

Government Response to the Fourth Annual Progress Report of the Committee on Climate Change:

Meeting the Carbon Budgets – 2012 Progress Report to Parliament

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Foreword by The Secretary of State



I am grateful to the Committee on Climate Change (CCC) for their annual progress report, and for the quality and rigour of the analysis it contains. I would also like to welcome Lord Deben as the new Chair of the Committee. He has an impressive track record on environmental issues and I have no doubt the CCC will continue its excellent work under his leadership.

This report sets out the Government's response to the CCC's progress report and recommendations. We should begin with the positives – our latest projections show the UK is set to overachieve against the first three carbon budgets, by 90, 132 and 71 million tonnes of carbon dioxide equivalent (MtCO₂e) respectively. Since 1990, we have already seen UK emissions fall by 26%, on the way to halving them over the fourth carbon budget period (2023-2027).

But that is not to underestimate the scale of the challenge. The CCC's report sets out their assessment that last year's emissions reductions were primarily the result of external factors such as the economy and weather conditions, with only a minority directly attributable to Government policy. On that basis, the CCC continues to call for a step change in our efforts to reduce emissions.

I concur – for economic reasons as well as environmental ones. At a time of slow growth, the need for investment in our energy infrastructure, action on energy efficiency and further diversification of our energy mix is more pressing, not less. Ambitious action on these three fronts can save carbon, save money, and insulate our economy against international fossil fuel price shocks.

That is why the Government is acting now to deliver that step change. We are reforming the electricity market to support low carbon generation, changes which we hope will lead to a doubling in the normal rate of investment. The Green Deal and the new Energy Company Obligation will support continued take-up of energy efficiency measures. We have launched the world first Renewable Heat Incentive, which will begin to build the market for renewable heat. We are supporting the take-up of ultra low emission vehicles, and have already seen significant drops in average new vehicle emissions in the UK. We are implementing a programme that will see smart

2 Foreword by the Secretary of State

meters installed in 53 million premises by 2019, delivering billions of pounds worth of benefits to our economy. And we have put in place a Green Investment Bank to help catalyse the private investment that is crucial to the change we need.

These, too, are positive developments. But the CCC's 2012 progress report reminded us of the need for decisive action. This response looks at the specific issues the CCC have raised; we will also set out our response to the broader challenges in the forthcoming Annual Energy Statement, and through strategy documents looking at the challenges we must address – energy efficiency, security of energy supply, gas generation and renewable energy. In the meantime, I welcome the CCC's continued scrutiny and challenge, and their help in steering a path to a secure, sustainable and low carbon future.

EDWARD DAVEY MP

Background to the Response

The Government is fully committed to delivering its targets under the Climate Change Act 2008 (the Act), the world's first long-term legally binding national framework developed to tackle the causes and mitigate the effects of dangerous climate change.

At the heart of the Act is a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% below the 1990 baseline by 2050.

To drive progress towards this target, the Act introduced a system of five year 'carbon budgets'. The first three carbon budgets, which cover the period 2008-2022, were legislated in Parliament in May 2009.¹ The fourth carbon budget, which covers the period 2023-2027, was set in June 2011 and requires emissions to be reduced by 50% against 1990 levels. The level of the fourth carbon budget (emissions of no more than 1950 MtCO₂e in total over the budget period) is subject to review in 2014. If, at that point, our domestic commitments place us on a different emissions trajectory to that of the EU Emissions Trading System (EU ETS) we will, as appropriate, revise up our budget to align it with the actual EU trajectory.

The Act established clear and regular accountability to Parliament. It requires the independent CCC to report by June 30 each year on progress towards meeting the carbon budgets and the 2050 target. The Government must in turn lay a response to this report before Parliament by October 15 in the same year.

The CCC published their fourth progress report (Meeting the Carbon Budgets – 2012 Progress Report to Parliament)² on June 28. The report analysed emissions over the course of 2011 and the impact of Government policies on these.

This publication sets out the Government's response to the CCC's fourth progress report. The Government set out its comprehensive strategy for meeting the first four carbon budgets, on a trajectory to the 2050 target, in the Carbon Plan, published in December 2011.³

The layout of this response reflects the structure of the CCC's report and focuses on the 21 specific recommendations contained within the CCC's report, derived from their main conclusions. Annex A contains a full list of the CCC's recommendations.

¹ The total cap for each of the first three carbon budgets is: carbon budget 1 (2008-12) = 3,018 MtCO₂e; carbon budget 2 (2013-17) = 2,782 MtCO₂e; carbon budget 3 (2018-22) = 2,544 MtCO₂e.

² <http://www.theccc.org.uk/reports>

³ http://www.decc.gov.uk/en/content/cms/tackling/carbon_plan/carbon_plan.aspx

The key messages presented in the CCC's report

Overarching messages:

- Economy-wide emissions fell 7% in 2011 – this was due mainly to mild winter weather, falling real income and rising fuel prices, with a reduction of about 0.8% directly attributable to Government policy.
- The underlying trend of emissions reductions is not enough to meet future carbon budgets – going forward a four-fold increase is needed.
- The Government now needs to transition from the policy development stage to the implementation stage as the lead in time for development of policies to drive emissions reductions has elapsed.
- There has been progress on policies to drive delivery, but a number of challenges remain, most pressing around Electricity Market Reform (EMR), the Green Deal and residential renewable heat.

Power sector:

- Power sector emissions fell by 7% – driven by a reduction in demand and carbon intensity.
- Onshore and offshore wind in 2011 was around one-third of the rate required annually by 2020. Whilst there is a healthy pipeline in place, there remain barriers which need to be addressed if the pipeline is to be translated into investments.
- It is vital Government maintains momentum behind the second carbon capture and storage (CCS) demonstration project following the failure of the first.
- Progress has been made towards new nuclear investment, though significant risks remain in the project pipeline.
- Successful completion of EMR will be crucial to bringing forward investment in low carbon power generation. A clear carbon objective

should be set for EMR to provide investor confidence that there will be a market for low carbon technologies.

Buildings:

- CO₂ emissions from buildings fell by 12% in 2011.
- Though there was an increase in insulation rates – 1.6 million lofts, cavity walls and solid walls were insulated – a substantial increase is still needed, which is unlikely in the case of lofts and cavity walls, under the new policy framework.
- Uncertainty exists concerning the likely uptake of measures under the Green Deal and Energy Company Obligation (ECO).
- The Government should retain the CRC Energy Efficiency scheme and strengthen reputational incentives.
- Ambitious standards should be set for private rented commercial premises to ensure a high level of uptake for the non-residential Green Deal.
- There remains a major challenge to support renewable heat investment in the residential sector.

Industry:

- Industry emissions fell by 5% in 2011 – most likely driven by energy efficiency improvements having been implemented in 2011.
- Incentives for abatement have been weakened, because of the limiting of Climate Change Agreements (CCAs) to non-energy-intensive sectors, and the low price of carbon in the EU ETS.
- The Government should set out an approach for large-scale biomass applications in industry in line with meeting future carbon budgets, and closely monitor uptake.
- The Government should set out an approach to industrial CCS development to achieve deployment in the late 2020s.

- The Government's forthcoming industry strategy should fill the gaps in the current policy framework and provide more confidence over implementation of measures in line with carbon budgets.

Transport:

- Surface transport emissions were unchanged in 2010. Significant cuts are required in the future if future carbon budgets are to be met.
- Plans to remove company car tax exemptions for zero and ultra low-emission vehicles threaten progress and should be reversed.
- Though there has been progress on 'Smarter Choices' roll out, progress has been slow on eco-driving and there is a real risk of higher emissions if motorway speed limits are raised.

Agriculture:

- Though agricultural emissions increased in 2010 (by 0.9%), given emissions reductions in previous years, agriculture emissions remain on track to meet the first carbon budget.
- The emissions increase was due to higher agricultural output in 2010. Emissions intensity of livestock production improved and worsened for crop production.
- The evidence base for assessing progress in reducing emissions remains incomplete.
- As part of its 2012 agriculture policy review, the Government should consider a full range of policy options and performance triggers for the introduction of new policies.
- Government should establish as a matter of urgency a framework of indicators and supporting data on farm practice, and establish clear intermediate milestones for delivery of the smart inventory.

Waste:

- Emissions from waste fell in 2010 by 3%, continuing a long-term trend.
- There is potential to go beyond the Government's target to reduce emissions by a further 22% by 2020 (in line with further reduction in waste sent to landfill required under the EU Landfill Directive).
- The current policy approach should be closely monitored, with stronger incentives for waste reduction and diversion from landfill introduced as required.
- Specific strategies should be developed to increase diversion of food, paper and card waste from landfill.

Executive Summary

This response addresses the recommendations made and the findings contained in the CCC's fourth annual report on UK progress towards meeting the legislated carbon budgets and the UK's targets out to 2050.

The Government's latest projections suggest the *UK is on track to meet its first three legislated carbon budgets* with current planned policies. In line with our commitment in the Climate Change Act, this will mean that by 2020 greenhouse gas emissions in the UK will have fallen by at least 34% (against 1990 baseline levels).

The Government remains fully committed to meeting the targets set out in the Climate Change Act. Through our policies it is our aim to drive the transition towards an energy efficient economy and low carbon society: one with more and better insulated homes; a decarbonised electricity sector; increased renewable energy capacity; and greener and more efficient transport.

The Government's data shows that in 2011, the net UK carbon account, which includes the impact of trading within the EU ETS, decreased by 4% to 570.4 MtCO₂e in 2011 (from 593.9 MtCO₂e in 2010). Territorial emissions, which exclude the

Figure 1: Progress against the first carbon budget



impact of trading within the EU ETS, decreased by 7% to 545.5 MtCO₂e (from 586.3 MtCO₂e in 2010). See figure 1.

The Government agrees with the CCC that significant further reductions in emissions will be needed if the UK is to deliver its statutory obligations under the Climate Change Act and its carbon budgets, and is taking action in a number of areas across the economy.

Power

The Government's provisional estimates for 2011 indicate that CO₂ emissions in the power sector fell by 7%.⁴ The Government agrees with the CCC that the power sector has a central role to play in helping to meet the UK's carbon budgets, and that decarbonising the electricity supply will have a large part to play in this.

- The Government is reforming the electricity market to support low carbon electricity generation through its Electricity Market Reform programme. We are committed to securing a low carbon energy future, whilst maintaining security of supply; and keeping the costs of consumers' bills down. We will be making a statement on Electricity Market Reform later in the autumn.
- Nuclear power remains, under existing projections, one of the cheapest low carbon technologies for the future. That is why we are enabling new nuclear power to come forward by removing unnecessary obstacles to investment.
- The Secretary of State for Energy and Climate Change, Edward Davey, recently announced the future support levels that will be made available through the Renewables Obligation. This announcement demonstrates the Government's commitment to establishing and maintaining a strong renewable energy sector. We know that renewable energy generation is a crucially important low carbon technology and has a central role to play in helping the UK to reach its carbon emission reduction goals.

- And the Government remains absolutely committed to carbon capture and storage (CCS). In April 2012, we published the CCS Roadmap, which set out a comprehensive package of measures aimed at developing cost competitive CCS in the 2020s. We have made significant progress with the CCS Commercialisation Programme, which was open to a full range of projects, and we are now in the process of reviewing the bids submitted and will announce the results of this process in due course.

Buildings

Provisional Government estimates indicate that residential CO₂ emissions in 2011 fell by 22% to 67.5 MtCO₂.⁴ The Government recognises there is further potential for cost-effective emissions reductions from buildings and that is why we are introducing a combination of policies aimed at realising this potential:

- The Green Deal intends to reduce carbon emissions cost effectively by revolutionising the energy efficiency of British properties. Alongside this the Green Investment Bank will help catalyse the private investment that is crucial to drive the change we need.
- The CRC Energy Efficiency scheme aims to improve energy efficiency and cut emissions in large public and private sector organisations. The consultation on simplifying the CRC Energy Efficiency Scheme closed on 18 June 2012 and the Government will publish its response to the consultation later in the autumn.
- The Renewable Heat Incentive provides long-term support for renewable heat technologies like heat pumps, biomass boilers and solar thermal panels. In July, the Government set out proposals for improving the performance and managing the future budget of the scheme, and to provide greater certainty to the market. The consultation closed in September and the Government will publish its response in due course. The Government is committed to expanding the Renewable Heat Incentive to the residential sector and delivering a long-term scheme to this effect.

⁴ <http://www.decc.gov.uk/assets/decc/11/stats/climate-change/4817-2011-uk-greenhouse-gas-emissions-provisional-figures.pdf>

Industry

Provisional estimates show that CO₂ emissions from industrial processes fell by 3.3% in 2011.⁵ The Government's forthcoming industry strategy will set out proposals for supporting further emissions reductions in the sector over the coming decade. Already, the Government has a range of incentives and schemes to encourage reductions in carbon emissions and support use of renewable energy such as biomass plants in industrial settings; and the Government is working with industry to identify the barriers to and opportunities for industrial CCS, and the potential role for Government.

Transport

Greenhouse gas emissions from surface transport remained steady in 2010, following two years of steady decline.⁵ The Government already has in place a number of policies, both financial incentive based and behavioural, to ensure progress in this sector. The current tax system includes a range of incentives for ultra low emission vehicles; and the Plug in Van Grant has provided buyers of qualifying ultra low emission vans with 20% towards the cost of the vehicle, up to a maximum of £8,000; whilst the Driving Standards Agency has made significant progress in developing principles for eco-driving, which has formed part of the driving test since September 2008.

In addition, the Government is also making £600 million available to local authorities in this spending review period through the Local Sustainable Transport Fund. One of the two core aims of this programme is to reduce carbon emissions.

Agriculture

The Government is pleased with the longer-term trend of emissions reductions in the agriculture sector and is confident that the agricultural sector is on track to meet the first carbon budget.⁵

The Government is determined that agriculture should play its part in reducing greenhouse gas emissions and agrees with the CCC that it is

important a robust framework for monitoring changes in farming practice based on survey data is developed. The indicator and monitoring framework that is currently being developed as part of the 2012 Review⁶ of Progress towards reducing emissions from agriculture will achieve this.

Waste

Waste greenhouse gas emissions in 2010 fell by 3.4%, continuing a longer term trend driven by EU targets set under the EU Landfill Directive.⁵ The Government recognises the importance of diverting food, paper and card waste from landfill; and that is why we have set a number of specific policies in place to achieve this.

Already, there are more food waste collections today than ever before, and the number continues to rise. Paper collection rates are very high and increasing steadily, reaching 68% of the paper consumed in the UK in 2009. The Government also directly intervenes to encourage high rates of paper recycling, both through regulation and Voluntary Responsibility Deals, with the latter setting out ambitious recycling targets.

