cms/consultations/clean\\_coal/clean\\_coal.aspx](http://www.decc.gov.uk/en/content/cms/consultations/clean_coal/clean_coal.aspx)

two Front End Engineering Design studies, for which Budget 2009 allocated £90 million. Subject to receiving suitable bids and being able to reach appropriate terms, and to decisions on final funding approval taken at the next Spending Review, the Government intends to announce the successful project following this design stage.

99. In parallel, we are also developing the broader CCS demonstration programme, building on the responses to the consultation and working with stakeholders to finalise the objectives, criteria and process for selecting projects beyond the first competition. We plan to launch a competition for the selection of these further CCS demonstration projects towards the end of 2010 and to complete the process during 2011.

### **A long term transition to clean coal**

100. Our ambition is to see CCS ready for wider deployment from 2020 and for any new coal plant constructed from then to be fully CCS ready from day one. We expect demonstration plants will retrofit CCS to full capacity by 2025. In line with the CCC's view that an early decision should be taken on financial support for roll-out, the Government has extended the scope of the CCS incentive mechanism so that it can, if necessary, fund the retrofit of demonstration projects, giving greater certainty to investors.

101. We will maintain a rolling review of progress with CCS technologies, which is planned to report by 2018 and will consider the appropriate regulatory and financial framework to further drive the move to clean coal. In response to the Committee's advice we have brought this review forward from 2020 and moved away from a concept of testing when CCS is technically and economically proven to a broader assessment of the status of CCS and its role in the decarbonisation of the electricity mix.

102. The rolling review will consider the technical, economic, environmental and safety status of CCS technologies in the light of progress with the demonstration projects in the UK and globally, drawing on expert advice from the CCC, the Environment Agency, and others, including business. It will do so in the context of wider progress on the move to a decarbonised electricity system.

103. The CCC recommends that Government should signal that coal plant without CCS will have a limited role in the 2020s, whether or not CCS is satisfactorily proven. We agree with this recommendation and have set out our clear

expectation that, with or without CCS, coal power stations will need to substantially reduce their emissions if they are to continue operating in the 2020s. Our policy framework makes clear that, in the event that CCS is not on track to become technically or economically viable, an appropriate regulatory approach for managing emissions from coal power stations will be needed, which is consistent with and complementary to the EU ETS.

### **CCS infrastructure**

104. The widespread deployment of CCS will require considerable investment in carbon dioxide (CO<sub>2</sub>) transport and storage. In line with the CCC's recommendation on having a strategic plan for infrastructure development we will be setting out arrangements that will facilitate this investment and its integration into a network over time. These will include:

- the detailed regime for storage of carbon dioxide as part of our work to implement the EU Directive on the Geological Storage of Carbon Dioxide.
- placing requirements on developers of pipeline infrastructure that will anticipate future requirements and facilitate future expansion to the extent it is possible to do so.
- developing the objectives and criteria for the selection of demonstration projects to consider how the demonstration projects could form the basis for future regional carbon dioxide transport networks.
- publishing a CCS Industrial Strategy that considers the wider issues arising from the potential role of clusters and the development of business and research centres, skills, and transport and storage infrastructure.

### **Assessment of current power market arrangements and possible interventions**

105. The CCC has carried out an assessment of whether current electricity market arrangements will deliver sector objectives. They set out the risks to investment under current arrangements and summarise modelling they have commissioned from Redpoint Energy to simulate different investment scenarios.<sup>17</sup> The Government welcomes the

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<sup>17</sup> Redpoint Energy 2009: "Decarbonising the GB power sector", available from: [www.theccc.org.uk/reports/progress-reports/supporting-research-](http://www.theccc.org.uk/reports/progress-reports/supporting-research-)

contribution that this analysis has made to the debate on these issues.

106. Based on this analysis, the CCC recommends that a range of options for power market intervention to support low-carbon investments are seriously considered, and that a review of the market should be carried out in the near-term. The CCC notes that it does not yet have a view on which measures would best tackle the risks they present.

107. The Government accepts that it has a strategic role in ensuring the necessary investment to deliver the transition to 2050, and agrees with the CCC on the need to look at current market arrangements as part of assessing whether further action is necessary to meet our low carbon obligations. We are therefore taking forward joint work to report on how to ensure the electricity market framework can most effectively deliver the low carbon investment we need in the long term and a fair deal for the consumer, with initial findings at Budget 2010. This will take account of all available analysis and evidence, including considering the options proposed by the CCC and the advice of Ofgem.

108. The Government is also currently preparing the '2050 Pathways' work, which will be published in the spring and will set out the pathways that we may need to follow to ensure we meet our long-term emissions reduction target.

109. The CCC's views on the potential need for measures to mitigate the effect of the recession on the traded sector carbon price are discussed in Chapter 6.



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# CHAPTER 4

## BUILDINGS AND INDUSTRY

### Summary

Reducing emissions from homes and communities is a crucial part of the Government's strategy for tackling climate change and also brings additional benefits of reducing fuel bills and improving energy security. The Government's primary policy for reducing household energy use, the Carbon Emissions Reduction Target (CERT), has been increased in ambition by 20% for the period 2008 to 2011 and has been extended to the end of 2012, delivering additional lifetime savings of at least 139 MtCO<sub>2</sub> in total.

But, despite the good progress to date, we know that we will need to 'ramp up' energy efficiency improvements and are already trialling new delivery models, including using a 'whole-house' approach, engaging communities and providing new 'Pay as You Save' finance schemes. The Government will shortly be confirming final feed-in tariffs scheme design and the scheme will launch in April 2010.

The significant potential of renewable heat to reduce carbon emissions is reflected in the planned introduction of the Renewable Heat Incentive (RHI) from April 2011. This will stimulate solutions from domestic to industrial scale, including low carbon and renewable heat networks, which could deliver significant reductions in emissions in both rural and urban areas.

The Government is also working to reduce emissions from non-domestic buildings, with a particular focus on leading by example with central Government and wider public sector buildings. We are on course to exceed our target of a 12.5% emissions reduction by 2010/11, on a 1999 baseline, from central Government offices and have set a target for 30% by 2020. The inclusion of departments' estates and operations in their individual carbon budgets will provide further incentive to reduce these emissions and the relevant departments' budgets will be extended to include schools, further and higher education and the NHS by April 2010.

We are continuing to make progress on our policies for new development to be low and zero carbon. This includes progress on the short term milestone of amending Part L of the Building Regulations to require a 25% reduction in carbon emissions from new build in 2010, developing the details of the policy for all new homes to be zero carbon from 2016 (including announcing and consulting on the energy standard that will underpin zero carbon homes) and consulting on the ambition for all new non-domestic buildings to be zero carbon from 2019.

A large number of small, non-energy intensive organisations are not currently covered by existing policy mechanisms but could deliver cost-effective savings of some 5 to 7 MtCO<sub>2</sub> a year. We are undertaking a project to better assess the available savings from these organisations and identify policy measures that could deliver them.

## Energy efficiency improvement in residential buildings

110. Improving the energy efficiency of homes and communities is a crucial part of the Government's long term strategy for tackling climate change and also brings strong additional benefits by reducing people's fuel bills, reducing fuel poverty, and reducing our reliance on imported energy and fuels. The CCC recommend that a new framework for accelerating residential emissions reductions is required, and that this should include whole house and neighbourhood approaches and complementary financial incentives and regulatory measures. They suggest that this will require strong leadership from central Government and an important role for local government.

111. The Government's primary policy for reducing household energy consumption is currently the Carbon Emissions Reduction Target (CERT). This is a continuation of previous programmes that place an obligation on energy companies to deliver carbon savings. CERT, like the previous programmes, has been very effective in delivering large volumes of low cost energy efficiency measures such as loft and cavity wall insulation. Following the success of CERT the Government recently increased the target for lifetime emissions savings that the energy companies must meet over the 2008-2011 period from 154 to 185 MtCO<sub>2</sub>. We have also committed to extending the CERT obligation from the current end date of March 2011 for a further 21 months to the end of 2012. This extension will be no less ambitious and so the 21 month target will deliver at least an additional 108 MtCO<sub>2</sub> of lifetime savings. The CERT extension will continue with a strong focus on insulation and deliver substantial further volumes of loft and cavity wall insulation. A public consultation on the extension is open for responses until 14 March 2010.<sup>18</sup>

112. Despite current good progress in driving up the energy efficiency of the housing stock, we know that we will need to 'ramp up' delivery of energy efficiency measures if we are to meet our carbon budgets. We set out the key milestones towards achieving this in our Heat and Energy Saving Strategy (HESS) consultation<sup>19</sup> in February 2009. We are glad that the Committee on Climate Change also acknowledges this significant delivery challenge.

<sup>18</sup> See: [www.decc.gov.uk/en/content/cms/consultations/cert\\_ext/cert\\_ext.aspx](http://www.decc.gov.uk/en/content/cms/consultations/cert_ext/cert_ext.aspx)

<sup>19</sup> See <http://hes.decc.gov.uk>. This is now known as the Household Energy Management Strategy.

113. To meet our emissions reduction targets will require both delivering on the remaining potential for low cost loft and cavity wall insulation but also supporting the delivery of large numbers of high cost measures such as solid wall insulation and low carbon or renewable heating systems, as reflected in the commitments set out above. The February consultation acknowledged that, to meet this greater ambition, the current CERT delivery model may not necessarily be the right approach for delivering more expensive measures. It also put forward our argument for using a 'whole house' approach that minimises disruption to the householder. The Government welcomes the CCC's support for our views.

114. The CCC report recommended the use of a community-based approach. Government is already putting this into practice by testing the Community Energy Saving Programme (CESP), which was launched in September 2009. This programme aims to deliver a package of energy saving advice and more expensive energy saving measures through whole-house approaches in hard to treat homes. CESP will also follow a 'street by street', 'house by house' approach. Whilst CESP is a relatively small programme, it is designed to encourage innovative approaches to delivering energy efficiency. A strong evaluation programme will run alongside CESP, which will provide us with real world experience of which approaches work at a community level and which are less successful. This information will be extremely valuable when considering how to deliver a more widespread roll-out of whole-house packages to communities.

115. The Government agrees with the Committee's conclusions about the important role local authorities can play on climate change, including delivery of energy efficiency measures. CESP requires energy suppliers to work with local authorities on delivery. The Strengthening Local Democracy consultation in July 2009 set out ideas as to how the role of local authorities could be developed.<sup>20</sup> This received a positive response and the Government is working with stakeholders to develop ideas for how to encourage further action by local authorities, setting high expectations on all authorities and offering new flexibilities and freedoms for those willing and able to make most progress. We will announce more details about local carbon frameworks shortly.

<sup>20</sup> See: [www.communities.gov.uk/publications/localgovernment/localdemocracyconsultation](http://www.communities.gov.uk/publications/localgovernment/localdemocracyconsultation)

116. We welcome the CCC recommendation on the need for new financing mechanisms, and this is something we are already taking action to test. We announced in the UK Low Carbon Transition Plan the launch of the Pay As You Save (PAYS) pilots, the concept of which we discussed in the February consultation. The aim of the pilots is to test consumer attitudes and preferences to elements of the PAYS model by offering low cost finance options to help meet the upfront costs of installing energy efficiency and renewable energy measures to existing homes. The pilots will cover a wide range of different approaches to the basic model, involving local authorities, energy suppliers, registered social landlords and others. These pilots will help us to understand the barriers and practical considerations for finance providers in setting up the finance options and whether links to energy bills, local authorities or other repayment routes are most attractive to consumers and therefore most effective. The five partners who will each deliver individual projects under the pilots were announced following an open competition on 7 December 2009.<sup>21</sup>

117. The CCC recommends that complementary regulatory measures for the private rented sector need to be seriously considered as this sector is likely to be less responsive to the neighbourhood approach or 'pay as you save' models. Our response to the Rugg Review of the Private Rented Sector, published for consultation in May 2009, covered measures to see how the regulatory and incentive structure for the private rented sector can be improved to secure energy efficiency improvements for all private tenants. The consultation period ended in August and the results will be published in early 2010.

118. The report places a strong emphasis on ensuring that large numbers of solid wall properties are insulated, as did our consultation. The CCC sets an indicative milestone of 2.3 million solid walls insulated by 2022. We know that solid wall insulation (SWI), as one of the biggest carbon savers, will need to be installed in large volumes if we are to realise additional significant carbon savings, and we agree with the CCC's emphasis on this measure, although other technologies can also deliver some of the savings required – renewable heating technologies for example. As larger numbers of higher cost technologies are installed, there may be opportunities to take advantage of cost reductions, for example through technology development or through new ways of delivering on the ground such as community-

scale solutions. Retaining flexibility will allow us to tailor the needs of the house in deciding the package of measures for a 'whole-house' retrofit.

## Energy efficiency and fuel poverty

119. The CCC notes that it considers the impact of higher energy prices will be broadly offset by reduced energy consumption due to energy efficiency improvements. The conclusion that the focus of policy should now be on the need for a range of targeted interventions to assist the fuel poor is broadly in line with the Government's own direction of travel.