When dealing with food waste the Government's priority remains taking steps to prevent its occurrence in the first place. This approach offers the greatest environmental and financial benefits to society.

Delivering change

This publication sets out the Government's response to the specific points and recommendations raised by the CCC in its annual progress report. It also seeks to set this in the context of the broader package of policies and programmes which the Government is putting in place in order to meet legislated carbon budgets, and the medium and long-term goals set out in the Climate Change Act 2008. As always, the Government is grateful to the CCC for its analysis, and for its continued role as an independent adviser on climate change, one of the greatest challenges facing our society and our economy.

⁵ <http://www.decc.gov.uk/assets/decc/11/stats/climate-change/4817-2011-uk-greenhouse-gas-emissions-provisional-figur.pdf>

⁶ <http://www.defra.gov.uk/environment/climate/sectors/agriculture/>

Chapter 1: Economy-wide emissions and a forward look at Government strategy

1.1 The provisional emissions estimates for 2011,⁷ published earlier this year, on the performance of UK greenhouse gas emissions against UK emission reduction targets showed that:

- the net UK carbon account, which includes the impact of trading within the EU ETS, decreased by 4% to 570.4 MtCO₂e in 2011 (from 593.9 MtCO₂e in 2010); and
- territorial emissions, which exclude the impact of trading within the EU ETS, decreased by 7% to 545.5 MtCO₂e (from 586.3 MtCO₂e in 2010).

1.2 This decrease in emissions between 2010 and 2011 resulted primarily from a decrease in residential gas use, which is consistent with the CCC's explanation for the decrease. However, a reduction in demand for electricity and greater use of nuclear power for electricity generation also contributed to the overall decrease in emissions.

1.3 Figure 2 summarises these results alongside equivalent figures for 2010.

Pace of emissions reductions

1.4 Figure 2 shows that the net UK carbon account had decreased by 26% in 2011, relative to the carbon budgets baseline.⁸ The first carbon budget requires that total UK greenhouse gas emissions do not exceed 3,018 MtCO₂e over the five year budget period (2008-12). This is approximately 22% below the carbon budget baseline level on average over the period.

1.5 Figure 3 summarises the UK's progress towards meeting the first carbon budget by comparing the average emissions per annum allowed over the budget period with the average emissions to-date over the budgetary period.

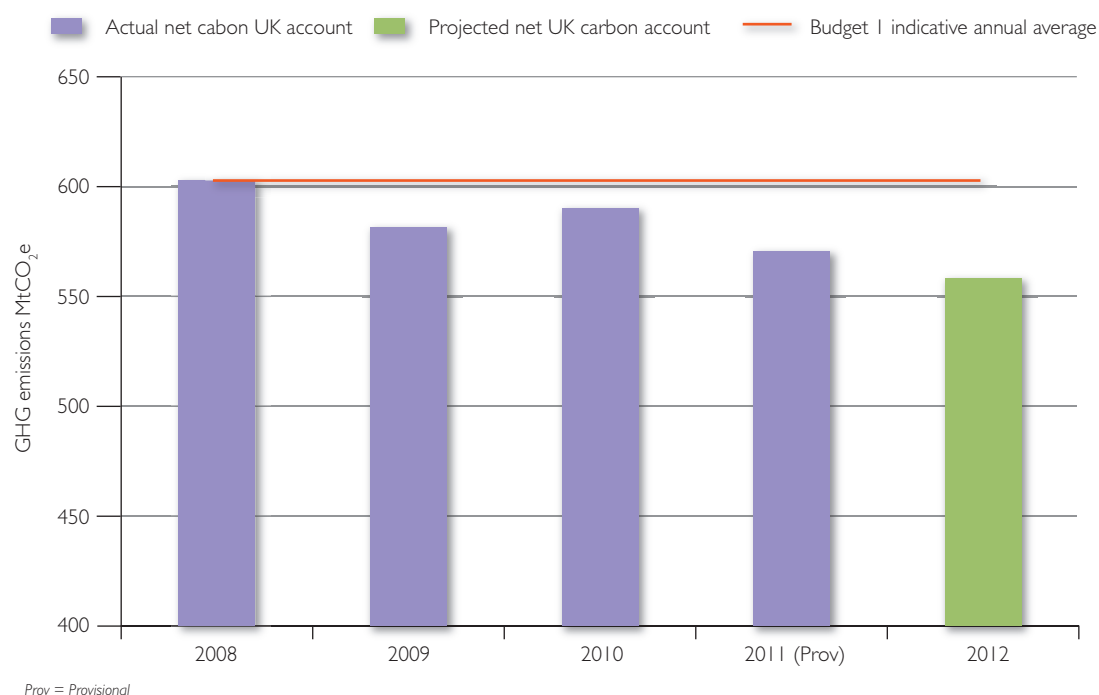
Figure 2: Emissions over 2010 and 2011

Scope	Baseline (MtCO ₂ e)	Emissions (MtCO ₂ e)		Change from baseline (%)	
		2010	2011 (p)	2010	2011 (p)
Territorial emissions (excluding the impact of trading within the EU ETS)	770.8	586.3	545.5	-23.9%	-29.2%
Net UK carbon account (including the impact of trading within the EU ETS)		593.9	570.4	-23.0%	-26.0%

⁷ Territorial emissions and the net UK carbon account estimates for 2011 are provisional and may be subject to change. More details on the provisional emissions figures for 2011 can be found here: http://www.decc.gov.uk/en/content/cms/statistics/climate_stats/gg_emissions/uk_emissions/uk_emissions.aspx

⁸ The carbon budgets baseline consists of emissions of carbon dioxide, methane and nitrous oxide in 1990, and of F-gas emissions in 1995. Unlike the Kyoto target baseline, the carbon budgets baseline is not fixed and can change every time the inventory is updated.

Figure 3: Progress against the first carbon budget



1.6 Emissions have averaged 587.1 MtCO₂e over the course of 2008–11, meaning the UK will meet its first budget unless emissions in the final year (2012) exceed 669.5 MtCO₂e. The Department of Energy and Climate Change's (DECC's) Updated Energy and Emissions Projections, published in October 2012, suggest the UK will be comfortably below this level in 2012.

1.7 The Government's latest projections suggest the UK is on track to meet its first three legislated carbon budgets with current planned policies. The Government expects to reduce emissions to below the first three carbon budgets by 90, 132, and 71 MtCO₂e respectively on central forecasts (see figure 4). This forecast of over achievement is

Figure 4: Projected performance against the first four carbon budgets (MtCO₂e)

	First Carbon Budget (2008–12)	Second Carbon Budget (2013–17)	Third Carbon Budget (2018–22)	Fourth Carbon Budget (2023–27)
Carbon Budget Levels	3,018	2,782	2,544	1,950
Territorial Emissions	2,897	2,556	2,166	2,089
Net UK Carbon Account	2,928	2,650	2,473	2,155
Projected performance against first four carbon budgets.	–90	–132	–71	205
Uncertainty range ⁹	–85 to –95	–99 to –178	–11 to –142	100 to 296

Negative (–) implies under budget

⁹ These values encompass 95% of all possible CO₂ emissions outcomes modelled.

consistent with the CCC's call for outperformance on the level of the first three carbon budgets.

1.8 In 2011 the Government analysed the effect of lower than expected growth on its emissions projections. The findings showed that we would have been on track to meet our first three carbon budgets even under our pre-recession (Budget 2008) growth assumptions, although the level of overachievement would not have been as substantial.

1.9 The fourth carbon budget, which Parliament approved in June 2011, demonstrates the Government's commitment to drive the transition to a secure, low carbon economy in the UK and combat the challenge of dangerous climate

fourth carbon budget.¹⁰ In the Carbon Plan, the Government set out a number of scenarios for bridging the previous assumed shortfall (181 MtCO₂e).¹¹ This revised estimation reflects a number of factors, including revised population projections, fossil fuel price projections, inventory corrections, and revisions to estimated savings from policies.

1.11 To reflect the nature of the EU ETS, the UK's level of emissions within the traded sector is considered for accounting purposes to be the same as the UK's share of the EU ETS cap over the period. The fourth budget was set assuming that the UK's traded sector cap would be 690 MtCO₂e over the period.¹² This represents a

The Government's strategy for delivering carbon budgets

The Government set out in the Carbon Plan its strategy for meeting carbon budgets, to be achieved through three main phases of action, with the aim of keeping the UK on a trajectory to achieving the 2050 target. The three phases were:

1. **Complete and prepare:** From now until 2020, focus on energy efficiency and completing the cost effective measures begun in the previous decade, including: cavity wall insulation, preparing for the future through innovation support, and building markets. This includes deploying the key technologies which will be needed to support the decarbonisation of power, buildings and road transport in the 2020s and beyond.
2. **Mass deployment:** In the 2020s and 2030s, moving to large scale deployment of key technologies such as low carbon heating and electric vehicles.
3. **Finalising:** From 2030 onward, tackling "harder to decarbonise" sectors such as industry and agriculture. This will require a range of solutions to be tested in the 2020s, such as switching from oil and gas to bio-energy or low-carbon electricity in industrial processes, deploying carbon capture and storage or, in agriculture, employing farm practices which prove beneficial and cost-effective as a result of research or improvements in technology.

change. The level of this budget was set in line with the CCC's recommendation – 1,950 MtCO₂e, or around 50% below the baseline.

1.10 Based on current planned policies there is an expected shortfall of 205 MtCO₂e over the

significant decrease in the level of the cap for the traded sector from the first three carbon budgets, and a significant increase in the level of ambition of greenhouse gas emissions reductions.

¹⁰ The projected performance against the fourth carbon budget assumes an EU ETS cap of 690 MtCO₂e.

¹¹ <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/carbon-plan/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf>

¹² <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/carbon-plan/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf>

1.12 The 2014 review will consider the EU ETS trajectory and if, at that point, our domestic commitments place us on a different emissions trajectory to the EU ETS trajectory we will, as appropriate, revise up the level of the fourth budget to align it with the actual EU trajectory. The UK is continuing to push for the EU to show more ambition by moving to a tighter 2020 emissions target, which in turn will drive a more stringent EU ETS cap.

1.13 Since the last progress report, which covered emissions for 2010, the Government has introduced and implemented a number of policy initiatives, and continues to develop this framework. Achieving the emission reductions target over the fourth budget, and out to the 2050 target, represents a big, but achievable, challenge. Before the end of the year and over the first half of 2013, the pace of implementation and reform will continue as the Government works towards its goal of establishing the UK as a low carbon society.

1.14 Through transitioning from the development to the implementation stage, the Government's long-term aim is to deliver: a greener, more energy efficient economy with more and better insulated homes (through the Green Deal and ECO); decarbonisation of the electricity market (the EMR) – boosting investor confidence in new low-carbon energy infrastructure; increased renewable energy capacity; and greener more efficient transport. Together, these reforms will keep the UK on a trajectory to meet its 2050 target.

Chapter 2: Power Sector Emissions

Emissions Trends

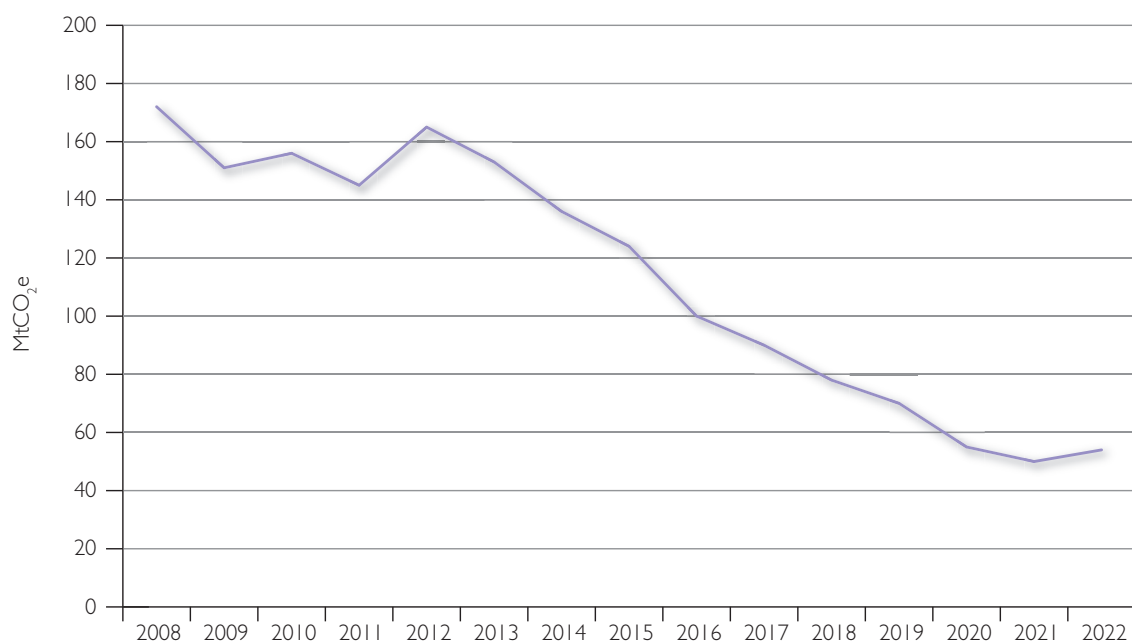
2.1 The Government's provisional estimates for 2011 indicate that emissions in the power sector fell by 7%, as the CCC's analysis has indicated. This was primarily the result of reductions in demand and the carbon intensity of generation. The fall in demand was the result of warmer winter weather, whilst the reduction in carbon intensity was the result of an increased share of renewables and nuclear generation in the mix.

2.2 Figure 5¹³ shows the latest emissions projection trajectory for the power sector over the first three carbon budgets. Emissions from power stations are expected to decrease by 69% relative to 2008 levels.

Renewables

2.3 Total electricity generation from renewables in 2011 amounted to 34,410 GWh – an increase of 33% on 2010. The largest absolute increase

Figure 5: Emissions projections for power stations for the first three carbon budgets



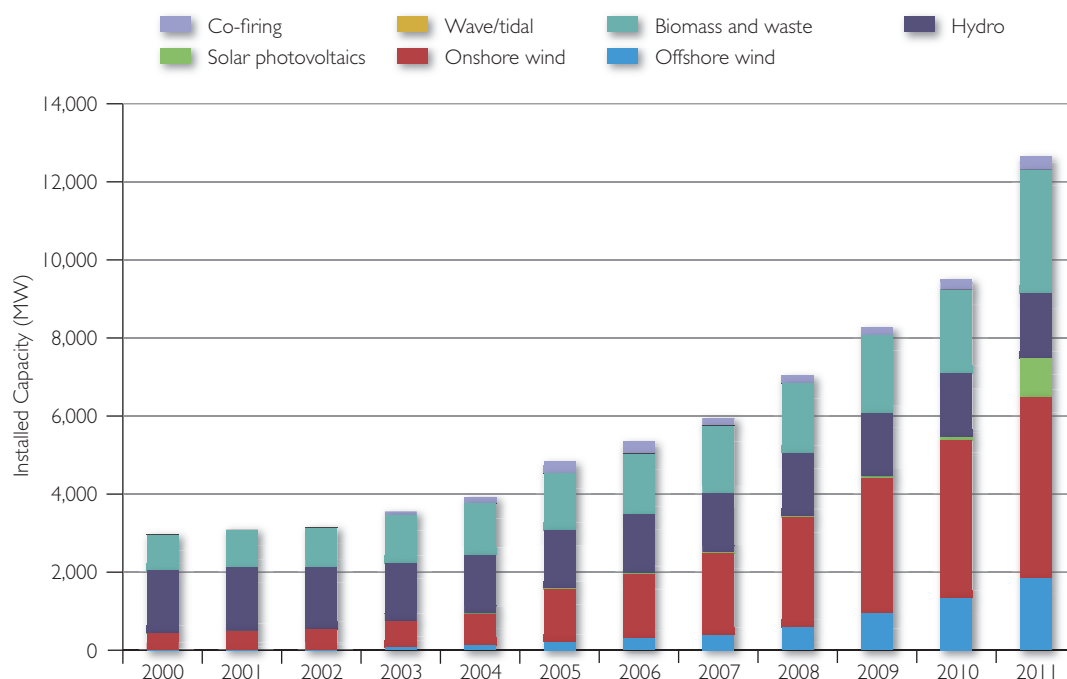
¹³ Emissions projections derived from Updated Emissions Projections (published 15 October, 2012). This chart is for illustrative purposes only.

in generation came from onshore wind which increased by 45% on the previous year.

2.4 Installed generation capacity reached 12,310 MW at the end of 2011, an increase of 33% during the year¹⁴ (see figure 6); this excludes the capacity within conventional generation stations that was used for co-firing (a further 338 MW). The largest contributor towards the increase was 899 MW from solar photovoltaics, representing more than an eleven-fold increase on the capacity installed at the end of 2010. This was a result of the inclusion of photovoltaics in the Feed-in Tariff scheme.

2.5 Figure 7 sets out the results of analysis of the potential for growth in offshore wind generation out to 2020. The analysis suggests that industry has the potential to bring forward between 10 and 26 GW by 2020 ('industry low' and 'industry high' scenarios), with a central range of up to 18 GW. Achieving the top end of the central range would require an annual growth rate of up to 30%.¹⁵

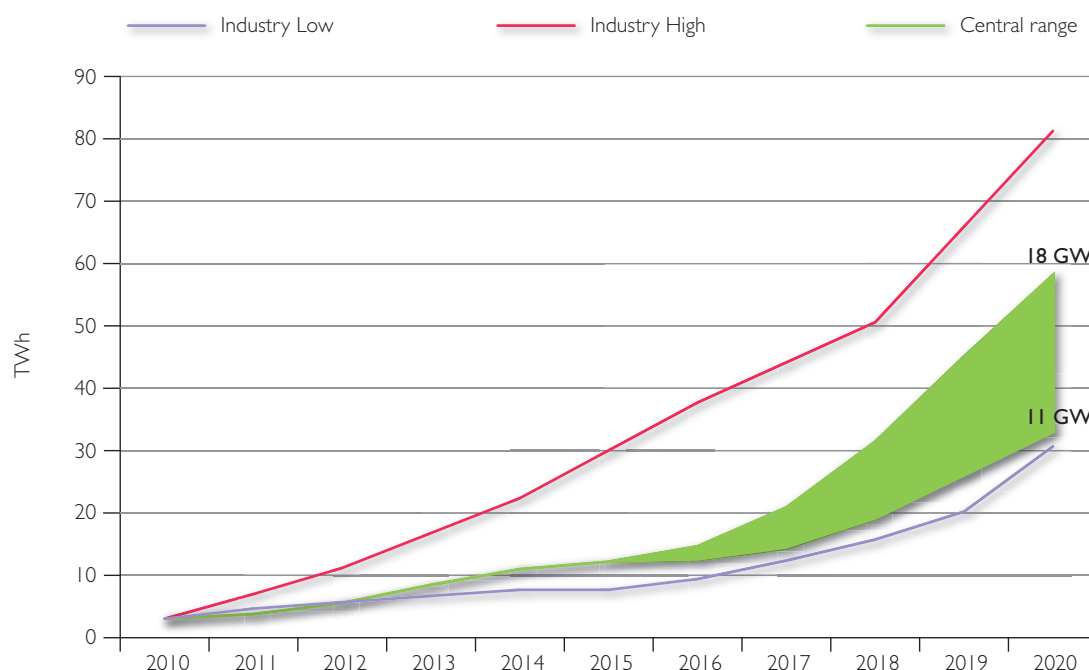
Figure 6: Cumulative renewable electricity installed capacity (MW)



¹⁴ DUKES 2012 Chapter 6: <http://www.decc.gov.uk/assets/decc/11/stats/publications/dukes/5956-dukes-2012-chapter-6-renewable.pdf>

¹⁵ <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/renewable-energy/2167-uk-renewable-energy-roadmap.pdf>

Figure 7: Deployment potential to 2020 for offshore wind



2.6 The UK has the best offshore wind resources in Europe. Recent independent analysis for DECC suggests the UK can maintain its place as a global leader in offshore wind with the potential to deploy over 40 GW by 2030. Such significant capacity, enough to power the equivalent of all the homes in the UK, can play a vital role in increasing our energy security and decarbonising power generation.¹⁶

CCC Recommendations and Government response

Recommendation 1

Urgently resolve financial uncertainty for renewable projects by confirming support levels under the Renewables Obligation.

2.7 The Government accepts the CCC's recommendation and agrees it is important that industry be given as much financial certainty as is practical in order to support continuing high levels of investment in the renewables sector.

2.8 On 25 July, the Government published its decision on the levels of financial support that will be available through the Renewables Obligation

(RO) for large-scale renewable electricity generators over the period 2013–17. This followed a comprehensive, rigorous, evidence-based review of RO subsidies carried out over the last 18 months.

2.9 Since 2002, the RO has been the mainstay of support for large-scale renewable electricity industry. It has helped to bring about a five-fold increase in the proportion of electricity generation that is renewable, from 1.8% of total electricity generation in 2002 to 9.7% by the end of 2011. By the end of the first quarter of this year, renewable electricity capacity totalled 13GW, which is a 36% increase on the same time last year. Since April 2011, industry has announced over £11.3 billion of investment in the renewables sector, potentially supporting around 22,000 jobs, contributing to the Coalition Government's objective to rebalance the economy and support economic growth.

2.10 The Government's recent RO decision provides certainty for developers and will ensure continuity of support through the transition towards the new Contracts for Difference, to be introduced as part of the EMR. It will help unlock

¹⁶ Source: <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/renewable-energy/2167-uk-renewable-energy-roadmap.pdf>

generation and network capital investments worth around £20-25 billion in today's prices in the period 2013–17.

2.11 The Government still plans to consult and continue to engage with industry and wider stakeholders on a number of small issues, to ensure we have precisely the right evidence to fully implement our proposals; and will consult again shortly on the level of subsidy for large-scale solar photovoltaic generation.

2.12 Analysis of the evidence gathered as part of the separate comprehensive review of the Feed-in-Tariff scheme suggests that RO support rates should be set significantly lower than was proposed in the consultation. Because such a reduction in support would represent a significant departure from the consultation proposals and would be based largely on new evidence, which was not published until the RO consultation had closed; the Government considers it appropriate to re-consult on this issue. The Government will also soon be consulting on a monitoring and review process for biomass co-firing and conversions to ensure effective cost control; and on a supplier cap for dedicated biomass generation, in light of evidence submitted as part of the consultation.

2.13 Subject to Parliamentary and State Aid approval, the new subsidy levels will come into effect on 1 April 2013.

Recommendation 2

Move forward with demonstration of carbon capture and storage (CCS), selecting projects by end-2012 and closing by end-2013; include gas CCS demonstration; develop long-term strategy including commercialisation approach (e.g. support for the next phase of investment following demonstration), storage sites and approach to CO₂ pipeline investment which anticipates future demand.

2.14 The Government agrees with the CCC that there is a need to move forward with the commercialisation of CCS. The Government is absolutely committed to CCS and recognises it has an essential part to play in decarbonising coal and gas-fired power stations and large industrial

emitters. To this end, the Government continues to actively work to support the deployment of CCS technology.

2.15 In April 2012, the Government published the CCS Roadmap. This set out the comprehensive package of measures the Government is taking to develop cost competitive CCS in the 2020s, including:

- The CCS Commercialisation Programme (the new CCS competition) with £1 billion in capital funding and additional support available through Contracts for Difference.
- A £125 million, 4-year, co-ordinated R&D and innovation programme.
- Development of a market for low carbon electricity through EMR, including availability of Feed-in Tariff Contracts for Difference for low carbon electricity.
- Commitments to working with industry to address other important areas, including developing the CCS supply chain, storage and assisting the development of CCS infrastructure.
- International engagement focused on sharing knowledge generated through the UK programme and learning from other projects around the world.

2.16 The CCS Roadmap also announced the formation of an industry-led CCS Cost Reduction Task Force, which provides an industry view of the actions needed to make CCS cost-competitive with other low carbon technologies. The Task Force has already produced important work by bringing together the UK's expertise on CCS development, and by drawing on international knowledge to identify key issues that need to be addressed. It has established three workstreams looking at the scope for cost reduction in:

1. Generation and capture;
2. Planning and infrastructure; and
3. Commercial and financing.

2.17 The Task Force is expected to present to DECC Ministers its interim findings in the

autumn and a final report in early 2013. The Government will consider carefully any findings and recommendations with a view to deciding what if any further steps might be required to capture any potential cost savings identified.

2.18 Substantial progress has been made with the CCS Commercialisation Programme, which was developed building on both the lessons learnt from the first competition and views from industry. The competition – which was open to a full range of projects including coal and gas, and invited bids for both full and part chain proposals – closed for bids on July 3, 2012. The bids are now being assessed and evaluated before decisions on which projects to support further are taken in the autumn.

2.19 The CCC has noted in their report that ideally the UK portfolio of projects would include at least one post-combustion gas project. The Government agrees with the CCC that gas CCS projects are strategically important and that is why a decision was taken to open the competition to gas as well as coal. Whether a gas project is selected or not will depend on an assessment of which projects take us furthest towards the Outcome: *“As a result of the intervention, private sector electricity companies can take investment decisions to build CCS equipped fossil fuel power stations, in the early 2020’s, without Government capital subsidy, at an agreed Contracts for Difference Strike Price that is competitive with the strike prices for other low carbon generation technologies”*.¹⁷

Recommendation 3

Set a clear carbon objective for the Electricity Market Reform (i.e. to achieve a carbon intensity of the order of 50 gCO₂/kWh by 2030 through investment in and development of a low-carbon technology portfolio); make commitments on minimum level of investment in less mature technologies subject to cost conditions being met.

2.20 The Government is committed to decarbonisation as set out in the Climate Change Act and the legally binding carbon budgets, which limit UK economy-wide emissions. As we take

forward the development of EMR we will ensure it is consistent with this legal framework.

2.21 The Government is committed to a diverse portfolio of power generation technologies, including renewables, nuclear, and fossil fuels. Already we have set out the future levels of support for the renewables industry under the Renewables Obligation and we are enabling new nuclear power stations to come forward by removing unnecessary obstacles to investment. The Government will announce which CCS commercialisation projects to support in the autumn and we will set out our strategy on the role of gas as part of the Gas Generation Strategy this autumn. This is about ensuring enough new capacity comes forward to maintain security of supply, both to support the system as more intermittent and inflexible low carbon generation comes online, and to meet every day demand.

2.22 The Government welcomes the CCC’s finding that power sector emissions are currently in line with the CCC’s decarbonisation trajectory set out in their indicator framework; and that in 2011 achievable emissions intensity improved by 35g (11%) compared to 2010, decreasing from 308 gCO₂/kWh to 273 gCO₂/kWh.

Recommendation 4

Set out detailed implementing arrangements for EMR by the end of 2012; allow renewable projects to be considered for early eligibility for Contracts for Difference under EMR (along with nuclear and CCS); make EMR support for intermittent generation as close to feed-in tariffs as possible.

2.23 The Government accepts the need to provide further detail on the arrangements for EMR.

2.24 In May 2012, DECC published an indicative EMR implementation roadmap which set out the indicative key milestones, processes and activities on EMR between 2012 and 2020. Under current plans an updated version of this roadmap will be published when the Energy Bill is introduced into Parliament.

¹⁷ <http://www.contractsfinder.businesslink.gov.uk/Common/View%20Notice.aspx?site=1000&lang=en¬iceid=560937&fs=true>

2.25 The EMR process has been designed to create long-term certainty and enable developers to gain the investment they need, helping the UK transition to a low carbon economy.

2.26 In May 2012, DECC published a draft Contracts for Difference Operational Framework, which provided both an update to industry and enabled further engagement on key issues. This design process is continuing. Under current plans the final Operational Framework will be published this autumn.

2.27 The Government is committed to working with developers to enable early investment decisions, including those required ahead of EMR implementation, to progress the timetable wherever possible. This includes renewables projects that meet the characteristics set out in the Technical Update in December 2011.

2.28 As a long-term instrument for removing price volatility, Contracts for Difference will provide long-term support for all forms of low carbon generation, enabling more investment to come forward sooner, at a lower cost of capital, including innovative technologies with commercialisation potential.

2.29 It is not the Government's intention to pick winners by reserving capacity. The aim is to design a system that is durable and flexible for both Government and investors. The Government's policy is about keeping options open between technologies, whilst ensuring the UK remains on target to transition to a low carbon economy.

2.30 The proposed reference price source for the intermittent Contracts for Difference is designed to maximise revenue stability for intermittent generation. In particular, the Government has proposed the intermittent Contracts for Difference reference price will have no averaging period.

2.31 Intermittent generation will be able to sell, at the reference price, a share representing its actual forecast at the day ahead stage. The Government accepts this leaves forecasting risk with intermittent generation and our view is that intermittent generation should have an incentive

to actively manage its output into the market. The alternative is for intermittent generation to sell power very close to delivery – akin to spilling. This would not provide any information to the System Operator and would increase the costs and complexity of balancing the system.

Recommendation 5

Ensure a major role for the Green Investment Bank in mobilising project finance for offshore wind investment (e.g. to reach around 12 GW by 2020).