120. We welcome the CCC's analysis on rising block tariffs, which complements other recent work including Ofgem's discussion paper on tariff structures and energy efficiency. The available evidence suggests that on average low income households use less energy than higher income households – due to a combination of lower incomes and because many of these households are under-consuming energy because of cost concerns.

121. However, the evidence also suggests that on average fuel poor households have higher energy *requirements* (i.e. the amount of energy needed to heat the home to an acceptable standard is greater) than non-fuel poor households. Fuel poor households typically have higher energy requirements due to a combination of the type of houses in which they reside (i.e. they tend to be less energy efficient) and particular characteristics of their lives (e.g. elderly consumers that are more likely to heat their home for longer each day).

122. Given that many low-income households are choosing to under-consume energy, a rising block tariff might make these households on average better off. However, because the fuel poor have higher energy requirements, a rising block tariff would also make it more expensive for these households to heat their homes to an acceptable standard and would, other things being equal, make it more difficult to remove these households from fuel poverty.

## Standards for energy using products

123. The Government notes the CCC's recommendations on the minimum standards set for products, particularly boilers and white goods. For the majority of household appliances, minimum standards have been, or are soon to be, set via the EU's Eco-design for Energy-using Products Directive. The UK has been at the forefront in pushing for

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<sup>21</sup> See: [www.decc.gov.uk/en/content/cms/news/pn140/pn140.aspx](http://www.decc.gov.uk/en/content/cms/news/pn140/pn140.aspx)

ambitious minimum standards in the EU. For the measures that have been agreed to date, including lighting, stand-by, fridges, washing machines, central heating circulators, simple set-top boxes and external power supplies, we estimate annual savings of 5 MtCO<sub>2</sub> by 2020 for the household sector, which translates to average annual net savings to the UK economy of over £600 million, mostly for direct savings on energy bills. These savings are a combination of 'traded sector' decreases, which help deliver the EU Emissions Trading System (EU ETS) cap in a more cost effective way, as well as non-traded sector increases. Further savings of 2 MtCO<sub>2</sub> have been secured for industrial products. Many more measures are soon to be negotiated and agreed in Europe, including household boilers (which the CCC correctly identifies as an area of high potential, and notably will make savings in the non-traded sector with direct implications for meeting carbon budgets), ICT and consumer electronics.

124. The Government also works through other means to complement these savings. Labelling in particular is seen as a key tool to drive market transformation, for example through work with the Energy Saving Trust to endorse voluntarily the top 10-20% of products through the "Energy Saving Recommended" logo. Furthermore the Government has been pro-active in negotiations in Europe to ensure that the mandatory EU "A-G" energy label continues to provide consumers with clear information on energy efficiency, and we will soon agree in Europe to extend the label to other products such as televisions. In addition the Government was instrumental in launching the voluntary phase out by UK retailers of incandescent light bulbs, as well as the EU Code of Conduct on Data Centres, which are significant users of energy.

125. In the 2009 Pre-Budget Report, the Government announced £400 for up to 125,000 households to encourage replacement of old boilers with new energy-efficient models. Voluntary initiatives with businesses and the supply chain can also drive improvements and make savings. Initiatives on incandescent lamps and data centres are in place, and we are currently scoping a phase-out of inefficient televisions with retailers.

126. The savings from these measures contribute to the 2007 Energy White Paper's target of 4 to 11 MtCO<sub>2</sub> annual savings by 2020. Given the ambition of, in particular, the measures agreed in Europe, the Government announced in the Low Carbon Transition Plan a new target, to double the annual savings already achieved by 2020. On 17

December 2009 the Government published for consultation its analysis, targets and indicative standards for a range of products and appliances, including how they will need to improve in order to make these savings and how this might be achieved.<sup>22</sup>

## New build homes

127. In July 2007 the Government announced its policy that all new homes in England should be zero carbon from 2016, with interim steps towards that in 2010 (25% reduction in carbon emissions from new homes, compared to current regulations) and 2013 (44% reduction compared to current regulations). This regulatory approach is supported by other, non-regulatory policies, including the Code for Sustainable Homes (a voluntary standard for rating the sustainability of new homes), exemplar programmes (including eco-towns and the Homes and Communities Agency's Carbon Challenge) and Government procurement (the requirement that social housing funded under Government's National Affordable Housing Programme should meet more demanding carbon standards than nationally applicable regulation).

128. The Government continues to make progress in driving these policies forward. Key developments include:

- In June 2009, we consulted on the detailed proposals for implementing a 25% reduction in carbon emissions from new build from 2010 via Part L of the Building Regulations.
- In July 2009, we announced some of the key details of the definition of zero carbon homes, including the level of carbon reduction to be achieved through on-site measures – a key signal needed by industry in order to make progress towards practical implementation of the policy.
- In July 2009, we published the *Planning Policy Statement: Eco-towns*, which includes those locations assessed as having the potential to have an eco-town.<sup>23</sup> Eco-towns will be exemplar green developments, designed to meet the highest standards of sustainability, including low and zero carbon buildings (both homes

<sup>22</sup> See: [www.defra.gov.uk/corporate/consult/energy-using-products/index.htm](http://www.defra.gov.uk/corporate/consult/energy-using-products/index.htm)

<sup>23</sup> Whitehill-Bordon in Hampshire, St Austell (China Clay) in Cornwall, Rackheath in Norfolk and North West Bicester in Oxfordshire

and non-domestic buildings) and good public transport, and will be developments that others can learn from. The Planning Policy Statement (PPS) sets the toughest ever green standards for new development in this country with the aim that these standards will become accepted as the norm. Local authorities for the first four national exemplar eco-towns announced in July are now coming forward with detailed plans to take forward the projects. These include early-win demonstration buildings, both new housing, and the retrofit of existing housing, zero and low carbon schools, community centres and transport as well as projects to facilitate community engagement and behaviour change. CLG will shortly be announcing the allocation of the £60 million eco-town Growth Funding for these locations, to support the development of local infrastructure, exemplar demonstration projects, community development and the first phase of housing development.

- In November 2009, following the work of a specialist task group commissioned by CLG, we announced the fabric energy efficiency standard that would underpin the definition of zero carbon homes. This was then consulted upon, as part of a consultation on updating the Code for Sustainable Homes, in December 2009.
- In December 2009, we announced a second wave of potential new eco-town locations<sup>24</sup>, demonstrating that the eco-town concept and standards which set the highest ever sustainability requirements for new development have widespread support.

129. We acknowledge that further work is required to finalise the details of the zero carbon homes policy, in particular on the calculation methodology underpinning the policy and on the 'allowable solutions' for dealing with carbon emissions that cannot be abated on-site. Work on these areas will continue in 2010.

130. If the zero carbon homes policy is to be effective, it needs to be supported by practical delivery arrangements. The Government is providing funding to the industry-led Zero Carbon Hub, which is developing and disseminating knowledge across industry on the policy and leading a series of task groups to overcome practical barriers to implementation.

131. In parallel with its policies on zero carbon homes, the Government is developing its proposals for new non-domestic buildings, as discussed below. The Devolved Administrations are also developing their own policies for low and zero carbon new build. The Government has also set up an Innovation and Growth Team to look at Low Carbon Construction. It is chaired by Paul Morrell, the Government's new Chief Construction Advisor. The group will be looking at how to reduce the carbon impacts of the sector, throughout the supply chain to end users, and will report its full recommendations to Government at the end of 2010.

### Feed in Tariffs

132. We already have the Renewables Obligation to support large scale generation of renewable and electricity and will introduce feed-in tariffs (FITs) to support small scale generation (up to 5 MW capacity) from April this year. This 'clean energy cash-back' scheme will mean that people will not only be able to benefit from generating electricity at domestic scale, for their own energy needs, but they will also receive a tax-free payment for generating that electricity, and for exporting the electricity they do not use to the grid.<sup>25</sup> Final details on the structure of the FITs scheme will be announced shortly.

### Reducing emissions through deployment of renewable heat

133. The CCC recommends that Government aims to deploy renewable heat in the most cost-effective way to meet carbon budgets and develop a portfolio of options for possible deployment in the 2020s on the way to meeting longer term targets. We will consider the CCC's comments on where each of the renewable heat technologies is most appropriate. We welcome the generally positive messages about the potential for biomass heat, and the sustainable fuel supplies it will require. We agree with the CCC that the best indicator against which to measure progress is the penetration rate for renewable heat as a percentage of overall heat demand.

134. We are pleased to note that the CCC report agrees that meeting 12% of heat demand from renewable sources is achievable, and have studied the marginal abatement

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24 See: [www.communities.gov.uk/news/housing/1399305](http://www.communities.gov.uk/news/housing/1399305)

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25 This tax exemption applies to households. The 2009 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.



cost curves in the report with interest. The Committee comments that increasing the renewable heat share to 12% by 2020 could be very expensive at the margin and we should remember that 12% is not a fixed target – the Renewable Energy Strategy (RES) set out just one scenario that could deliver 15% renewable energy overall. The final shares of renewable power, electricity and transport fuels that deliver 15% renewable energy in 2020 will be informed by the market cost. It should also be recalled that there is considerable uncertainty in estimating the available volume of renewable heat technologies in 2020, their costs and the potential deployment patterns. The scenario suggested in NERA's analysis for the CCC<sup>26</sup> – and indeed that set out in previous analysis for Government<sup>27</sup> – indicates what renewable heat take-up could look like across the different renewable heat sectors by 2020 based on certain assumptions about growth rates, costs and non-financial barriers. The actual outcome may prove to be quite different. However we can be sure that, given the current low level of renewable heat in the UK, all available renewable heat technologies will need to contribute to this effort to some extent. The CCC have highlighted that renewable heat technologies face a range of barriers and challenges, and Government is working to tackle these.

135. We will consider the CCC's comments on the principles for support for renewable heat. The consultation on the detailed shape of the Renewable Heat Incentive (RHI) will be published around the end of this month.

136. We note the CCC's view that the potential for biogas may be higher than that suggested by the NERA analysis they have commissioned. In the RES we made it clear that our initial estimates of biogas potential (some 10-20 TWh) were underestimates. More recent work indicates that the technical potential of biogas production from anaerobic digestion for electricity and heat might be as much as 27 TWh. Also, our estimates do not include an assessment of the potential contribution of gasification technology, given the uncertainties surrounding when it will become commercially available. Nor does it consider the potential

for existing landfill gas suppliers to switch from electricity to heat production.

137. The significant potential role of renewable heat to reduce household carbon emissions is reflected in the commitment to introducing the RHI, which will address domestic renewable heat solutions. This includes heat networks, which need to be powered by renewable technologies (such as biomass boilers) if they are to deliver significant reductions in the carbon emissions arising from heating in urban areas. There are a number of non-financial barriers to the uptake of renewable heat, across its various technologies and at various scales – for example, a widespread information gap – which we are working to address.

### Emissions reductions in non-residential buildings and industry

138. 17% of UK emissions come from non-domestic buildings and the potential contribution of this sector to the UK's emission reduction targets is therefore significant. We welcome the CCC's recommendations in this area and we are working towards finding ways to contribute to the low carbon agenda for new non-domestic buildings. In November 2009, the Government published a consultation on proposals for meeting its ambition that all new non-domestic buildings will be zero carbon from 2019.<sup>28</sup> In addition, we note the CCC report's statement that the public sector has the potential to show leadership in the zero carbon agenda; Government is examining how to pursue its ambition (announced in the 2008 Budget) that all new public sector buildings (e.g. hospitals, prisons, offices) be zero carbon from 2018. In November, we announced the establishment of a public sector retrofit consortium to investigate how public sector procurement can be used to promote research and investment to encourage innovation and economies of scale.

### Zero carbon new non-domestic buildings

139. The current consultation on the Government's 2019 zero carbon ambition for new non-domestic buildings proposes adopting the broad framework for zero carbon that has been developed for homes, adapted to reflect the differences in the commercial buildings market and the variation in non-domestic buildings. This means using the threefold hierarchy of energy efficiency, followed by

26 NERA, 2009: "Renewable Heat Technologies for Carbon Abatement: Characteristics and Potential", available from: [www.theccc.org.uk/reports/progress-reports/supporting-research-](http://www.theccc.org.uk/reports/progress-reports/supporting-research-)

27 NERA/AEA, 2009: "The UK Supply Curve for Renewable Heat", available from: [www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/renewable/res/res.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx)

28 See: [www.communities.gov.uk/publications/planningandbuilding/newnonresidentialconsult](http://www.communities.gov.uk/publications/planningandbuilding/newnonresidentialconsult)

on-site or linked low and zero carbon technologies ('carbon compliance'), followed by 'allowable solutions' for dealing with carbon emissions that cannot be abated on-site. Heat and energy generation will also be eligible for Feed In Tariffs or Renewable Heat Incentives, providing future income streams.