2.32 The Government accepts the CCC's recommendation. Offshore wind is one of the UK Green Investment Bank's five priority sectors and this will ensure the Bank plays a major role in mobilising capital into offshore wind, including enabling new pools of capital to become involved in this sector, for example, project finance and institutional investment.

Recommendation 6

Engage with EU partners to strengthen the carbon price in the EU ETS.

2.33 The Government accepts the CCC's recommendation and considers it an endorsement of the approach it is already taking.

2.34 Though the Government considers the EU ETS to have been successful in delivering emissions reductions (the CCC's report found that traded emissions fell by 7% in 2011 and remained below the UK's share of the EU ETS cap); it is clear the EU ETS is not sending the signals needed by industry to encourage and drive the necessary investment in low carbon technology and infrastructure required for a low carbon transition.

2.35 On 25 July 2012, the European Commission presented proposals to strengthen the EU ETS in the short-term. The Government believes a long-term solution is required, which involves strengthening the EU ETS in order to ensure it provides a clearer and stronger signal to low carbon investors, in line with emissions reduction targets out to 2050. Making these changes would give investors the confidence they require to

invest capital in developing low carbon technology and infrastructure.

2.36 The Government continues to study the latest EU proposals and will engage with our partners as negotiations in Brussels unfold.

Additional CCC findings

Nuclear

2.37 The Government notes the CCC's comments concerning new nuclear and their concerns regarding the existing project pipeline.

2.38 The Office for Nuclear Development (OND) in DECC continues its work on developing and delivering a policy framework that will enable commercial investment in new nuclear generating capacity. As part of this work, OND engages with potential developers and key stakeholders, in order to identify potential barriers to investment and discuss the development of key policy areas, including EMR.

Chapter 3: Buildings Emissions

Emissions Trends

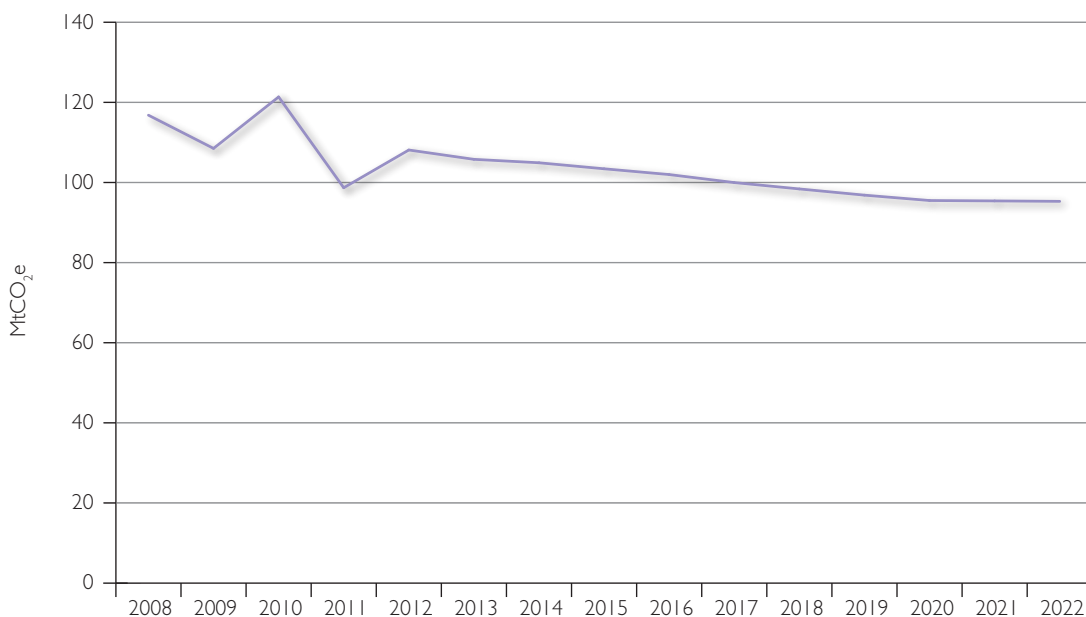
3.1 Provisional Government estimates indicate that direct residential CO₂ emissions in 2011 fell by 22% to 67 MtCO₂. This again was largely the result of the milder winter in 2011 in comparison to the colder than average winter months of 2010.

3.2 Figure 8¹⁸ shows the latest emissions projection trajectory for the buildings sector over the first three carbon budgets. Emissions from

buildings are expected to reduce by 18% by 2022 relative to 2008 levels.

3.3 Figure 9 shows historical and projected deployment of cavity wall insulation over the period of the first three carbon budgets. The total number of cavity wall insulations were nearly 12.5 million as of 2011. The Green Deal and ECO could build on this progress by taking the total number of cavity wall insulations to just over 15.75 million by 2022.¹⁹

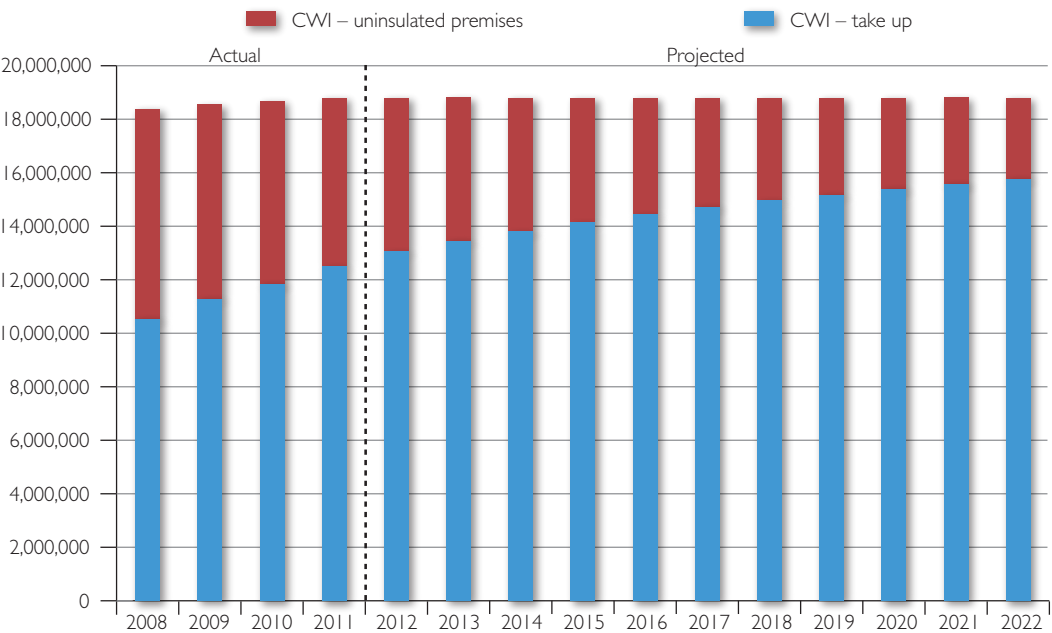
Figure 8: Emissions projections in the buildings sector for the first three carbon budgets



¹⁸ Emissions projections derived from Updated Emissions Projections (published 15 October, 2012). This chart is for illustrative purposes only.

¹⁹ The insulation projections contained in Figures 8-10 are based on the central case estimate contained in the recently published Green Deal and ECO impact assessment: <http://www.decc.gov.uk/assets/decc/11/consultation/green-deal/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf>. The historical insulation data reflects total insulation levels and includes new builds. The projected insulation figures do not include new build. For the purpose of the insulation charts it is assumed that the total stock of premises (insulated and uninsulated) does not change from 2011 onwards. The uninsulated total includes properties where it is unknown if the property is insulated, as well as uninsulated properties which are easy to treat, hard to treat or where it would not be possible to install insulation.

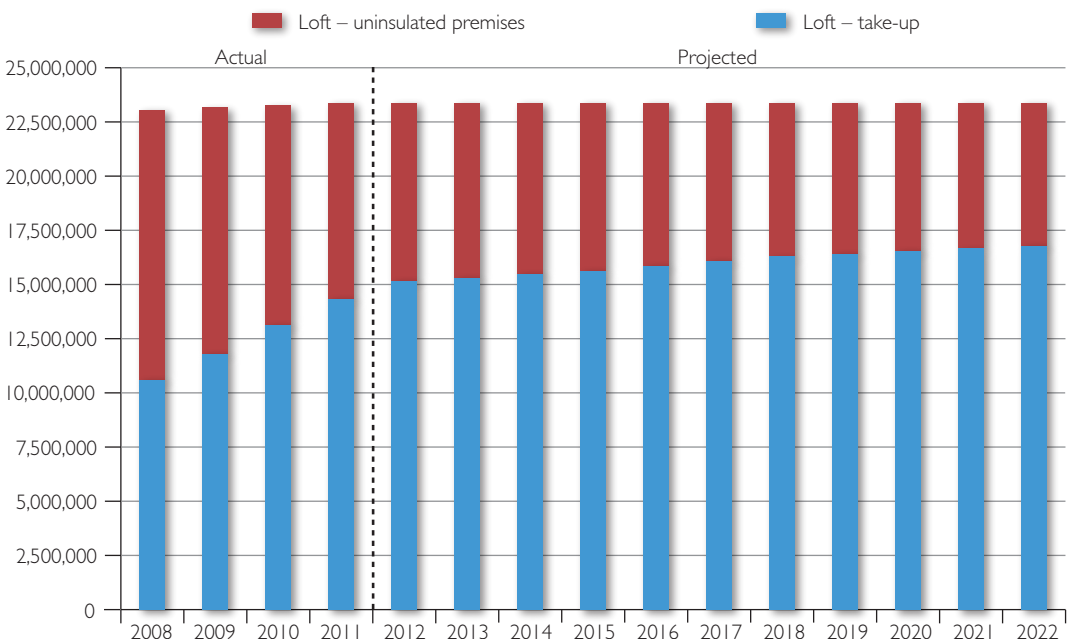
Figure 9: Historical and projected deployment of cavity wall insulation and remaining potential over the first three carbon budgets (cumulative)



3.4 Figure 10 shows historical and projected deployment of loft insulation over the period of the first three carbon budgets. The take-up of loft insulations has also been strong with nearly 14.35 million insulations as of 2011. Again, the Green Deal and ECO could build on this progress by

taking the total number of insulations to nearly 16.8 million by 2022. Of the remaining properties with less than 125mm of insulation (the cut-off point being used to define insulated/uninsulated) the majority already have some insulation, with only 1% estimated to have no insulation at all.

Figure 10: Historical and projected deployment of loft insulation and remaining potential over the first three carbon budgets (cumulative)



3.5 Figure 11 shows historical and projected deployment of solid wall insulation over the period of the first three carbon budgets. Take-up of solid wall insulations, as noted by the CCC in their report, has not been as strong as cavity wall and loft insulations – total insulations were nearly 123,000 as of 2011. It is estimated that the Green Deal could increase the number of solid wall insulations to over 1.1 million by 2022.

wall insulations and 810,000 loft insulations in 2012. By the end of the year around 60% of lofts will be fully insulated and only around 1% of lofts will be left with no insulation at all. It is therefore inevitable that the number of loft insulations being delivered will decline over time.

3.8 Once individual consumers have a mechanism (which they will do in the Green Deal) to allow these cost-effective measures

Figure 11: Historical and projected deployment of solid wall insulation and remaining technical potential over the first three carbon budgets (cumulative)



3.6 Concerning figures 9-11, the remaining stock contains premises which are classified as difficult to reach.

CCC Recommendations and Government response

Recommendation 7

Strengthen incentives for loft and cavity wall insulation prior to launch of the Green Deal in autumn 2012.

3.7 The Government notes the CCC's recommendation and also notes indications that there will be higher delivery rates of both loft and cavity wall insulation during 2012 as the deadline for Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) targets is December 31st – current projections assume there will be 562,000 cavity

to pay for themselves, there is far less need for Government schemes to continue supporting them. Government support should be targeted where it is needed most. ECO is intended to support more expensive measures, such as solid wall insulation and the harder to treat cavity wall insulations, and the poorest and most vulnerable households.

3.9 Based on the evidence submitted as part of the Green Deal and ECO consultation, the Government has made a number of important changes to the ECO framework to strengthen incentives for loft and cavity wall insulation. We have:

- Made sure far more cavities are eligible for ECO support by including 2.8 million hard to treat cavities. Our analysis suggests that ECO

will deliver around 830,000 cavity wall measures to March 2015.

- Made sure more lofts are eligible for support by defining broad low income areas where ECO can fund loft insulation, and by allowing ECO to support loft insulation when delivered in packages. The revised impact assessment shows that ECO will now deliver 364,000 loft insulation measures before March 2015.

3.10 The Government recognises additional support, in the form of a cash-back scheme, could help smooth this transition whilst also building broader take-up of other energy efficiency measures under the Green Deal.

3.11 The Government will launch a cash-back scheme in January 2013, which will reward early customers who have energy efficiency measures installed under the Green Deal. This will include loft and cavity insulation. Cash-back payments for any other qualifying improvements will be conditional on the householder also installing loft and cavity insulation, where these are recommended by the Energy Performance Certificate (EPC). This requirement will further support installation of loft and cavity insulation.

Recommendation 8

Retain the CRC, but with reduced administrative burden, and redesigned league table to strengthen reputational incentives. Consider scope for rationalisation of policies covering the non-residential sector to one carbon price instrument, in conjunction with league tables and mandatory carbon reporting.

3.12 The Government notes the CCC's recommendation concerning a simplified CRC Energy Efficiency Scheme (CRC). Between March and June 2012, the Government consulted on a wide-range of proposals to simplify the CRC. The Government is still in the process of considering the consultation responses and will shortly make an announcement on the future of the CRC.

Recommendation 9

Start the non-residential Green Deal no later than January 2013.

3.13 The Government accepts the CCC's recommendation. The non-domestic Green Deal will be available at the same time, the end of January 2013, as domestic Green Deal.

3.14 From October 2012, some businesses may choose to pay upfront for Green Deal accredited assessments and installations; and from 28 January 2013, as with domestic consumers, non-residential customers will also be able to sign final Green Deal plans where these are offered by Green Deal providers.

3.15 In developing the implementation timetable, the Government listened to the clear message from stakeholders that they support a managed, tested and careful introduction of the Green Deal to ensure successful full scale delivery.

Recommendation 10

Announce ambitious standards for private rented regulation in the non-residential sector by the end of 2013.

3.16 The Government accepts the calls from the CCC for confirmation of the details surrounding the minimum energy efficiency standards; and will turn its attention towards these following the establishment of the Green Deal Framework later this year. The Government will work with the sector to develop the details of the policy in advance of a full public consultation.