140. The most important differences that need to be reflected in the zero carbon non-domestic buildings policy are:

- The much wider variation in buildings, which can impact on both potential solutions and costs. Reflecting this, in the Part L 2010 consultation the Government indicated a preference for an aggregate approach, to deliver the 25% improvement in the most cost-effective way. This means that an overall 25% improvement will be achieved across all new build, but that individual building types will be required to contribute to different levels based upon cost-effectiveness. The modelling that underpins the new non-domestic consultation and its impact assessment continues to use the aggregate approach for a range of 20 different building scenarios.
- Non-domestic buildings are often more complex and larger scale than homes, so developments tend to require greater technical input in design and construction and a closer level of Building Control involvement and oversight.
- Non-domestic buildings often have greater potential for on-site renewables (e.g. more roof space) and to play a role in the viability of community heat or energy networks.

141. The consultation includes proposals on:

- building on the work on the energy efficiency standard for homes by using the same metric for a non-domestic standard;
- seeking views on the benefits and challenges of approaches to carbon compliance and on their impacts for viability of developments overall and in different sectors;
- creating a common approach to allowable solutions for non-domestic buildings and homes, including when to bring in this element for non-domestic buildings and whether there are any solutions particularly appropriate to these developments;
- whether, and how, to include some factor for emissions in non-domestic buildings beyond those controlled by Building Regulations (e.g. for appliances), given the greater variation in energy uses and intensity, and the other policies already incentivising actions on these emissions;
- the scope for public sector leadership (see below).

142. Government acknowledges that, following the consultation, which closes at the end of February, further work will be needed to develop and refine the details of the policy for zero carbon non-domestic buildings. In addition to work on energy efficiency standards for non-domestic buildings, on carbon compliance targets, and on allowable solutions in co-ordination with the work on homes, this includes practical delivery arrangements. In particular, we will be looking to take forward work on:

- the assessment tool needed to underpin the regulatory standards;
- ensuring the additional benefits of low and zero carbon buildings are appropriately reflected in valuation in future;
- support similar to the role undertaken for homes by the Zero Carbon Hub, including fostering innovation, skills and capacity throughout the delivery chain.

## Emissions reductions in public sector buildings

143. In their report, the CCC highlights the need to unlock public sector emissions reduction potential, and recommends that, by 2018, all cost-effective emissions reduction potential should be realised for buildings in the central Government estate and for other public sector buildings covered by the Carbon Reduction Commitment Energy Efficiency Scheme (CRC).

144. The Government shares the CCC's view that it is important that the public sector deliver against its emissions reduction potential. We welcome the Committee's recognition of the initiatives that the Government has put in place to drive emissions down, such as emissions reduction targets for the central Government estate, and the CRC.

145. We are achieving against those targets. For example, in addition to the central Government estate target to reduce emissions in central Government offices by 30% in 2020, the Government has plans in place to reduce emissions by 17.8% by 2010/11, significantly exceeding our target of a 12.5% emissions reduction by 2010/11 on 1999 baselines.

146. The CRC will deliver emissions reductions cost-effectively by stimulating energy efficiency measures and incentivising through new financial and Corporate Social Responsibility (CSR) drivers. The public sector and central Government are included in the scheme. By driving energy efficiency, and reducing emissions cost-effectively, the CRC will save participants money, and enable green growth; yielding a net benefit to participants of £1 billion.

147. In addition we are continuing to support cost-effective emission reductions in central Government and the wider public sector through measures including:

- Salix Finance: Budget 2009 announced £54.5 million in 2009/10 for public sector cost-effective energy efficiency loans in England. There has been a strong response to the programme so far: between June and October 2009, over £30 million was allocated for more than 650 projects across the public sector. It is estimated that the Scheme will save some 79,000 tCO<sub>2</sub> and create or safeguard a significant number of jobs in the short term. Loans will quickly pay for themselves through reduced energy bills and save the public purse around £14 million per year.

- The Carbon Trust's Public Sector Carbon Management Programme (CMP) provides tailored technical and change-management support and guidance for local authorities, higher education bodies and the NHS to help them realise carbon emission savings. The latest CMP organisations are setting themselves targets to reduce their emissions by 25%, on average, over a five-year period.
- The provision of £20 million in Low Carbon Technology Funding for central Government departments. The money will be invested in helping Government departments lead by example in reducing their carbon emissions from their estates and transport, realising both carbon and financial savings.

148. We acknowledge the need for the public sector, and central Government in particular, to demonstrate credible leadership for a wider emissions reductions programme for the UK. We believe that the public sector should lead by example, and agree with the Committee's view that it should seek to deliver cost-effective savings wherever possible. We are currently undertaking a cross-cutting review of the low carbon potential of the public sector and, as announced in the 2009 Pre-Budget Report, we will aim to achieve £300 million annual savings – representing about 10% – in the public sector energy bill by 2012/13, through improving energy efficiency.

149. Meeting this target will mean the public sector has to make implementing cost-effective energy efficiency measures a key priority, and we expect that this will require cost-effective measures to be taken up across the public sector in the short and medium term, in line with the CCC's recommendation. The ongoing review will continue exploring the opportunities for emissions reductions in the most cost-effective way. This work will allow us to define more clearly how to implement cost-effective savings, as well as considering how to overcome barriers that might prevent a roll-out of measures across the public sector, and considering the need to balance initial investment cost against returns in difficult economic conditions.

150. In the Low Carbon Transition Plan we committed to incorporate emissions from the wider public sector into the relevant department's carbon budget, starting with schools, further and higher education and the NHS (England) by April 2010. We are working to agree 2020 carbon reduction targets for these parts of the public



sector and will announce the detail in the spring alongside departments' Carbon Reduction Delivery Plans.

151. Our consultation on zero carbon new non-domestic buildings includes proposals about how new public sector buildings could show leadership, including confirming that public sector buildings (central Government departments, their agencies and key estates i.e. schools, NHS, prisons, courts, defence establishments) will aim to achieve the zero carbon ambition for new build a year early, from 2018. In addition, the consultation proposed that the Government will:

- develop a programme of exemplar public sector new buildings;
- explore the scope to trial 'allowable solutions' for the public sector in advance of commercial buildings;
- develop possible financial mechanisms to support capital costs through capturing future revenue streams and benefits;
- ensure co-ordinated monitoring and reporting of progress of steps towards zero carbon for new buildings, linked into the wider Sustainability of the Government Estate arrangements;
- explore with Local Government how it can play a role in supporting the move to zero carbon buildings as part of its wider local leadership on climate change.

### Potential for emissions reduction from smaller emitters

152. From April 2010 the UK will have introduced targeted emissions reduction policies covering large direct emitters, energy intensive industry and large non-energy intensive organisations in the form of the EU ETS, Climate Change Agreements (CCAs) and the CRC. Furthermore, the smallest organisations operating out of domestic premises will be covered by CERT. Government recognises that this leaves a very large number of smaller, less energy intensive organisations outside these dedicated policy mechanisms. We have therefore launched a project to assess the potential cost-effective carbon savings available from these organisations and the policy measures to deliver those savings. This is in line with the CCC's recommendation that a new framework should be introduced to incentivise emission reductions by small and medium sized enterprises (SMEs).

153. Various existing estimates put the contribution of these smaller emitters<sup>29</sup> at around 20-30 MtCO<sub>2</sub><sup>30</sup> per annum, and indicate that cost effective savings in a range of 5 MtCO<sub>2</sub> to 7 MtCO<sub>2</sub><sup>31</sup> should be available from the sector, with the CCC's estimate at the top end of this range. However, the available data from the sector is relatively weak and the project will therefore review the evidence base for action in this sector. This will include an assessment of the emissions generated by the sector, the cost effective contribution the sector could make to meeting the UK's carbon budgets and the barriers to take-up of energy efficiency in this sector. This analysis will draw on and update existing data sets, such as Display Energy Certificates (DECs) and Energy Performance Certificates (EPCs), to ascertain where opportunities for abatement exist.

154. The project will go on to review the effectiveness of existing policy tools directly and indirectly targeting the sector, such as Carbon Trust loans, and how those policies could be further expanded to increase take-up of cost effective measures within the sector. The final step will be to develop and consult on possible additional policy measures to encourage energy efficiency take-up in the sector. We are aiming to complete the review and be in a position to consult by autumn 2010.

155. Government will not decide the direction the policy will take until the review has finished, however the policy options suggested by the CCC (the provision of more financial support to SMEs, an extension of the residential sector delivery model to cover SMEs and the mandatory implementation of certain measures) will be included in this analysis.

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<sup>29</sup>Note, we use the term 'smaller emitter' here to refer to an organisation that is too small to be covered by CCAs, CRC or EU ETS, as opposed to the narrower EU definition of an SME based on 250 employees, €50 million turnover or €43 million assets on balance sheet. It is unclear how many of the smallest organisations are covered by the domestic CERT.

<sup>30</sup>Approximately half of these emissions are from electricity usage which is included 'up-stream' in the EU ETS.

<sup>31</sup>The 5 MtCO<sub>2</sub> figure includes savings from electricity which would be included 'up-stream' in the EU ETS. Non-electricity savings are estimated at 3 MtCO<sub>2</sub>.

## Role of Energy Performance Certificates and Display Energy Certificates

156. In their report, the CCC agrees with the Carbon Trust that new requirements should be introduced for Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs). The report recommends that:

- All non-residential buildings should have an EPC in place by the end of the second budget period.
- All non-residential buildings should have an EPC rating of F or higher by 2020.
- DECs should be rolled out to all non-residential buildings by the end of the second budget period to give owners and users of buildings a better understanding of their CO<sub>2</sub> emissions. For smaller buildings, automated DECs could be an option so as to minimise the administrative burden on small firms.

157. We agree with the CCC that EPCs and DECs are useful in providing more transparency on emissions reductions opportunities in buildings and industry. In the case of DECs, they are particularly useful because they provide information to the building occupier on changes that can be made to help improve energy efficiency without making changes to the building fabric. As many occupiers of such buildings are tenants, they may not be allowed to make alterations to the structure of the building. Government will therefore be publishing a consultation paper shortly which will set out proposals for extending DECs to non-domestic buildings. We will undertake detailed analysis to calculate the relative costs and benefits of requiring all non-domestic buildings to have an EPC in place by 2018 and requiring all such buildings to have an EPC rating of F or higher by 2020.

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# CHAPTER 5

## SURFACE TRANSPORT

### Summary

The transport sector has a major role to play in meeting carbon budgets. Government published *Low Carbon Transport: A Greener Future* in July alongside the Transition Plan, setting out our strategy for reducing emissions from transport. The measures in the strategy, together with existing policies, will reduce domestic transport emissions by around 14% by 2020 compared to 2008; saving an additional 85 MtCO<sub>2</sub> in the period 2018-2022. We will set out a detailed plan of delivery this spring, including key milestones and indicators.

European vehicle emissions standards provide a clear, long-term framework for action by industry. The UK was instrumental in securing an ambitious new EU target that will result in average new car CO<sub>2</sub> emissions being 40% lower in 2020 compared to 2007.

Electric and plug-in-hybrid vehicle technologies are among the most promising approaches for delivering significant carbon reduction in the future, and Government is working to support their early adoption. The new Office for Low Emission Vehicles announced in the Low Carbon Industrial Strategy is bringing strategic priorities into alignment across Whitehall to direct the transition to ultra-low carbon vehicles. Government will provide a consumer incentive worth between £2,000 and £5,000 for electric and plug-in hybrid cars from 2011, and supports a £20 million programme to help public sector purchase of low carbon and electric vehicles. In November 2009, we launched the Plugged-In Places Infrastructure Framework – up to £30 million for around three to six lead cities and regions in the UK to help them deploy and trial electric vehicle charging infrastructure. In the 2009 Pre-Budget Report Government announced further support for low-carbon cars, including a 100% first-year allowance for electric vans, a five-year company car tax exemption for electric cars, and £30 million for low-carbon transport projects.

We have a programme of initiatives in place to allow people to make sustainable travel choices by choosing lower carbon alternatives. Our Sustainable Travel Demonstration Towns achieved a reported 7% to 9% reduction in car trips, alongside a considerable increase in walking, cycling and bus use in their local areas between 2004 and 2009. In 2007/08 Government spent over £4 billion on the railways and together with Local Government, around £2.5 billion on buses. In addition, Cycling England's budget has been increased hugely to £140 million over three years from 2008 and is incentivising cycling through, for example, the new Cycle to Work Guarantee. The Driving Standards Authority promotes eco-driving techniques through the driving test and is working with Government and the Energy Saving Trust to identify opportunities to broaden the message to the wider public.

Land use planning can have significant implications for transport emissions. The planning system emphasises the need for spatial planning, where the transport consequences of new development are considered and investment and mitigation works planned. When preparing Local Development Documents, local authorities are required to have regard to Local Transport Plans to ensure this happens. This has been further reinforced at the Regional level by the Local Democracy, Economic Development and Construction Act 2009, which introduced integrated Regional Strategies.

## Summary

158. The Government agrees with the CCC that the transport sector has a major role to play in reducing greenhouse gas emissions across the UK economy. With transport representing more than one fifth (21%) of total domestic emissions there is substantial scope for reductions.

159. In July, the Government set out its strategy for reducing transport emissions in *Low Carbon Transport: A Greener Future*, which was published alongside the UK Low Carbon Transition Plan. In line with the CCC's approach, the Government's strategy is based on taking action in three broad areas to deliver the savings needed:

- supporting a shift to new technologies and fuels;
- promoting lower carbon choices; and
- using market mechanisms to encourage a shift to lower carbon transport.

160. The measures in the strategy, together with existing policies, will reduce domestic transport emissions by around 14% by 2020 compared to 2008; saving an additional 85 MtCO<sub>2</sub>e in the period 2018-2022. The Government is committed to publishing, in the spring, a detailed delivery plan for *Low Carbon Transport: A Greener Future*. This will set out the key milestones and mechanisms, including indicators, through which we will monitor progress.

## The EU framework and UK new car emissions

161. The Government is committed to harnessing the full potential of low carbon technology across all modes of transport, and particularly in road transport. Significantly reducing the emissions from cars is a key element of the *Low Carbon Transport: A Greener Future* strategy where, similarly to the CCC, our aim is that by 2022, the vehicles on our roads will be vastly more energy efficient.

162. Tightening vehicle standards at a European level plays a critical role in supporting the transition by establishing a clear, long-term framework for action by industry. For

this reason, the UK was among the leading countries calling for an ambitious long term target in the new car CO<sub>2</sub> regulation. By 2020 this means that the average CO<sub>2</sub> emissions from new cars across the EU will be 95gCO<sub>2</sub>/km – a 40% reduction on 2007 levels.<sup>32</sup>

163. The CCC recommends that the UK should aim to converge on the EU trajectory for average new car emissions by 2015 and aim for a new car average of 95 gCO<sub>2</sub>/km by 2020. The car market extends over national and international boundaries, so it is right that emissions targets are set at the European rather than the national level. This will ensure that emission savings are delivered most cost-effectively. However, in the UK alone we expect the regulation to reduce CO<sub>2</sub> emissions by 7.6 MtCO<sub>2</sub> a year in 2020. New cars sold in the UK have historically had higher average emissions than the EU as a whole but UK fleet averages are improving. The Government's fiscal measures, whose principal role is to support the public finances, can also have a significant impact on CO<sub>2</sub> emissions from transport. Vehicle taxation is designed to encourage the development and uptake of more fuel-efficient, lower-emitting vehicles in company car fleets and individual car purchases. Changes to rates and bandings in the taxation of vehicles are aimed at responding to rapid advances in vehicle technology and the regulatory environment – and further promote more environmentally friendly vehicles, helping to reduce emissions from the transport sector.

164. This is a significant step towards the decarbonisation of passenger cars and we will continue to work to influence the EU's approach to ensure that the maximum possible CO<sub>2</sub> savings are delivered. We are already monitoring progress against the CCC's proposed indicator of new vehicle emissions.

<sup>32</sup> The 2020 target of 95g/km is indicative and is subject to review and Impact Assessment by the European Commission, by the end of 2012.

165. We are equally determined to ensure an ambitious and achievable framework for long-term emissions reductions is applied to vans, which represent the fastest growing area of vehicle usage. We support regulating emissions from new vans and welcome the publication of the European Commission's proposal in this area in October 2009. We are undertaking detailed analysis to inform the UK position on the proposal and we will also consult publicly on it early in 2010.

### **Demonstration and deployment of ultra-low carbon cars**

166. We welcome the CCC's analysis of electric vehicles and the additional studies that CCC has commissioned have provided valuable additional information for policy making in this area. We agree with the CCC that electric and plug-in hybrid vehicles have significant potential to deliver carbon reduction from road transport.

167. The CCC highlighted the importance of an overarching strategy to direct the transition to ultra-low carbon vehicles. Through the establishment of the Office for Low Emission Vehicles (OLEV), as announced in the Low Carbon Industrial Strategy, the Government has brought the strategic priorities of Whitehall into alignment to realise the maximum economic and environmental benefits from this transition.

168. Government agrees with the CCC that a crucial next step is supporting the development of a flourishing early market for these vehicles and, as the Committee acknowledges, we have made a number of significant announcements in this area over the past two years, including a consumer incentive worth between £2,000 and £5,000 for electric and plug-in hybrid electric cars from 2011 and £20 million to support public sector purchase of low carbon and electric vans. The Pre-Budget Report also announced an exemption from Company Car Tax and Van Benefit Charge for electric company cars and vans, for five years, alongside a 100% first-year allowance for business expenditure on electric vans, subject to confirming compatibility with state aid rules.

169. The Committee also highlights the importance of pilot projects for re-charging infrastructure, recommending that facilities for 240,000 electric cars and plug-in hybrids are needed by 2015. We agree that charging infrastructure is important and in November 2009 we launched the Plugged-In Places Infrastructure Framework – providing up to £30 million to help between three and six lead cities

and regions to help them deploy and trial electric vehicle charging infrastructure. The work the CCC commissioned from Element Energy<sup>33</sup> also provides valuable information on the potential in the UK for domestic and workplace re-charging, as well as some of the potential impacts of different vehicle re-charging scenarios. The work highlights the potential importance of domestic and workplace re-charging for maximising the benefits of electric vehicles. We are also working to ensure that the planning system allows for installation of charging infrastructure. We have recently consulted on widening permitted development rights to allow, for example, the easier installation of charging points in off-street parking areas including residential drives, commuter car parks and supermarkets.

170. To support industry in developing the technology solutions for ultra-low carbon vehicles the Government continues to fund cutting-edge demonstration and development through the £140 million Technology Strategy Board low carbon vehicle innovation platform. This work programme will be expanded as part of a £30 million increase in funding for the development of low carbon transport, which was announced in the Pre-Budget Report.

171. The CCC has suggested an ambitious trajectory for the adoption of electric vehicles, proposing an indicative milestone of 1.7 million electric cars on the road by 2020. This rests on very optimistic scenarios for reductions in battery costs – as well as, potentially, widespread consumer acceptance of range limited vehicles. As the CCC acknowledges, if the rate of battery cost reduction is lower than the 70% by 2020 figure highlighted in their report (and many other experts in this area do not forecast such large reductions before 2020), consumer adoption of electric vehicles could be significantly lower than the CCC's indicative figures over this timeframe.

172. Moreover, the CCC should not discount the potential for other technologies to contribute to carbon reduction from road transport beyond 2020. For example, conventional engine and hybrid options may continue to demonstrate additional potential (the new Toyota Prius already has emissions below the 95 gCO<sub>2</sub>/km target for new cars in 2020) and second generation biofuels and hydrogen fuel cells may have achieved significant advances

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33 Element Energy, 2009: "Strategies for the uptake of electric vehicles and associated infrastructure implications", available from: [www.theccc.org.uk/reports/progress-reports/supporting-research-](http://www.theccc.org.uk/reports/progress-reports/supporting-research-)

in the same time frame. Developments of this kind could bring into question the very large role for electric vehicles currently envisaged in the CCC report. For this reason the Government considers it a little early in the market adoption phase to set specific targets for electric vehicle market penetration. Nevertheless, the Government agrees with the CCC that electric and plug-in hybrid options currently appear to be among the most promising for delivering significant carbon reduction, and as outlined above we are developing a range of policies to support their early market adoption and the development of supporting infrastructure. We also agree that it will be necessary to establish an effective monitoring regime to track progress in establishing an early flourishing market for electric vehicles. We are in the process of developing indicators for this purpose, and will set out how we intend to proceed in our transport Carbon Reduction Delivery Plan.

173. The Government wants the electricity grid to be a facilitator for greater penetrations of electric vehicles, rather than a barrier, as outlined in our publication of *Smarter Grids: The Opportunity* in December 2009.<sup>34</sup> We will need to consider further how the right charging patterns can be incentivised and how higher penetrations of electric vehicles will impact on the grid particularly at higher densities or where fast charging takes place.

## Emissions reduction from changing transport consumer behaviour

### Using prices to manage transport demand

174. In *Low Carbon Transport: A Greener Future* the Government recognises the role of market mechanisms in influencing transport choices and levels of demand. Motoring taxes, although principally revenue-raising instruments, are also a tax on activity that generates social and environmental externalities – including CO<sub>2</sub> emissions. In making tax decisions, the Chancellor takes all relevant fiscal, economic, social and environmental factors into account.

175. Tackling congestion is essential if we are to ensure growth in the economy and employment, while at the same time reducing greenhouse gas emissions. In this context, it is right for the Government to explore the potential of a wide range of policy choices to tackle congestion.

176. The Government is committed to continuing to learn from international actions to tackle congestion, including the work in the Netherlands and in Germany. In July 2008, the Department for Transport (DfT) published a Command Paper, *Roads – Delivering Choice and Reliability*<sup>35</sup>, which set out the Government's approach to tackling road congestion, including exploring through trials how a road pricing scheme charging by time, distance and place could be designed so that it could safeguard people's privacy whilst operating reliably, accurately and cost-effectively. A practical demonstration project began in February 2009.

177. Although the CCC has urged the Government to consider pricing measures under its "Stretch scenario", the Secretary of State for Transport has made clear that the Government will not be proceeding with a national road user charging scheme in the next Parliament. Instead, we are giving priority to things that can be done in the shorter term to relieve pressure on the most overcrowded routes. DfT and HM Treasury continue to work together to explore the potential for developing future charging systems. Crucial questions remain on feasibility, cost-effectiveness, privacy and the impact on driver behaviour.

### Smarter Choices and the Sustainable Travel Demonstration Towns

178. The CCC notes that evidence from the Sustainable Travel Demonstration Towns (STTs) suggests that initiatives which aim to encourage people to walk, cycle, and travel on public transport rather than by car, and to better plan their journeys, can significantly reduce emissions. We strongly agree that smarter choice measures of this sort can play an important role in reducing transport emissions. They can also help address other key Government goals such as reduced traffic congestion, increased accessibility, and improved health.

179. *The Future of Urban Transport*,<sup>36</sup> published in November 2009, emphasised the need to tackle economic growth, carbon reduction, air quality and health issues at the same time, and that encouraging walking and cycling was likely to be key to meeting these objectives. Guidance to local authorities on Local Transport Plans also emphasises the need to develop initiatives which reduce carbon, including smarter choices.

34 See: [www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/network/smart\\_grid/smart\\_grid.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/network/smart_grid/smart_grid.aspx)

35 See: [www.dft.gov.uk/pgr/roads/introtoroads/roadcongestion/](http://www.dft.gov.uk/pgr/roads/introtoroads/roadcongestion/)

36 See: [www.dft.gov.uk/pgr/regional/policy/urbantransport/](http://www.dft.gov.uk/pgr/regional/policy/urbantransport/)



180. Smarter choices packages work most effectively when tailored to local needs and trip patterns so local authorities are best placed to deliver effective sustainable travel as part of their transport programme. We are encouraging local and regional authorities to include sustainable travel schemes in their local and regional transport planning, as well as making links to wider areas such as planning and health most recently through a good practice guide on delivering sustainable low carbon travel.<sup>37</sup> Sustainable travel schemes are also playing an important part in regional and local travel planning.

181. The STTs achieved a reported 7% to 9% reduction in car trips, alongside a considerable increase in walking, cycling and bus use in their local areas between 2004 and 2009.

182. All three local authorities that carried out the STT pilots have now integrated sustainable travel approaches in to their mainstream transport planning and delivery. This demonstrates that the programmes have delivered real local benefits and other local authorities now have the opportunity to benefit from their experience and achieve the scaling-up that the CCC envisages.

183. We are currently undertaking a full evaluation of the STT projects and results, which will be published later this year. This will provide further evidence to help local authorities consider sustainable travel measures as part of their local plans and resource allocations. We will use the results of the STTs to support the ongoing work to promote the uptake of further sustainable travel initiatives across the UK.

184. These approaches encourage people to think about the local travel choices they make and to choose lower-carbon modes. We also have a programme of specific initiatives in place at a national level to make it easier for people to make sustainable travel choices by ensuring lower-carbon alternatives are available. These include both alternatives to car use, such as walking, cycling and public transport and ways to use cars more responsibly, such as car sharing and car clubs.

185. In 2007/08 Government spent over £4 billion on the railways and together with Local Government spent around £2.5 billion on buses. In addition, in January 2008 Government announced a huge increase to Cycling England's budget to £140 million over three years. Funding

includes cycling demonstrations projects; infrastructure, and "Bikeability" training for children.

186. We want as many children as possible to walk, cycle or use public transport to travel to school. In 2003, Government launched the Travelling to Schools initiative, setting out the aim for all schools in England to develop travel plans in order to reduce car use for journeys to school and allow many more children to take regular exercise.