3.17 The Energy Act 2011 contains the provisions to introduce a minimum energy efficiency standard (likely to be set at EPC band 'E') for the residential and non-residential sectors from 2018. The use of these regulation making powers is conditional on there being no net or up-front costs to landlords. Government has committed to working with the sector in advance of regulations, in order to encourage uptake of energy efficiency measures through the Green Deal.

Recommendation 11

Include the residential sector in the Renewable Heat Incentive (RHI) from the summer 2013, make eligible for Green Deal Finance in conjunction with the RHI, and introduce approaches to address non-financial barriers.

3.18 The Government accepts in part the CCC's recommendation and is committed to expanding the Renewable Heat Incentive (RHI) to the residential sector and delivering a long-term scheme to this effect.

3.19 In September, the Government launched a consultation on proposals for a domestic RHI scheme. Under current planning assumptions it is anticipated this new scheme will be in place in summer 2013. Once in place, it will contribute to delivering the heat proportion of the UK's 2020 renewable energy target and further the Government's aim of decarbonising households. The proposals include a tariff to encourage take-up of renewable heat and will cover upfront and on-going costs as well as compensation for non-financial barriers.

3.20 The Government is working towards introducing a domestic RHI scheme that offers sustainable support and delivers renewable heat in the most cost-effective way, building on the experiences from schemes such as the Renewable Heat Premium Payment (RHPP) and Feed-in Tariffs (FITs).

3.21 The introduction of the RHPP was the first important step in incentivising take-up of renewable heat in the domestic sector. The RHPP includes a metering and monitoring programme, which has provided information and learning to the Government on consumers' experiences of using these technologies. This learning will allow the Government to deliver a more robust and effective long-term scheme to support renewable heat in the domestic sector.

3.22 The Government is considering the position on whether FITs or RHI payments can be claimed if the customer also has Green Deal Finance. Our ambition is that in future it should be possible for consumers to receive both Green Deal Finance and RHI or FIT payments. However, this cannot be confirmed until further work has been done to ensure there would not be inappropriate double subsidy. Depending on the final financial structure of both schemes, the Government may also need to consider with the European Commission whether there are any state aid

implications. The Government plans to finalise the policy position on this issue as soon as possible.

3.23 It will not be possible, however, to include expected FITs or RHI payments in the Golden Rule calculation for Green Deal Finance when the scheme is launched in 2013. The savings estimates on which Green Deal Finance is calculated must be based on the performance of measures in terms of avoided home energy use, not potential future returns on investment.

3.24 The current consultation on a domestic RHI sets out a number of proposals and the final design of the scheme will take into account the evidence submitted as part of the consultation process. Future funding profiles for the scheme will be set through future spending review processes on the basis of the renewable heat needed to deliver the UK's EU renewables target and longer term carbon targets in a cost effective way.

3.25 The Government expects take-up rates of RHI to increase once the domestic scheme is introduced and changes to the non-domestic scheme come into force. The Government looks forward to renewable heating playing a much greater role in fulfilling the UK's heat needs in the years to come.

Additional CCC findings

Monitoring and evaluating the Green Deal and ECO

3.26 The CCC has stated that both the Green Deal and ECO will require close monitoring and the flexibility to modify design. The Government will use regular management information – largely gathered from data routinely generated in order to support the operation of the Green Deal and ECO – to gain an understanding of the extent to which the programme is progressing. This approach will prevent additional financial burdens being created for Green Deal participants purely for monitoring purposes. Alongside this internal monitoring, the Government will publish regular statistical reports, making headline figures publicly available.

3.27 Also, Government-funded evaluation research will focus on the capability of the programme and the outcomes it generates. It will build on the information generated from monitoring statistics and provide evidence to inform longer-term benefits. This will allow for a greater understanding of the capability of the programme and how it may be improved, as well as focussing on how and why outcomes are achieved.

The Hills Review

3.28 The CCC noted in their report that the Hills Review²⁰ recommended that 50% of ECO would need to be targeted at the fuel poor.

3.29 Professor Hills concluded in his report that targeted energy efficiency schemes are one of the most effective means of tackling fuel poverty; and he recommended that around 50% of ECO should be set aside for the Affordable Warmth obligation to reduce fuel poverty. The changes the Government is proposing will mean that over 40% of ECO will be targeted specifically at low income households, with the expectation that over 50% of ECO as a whole will benefit low income households and areas.

3.30 It is expected that the ECO Affordable Warmth and Carbon Saving Communities obligations together will generate investment in home thermal efficiency improvements equivalent to around £540m per year. The Government's current estimates, which depend on suppliers delivering the most cost-effective packages of measures, indicate around 230,000 low income households could be supported each year through the ECO. The number of households will depend on the delivery models adopted by participating energy suppliers.

3.31 The Government launched a consultation in September, seeking views on our proposed intention in relation to the recommendations from the Hills Fuel Poverty Review.

CESP and CERT

3.32 The Government agrees with the CCC that more progress needs to be made by obligated companies on CESP and CERT.

3.33 The Government considers existing targets under CERT and CESP to be achievable and is pleased that energy companies are responding positively to the firm stance taken on this issue to-date.

3.34 A company would be in breach of its licence should it fail to meet any of its CERT or CESP targets. It would then be for Ofgem to determine whether to take enforcement action, and the nature of any required enforcement action.

3.35 The Government has been working with the energy companies and other key players in the delivery of CERT and CESP to help facilitate delivery and share best practice wherever possible within the scope of the legislation. The Government expects companies to build on the lessons learnt as they transition to the Green Deal and ECO.

Warm Front

3.36 Whilst the Government recognises there has been a drop in the number of homes insulated by Warm Front between the calendar years 2010 and 2011, the decrease is closer to 50%, not 55% as the CCC have stated in their report (see figure 12).

Figure 12

	2010	2011
Number of households with insulation installed	31,798	15,612

²⁰ http://www.decc.gov.uk/en/content/cms/funding/fuel_poverty/hills_review/hills_review.aspx

3.37 The fall in the number of households with insulation installed reflects a reduction in Warm Front's budget, as announced in the 2010 Spending Review. In 2010/11 the total budget for Warm Front was set at £366 million which decreased to a total budget of £145 million in 2011/12.²¹ Warm Front remains open to applications in 2012/13 with a budget of £100 million. Additional support for vulnerable customers for insulation installations is also available through the Super Priority Group of the CERT and through the CESP.

3.38 It is important to note that a significant proportion of activity supported by Warm Front relates to the provision of energy efficient heating measures for qualifying households. Indeed, in 2011 45,642 replacement boilers were provided.

²¹ The total budget of £145m consists of £110m allocated to Warm Front and associated activities secured through the Spending Review 2010. In addition DECC allocated £25m to support the completion of outstanding work from 2010/11 with a further £10m allocated to Warm Front in 2011/12 from the Department of Health.

Chapter 4: Industry Emissions

Emissions Trends

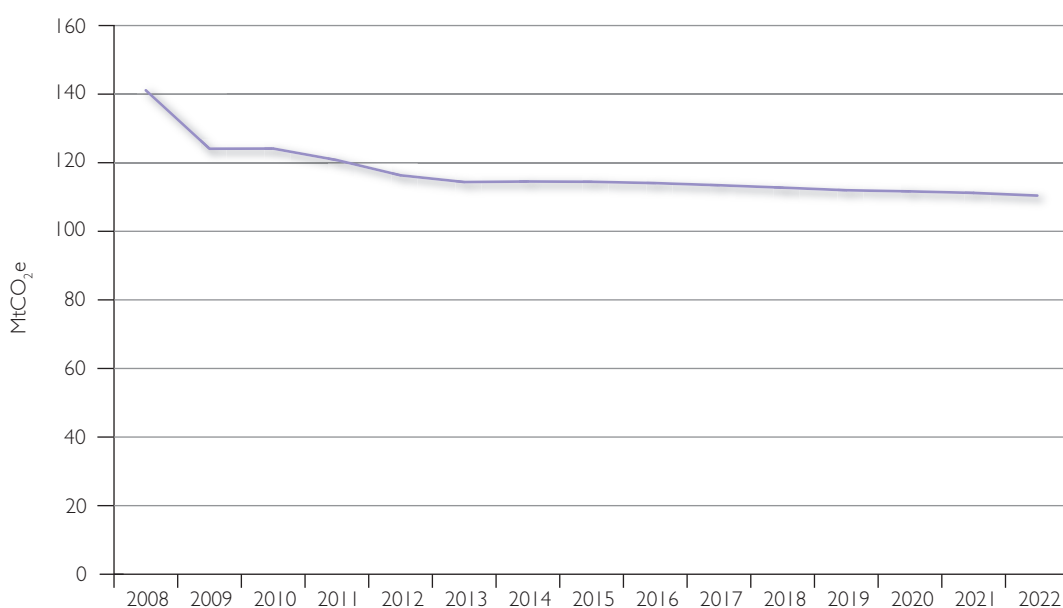
4.1 Provisional estimates show that CO₂ emissions from industrial processes fell by 3.3% in 2011. As noted by the CCC, the underlying causes for this decrease remain unclear. Further analysis is being undertaken in order to understand the reasons for the decrease.

4.2 *Figure 13*²² shows the latest emissions projection trajectory for the industry sector over

the first three carbon budgets. Emissions from the industrial sector are expected to decrease by 22% relative to 2008 levels.

4.3 Decreasing energy intensity (energy consumption per unit of output) is part of a long-term trend in the industry sector. Between 1990 and 2011, it is estimated that energy intensity fell by 30% in the industrial sector as a whole, indicating a substantial improvement in energy efficiency.²³ See *figure 14*.

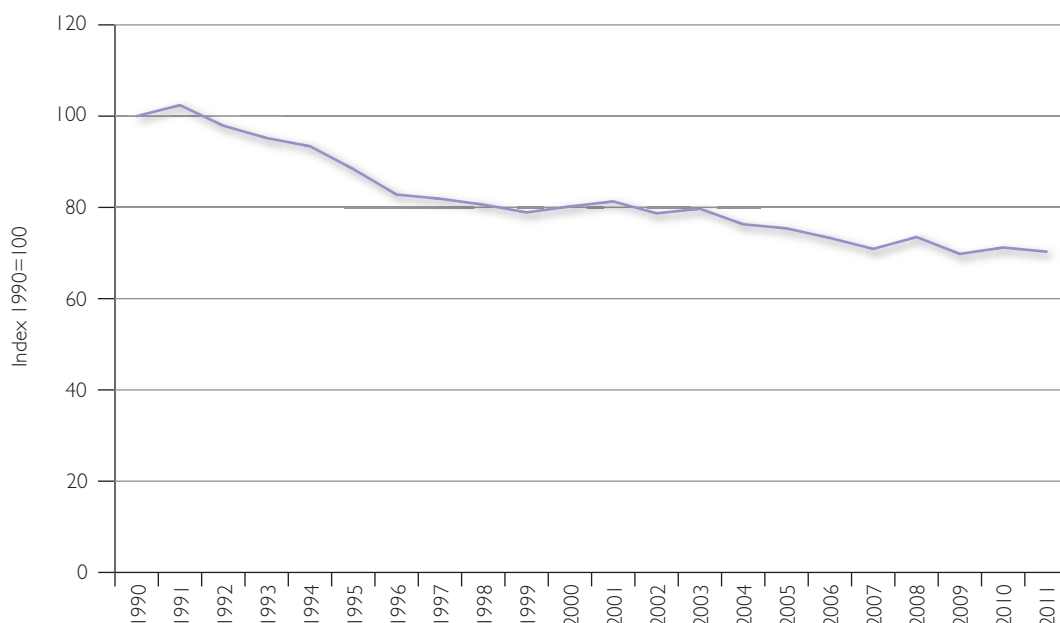
Figure 13: Emissions projections in the industrial sector for the first three carbon budgets



²² Emissions projections derived from Updated Emissions Projections (published 15 October, 2012). This chart is for illustrative purposes only.

²³ Source: DECC, Energy Consumption in the United Kingdom: <http://www.decc.gov.uk/en/content/cms/statistics/publications/ecuk/ecuk.aspx> chapter 4 and table 4.5.

Figure 14: Energy intensity of industry



CCC Recommendation and Government response

Recommendation 12

Set out approaches by the end of 2012 (in the forthcoming industry strategy) to increase use of sustainable bio-energy in large industry and to develop and deploy CCS.

4.4 The Government has a range of incentives and schemes to support biomass plants in industrial settings. As of September 2012, there have been 15 RHI applications for large commercial biomass boilers and 170 applications for medium commercial biomass boilers with 15.7 MWh and 8 MWh of eligible heat generated at these scales respectively.

4.5 The Government is working with industry to identify the barriers to and opportunities for industrial CCS, and the potential role for Government. DECC is running a £1 billion competition to demonstrate CCS working in an operational power generation environment.

4.6 The CCS commercialisation programme was open to power and industrial projects (where the industrial projects support the development

of CCS hubs), with the aim of establishing cost competitive CCS in the 2020s.

4.7 The Government recognises CCS is an important technology for industry going forwards as well as the power sector. The Department for Business Innovation and Skills is developing an industrial strategy to give businesses, investors and the public more clarity on the long-term direction in which the Government wants the economy to travel. As part of this work, new approaches to maximising growth are being explored, in partnership with business and through aligning policies across government.

4.8 Later this year, DECC's Energy Efficiency Deployment Office (EEDO) is due to publish the Government's Energy Efficiency Strategy. This will identify where there is energy efficiency potential in the UK economy and provide the direction for future policy interventions, helping businesses and the finance sector to make long-term decisions to drive this agenda forward. An important part of this strategy will be looking at how industry can take advantage of the benefits of addressing energy efficiency potential.