187. We have also launched a new 'Cycle to Work Guarantee' in a bid to increase the numbers of people cycling to work. This is being promoted by Government and employers together to offer employees a healthy and green option to get to and from work. Typically, a third or more of staff of large urban employers live within half an hour bike ride of their place of work, but only about 3% currently cycle to work. By signing up to the new 'Cycle to Work Guarantee', public and private sector employers are committing to provide their staff with safe bike storage, changing facilities and access to the Government's generous tax break scheme for new bikes and cycling equipment.

188. Also at the national level, the Highways Agency's Influencing Travel Behaviour Programme has sponsored 29 travel plan schemes at key congested points on the strategic road network with positive results in terms of car trip reduction and value for money. For example the Cambridge Science Park plan has reduced car trips to the site in the morning peak hour substantially, with an estimated benefit-cost ratio of 15:1.

189. Eco-towns will be designed to give priority to walking, cycling, public transport and other sustainable options. As part of the eco-towns PPS there is a requirement for a 50% modal shift away from car use for journeys originating in eco-towns. The PPS standard for transport also requires that:

- all homes are located within around ten minutes walk of frequent public transport, a primary school and everyday neighbourhood services;
- a minimum of one job opportunity per house reached by walking, cycling or public transport to reduce dependence on the car.

190. The CCC note that "...emission reductions ensue through reduced car emissions which in turn require reduced car miles. We will therefore track car miles to assess the extent to which these fall from trend as a result of demand-side measures". We agree it is important to

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<sup>37</sup> See: [www.dft.gov.uk/pgr/sustainable/guidelocalauth/](http://www.dft.gov.uk/pgr/sustainable/guidelocalauth/)



monitor the impact of smarter choices policies using an appropriate framework, but note that, given the wide range of policies covered by 'smarter choices' initiatives, car miles alone may not fully reflect their impacts.

### **Eco-driving indicators**

191. We agree with the CCC that there is merit in promoting eco-driving techniques to enable drivers to use their vehicles more efficiently and to reduce fuel consumption, costs and emissions of both CO<sub>2</sub> and local air pollutants. The Driving Standards Agency (DSA) estimates that over 30 million people drive in the UK, both for professional and recreational purposes, and approximately 750,000 new drivers acquire a driving licence each year.

192. The CCC report has suggested targeting eco-driving towards new drivers and testing it effectively as part of the driving test. We currently teach new drivers how to drive in a safe and fuel efficient way through the integration of eco-driving into the driver training syllabus and the driving test. Eco-safe driving is assessed in the theory part of the driving test and the DSA have also introduced an assessment in the practical test. We are discussing with the DSA whether there are opportunities to further embed eco-driving into their Learning to Drive programme.

193. We are also working with the Energy Saving Trust (EST) to promote eco-driving techniques to existing drivers through their Smarter Driving programme and their network of Advice Centres. We are exploring with the DSA and EST how to broaden the availability of eco-driving to the wider public.

194. The CCC has indicated that they will monitor the number of drivers trained through (i) specific programmes; and (ii) driving tests. While data will be available for the Government funded training programmes, this would not represent the full picture as forms of eco-driving training are available from a number of providers.

### **Enforcing the speed limit**

195. The current national speed limit of 70mph on dual carriageways and motorways reflects a balance between economic, environmental and safety objectives, but we keep this under review. This includes careful consideration of many factors, including enforcement, safety, public acceptability, environmental impacts, and the effects on congestion. There would be significant economic costs associated with a reduction in motorway speed limits.

196. Compliance with 70mph limits on motorways and dual carriageways is improving, with the percentage of cars exceeding these limits decreasing. The THINK! Campaign is aimed at achieving better compliance with road safety law overall, including speed limits.

### **Integrated land-use planning and transport system**

197. The CCC's report says that there are potential risks and opportunities to reducing emissions from the significant land use change expected over the next decades, including a large programme of home building. It recommends that Government develops an integrated planning and transport strategy, and ensures that planning decisions fully account for transport emissions.

198. We welcome and support the Committee's recognition that land use planning will have potentially significant implications for transport emissions and agree that the transport and planning issues identified by the Committee are important, especially in the light of new home building.

199. The Government's national planning policies and guidance on the interrelationship between planning and transport set out demanding policy requirements aimed at reducing the need to travel, cutting carbon emissions, and encouraging a shift to more sustainable transport modes. The Government firmly believes this approach provides the right balance of flexibility and constraint necessary for bringing forward a low carbon future whilst delivering on the economy. Planning new development to reduce the need to travel and cut carbon emissions is already central to our planning policies for climate change.

200. Regional Spatial Strategies already include Regional Transport Strategies, encouraging decisions on the location of development to take account of the potential impact on transport and vice versa. This integration will be retained and reinforced with the introduction of the integrated Regional Strategy that is promoted under the Local Democracy, Economic Development and Construction Act 2009. Sustainability appraisal of these strategies will include consideration of emissions. In addition Local Transport plans already feed into site selection in Local Development Documents as part of the local evidence base.

201. We have taken a number of other initiatives to encourage the integration of land use and transport planning. Planning guidance also emphasises the need

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to integrate transport and land use planning, with the options for the location of development and for transport investment considered together. To further encourage the spread of best practice and integration, the Government invited the Commission for Integrated Transport (CfIT) to investigate the links between planning and transport. CfIT has recently published the results of its study, and has created a web-based tool that provides non-statutory guidance and best practice examples for transport and planning practitioners.

202. Guidance on Local Transport plans also emphasises the need for transport planners to work closely with land use planners. Evidence summarised in the report 'The Future of Urban Transport' illustrates the opportunities to reduce carbon emissions through such close working.

203. We have said that we will update our planning policies to reflect the Government's ambitious targets to cut emissions, including from transport, in a revised PPS on climate change which we aim to publish shortly for consultation. In doing so we will ensure that planning for more sustainable transport is a central concern of regional and local planning and its role in supporting the move to a low carbon economy and low carbon living.

204. In the Planning White Paper we undertook to streamline the entire Government planning policy suite to ensure that policies are clearer, shorter and more effective. In the course of that review we will consider how we can build better integration between planning and transport policies, consistent with our climate change goals. We will build on the evidence presented by recent research by the CfIT and others, recent work by the Prime Minister's Strategy Unit on urban transport issues, and experience with the current round of Regional Spatial Strategies.

## CHAPTER 6

# IMPLICATIONS OF THE RECESSION AND CREDIT CRUNCH FOR MEETING BUDGETS

### Summary

The Government recognises the effect of the credit crunch on lending to low carbon energy projects and announced at Budget 2009 over £1.4 billion of additional targeted support for the low-carbon sector. A package of European Investment Bank (EIB) lending will enable up to £9 billion of investment in UK energy projects and, in November 2009, 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. The Government is also working to support the development of less mature technologies that are further from the market. We will continue to monitor the support required by the sector and how Government action is protecting investment.

The Government agrees that the recession will reduce UK greenhouse gas emissions. We recognise that a proportion of any over-achievement of the first carbon budget (2008-2012) period will be due to the recession and agree that this projected over-achievement must not detract from driving delivery of policy measures needed now to decarbonise in the future. To ensure that incentives to deliver remain strong over the remainder of the first budget, the Government accepts the Committee's recommendation that any over-achievement arising from the downturn should not be carried forward to allow for higher emissions in future. This decision is subject, as the Climate Change Act requires, to final advice from the CCC at the end of the budget period. Different emissions projection models make different assumptions and lead to different conclusions about the size of the impact of the recession, and the Government will continue to subject its own model to ongoing review and improvement.

The best approach to ensuring that the carbon price provides sufficient incentive for low-carbon investment is to set the right, long-term regulatory framework. The cap for the EU Emissions Trading System (EU ETS) will reduce by 1.74% per year from 2013 onwards (compared to the cap in first carbon budget period), giving a long-term signal to investors. We are committed to tightening the EU ETS cap further following an international climate agreement and as part of the EU's move from a 20% to a 30% emissions reduction target for 2020.

### The impact of the credit crunch on lending to low carbon energy projects

205. The Government shares the CCC's concerns about the effect of the credit crunch on lending to low carbon energy projects, and has acted to protect investments during the downturn. Budget 2009 announced over £1.4 billion of additional targeted support for the low-carbon sector

over five years, including a temporary uplift in support for offshore wind investments through the Renewables Obligation (RO) and up to £9 billion of new financing for energy projects supported by the European Investment

Bank (EIB)<sup>38</sup> through direct lending to energy projects and intermediate lending to banks.

206. The CCC recognised that this package would largely address near-term financing constraints, and recommended that the Government should closely follow the market response to the EIB facility and consider further interim interventions as needed, such as loan guarantees. In the longer term, it considered that the Government should continue to keep project economic and financing conditions under review.

207. In line with the CCC recommendation, the Government has been closely monitoring delivery of the Budget 2009 support package. Significant progress has also been made with the package of EIB lending and in November the Government brought together the EIB and three partner banks – RBS, Lloyd's and BNP Paribas Fortis – in a new lending scheme targeting small to mid-sized onshore wind projects. The scheme will facilitate investment of up to £1.4 billion in onshore wind over the next 3 years and we should not underestimate the impact this will have on liquidity in the market.

208. In October 2009, we announced an additional £18 million of venture capital funds to be channelled through the Carbon Trust to provide early stage funding to innovative low carbon companies. To complement this funding, the Government is launching a UK Innovation Investment Fund. It will be managed as a fund of funds and leverage private sector money, and will contain a specific low carbon technology fund.

209. Given the scale of the energy investment challenge, and the impact of the recession, the 2009 Pre-Budget report announced the establishment of Infrastructure UK (IUK), whose role will include facilitating private-sector finance in low-carbon energy projects. IUK will also oversee the Government's investment of £90 million in an EIB-led fund for low-carbon infrastructure, which will provide equity to key sectors such as wind, biomass, gas storage, transmission and CCS.

210. We will continue to monitor the support the sector requires and how the Government action to date mitigates the impact of the credit crunch. We will consider what additional instruments may be needed, whether Government- or market-led.

211. We are grateful for the Committee's recognition that the potential increase in support for offshore wind from the RO has been beneficial. Projects confirmed following the announcement include the London Array, which will be the world's largest offshore wind farm. The increase in support and broader ways of making the RO more efficient and effective were the subject of a consultation that closed on 15 October 2009. As a result of the consultation, the 2009 Pre-Budget Report announced that two RO Certificates per megawatt hour will be available to all projects accredited between April 2010 and March 2014, and a move to 10% headroom in the RO from April 2011, to provide those investing in renewable energy projects with greater certainty around the value of the incentive.

212. The credit crunch is an issue for early stage technology development as well as deployment of commercially proven technologies, and work is also being taken forward to stimulate technologies that are not yet market-ready. This includes a review of the innovation milestones required for technologies up to 2050, being undertaken by the Energy Research Partnership, which should inform us of the barriers and opportunities we face for various technologies, providing stronger signals to investors and innovators on our future technology choices. It will also feed into the Government's 2050 work on the pathways we might need to follow and the barriers we need to overcome in order to secure the necessary emissions reductions through to 2050.

213. At a technology specific level, we have launched a process to develop an action plan for marine technologies, and plan to do the same for hydrogen and fuel cell technologies. We expect to publish the Marine Action Plan in spring 2010, setting out the key actions required by both the public and private sector to make deployment of these technologies a reality. This plan will allow the Government to work with industry to consider the barriers to the mainstream deployment of wave and tidal energy technologies.

214. The Technology Strategy Board, working with Government, has also launched a Knowledge Transfer Network for Energy Generation and Supply. It will work to help innovators access the support they need to progress their ideas as well as work to enhance collaboration between technology developers.

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<sup>38</sup>This comprises £4.5 billion of EIB lending, plus matched private sector lending.

## The impact of the recession on emissions

### The impact of the recession on the first carbon budget

215. Drawing on new emissions projections that they have commissioned, the CCC report forecast that the downturn will reduce emissions and lead, in a central case, to over-achievement against the first carbon budget.

216. The Government agrees with the CCC that the recession will reduce emissions and that the projected over-achievement must not detract from driving delivery of policy measures needed now to decarbonise through the second and third carbon budget periods. Chapter 2, which describes Government action since publication of the CCC report, shows the ongoing high pace of policy development. To ensure that incentives to deliver remain strong over the remainder of the first budget, the Government accepts the Committee's recommendation that any over-achievement arising from the downturn should not be carried forward to allow for higher emissions in future. This decision is subject, as the Act requires, to final advice from the CCC at the end of the Budget period.

217. This decision does not set a precedent for any future decisions on banking between budget periods. In general the Government strongly supports the principle of banking between budget periods in order to encourage early action to reduce emissions. However there are specific characteristics of the first carbon budget which have led to a different conclusion in this case:

- The first carbon budget (2008-2012) is unique in having been set in spring 2009 when the period was already well underway. Compared to subsequent budgets, any surplus is therefore more likely to result from external drivers such as growth or fuel prices than early policy action;
- Although domestic policy frameworks permit banking between the first and second carbon budgets, the European Climate & Energy package does not allow banking in the non-traded sector between the 2008-12 phase and the 2013-2020 phase. Banking savings between the first and second carbon budgets could leave the UK meeting domestic obligations but failing to meet its EU commitments.

218. The CCC also recommended that Government should aim to outperform the first carbon budget by up to 75 million tonnes of carbon dioxide-equivalent (MtCO<sub>2</sub>e).

Although Government expects to over-achieve against the first carbon budget, we do not intend to set a specific target for the level of over-achievement, not least because of the uncertainties in projecting emissions.

219. The emissions projections published by Government alongside the Low Carbon Transition Plan are based on the forecasts of economic growth published in April 2009. The central projection suggests that the net UK carbon account may be 44 MtCO<sub>2</sub>e below the level of the first carbon budget. However the projections are subject to a significant margin of uncertainty. This includes uncertainty in the fuel price assumptions and delivery of existing policies, as well as modelling uncertainty. The table below shows the level of uncertainty for the three budget periods to 2022.

MtCO <sub>2</sub> e	Budget 1 2008-2012	Budget 2 2013-2017	Budget 3 2018-2022
<b>Carbon Budget</b>	3,018	2,782	2,544
<b>Projected surplus</b>	-44	-64	-39
<b>Uncertainty range</b>	-145 to +62	-184 to +61	-168 to +93
(negative figures imply net UK carbon account under budget i.e. emissions lower than required)			

220. Not all of the projected over-achievement is due to the impact of the recession. DECC modelling suggests that, in the first budget period, the reduction in emissions due to the recession alone is 20 MtCO<sub>2</sub>e, while a further reduction of 12 MtCO<sub>2</sub>e is due to assumptions of higher fuel prices (compared with previous projections). The Cambridge Econometrics (CE) projections used by the CCC suggest that the impact of the recession alone will be some 60 MtCO<sub>2</sub>e with a further reduction due to higher fuel prices of 15 MtCO<sub>2</sub>e.

221. The CE projections therefore show a greater impact of the recession than the DECC emissions projections. It is important to recognise that no emissions projection model can ever be said to be "right". There will always be a significant amount of uncertainty in projections of future emissions, and the projections should therefore be regarded as illustrative rather than firm predictions about the future. The DECC and CE models make different assumptions and will therefore lead to different conclusions.



222. It is therefore essential to account for the uncertainty in projections when making plans for meeting carbon budgets. The Low Carbon Transition Plan explains how Government is doing this, including by not relying on a single forecast, working to improve the accuracy of emissions projections and continuing to explore new cost-effective policy options to further reduce emissions.<sup>39</sup>

223. The Government will update its emissions projections in the spring, and regularly thereafter. The CCC has recommended that the DECC energy model should be reviewed in particular to ensure it is robust to changes in key economic drivers. The DECC model continues to be subject to ongoing review and improvement as more underlying data and analysis become available. Various research projects are currently planned to improve the data and modelling, and Government will take account of the CCC's comments as it considers any changes. There is an expert group (the Projections Advisory Group) who advise on modelling issues. This group includes experts with extensive modelling experience in manufacturing, the oil and electricity producing industries as well as Government officials with experience of other Government models.<sup>40</sup>

### **Impacts of the recession on the traded sector and the carbon price**

224. CCC analysis suggests that the carbon price is likely to be significantly lower to 2020 than they previously projected, and the Committee recommends that measures, including tightening the European United Emissions Trading System (EU ETS) cap and a UK carbon price underpin, should be considered to strengthen incentives for low-carbon investments in the energy-intensive sectors.

225. The carbon price creates dynamic incentives for firms to invest in low-carbon technologies, though there are a number of other factors that are also important, such as – for investment in low carbon electricity generation – the overall electricity price. A high carbon price makes

low-carbon investments or development of low-carbon technologies more attractive. In order to provide the incentives for low-carbon investments, among other things firms need to form expectations about future carbon prices. This is particularly important for capital intensive sectors with lengthy payback periods on investments, such as electricity generation. Failure to signal future carbon constraints clearly could result in lock-in of high carbon investments, increasing the overall cost to the economy of meeting emissions reduction targets. The revised EU ETS Directive agreed in December 2008 sets a reduction in the cap of 1.74% per year from 2013 onwards (compared with the first carbon budget period), and so gives a long-term signal to investors.<sup>41</sup>

226. We believe the best approach to providing certainty to investors is to set the right, long-term regulatory framework with a reducing cap on emissions (as we have done with the EU ETS), and allow the market to help achieve these reductions cost-effectively. Longer term, we agree with the CCC that the most effective way of ensuring the carbon price is high enough is to limit the supply of allowances by tightening the cap. We are committed to reducing the EU's overall emissions to at least 20% below 1990 levels by 2020, and are ready to scale up this reduction to as much as 30% under a new global agreement when other developed countries make comparable efforts. The EU ETS cap would be tightened as a key part of delivering any tighter EU target.

227. In order to meet emissions reduction targets at least cost further policies to support innovation in low-carbon technologies and to drive behavioural change will also be required. Many such policies are already in place, as discussed elsewhere in this report. We recognise the continuing need to ensure that the energy market and policy framework supports private sector low-carbon investment. As described in Chapter 3, and in line with the CCC's views, the Government is therefore taking forward work to ensure the electricity market framework can most effectively deliver a fair deal for the consumer and the low-

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39 The Analytical Annex published alongside the Low Carbon Transition Plan describes the emission projection analysis underpinning the carbon budgets, including uncertainty ranges and an explanation of the approach to deal with overlapping policies to minimise the risk of over-stating the policy savings and provide greater confidence in our projections. Available at: [www.decc.gov.uk/en/content/cms/publications/lc\\_trans\\_plan/lc\\_trans\\_plan.aspx](http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx).

40 See: [www.decc.gov.uk/en/content/cms/statistics/projections/advisory/advisory.aspx](http://www.decc.gov.uk/en/content/cms/statistics/projections/advisory/advisory.aspx)

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41 This is equivalent to about a 36 MtCO<sub>2</sub>e reduction per year in the EU-wide ETS cap from 2013, when compared with the Phase II scope of EU ETS. However, a number of adjustments are required to the ETS cap in 2013 to take account of installations that have entered or been removed from the scope of ETS, and these may mean a slight increase or decrease in the 36 MtCO<sub>2</sub>e figure.

carbon investment needed in the long term, and will report its initial findings at Budget 2010.

### **Opportunities for meeting budgets through fiscal stimulus**

228. Budget 2009 and the 2008 Pre-Budget Report announced £365 million additional funding for energy efficiency in businesses, households and the public sector. As a result:

- 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;
- cavity wall insulation is planned for 108,000 homes in the social sector by the end of 2010-11;
- fourteen low-carbon community heating schemes are being planned and constructed;
- £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.

229. Government agrees with the CCC that resourcing of energy efficiency is an important issue, and will continue to monitor delivery of this funding and scope for further support alongside the significant resources being directed to energy efficiency improvements through the Carbon Emissions Reduction Target, Warm Front and other Government programmes.

230. The CCC analyses the impact of the Government's car scrappage scheme, launched in May, on emissions. It recommends that scrappage schemes should be assessed in the context of a broader strategy to bring low-carbon vehicles to the market. The scrappage scheme was extended in early November with an additional £100 million of Government funding. Beyond this, Government has no plans to extend further the scheme. We have always been clear the scrappage scheme was not intended as an environmental measure – it is a short-term measure to boost the car industry and stimulate consumer demand at a time of extreme economic difficulty. The scheme was designed to meet these particular objectives and evidence has shown that it is proving successful in delivering them.

231. Nonetheless, while not intended primarily as an environmental measure, the scrappage scheme has had a positive effect on reducing emissions. On average new cars bought under the scheme currently have CO<sub>2</sub> emissions that are 25% lower than the cars scrapped.

232. Government considers it has a coherent green industrial strategy – including in the automotive sector. Government policy in the sector is set out in the policy document '*Ultra Low Carbon Vehicles in the UK*'.<sup>42</sup>

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42 Available at: [www.berr.gov.uk/files/file51017.pdf](http://www.berr.gov.uk/files/file51017.pdf)



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## CHAPTER 7

# EMISSIONS REDUCTION SCENARIOS AND INDICATORS

### Summary

The Government welcomes the CCC's work on indicators and agrees strongly with the CCC that individual indicators should not be seen as targets, and performance should be monitored in a pragmatic and flexible way. We also agree that it is important to assess the implementation of policies and measures, and indicators of underlying economic factors that affect emissions, in addition to emissions reductions themselves.

We therefore intend to follow a similar approach as part of our own system for carbon budget management. All Government departments will publish a Carbon Reduction Delivery Plan by spring 2010, setting out how they will meet their departmental carbon budget. For departments which influence emissions beyond the public sector operations that they are responsible for, plans will include relevant sectoral indicators, taking into account the CCC's monitoring framework. Taken together, these will form the Government's overall indicator set for managing carbon budgets.

233. In their report, the CCC sets out a new framework of indicators to be used in the future to monitor progress in meeting carbon budgets, covering the power sector, buildings and industry, and transport. We welcome the Committee's work on indicators, and intend to follow a similar approach in our own progress monitoring.

234. The CCC makes it very clear that it will use its monitoring framework in a pragmatic and flexible way. Rather than assessing success or failure on the basis of individual indicators, the CCC will look across the whole suite. If Government is underperforming in some areas and over-performing in others, so that it remains on track overall, the CCC will not judge this negatively. Government agrees strongly with this approach – it is important to preserve flexibility about where emissions reductions are delivered to meet the carbon budgets if we are to ensure that they are met in the most cost-effective way. Flexibility is needed, for example, in the way that low carbon power generation will be provided due to uncertainties over how the different technologies will evolve and the interactions between them in providing carbon savings.

235. The Committee argues that tracking emissions alone is not enough to monitor progress, because not all the factors that drive emissions year-on-year result in sustainable emissions reductions, and because many of the measures needed to reduce emissions have long lead times. Their indicators therefore cover milestones for the implementation of measures to reduce emissions as well as the policies designed to achieve these. We agree that there is a need for a more comprehensive framework of indicators that enables progress on key policies for reducing emissions and underlying drivers to be tracked. We also agree with the CCC that there is a need for supporting indicators to monitor the underlying economic factors that drive emissions reductions and take-up of particular technologies or behavioural change. These are important to understand where outcomes or policy performance are different from what was expected.

236. The CCC believes that the policies set out in the UK Low Carbon Transition Plan provide a good foundation for cutting emissions and achieving budgets. Government welcomes this view. The Committee also says that policy strengthening is required across the power, buildings and

industry, and transport sectors to reduce risks in meeting the carbon budgets. Significant progress has been made since the Plan was published in July in implementing the plan and strengthening policies as the CCC recommends. For example, the Government has published a detailed framework for the development of clean coal, and has created a new Office for Low Emissions Vehicles, a cross-Whitehall team to coordinate policy delivery for the decarbonisation of transport and the transition to a sustainably lower carbon vehicle fleet. Policy developments since the Transition Plan are described in Chapter 2 above, and in more detail for individual sectors in Chapters 3 to 5.

237. As set out in the Low Carbon Transition Plan each central Government department has been given a share of the overall UK carbon budget, representing its share of responsibility for meeting it. Allocations to departments are based on their relative policy impact and influence over total emissions, as well as emissions from their own estate and operations. By spring 2010, all Government departments will publish a Carbon Reduction Delivery Plan, setting out how they will meet their share of the overall UK carbon budgets<sup>43</sup>. For those departments where an influence on emissions in the wider economy beyond their own public sector operations has been identified, Carbon Reduction Delivery Plans will include a suite of indicators for monitoring progress in each sector of the economy. Taken together, these will form the Government's overall indicator set for managing carbon budgets.

238. In preparing Carbon Reduction Delivery Plans, Government departments are taking account of the CCC's proposed monitoring framework. Because the Plans are still in preparation, this report does not include a comprehensive response to all the CCC's indicators. However, departments are likely to adopt many of the same indicators in their plans.

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<sup>43</sup> Departments will also publish a Climate Change Adaptation Plan by spring 2010.

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# CHAPTER 8:

## CONCLUSIONS AND NEXT STEPS

239. Following publication of the UK Low Carbon Transition Plan in July 2009, the Government is committed to implement all the policies and measures it sets out, to deliver the step change in emissions reduction that will be needed to meet our carbon budgets and that the CCC has called for. We have made good progress in the last six months, for example pressing forward with a new planning regime to speed up approvals of new low-carbon infrastructure, setting out a framework for the development of clean coal, and testing new community-based models for improving household energy efficiency.

240. In the coming months, we will continue to develop the detail of our policy framework for making the transition to a low carbon economy and meeting our 2020 and 2050 targets for emissions reductions. We will shortly be publishing our Household Energy Management strategy, the Government response to the Feed-in-Tariff consultation, and a consultation on the Renewable Heat Incentive.