Chapter 5: Transport Emissions

Emissions Trends

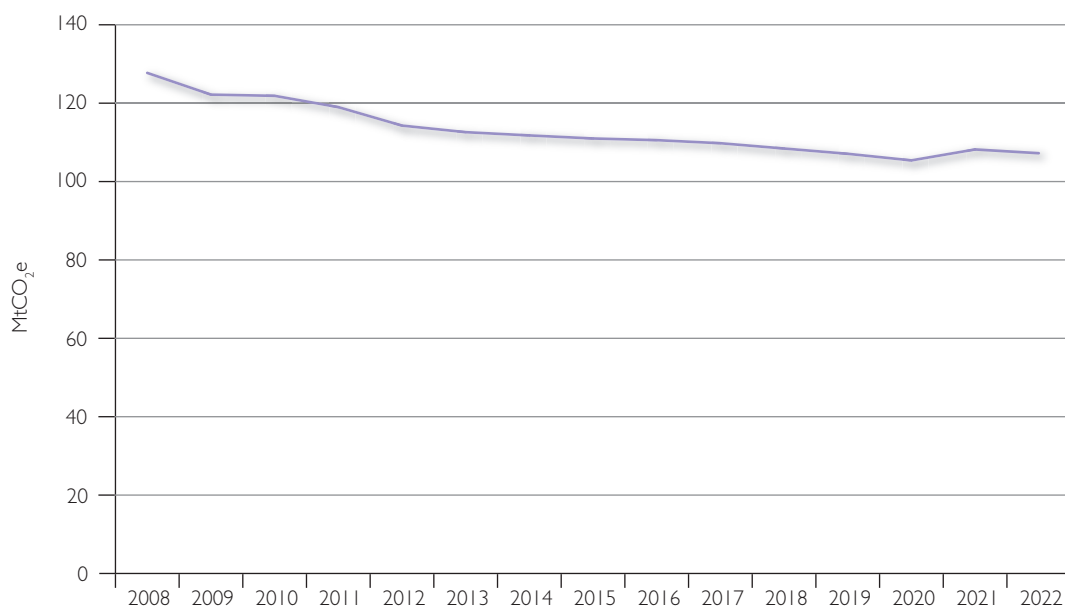
5.1 As stated in the CCC's report, emissions from surface transport remained steady in 2010, following two years of decline. Reductions in emissions in surface transport between 2008 and 2009 were largely driven by changes in the levels of transport activity, improvements to the efficiency of vehicles and the take-up of alternative fuels, particularly biofuels.

5.2 The Government's analysis for the fourth carbon budget, as set out in the Carbon Plan, considered what level of average new car and van emissions might be necessary in the 2020s,

independent of technology type. For new cars the Government considers a range of emissions between 50 gCO₂/km and 70 gCO₂/km in 2030 to be achievable, and for vans a range between 75 gCO₂/km and 105 gCO₂/km.²⁴ These scenarios are seen as credible but challenging by industry, and they are all consistent with the goal of ensuring that average emissions of new cars and vans are near-zero at the tailpipe by 2040.

5.3 Figure 15²⁵ shows the latest emissions projection trajectory for the transport sector over the first three carbon budgets. Emissions from the transport sector are expected to decrease by 16% by 2022 relative to 2008 levels.

Figure 15: Emissions projections in the transport sector for the first three carbon budgets



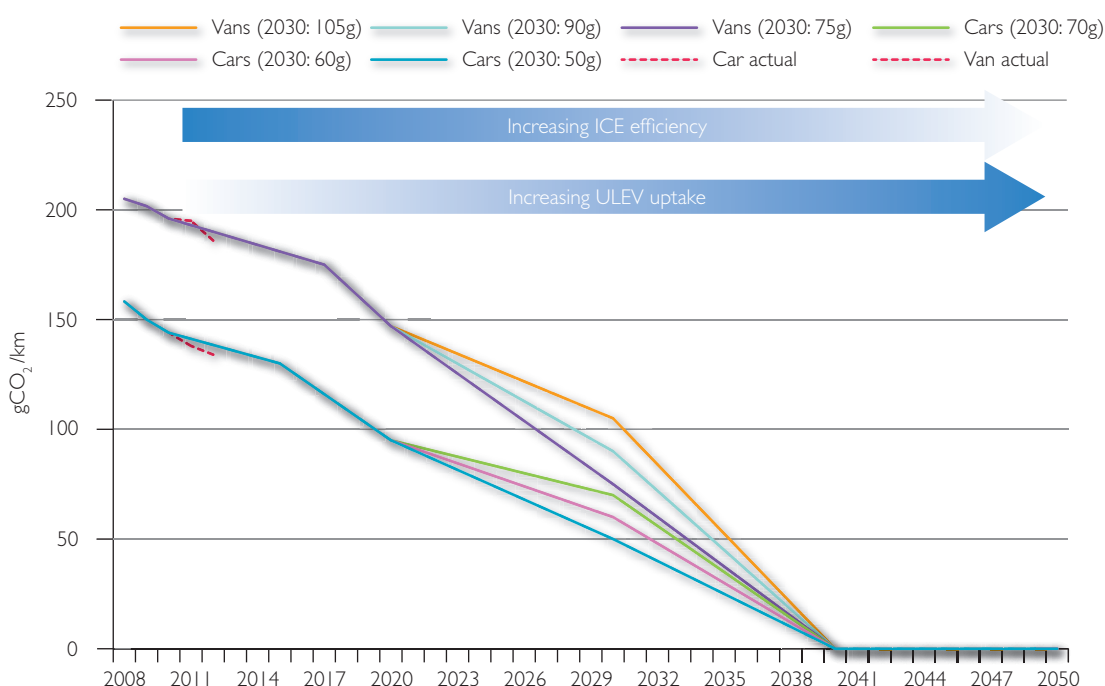
²⁴ <http://www.decc.gov.uk/assets/decc/11/tackling-climate-change/carbon-plan/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf> page 52 and 53.

²⁵ Emissions projections derived from Updated Emissions Projections (published 15 October, 2012). Transport emissions projections cover road and other transport. This chart is for illustrative purposes only.

5.4 Progress in reducing average new car and van emissions has been positive. The latest analysis for 2012 shows that average new car and van emissions are below current projected levels – 134 and 186 gCO₂/km respectively. The Department for Transport's projected emissions levels for 2012 are 138 and 190 gCO₂/km respectively (see figure 16).²⁶

5.6 EU legislation to reduce CO₂ emissions from vans will cut average van emissions across the EU to 175gCO₂/km in 2017, and to a proposed target of 147gCO₂/km by 2020; and will help drive down emissions from vans in the UK. The Commission is considering longer-term targets for vans, and intends to issue a Communication by the end of 2012.

Figure 16: Projected average new car and van emissions over the first three carbon budgets and illustrative ranges of average new car and van emissions in the fourth carbon budget period and to 2050 (gCO₂/km)



CCC Recommendations and Government response

Recommendation 13

Consider options to strengthen initiatives for purchase of more efficient vans.

5.5 The Government is keen to support the purchase and use of more efficient vans, with EU targets remaining the key driver of van CO₂ emission reductions. The Government will keep under review options to support uptake.

5.7 Improved monitoring systems, which allow more robust data to be collected on the emissions of vans registered in the UK, were introduced in 2012. These new systems will allow the Government to monitor more closely the changes in new van efficiency, the effectiveness of the incentives in place and the requirement for any additional incentives.

5.8 The current tax system includes a range of incentives for ultra low emission vehicles. No Vehicle Excise Duty is required for zero emission vans, whilst companies and/or employees are not required to pay tax related to 'benefits in kind' or 'fuel benefits' for private use of a zero emission company van.

²⁶ Source: Office for Low Emission Vehicles.

5.9 Since February 2012, the Plug in Van Grant has provided buyers of qualifying ultra low emission vans with 20% towards the cost of the vehicle, up to a maximum of £8,000. To qualify as an Ultra Low Emission Van, vehicles must meet a number of criteria, including emitting less than 75gCO₂/km. This new measure has provided an additional strong incentive to the take-up of the most efficient vans.

Recommendation 14

Reverse the budget decision on company car tax for electric vehicles.

5.10 The Government already offers an attractive package of incentives for electric vehicles through tax and spending measures. Electric cars already benefit from zero vehicle excise duty and no fuel duty; and the capital allowances regime provides 100% first-year allowance for business expenditure on electric cars until 2015–16.

5.11 The Government is required to balance a range of objectives to ensure the tax system both supports the move to fuel efficient cars and that the benefit in kind is fairly taxed. Because the majority of company car drivers are higher or top rate tax payers, it is fair that all company car users, including those of zero carbon cars, make some contribution to support the sustainability of the public finances and tackling the budget deficit.

5.12 Electric cars will continue to benefit from a zero rate until 2015. The previous Government announced and legislated that the 0% rate for zero emission cars would only be in place for 5 years until April 2015, after which it would increase to 9%. The Government is removing the exemption on the same timetable, whilst providing extra lead in time.

5.13 From 2015, electric cars will continue to benefit from the lowest rates of company car tax. Therefore, there will remain a clear incentive to purchase these cars, continuing to promote more environmentally-friendly vehicles, and helping to reduce the UK's CO₂ transport emissions.

5.14 The 2010 Spending Review announced £400 million of support to encourage the development, manufacture and uptake of electric and ultra-low emission vehicles. This included a

grant of 25% of the vehicle price, up to £5,000 for electric and plug-in hybrid cars, a grant of 20% of the vehicle price, up to £8,000 for electric and plug-in vans, and the £30 million 'Plugged in Places' scheme to support the development of charging infrastructure across the UK.

Recommendation 15

Set out, by Summer 2013, an approach to fully roll out Smarter Choices nationwide.

5.15 The Government wants to encourage and enable more sustainable transport choices.

5.16 Packages of measures tailored to local need can work well in encouraging people to take-up more sustainable travel choices. Whilst the Government continues to play a part in promoting sustainable local travel, local authorities are best placed to make decisions on their specific local needs, and to fund and deliver those packages as part of their overall local development plan.

5.17 In addition to core local transport funding, the Government is making £600m available to local authorities in this spending review period through the Local Sustainable Transport Fund (LSTF). One of the two core aims of the LSTF is to reduce carbon emissions.

5.18 The CCC has acknowledged that progress has been made in the rollout of measures to support sustainable travel choices through the allocation of the first round of the LSTF. The Government has now allocated second round and large project LSTF funding based on the same core criteria of creating growth and cutting carbon.

5.19 The Department for Transport will continue to work with local partners to evaluate the impact of LSTF funding, and this evaluation will provide further information for local authorities considering "smarter choices" and other sustainable travel investments. This will supplement the information already made available by the Government through the evaluations of the Sustainable Travel and Cycling Towns schemes, and other research and guidance.

Recommendation 16

Include eco-driving as a key element in the practical driving test.

5.20 The Government agrees with the principle of the CCC's recommendation, and considers that eco-driving already forms an important element of the practical car driving test.

5.21 The work the Driving Standard Agency (DSA) has done incorporating eco-driving into both the theory and practical aspects of the driving test serves as a clear example of this – eco-driving has formed part of the driving test since September 2008.

5.22 In recent years, the DSA has invested in developing principles for eco-driving and incorporating them into their National Standards for Driving and the associated Learning to Drive syllabus.

5.23 Although a candidate's performance on the eco-driving element of the practical test does not affect the actual test result, it is assessed, and at the end of the test, candidates are given specific feedback on their application of eco-safe driving principles, including control of the vehicle and planning. The Government believes the existing theory and practical car driving tests strike the right balance between the key focus on road safety, and the weight given to eco-driving techniques.

5.24 The DSA has also developed a National Standard for Approved Driving Instructors (ADIs), and assesses ADIs on their use of eco-driving in the same way as learners.

5.25 The Department for Transport and the DSA will work together to promote the teaching of eco-driving/fuel-saving techniques, as described in the DSA's Learning to Drive syllabus, by ADIs to all learner drivers.

5.26 The Government will also continue to explore additional methods for promoting eco-driving and fuel-saving advice and messages to the public. The Government supports and promotes eco-driving for motorists by funding the Energy

Saving Trust (EST) to offer telephone and web-based advice to consumers on how to reduce their carbon emissions from transport, including by eco-driving, and to offer subsidised smarter driving lessons to businesses for groups of their employees. By the end of 2011, a total of 23,055 people had been trained by the EST since the start of the smarter driving programme in 2008.

Recommendation 17

Enforce the current motorway speed limit.

5.27 The Government does not accept the CCC's recommendation that the current motorway speed limit should be more rigorously enforced as a way of delivering carbon savings.

5.28 Enforcement of the speed limit is an operational decision for the Police. There are already a significant number of measures in place, including speed cameras, road design, vehicle activated signs and road traffic police patrols, which enforce the current speed limit on motorways. These deter drivers from exceeding the speed limit, and penalise those who do. Though primarily used to improve road safety, they concurrently reduce emissions in line with the recommendation.

5.29 The Government has consulted on plans to increase road traffic fixed penalty notices, including speeding, to avoid the risk of trivialising these offences, and to bring fixed penalty notices in line with other penalty notices. The consultation closed on 5th September, 2012. The Government anticipates publishing its response later in 2012.

5.30 The Department for Transport is in the process of pulling together a full impact assessment of proposals to trial an increase to the speed limit to 80mph on some sections of the motorway network with variable speed limits. Current plans are to consult on these proposals later in the year alongside the broader work on a roads strategy. The Government would welcome a response from the CCC to this consultation.

Additional CCC findings

HGV Regulation

5.31 The Government agrees with the CCC that there is a need to reduce emissions from HGVs; but is not convinced that the best means of doing this is by regulating this complex sector.

5.32 The Government aims to avoid regulation wherever possible and believes that the industry should be allowed to lead the way to reduce emissions from freight, as it is best placed to develop and deliver its own strategies to manage operations and reduce fuel consumption. The Government expects the industry to take responsibility for reducing its own emissions and to reap the rewards of the resulting fuel savings.

5.33 An example of this is the Freight Transport Association's (FTA) Logistics Carbon Reduction Scheme. Freight companies who join this scheme are actively involved in adopting measures to reduce their carbon emissions and are collectively committed to achieving a carbon emission reduction of 8% by 2015 compared with 2010.

5.34 The Freight Carbon Review is currently reviewing the progress of industry led carbon reduction initiatives, such as the FTA scheme. This follows the Government's decision in October 2010 not to mandate eco-driving training as part of the Driver Certificate of Professional Competence, for the time being, but rather to give the freight industry the opportunity to act to reduce fuel consumption and carbon emissions. The Government has written to key figures in the industry asking them to provide evidence on the progress they have made in reducing carbon emissions.

5.35 The Government is continuing to work with the industry to facilitate the uptake of industry led carbon reduction schemes and is conducting a trial of longer semi-trailers which enables operators to buy a limited number of longer trailers which would normally not be permitted. These can carry larger loads, within existing weight limits, and so should reduce the total number of lorry journeys.

5.36 Along with the Office of Low Emission Vehicles (OLEV) and the Technology Strategy Board (TSB), the Department for Transport is partially funding the Low Carbon Truck Trial, which will support the operation of a number of lorries using low carbon fuels to demonstrate their effectiveness and will also provide a number of public access gas refuelling stations. The Department also funds two freight grants (Mode Shift Revenue Support scheme and The Waterborne Freight Grant) to encourage modal shift, removing 900,000 lorry journeys from the roads annually.

Introduce safeguards for Indirect Land Use Change (ILUC) and biofuels

5.37 The Government strongly agrees with the CCC's statement that safeguards need to be introduced to ensure biofuel sustainability.