241. Building on the UK's contribution at COP15, we will continue to work hard for a legally binding treaty to address dangerous climate change at the global level. We will encourage other countries to come forward with ambitious mitigation offers by 31 January under the Copenhagen Accord. The UK is committed to the EU raising its offer to reduce emissions by 30% on 1990 levels in the context of comparable ambition from others. This would, in turn, entail a tightening of our domestic carbon budgets, once the EU has agreed how to share out the new target among Member States and in the light of further advice from the CCC.

242. In the spring, we will publish our "2050 Pathways" work, setting out potential pathways by which we could meet our long term carbon goals. As described in the Low Carbon Transition Plan, we need to work with key stakeholders to better understand the scale and nature of the changes required. As part of this work, we are

investigating the range of possible contributions to decarbonisation from all sectors, including both energy supply and demand. From this analysis we will better understand which combinations of action in different sectors would enable us to meet our emissions and energy security goals out to 2050.

243. We will also publish a series of departmental Climate Change Plans, which will include Carbon Reduction Delivery Plans, where each department will show how it will meet the carbon budget it has been allocated and to include the indicators and milestones that it will use to monitor progress.

244. The Committee on Climate Change published their advice on our target to reduce aviation CO<sub>2</sub> emissions to below 2005 levels by 2050 in December 2009. We will set out our plans for achieving our target once we have considered their advice in detail.

245. We welcome the Committee on Climate Change's ongoing advice and guidance on tackling climate change and look forward to receiving their second progress report, in June of this year.

# ANNEX A

## KEY MESSAGES IN THE CCC'S REPORT

The text below is reproduced un-edited from the CCC's report

### Progress developing a legal framework and reducing emissions

- The overall ambition of the EU package is reasonable provided there is a timely switch to the 30% GHG target, with deep cuts in other developed countries such that global emissions peak before 2020. It is therefore crucial to achieve an ambitious global deal and to trigger the switch to the 30% target. It is also important that any free allowances allocation within the EU ETS is very limited.
- Legislated UK carbon budgets are fully consistent with the Committee's advice. The Government accepted the Committee's proposals that the Interim budget should be based on a 34% cut in emissions in 2020, that this should relate to all GHGs rather than just CO<sub>2</sub>, and that this should be achieved through domestic emissions cuts rather than purchase of credits in the non-traded sector.
- UK GHG emissions have reduced only slightly in recent years, with increases in some sectors. Whilst emissions currently appear to be falling as a result of the economic recession, this will be largely reversed when the economy returns to growth. There is, therefore, a need for a step change if we are to achieve the 1.7-2.6% average annual reduction necessary to meet the first three carbon budgets.

### Implications of the recession and credit crunch for meeting budgets

- It is possible that the first budget could be achieved with very limited or no emissions reduction effort. It is imperative, however, that measures are implemented in the context of meeting medium and long term objectives. Any strategy to reduce emissions should therefore be focused on implementation of necessary measures. To the extent that outperformance ensues,

this should not be banked in order to sustain incentives for emissions reductions in subsequent budget periods.

- The carbon price is likely to be significantly lower to 2020 than we previously projected. This will have consequences for investments in low-carbon power generation. A range of measures including tightening the EU ETS cap and a UK carbon price underpin should be seriously considered to strengthen incentives for low-carbon investments in the energy-intensive sectors.
- As a result of the credit crunch there is limited finance available for investments in renewable electricity. The Government has partially addressed this through measures in the 2009 Budget. The need for further intervention, however, cannot be ruled out and should be kept under review.

### Emissions reduction scenarios and indicators

- Our revised emissions reduction scenarios continue to meet the Interim budget without the need for purchase of offset credits. Meeting the Intended budget would require new commitments from Government or purchase of offset credits.
- The framework of indicators and forward indicators that we set out should not be seen as a concrete plan for meeting budgets which cannot be deviated from. Rather, we envisage a situation where there may be underperformance on some measures and outperformance on others which would on average leave emissions on track to achieve budgets. Our indicators would be useful, however, in highlighting situations where a sufficiently large number of measures are off track that we can no longer be confident that budgets will be achieved. If such situations were to arise, the Committee would then propose remedial measures.

- Policies set out in the UK Low Carbon Transition Plan provide a good foundation for cutting emissions and achieving budgets. It is the Committee's view, however, that there are significant risks for meeting the second and third budgets under the existing framework, and that policy strengthening is required across the power, buildings and industry, and transport sectors.

## Delivering low-carbon power

- Key decisions should be taken over the next two years on power transmission access and investment, and planning approvals should be granted, in order to support investment in around 23 GW of new wind generation capacity by 2020 and up to three new nuclear plants in the first three budget periods.
- We welcome the Government's proposals on coal generation. We recommend, however, that economic viability of CCS should be considered in the strategic context of moving towards our 80% emissions reduction target rather than narrower definitions (e.g. Best Available Technology) of technical and commercial viability. An early decision (e.g. no later than 2016) on any required financial support for roll-out should be taken to support potentially high levels of investment from the early 2020s. For coal plant without CCS, the Government should provide a very clear signal that this will have a limited role in the 2020s on the way to an 80% cut, whether or not CCS is satisfactorily proven.
- We are not confident that current market arrangements will deliver required investments in low-carbon generation through the 2020s. We propose a set of options for power market intervention to support low-carbon investments and urge that these are seriously considered in the near term.

## Reducing emissions in buildings and industry

- A new framework for accelerating residential emissions reductions is required. This should include whole house and neighbourhood approaches, with strong leadership from central government and an important role for local government. Complementary financial incentives and regulatory measures are also likely to be required to overcome the significant barriers that exist despite the cost-effectiveness of most energy efficiency measures.
- Increased deployment of renewable heat should aim at meeting carbon budgets in the most cost-effective

way and developing a portfolio of options for possible deployment in the 2020s on the way to meeting longer term emissions reduction goals. This should include biomass boilers and combined heat and power (CHP), air source and ground source heat pumps, and biogas. In our analysis, we have assumed the Government's suggested renewable heat share of 12% by 2020, but recognise that this could be very expensive at the margin.

- It is crucial that the public sector emissions reduction potential is unlocked, because this can make an important contribution to meeting carbon budgets; encourage behavioural change among users of public sector buildings; stimulate the low carbon supply chain; and underpin government credibility in leading a wider emissions reduction programme. By 2018, all cost-effective emissions reduction potential should be realised for buildings in the central government estate and for other public sector buildings covered by the Carbon Reduction Commitment.
- A new framework to incentivise emission reductions by SMEs should be introduced. Options to be considered might include an extension of the new residential sector delivery model and mandating certain measures to improve energy efficiency. In order to support any new policy, more widespread requirements for energy audit and certification of non-residential buildings should be introduced.

## Reducing surface transport emissions through low-carbon cars and consumer behaviour change

- The UK should aim to converge on the EU trajectory for average new car emissions by 2015 and aim for a new car average of 95 gCO<sub>2</sub>/km by 2020 in the wider context of meeting carbon budgets for the non-traded sector. Achieving this will require deployment of the full range of low-carbon options: improved fuel efficiency of combustion engines, non-powertrain measures, increased hybridisation and increasing numbers of electric cars/plug-in hybrids.
- The Government should complement financial support committed for electric car purchase with charging infrastructure for up to 240,000 electric cars and plug-in hybrids by 2015 on the way to 1.7 million cars in 2020.

- New evidence from the Sustainable Travel Towns suggests that Smarter Choices initiatives which aim to encourage people to travel on public transport and to better plan journeys can have a significant emissions reduction impact. The Government's recently announced Sustainable Travel City pilot is a positive step in rolling out Smarter Choices. This should be buttressed with a comprehensive plan for more widespread roll out to towns and cities.
- The large programme of home building over the next twenty years and possible increase in transport emissions through out of town developments poses a risk to meeting budgets. Significant land-use change over the next decades offers an opportunity to change trip patterns and travel modes. In order to mitigate risks and take advantage of opportunities, the Government should develop an integrated planning and transport strategy, and ensure that planning decisions fully account for transport emissions.

# ANNEX B

## RECENT POLICY DEVELOPMENTS IN THE DEVOLVED ADMINISTRATIONS

### Scotland

The Climate Change (Scotland) Act commits the Scottish Government to reduce emissions by at least 42% by 2020, subject to expert advice from the Committee on Climate Change, and by at least 80% by 2050. Annual targets for the years 2010-22 must be set by 1 June 2010 and Scottish Ministers are required to set out proposals and policies for meeting these targets as soon as reasonably practicable thereafter.

Other notable features of the Act are that it requires Scotland's share of emissions from international aviation and international shipping to be included in the emissions reductions targets, and that it places a duty on Scottish public bodies to contribute to the achievement of emissions reductions targets and to statutory adaptation programmes.

Actions are being taken across the range of the Scottish Government's responsibilities to reduce emissions, as follows:

- Development of a **Carbon Capture and Storage (CCS) Roadmap for Scotland** planned for publication in 2010, which will set out what needs to happen and by when, the main drivers and milestones, and the most significant hurdles. The Scottish Government aims to ensure that the regulatory framework is broadly similar across the UK as a whole, with the overall objective of encouraging CCS deployment and significant decarbonisation of the electricity sector by 2030.
- Publication of a **Renewables Action Plan** setting out the collective actions which can make Scotland a European leader in renewable energy. This sets out route maps for technologies and covers cross-cutting issues such as skills, infrastructure and research and development.
- Publication of Scotland's **Zero Waste Plan**, a consultation document, and describing actions to improve waste management, reduce waste and make resource use more efficient.
- The Scottish Government is committed to publishing an **Energy Efficiency Action Plan**. The Plan will outline the measures that the Scottish Government is taking to increase the take-up of energy efficiency in support of its overall greenhouse gas reduction targets.
- The Scottish Government is commissioning research to identify potential ways of ensuring that an assessment of greenhouse gas emissions can inform the development of future versions of the **National Planning Framework for Scotland** and statutory development plans.
- **Permitted Development Rights (PDR)** in planning legislation for air source heat pumps (ASHPs) and micro wind turbines (MWTs) are not included in the current Town and Country Planning (General Permitted Development) (Domestic Microgeneration) (Scotland) Amendment Order 2009. Consultation confirmed that further work was needed to explore the feasibility of introducing PDR for ASHPs and MWTs, so it was decided to commission an independent study to examine the issues in further detail. This research has now concluded.
- On 27 February 2009, the Scottish Government announced **Future Energy Standards** in building regulations for new homes and new non-domestic buildings. They are programmed for October 2010 and will be capable of reducing carbon emissions by 30% beyond current 2007 standards. The responses from a public consultation are currently being assessed. The cost of improvements to new non-domestic and domestic buildings for 2010 has been established through detailed research work in the way that the Sullivan Report (<http://www.sbsa.gov.uk/sullivanreport.htm>) recommends.



- In respect of business energy use in large commercial and public organisations, the Progress Report mentions the Carbon Reduction Commitment (CRC), which applies UK wide. This is consistent with the Scottish Government's plans, but falls out of the scope of both Building Standards and the EU Directive on the energy performance of buildings (EPBD). However, the Scottish Government has broad powers implementing the Sullivan Report recommendations for **existing non-domestic buildings**. Research is currently underway, which will lead to detailed work on draft regulations, engagement with stakeholders, public consultation and then be subject to Parliamentary approval.
- On 21 September 2009 the Scottish Government launched the **Farming for a Better Climate** initiative (<http://www.farmingforabetterclimate.org>). This initiative identifies and provides information on five key action areas where farmers can reduce avoidable emissions while also improving and strengthening their businesses. Significant funding support is available to land managers under the Scottish Rural Development Programme, which offers grants to improve the efficiency of farm business operations in line with climate mitigation actions.
- During 2009, the Scottish Government published a research study on **Mitigating Transport's Climate Change Impacts**. This research report identified and analysed 22 specific devolved measures.
- The Scottish Government has also consulted on a **Cycling Action Plan for Scotland** and on how the development and take up of Low Carbon Vehicles might best be accelerated. The final proposals for reducing transport emissions to 2020 will be included in the Report on Proposals and Policies.
- The **Carbon Account for Transport** (CAT) published in summer 2009 supports the development and implementation of actions to reduce emissions in accordance with the targets in the Climate Change (Scotland) Act. The CAT helps explain which transport policies and projects are forecast to have the most significant influence on changes in emission levels. Since the publication of the first version of the CAT, the Scottish Government has continued to develop the format and content of the document and an updated version will be published in early 2010.

## Wales

### Climate Change Strategy for Wales

The Welsh Assembly Government recognises the challenge posed by climate change and is committed to taking action, including its ambitious target for a 3% annual reduction in greenhouse gases, in areas of devolved competence from 2011.

The Assembly Government published the first stage of its Climate Change Strategy on 9 January 2009. The document sets out high-level policy objectives on climate change, the definitions of the targets and the broad areas where action will be focussed to tackle both the causes and consequences of climate change.

A consultation on the detailed programme of action was published on 25 June 2009, setting out how the Assembly Government will achieve the 3% target, tackle the impacts of climate change in Wales, and contribute to the delivery of UK and EU climate change targets and carbon budgets. The consultation closed on 2 October 2009 and the Final Climate Change Strategy for Wales is due to be published in spring 2010.