5.38 The sustainability of biofuels must be assured and ILUC should be robustly addressed in European policy. The Government believes the use of appropriate ILUC factors is the best approach to achieve this and superior to other options. The Government continues to work with its European partners and the European Commission to seek a resolution to this issue.

5.39 There is potential for significant growth in biofuel use, in road and other sectors, in the medium and long term, if advanced technologies using wastes and woody feedstocks are commercialised.

Plugged in Places programme

5.40 The Government welcomes the CCC's acknowledgement of the success of the Plugged in Places programme (PIPs). The programme was designed to provide both recharging infrastructure in the UK and learning to inform the future development of a national recharging infrastructure.

5.41 There are now around 6,300 charge points in the UK, of which over 2,200 have been provided through the eight PIP projects (to end June 2012) with the rest non PIP (private sector or local authority delivered).

Figure 17

Plugged-In Place	Chargepoints installed (up to end June 2012) ²⁷
East of England	193
London	815
Manchester	0 ²⁸
Midlands	116
Milton Keynes	117
North East	450
Northern Ireland	89
Scotland	508
Total	2288

5.42 The PIP programme has been successful in delivering charge points where required in a new and developing market. The Government has been very encouraged by the early emergence of private investment, with several organisations installing infrastructure on a national basis, and in some cases partnering with organisations which would have otherwise partnered with PIP. This is a key example of the private sector investing and building in a sustainable market.

Ultra Low Emission Vehicle (ULEV) Sales

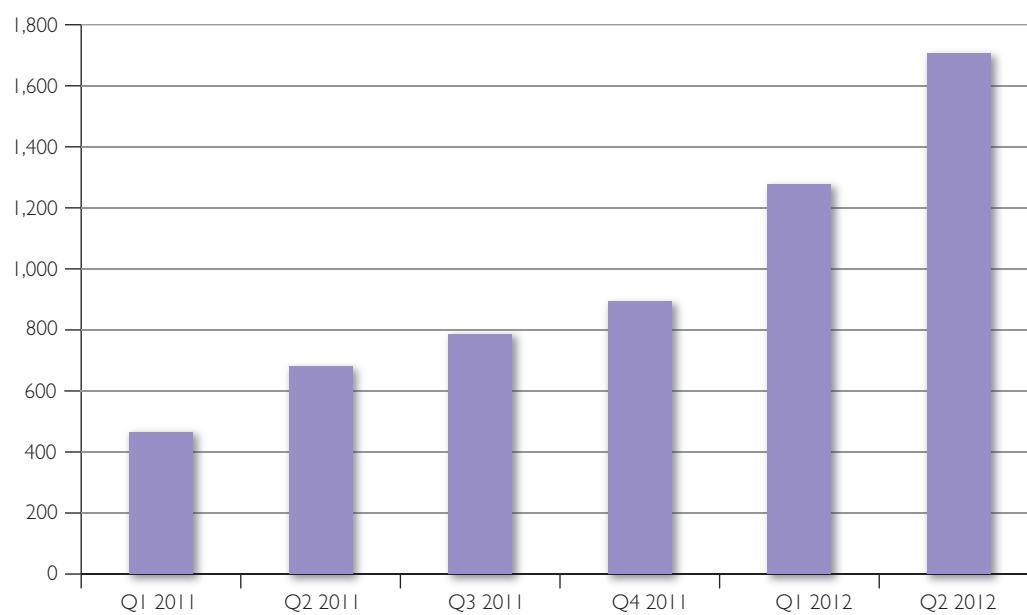
5.43 The Government agrees with the CCC's assessment of electric vehicle sales in 2011. The market for electric vehicles (including fully electric, plug-in hybrids and range extended electric vehicles) is in its early stages. The Government is pleased, however, with the progress that has been made; and is confident as more models come to market that sales will increase further.

5.44 To encourage this, manufacturers are already committing more to marketing their vehicles to explain how the technology works and the significant benefits that can come with ownership. They are also offering different buying options to reduce the upfront price, such as leasing the battery separately from the vehicle.

5.45 Since the publication of the CCC's report, OLEV has announced the latest Plug-In Vehicle Grant uptake figures. Total claims in the first half of this year exceeded the number of claims made in the whole of 2011. With new models coming to the market, the Government expects to see this trend sustained and uptake to continue to grow. The Government remains committed to making the UK a dominant market for ULEVs as quickly as feasible and securing the significant carbon, growth and inward investment benefits that can flow from this. The Government will continue to innovate and look to address barriers to adoption over this Parliament to deliver the step change in the uptake of ultra low emission vehicles that is required. See *figure 18* for uptake of the Plug-in car grant scheme.

²⁷ Source: Office for Low Emission Vehicles.

²⁸ Delays to the delivery of PIP in Manchester are the result of strengthening the governance of the scheme. OLEV remain confident that the scheme will deliver an effective recharging network for Greater Manchester.

Figure 18: Uptake of plug-in car grant (cumulative numbers)²⁹

²⁹ Source: <http://www.dft.gov.uk/topics/sustainable/olev/plug-in-car-grant/>

Chapter 6: Agriculture Emissions

Emissions Trends

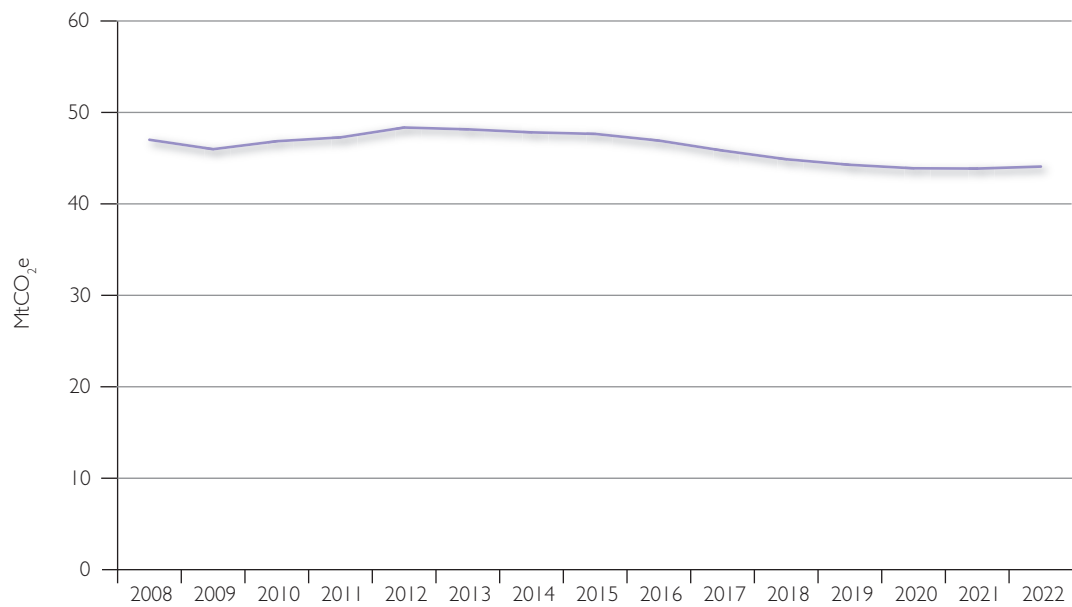
6.1 The longer-term trend for emissions in the agriculture sector is moving in the right direction and remains in line with the CCC's indicator trajectory, despite a small increase of 0.9% in 2010 (which is in the range of annual fluctuations in the data over the reporting period).

6.2 Emissions reductions (on 1990 levels) in the agriculture sector have been achieved through a combination of factors. These include: a reduced use of nitrogen fertilisers, changing farm practices

and, as a result of reforms to the Common Agricultural Policy, a decline in overall livestock numbers.

6.3 *Figure 19*³⁰ shows the latest emissions projection trajectory for the agriculture (including land use change and forestry) sector over the first three carbon budgets. Emissions from the agriculture sector are expected to decrease by 6% by 2022 relative to 2008 levels.

Figure 19: Emissions projections in the agriculture sector for the first three carbon budgets



³⁰ Agriculture sector emissions projections chart includes Land Use Change and Forestry. Emissions projections derived from Updated Emissions Projections (published 15 October, 2012). This chart is for illustrative purposes only.

6.4 The Government remains confident that the agricultural sector is on track to meet the first carbon budget; and agrees with the CCC that reductions in emissions from agriculture will play an increasingly important role in the overall strategy for reducing greenhouse gas emissions across all sectors of the UK economy.

6.5 The CCC noted in their report that the evidence base for assessing progress in reducing agricultural emissions remains incomplete and that Government should develop a framework of indicators and supporting data on farming practices. The Government is already taking steps to address this issue through investing in a £12.6 million research platform to improve measurement and monitoring of agricultural emissions and on-farm practices. Until this research is completed in 2015, reported emissions will not capture or reflect any uptake of efficiency measures on-farm. As a result, when set against the general trend over time for substantially reduced emissions, the slight increase in 2010 is likely to be of limited significance. The Government will continue to promote and monitor the uptake of efficient practices, including through working in partnership with the Greenhouse Gas Action Plan Industry Partnership.

CCC Recommendations and Government response

Recommendation 18

Develop a robust framework for monitoring changes in farming practice based on survey data by the end of 2012

and;

Recommendation 19

Set out by the end of 2012 triggers for introduction of new policies going beyond the current voluntary approach.

6.6 The Government agrees with the CCC that, in advance of improvements to the inventory reporting, it is important to develop a robust framework for monitoring changes in farming

practice based on survey data. The indicator and monitoring framework, which is currently being developed as part of the 2012 Review³¹ of Progress towards reducing emissions from agriculture (in consultation with the CCC and other stakeholders), will achieve this.

6.7 The Government remains unconvinced that there is value in setting trigger points at this stage, as suggested by CCC. The Government does intend to use the indicator framework developed as part of the 2012 Review as a basis for developing some broad principles for monitoring progress; and will continue to engage with stakeholders, including the CCC, as we develop the best approach.

Additional CCC findings

Increased use of crop fertiliser

6.8 The CCC has raised concerns regarding an increase in the use of fertiliser for crop production in 2010. The Department for Environment, Food and Rural Affairs' (Defra) latest analysis shows there was little change in the overall application rate of manufactured nitrogen on crops and grass in Great Britain between 2010 (102kg/ha) and 2011 (101kg/ha). The long-term trend is far more positive: since 1990 the application rate has fallen substantially from 138kg/ha. It is likely the low application rates seen in 2008 and 2009 (97kg/ha in 2009 and 95kg/ha in 2008) were in response to higher fertiliser prices (which started rising significantly in autumn 2007 and remained high until summer 2009).

Forestry

6.9 The Government agrees with the CCC that forestry has a useful role in reducing emissions in the Land Use, Land Use Change and Forestry (LULUCF) sector by sequestering carbon. We set out our ambition in the Natural Environment White Paper for a major increase in the area of woodland in England as well as the need for a robust ecological network that is resilient to climate change and other threats. We are currently considering the report of the

³¹ <http://www.defra.gov.uk/environment/climate/sectors/agriculture/>

Independent Panel on Forestry, including the recommendation for the level of ambition for woodland creation, and will respond to this in January 2013.

6.10 The Government also agrees that the forestry sink is declining for the reasons stated in the CCC's report. However, the assertion that grassland will become a larger sink than forestry by 2020 is misleading, as this is a function of the greenhouse gas accounting process rather than forests sequestering less carbon than grasslands.

Chapter 7: Waste Emissions

Emissions Trends

7.1 Waste greenhouse gas emissions in 2010 fell by 3.4%, continuing a longer term trend driven by EU targets set under the EU Landfill Directive.

CCC Recommendation and Government response

Recommendation 20

Develop specific strategies by the end of 2013 to increase diversion of food, paper and card from landfill.

7.2 The Government agrees with the CCC regarding the importance of diverting food, paper

and card from landfill. Specific strategies are already in place to achieve this.

7.3 When dealing with food waste, before its diversion to anaerobic digestion or composting, the Government's priority is to take steps to prevent its occurrence in the first place. This approach offers the greatest environmental and financial benefits to society.

7.4 The Government is taking forward a number of initiatives aimed at reducing the incidence of food waste. This includes: in households WRAP's Love Food Hate Waste campaign, in manufacture and retail the Courtauld Commitment, and in the hospitality and food service sector the Hospitality and Food Service Agreement.

Love Food Hate Waste

WRAP's 'Love Food Hate Waste' campaign provides advice and ideas to households to help them reduce waste and save money. In November 2011, WRAP announced a 13% reduction in household food waste from 2006 to 2010. Various factors may have caused this reduction, and the actions taken by WRAP and its partners should be acknowledged.

Courtauld Commitment

The Courtauld Commitment, now in its second iteration, is the Government's responsibility deal with grocery retailers and manufacturers. It seeks to reduce both food and packaging waste.

Hospitality and Food Service Agreement

On 27 June 2012, The Government launched the Hospitality and Food Service Agreement, our new voluntary agreement with restaurants, hotels, pubs and canteens. This aims to reduce food and packaging waste and to manage the waste that does arise more sustainably (in the case of food waste, through anaerobic digestion or composting).

7.5 As recently as the summer (3 July, 2012), Caroline Spelman, former Defra Secretary of State, and Lord Taylor of Holbeach, former Defra minister, hosted a roundtable discussion with major retailers and food redistribution charities. This explored the barriers to redistribution of surplus food and looked to build upon the partnerships most major retailers already have with redistribution charities.

7.6 In addition to these food waste prevention initiatives, the Government has been working on a series of initiatives in an effort to deal with food waste that is unavoidable.

7.7 Today there are more food waste collections than ever before, and the number continues to rise. The Government has concluded that anaerobic digestion – which produces a fertiliser and a renewable energy source – is the best technology currently available to treat food waste, in circumstances where this waste cannot be prevented or reused. However, local authorities may decide to use other technologies, such as in-vessel composting, to fit their particular circumstances.

7.8 In 2011, the Government issued an Anaerobic Digestion Strategy and Action Plan. This aimed to increase the energy produced from waste through anaerobic digestion by tackling the barriers to uptake of the technology. More recently, the Government published a report on the progress that has been made since the strategy was launched.³² Since April 2011, the number of treatment plants has increased by a third and the capacity of the industry has doubled.

7.9 The Government believes the existing specific strategies to increase diversion of paper and card waste from landfill are sufficient. The reasons for this are twofold:

7.10 First, paper collection rates are already very high and increasing steadily year-on-year, reaching 68% of the paper consumed in the UK in 2009. It is the Government's belief that this level is likely to be approaching the maximum rate possible, as there is a practical limit to the amount of paper that can be collected for recycling. Much of the paper which is not collected remains in the system, for example in bank notes or books. Some will remain unrecoverable for hygienic or practical reasons.