### The National Transport Plan

The National Transport Plan sets out the detail of how the Wales Transport Strategy will be delivered over the next five years. It is the first plan for an integrated transport system in Wales. It builds on previous plans, adding and integrating public and community transport, walking and cycling so that the Assembly Government's investment helps to deliver "One Wales". The Plan sets out solutions to transport issues along the main movement corridors in Wales (the east/west corridors in north, mid and south Wales and the north/south corridor). These corridors cover all modes of transport.

The National Transport Plan also contains solutions that are relevant to Wales as a whole, for example improving access to key sites, settlements and services. The consultation on the National Transport Plan closed on 12 October 2009. The final National Transport Plan is to be published in early 2010.

### Waste Strategy 2009 – Wise about waste

The Welsh Assembly Government has recently consulted on its Waste Strategy 2009 – "2050: Towards Zero Waste".

This draft strategy sets out how the Assembly Government proposes to build on “Wise About Waste – The National Waste Strategy for Wales”. It sets out long term aims for waste management and resource efficiency until 2050.

The Assembly Government is committed to reduce Wales’ ecological footprint to “One Wales: One Planet” levels and reduce Wales’ impact on climate change. This draft strategy shows how the Assembly Government will contribute to a sustainable future for Wales. The aim is to take a ‘zero waste’ approach – that means not producing any waste. To do this we need to design and make things that can be reused or reduce what we waste as much as possible. This cannot be done independently, and the Assembly Government will need the help of other people including local authorities, businesses and consumers. The final Waste Strategy for Wales is due to be published in early 2010.

### **National Energy Efficiency and Saving Plan**

The Assembly Government has recently consulted on its National Energy Efficiency and Saving Plan (NEESP). The consultation proposed a number of actions to help householders, communities, businesses and the public sector to reduce energy use and greenhouse gas emissions.

The Assembly Government has consulted on a new Fuel Poverty Strategy. The consultation closed on 4 January 2010. The consultation highlighted the proposed approach to tackling fuel poverty in Wales. It has been informed by the responses to the NEESP consultation. The Assembly Government is proposing major changes to the way the Home Energy Efficiency Scheme works. The high level approach was highlighted in the Fuel Poverty Strategy consultation and the Assembly Government will consult on changes to the Home Energy Efficiency Scheme regulations in 2010.

A final National Energy Efficiency and Savings Plan will be published following the Energy Statement in the early part of 2010.

### **Energy Statement**

The 2008 Renewable Energy Route Map, which followed on from the 2005 Energy Route Map, gave the current best estimate of the practicable heat and electricity generation outputs which can be achieved by 2025. The Route Map focused on how Wales might move to a clean low carbon future and exploit its tremendous renewable energy resources. It concluded that, with Wales’ coastline,

geography and climate, it is quite feasible for Wales, within 20 years, to produce more electricity from renewables than it currently consumes, as a nation on the way to a predominantly electricity-focused low carbon energy system in 2050.

The evaluation of the Route Map consultation responses as well as those responses received to the Welsh Assembly Government’s Bioenergy Action Plan, has informed the development of a strategic approach to energy through the development of the Wales low carbon energy policy statement. The policy statement will be the Welsh Assembly Government’s over-arching commitment to sustainable energy development and will be published in the early part of 2010.

## **Northern Ireland**

### **Strategic Context**

The Northern Ireland Executive has recognised climate change as one of the most serious problems facing the world. In its Programme for Government, the Executive has stated that, “we are determined to play our part in addressing this challenge by reducing our impact on climate change”.

In light of this commitment, the Sustainable Development Strategy for Northern Ireland, due for publication in the near future, has a critical role to play in providing a coordinating strategic framework for actions taken across government to promote the achievement of sustainable development.

In developing this Strategy, the Executive has recognised the challenge of joining-up government, in respect of the ways in which we develop our policies and strategies in the future.

### **Energy**

The Northern Ireland Executive’s new Strategic Energy Framework will set out the proposed priorities for Northern Ireland’s future over the next ten years or so and illustrate the key energy goals in terms of business competitiveness, security of energy supply, sustainability and infrastructure investment.

Through the Strategic Energy Framework the Northern Ireland Executive is proposing very challenging targets to increase the amount of electricity and heat from renewable sources to 40% and 10% respectively by 2020. As a result

of successful large scale onshore wind projects, Northern Ireland will meet its current renewable electricity target of 12% by 2012. In order to achieve future ambitious targets, however, it must also harness the contribution that other renewables can make, for example bioenergy and offshore renewables.

There has also been a recent consultation on the first cross-departmental Bioenergy Action Plan. This plan aims to increase awareness of bioenergy, create an enabling environment, facilitate targeted investment in the supply chain and continue focussed R&D. Responses to the consultation are currently being considered and it is planned to publish the finalised Action Plan in early 2010.

During 2009 a Strategic Environmental Assessment of proposals to develop offshore wind and marine renewables in Northern Ireland waters was conducted. The recent publication of a draft Offshore Renewable Energy Strategic Action Plan for consultation is a step closer to the commercial development of this potentially significant renewable resource. Not only can it contribute to the regions challenging renewable electricity targets, but it also offers business opportunities for Northern Ireland companies within this growing national and international market.

In conjunction with Northern Ireland's neighbours in Scotland and the Republic of Ireland two major projects are being progressed under the EU Interreg IV Programme; the Biomara research project into the use of local marine seaweeds and algae for bio-fuel production and the ISLES feasibility study for an off-shore electricity grid to encourage commercial use of marine wind, wave and tidal technologies.

Ensuring that increasing amounts of renewable electricity can be moved to where they are needed will require significant upgrading of the electrical transmission systems entailing a very substantial investment programme in Northern Ireland, comparable in scale to the £3.6 billion investment already announced by EirGrid in the Republic of Ireland.

Importantly, and as a first step in the development of a wider strategy for renewable heat deployment in Northern Ireland, a major piece of work has been commissioned to address the relatively untapped renewable heat market. This work will collate reliable data on heat and renewable heat usage in Northern Ireland, assess the future sustainable growth potential for the renewable heat sector in the

region and examine the appropriateness of the Strategic Energy Framework provisional target of 10% renewable heat by 2020 and how this may impact on the existing Northern Ireland heat markets.

### **Transport**

The Northern Ireland Executive is currently reviewing its Regional Development and Transportation Strategies, including the Travelwise Initiative. As an integral part of both reviews recognition is being given to the crucial impact climate change is having on our environment. As such our direction for future planning and transportation will include consideration on how the impact of climate change can be successfully mitigated. Work has already commenced to develop more sustainable transport arrangements including establishing a baseline on greenhouse gas emissions.

### **Government Estate**

The Central Energy Efficiency Fund makes available £1 million annually to projects in the public sector that aim to deliver energy efficiencies and reduce carbon emissions. The fund currently offers grants covering a maximum of 50% of the projects' capital costs. Generally the energy efficiency projects supported have an average payback of less than three years.

While it may be the case that the UK public sector is generally achieving against targets, in Northern Ireland the government office estate has seen an increase of absolute carbon emissions of 7% against a target of 12.5% reduction on a 1999/2000 baseline. The Workplace 2010 programme was to be the primary vehicle by which emissions reductions across the main accommodation estate were to be achieved through providing more energy efficiency facilities and reducing significantly the area occupied. However, following termination of the Workplace 2010 procurement process the Northern Ireland Executive is now considering what cost effective measures it can take, within budgetary restraints, to reduce energy consumption and associated emissions.

The Central Procurement Directorate (CPD), and the other Centres of Procurement Expertise (CoPEs) have agreed, through the Construction Industry Forum for Northern Ireland (CIFNI), to the inclusion of overarching requirements for low carbon design in project specifications. CPD has adopted a low carbon design policy for construction procurement. Its construction procurement practitioners are

proactive in advising clients on the scope for incorporating low carbon design features including low and zero carbon technologies within projects. CPD subsequently includes such requirements in project specifications when initial appraisals indicate that low carbon design is both economically and technically feasible.

CPD, in collaboration with other CoPEs, will contribute to the realisation of Government's ambition that all new public sector buildings will be zero carbon from 2018 by developing specifications, based on emerging best practice, that are aligned to this objective.

### **Social Development**

The Northern Ireland Executive is taking forward a number of actions, designed to improve the energy efficiency of Northern Ireland's housing stock and reduce carbon emissions.

As part of the New Housing Agenda all new build Social Housing must comply with a minimum rating of level 3 in the Code for Sustainable Homes. In effect this means new social houses built today are 25% more energy efficient than before. These homes are not just energy efficient in occupation as the code for sustainable homes places specific standards during construction to make them more sustainable and environmentally friendly in occupation and construction.

From November 2009, Housing Associations have been incentivised to go even further than level 3 by increasing the level of subsidy to those Housing Associations who can build to level 4 standards.

The Northern Ireland Executive is also working with the Housing Executive, the Home Energy Conservation Authority for Northern Ireland, to bring forward a pilot site in South Belfast that will see up to 70 mixed tenure homes built to level 5 standard. This is the largest and most ambitious level 5 development across the UK and the use of renewable technologies in this scheme will be essential to meet the strict level 5 ratings. This scheme will go on site during 2010/11 and will provide important learning for the industry as the Northern Ireland Executive seeks to achieve its carbon neutral housing targets by 2016.

The Heating Replacement Scheme and the Warm Homes Scheme assist householders with energy efficiency improvements. These energy efficiency improvements

also help reduce carbon emissions contributing to carbon reduction targets.

### **Agriculture**

In order to fulfil obligations under the Low Carbon Transition Plan the Departmental Scientific Advisor has been commissioned to examine the scientific knowledge that currently exists and its implications for the agri-food and forestry sectors. It is essential that Northern Ireland Executive has the necessary evidence to underpin any new policies and that we understand fully all the potential consequences of such policies.

Mitigation strategies such as more environmentally friendly farming practices, protection and expansion of forestry, nutrient efficiency and renewable energy, via, for example, anaerobic digestion are all being examined to see if they can collectively contribute to reductions.

On renewable energy a report from the industry led Renewable Energy Stakeholder Group has recently been received and an announcement will soon be made on the way forward with renewable energy in the agri-food and forestry sectors.

The Renewable Energy Centre of Excellence opened in January 2009 at the AgriFood and Biosciences Institute and provides an excellence demonstration facility showcasing several renewable technologies. It also allows for the continuation of our dedicated renewable energy research programme.

### **Education**

All procurement contracts incorporate the principles of sustainable development. All major works in schools must include measures to achieve a Building Research Establishment Environment Assessment Method (BREEAM) rating of 'excellent' for new schemes, or 'very good' for refurbishment schemes.

The Department of Education, in common with other Departments, is a mandated participant in the Carbon Reduction Commitment Scheme (CRC). It is estimated schools could save up to 5% on current energy consumption with low / no cost measures alone.

# GLOSSARY

ASHPs	Air Source Heat Pumps	MtCO <sub>2</sub> e	Million tonnes of carbon dioxide equivalent
CCC	Committee on Climate Change	MW	Megawatt
CCS	Carbon Capture and Storage	MWTs	Micro Wind Turbines
CE	Cambridge Econometrics	NEESP	National Energy Efficiency and Saving Plan
CERT	Carbon Emissions Reductions Target	NGET	National Grid Electricity Transmission
CESP	Community Energy Saving Programme	NPSs	National Policy Statements
CfIT	Commission for Integrated Transport	Ofgem	Office of the Gas and Electricity Markets
CLG	Department for Communities and Local Government	OFTO	Offshore Transmission Owner
CO <sub>2</sub>	Carbon Dioxide	OND	Office for Nuclear Development
COP15	15 <sup>th</sup> Conference of the Parties to the United Nations Framework Convention on Climate Change (Copenhagen)	ORED	Office for Renewable Energy Deployment
CRC	Carbon Reduction Commitment Energy Efficiency Scheme	PAYS	Pay As You Save
DECC	Department of Energy and Climate Change	PDR	Permitted Development Rights
DSA	Driving Standards Agency	PPS	Planning Policy Statement
DfT	Department for Transport	RES	Renewable Energy Strategy
EIB	European Investment Bank	RHI	Renewable Heat Incentive
ENSG	Electricity Networks Strategy Group	RO	Renewables Obligation
EST	Energy Saving Trust	SMEs	Small and medium sized enterprises
EU	European Union	SSA	Strategic Siting Assessment
EU ETS	EU Emissions Trading System	STT	Sustainable Travel Demonstration Towns
FITs	Feed-in Tariffs	SWI	Solid Wall Insulation
GW	Gigawatt	TWh	Terawatt hour
HEM Strategy	Household Energy Management Strategy	UNFCCC	United Nations Framework Convention on Climate Change
HESS	Heat and Energy Saving Strategy		
IPC	Infrastructure Planning Commission		
MtCO <sub>2</sub>	Million tonnes of carbon dioxide		



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