7.11 Second, the Government already intervenes to encourage high rates of paper recycling, both through regulation and Voluntary Responsibility Deals. For example, the Producer Responsibility Regulations for packaging place a legal requirement on producers of paper and board packaging to ensure that nearly 66% of all paper packaging placed on the UK market is recovered and recycled.

7.12 Voluntary Responsibility Deals on newspapers, magazines and direct marketing materials also set out ambitious recycling targets. For example, the newspaper industry previously, through a responsibility deal, set a target of using 70% recycled content in newspapers by 2006. The recycling targets set by these deals have been exceeded and the Government is in the process of developing successor deals, which will maintain the high recycling rates for paper whilst looking to make progress on other challenges such as waste prevention.

³² <http://www.defra.gov.uk/publications/files/pb13788-ad-2012-progress.pdf>

Chapter 8: The Evidence Base

CCC Recommendation and Government response

Recommendation 21

Improve the evidence base on energy efficiency of appliances, district heating, and surface transport emissions by mode, agriculture emissions, waste emissions.

8.1 The Government notes and accepts in part the CCC's recommendation.

Energy Efficient Appliances

8.2 The Government does not, as a matter of course, routinely monitor sales of the wide range of energy-using products that are covered by the Ecodesign for Energy-Related Products or Energy Labelling directives. The Government does, however, use market data to inform its position on the negotiation of regulations under these directives.

8.3 For the majority of products for which regulations are in place, too little time has elapsed for any meaningful impacts to be discerned in the market – the first standards only took effect in 2009 and for several products they have yet to come into effect. The Government will, therefore, use market data when the relevant regulations are being reviewed.

8.4 The EEDO is working with Defra to consider how more energy savings can be achieved through products policy.

District Heating

8.5 The Government agrees that the evidence base related to district heating needs to improve and is taking a variety of actions to improve it, as follows:

8.6 In March this year, the Government published 'The Future of Heating; A Strategic Framework for Low Carbon Heat in the UK',³³ making clear that low carbon heat networks could be an important part of our future strategy, and that more evidence was needed. Responses to the Framework provided a range of further information on heat networks which is now being drawn on, as analysis and policy continues to develop in this area.

8.7 The Government has commissioned a wide-ranging assessment of existing district heating projects in the UK and this work focuses particularly on identification of the major barriers to deployment to inform future policy development. In addition, the Government's "City Deals" programme has led to a set of DECC Low Carbon Pioneer Cities projects where city teams develop heat networks with DECC support. This has the twin benefit of helping cities to make progress and helping Government to learn directly about issues and barriers to district heating that arise during the scoping and feasibility stage.

8.8 The evidence gathered via these different routes is informing the development of new modelling tools which will enable the Government

³³ <http://www.decc.gov.uk/assets/decc/111/meeting-energy-demand/heat/4805-future-heating-strategic-framework.pdf>

to better model issues relating to district heating in the future. External advice will combine with internal modelling and analysis, building our capability to test, develop, cost and assess the impact of specific policy proposals.

8.9 The heat model is not being developed in isolation. The Government is keen to understand how various different models interact, including the CCC's model and other models such as those developed by the National Grid, and will continue to engage with internal and external stakeholders on this issue. The Government would like to work closely with analysts from the CCC as we take this work forward.

Surface transport emissions

8.10 The Government notes the CCC's comments regarding the modelling of emissions from road transport. The methodology underlying our estimates for all sectors reflects the Intergovernmental Panel on Climate Change (IPCC) guidance on estimating emissions, and we are confident this guidance has been adhered to in respect of the road transport sector. The Government is subject to annual inventory reviews by the UNFCCC, and these reviews, together with the needs of policy teams, determine what is incorporated into the annual inventory improvement programme which is agreed by the National Inventory Steering Committee (NISC). DECC will bring the CCC's concerns to the attention of the NISC as part of the 2013 improvement programme.

Agriculture emissions

8.11 The Government, together with the Devolved Administrations, is investing £12.6 million in improving the greenhouse gas emissions inventory for agriculture. This work is now underway and progressing well: information can be found on the website www.ghgplatform.org.uk. The proposed date for implementing the new inventory is 2015, to align with the establishment of the baseline for the next Kyoto reporting period.

Waste emissions

8.12 The Government is already working to improve its scientific understanding of waste emissions so that they can be better managed.

8.13 The Government's approach to reducing waste is underpinned by a waste hierarchy,³⁴ which ranks waste in order of environmental preference. The top priority is waste prevention, followed by preparing for re-use, recycling, other types of recovery (including energy recovery), and last of all disposal (e.g. landfill). The further up the hierarchy waste is treated the greater the emissions savings.

8.14 Under the EU Landfill Directive, the UK is required to reduce the volume of waste sent to landfill to 50% of the 1995 amount by 2013. The Government is committed to working towards a zero waste economy, and by 2050 it is estimated that methane emissions from landfill (responsible for around 90% of the sector's emissions) will be substantially below current levels – emissions are projected to fall by more than half between 2011–2050.³⁵

8.15 Defra and the Environment Agency are working together to narrow the uncertainty of methane capture rates from landfills and a joint research project is underway to improve the confidence the Government has in the assumed methane capture rate from landfill sites. Estimates of reductions to-date suggest that emissions have already reduced by ~70% since 1990, primarily because of an increase in the assumed capture of methane from 15% to 75%.

The launch of Energy Efficiency Deployment Office (EEDO)

8.16 The Government recognises the importance of energy efficiency and the benefits of a strong evidence base on which to design new policies. That is why in February this year, Edward Davey, Secretary of State, and Gregory Barker, Minister of State, formally launched the EEDO.

³⁴ <http://www.defra.gov.uk/environment/waste/legislation/waste-hierarchy/>

³⁵ Source: UK Greenhouse Gas Inventory and government analysis.

8.17 EEDO was set up to drive a step change in energy efficiency. Often the quickest and most cost effective carbon abatement solution, energy efficiency is at the heart of the Government's approach to tackling climate change and ensuring safe, secure and affordable energy supplies. EEDO is advancing energy efficiency in the UK economy through:

- Bringing greater coherence to the design and delivery of energy efficiency policies;
- Understanding and taking steps to realise further energy efficiency potential; and
- Demonstrating best practice and the benefits of energy efficiency.

8.18 EEDO has a cross-Government remit and, is developing an Energy Efficiency Strategy, which is due to be published by the end of this year. This Strategy will set the direction for energy efficiency policy over the medium to long-term, identifying where the cost effective energy efficiency potential is in the UK economy and, where it has not already been addressed, considering what might be done to achieve that potential.

Chapter 9: Devolved Administrations

Northern Ireland

Overview

9.1 The Northern Ireland Executive (the Executive) agrees with the CCC that a step change is needed, moving from policy development to delivery. In this regard, Northern Ireland's Cross Departmental Working Group on Climate Change, chaired by the Minister of the Environment, submitted its first annual report in May 2012 to the Executive on the performance of all departments in implementing the agreed Northern Ireland Greenhouse Gas Emissions Reduction – Action Plan. The Action Plan has been reviewed and revised targets set for 2012.³⁶ The Executive is conscious of the need to keep under continuous review what is being done and values the role of the CCC in providing a challenge function and the practical advice provided.

9.2 The Executive has reaffirmed its commitment to take robust action on climate change mitigation by incorporating a new and more ambitious target for greenhouse gas emissions reductions into its new Programme for Government (PfG).

9.3 The PfG sets out the Executive's top level strategic priorities for the current Assembly term (2011–2015). It also provides a system for coordinated and collaborative management of the implementation of the 82 PfG Commitments.

9.4 The Executive's commitment on climate change mitigation is to continue to work towards a reduction in greenhouse gas emissions of at least 35% on 1990 levels by 2025. Progress on the implementation of this commitment will be assessed using the greenhouse gas emissions projection tool developed by the Department of the Environment, as the most effective available mechanism for the determination of the future emissions profile resulting from current and emerging public policy.

9.5 As a Programme for Government Commitment, the Executive's 2025 greenhouse gas emissions target has been mainstreamed for delivery into Departmental Corporate and Business Plans, and its successful implementation will therefore be supported by mainstream government governance process, and will be scrutinised by the Northern Ireland Assembly.

Legislation

9.6 The Department of the Environment (DOE) is progressing a Northern Ireland Climate Change Bill. The DOE Minister intends to bring his proposals to the Northern Ireland Executive in autumn 2012.

9.7 The Department of Finance & Personnel (DFP) has made a new suite of building regulations which will come into operation on 31st October 2012. These include enhanced

³⁶ http://www.doeni.gov.uk/northern_ireland_greenhouse_gas_emissions_reduction_action_plan_1st_annual_progress_report.pdf

thermal standards for all new buildings and those undergoing major renovation.

9.8 Compliance with current requirements in relation to EPCs remains high in Northern Ireland due to continued effective enforcement. The DFP is working to introduce amendments to the Energy Performance of Buildings (Certificates & Inspections) Regulations (NI) 2008 to implement the enhanced requirements of the EU recast of the Energy Performance of Buildings Directive.

Agriculture and Forestry

9.9 The Department of Agriculture and Rural Development (DARD) and key agriculture and forestry stakeholders have established an Implementation Partnership to encourage on-farm changes that incorporate the suite of mitigation measures within the Efficient Farming Cuts Greenhouse Gas emissions Strategy and Action Plan. Early actions in the plan have been implemented. Sub groups in the dairy, red meat and arable sectors are currently focusing on communication plans that prioritise individual measures to individual farming systems. The on-farm carbon calculator tool is nearing completion and design work has started on greenhouse gas related schemes to be proposed for the Northern Ireland Rural Development Programme 2014–2020.

9.10 The Forest Service completed and published a preliminary register of forests in Northern Ireland (March 2012) indicating that woodland cover was 105,712 ha which represents 7.8% forest cover. This now means that on average 1,300ha of woodland creation are required each year to achieve 12% cover by 2056.

9.11 The new woodland cover area is a significant increase from earlier figures reported by the Forest Service and is based on existing woodland datasets from government and non-government sources. Some of this increase can be accounted for by the natural regeneration of broadleaf woodland on agricultural land which occurred without grant support.

Power

9.12 Northern Ireland has a target for 40% of electricity consumption to be met from renewables by 2020. Renewables represented approximately 9% of electricity consumption in 2010.

9.13 The Executive believes a 4-fold increase is required to meet the 40% target.

9.14 In December 2011, the Crown Estate announced a competitive call for an offshore leasing round in Northern Ireland waters, for 600 MW of offshore wind and 200 MW tidal energy, by 2020.

Fuel Poverty

9.15 The Department for Social Development introduced a boiler replacement scheme in July 2012. This scheme provides a grant of up to £700 to households which earn less than £40,000 per year to assist with the replacement of older boilers with newer, more energy efficient ones. This includes replacing old inefficient oil boilers with new oil efficient boilers, replacing oil boilers with gas boilers, or a move to renewable. The budget available will assist approximately 16,000 households and will deliver an average annual household energy saving of at least 8,221 KWh and also deliver an annual reduction in carbon emissions of 2.4 tonnes of CO₂ per household.

Transport

9.16 Reducing greenhouse gases from road transport is a major focus for the Department for Regional Development. During 2011–12 the Department published the New Approach to Regional Transportation to provide a strategic framework for future transport investment. This sets out a new direction to inform decision making on transportation investment beyond 2015 and to ensure more integrated and sustainable transport arrangements. The New Approach establishes a high level aim to reduce the environmental impact of transport with a strategic objective to reduce greenhouse gas emissions.

9.17 It is accepted that current transport arrangements and the high level of dependency on private cars, particularly in urban areas, are not sustainable. While there has been a slight decrease in emissions from transport in recent years the Department for Regional Development recognises that it will take a reorientation of policies both in transport and other areas to see a sustained drop in transport related emissions.

Scotland

Progress to date

9.18 The Committee on Climate Change published its 1st Scottish progress report, (*Reducing Emissions in Scotland*) in January 2012, assessing the Scottish Government's progress on implementation of *Low Carbon Scotland – Meeting the Emissions Reduction Targets 2010–2022*. The statutory Report on Proposals and Policies sets the policy framework for the Scottish Government to meet its greenhouse gas emission reduction targets, of a 42% reduction for 2020 and 80% by 2050 on 1990 base levels.

9.19 The Committee on Climate Change's, Scottish progress report acknowledged that the Scottish Government has made good progress towards achieving Scotland's 2020 world leading climate change targets. The Committee on Climate Change's 4th UK progress report broadly restates the findings previously set-out in the Scottish progress report, in relation to Scotland's progress on reducing emissions.

9.20 To build on progress to date, the Scottish Government has identified the transition to a low carbon economy, as a strategic priority, as set out in Scotland's: *Government Economic Strategy*. This strategic priority puts the Scottish Government's climate change targets and its ambitions for renewable energy and resource efficiency, at the heart of sustainable economic growth.

9.21 During 2012, as required by the Climate Change (Scotland) Act 2009, the Scottish Government will be publishing its second Report on Proposals and Policies. This report will refine the policies detailed in the first Report on Proposals and Policies, will look ahead to the

period 2023–2027, and will continue to develop proposals for emissions reductions. The Scottish Government is committed to continuing to seek additional innovative ways to maximise the impact of current and future investments; and this second Report on Proposals will set out plans for delivering more, where possible.

Wales

Emissions Trends

9.22 The Committee on Climate Change's fourth progress report concluded that, for Wales, the most recent data on economy-wide emissions (currently for 2009), was showing a fall of 14%.

Climate Change Strategy

9.23 The Climate Change Strategy and associated Delivery Plans (Welsh Government | First annual progress report), published in 2010, confirmed the Welsh Government's commitment to tackle the causes and consequences of climate change, the areas where it will act, and set out the principal target to reduce greenhouse gas emissions by 3% per year from 2011 in areas of devolved competence.

9.24 The Strategy also provides information on the Welsh Government's role in leading and supporting action on climate change, focusing on the role of key partners, including the Climate Change Commission for Wales, to reduce greenhouse gas emissions and support effective adaptation to a changing climate.

9.25 The 2011 Programme for Government contains a number of key actions in this area, reaffirming the Welsh Government's commitments in relation to climate change, including as part of the wider approach to delivering sustainable development objectives and to help facilitate the transition to a low carbon Welsh economy.

9.26 The first annual progress report on delivery of Wales' Climate Change Strategy was published in March 2012 (Welsh Government | Climate Change Strategy for Wales), and reports on the solid progress made in implementing the

cross-sector Emission Reduction and Adaptation Delivery Plans.

9.27 In the business sector, for example, the Welsh Government's nine sector approach to deliver Economic Renewal is providing better focused support for businesses, while advice and support is continuing to be provided on energy efficiency and low carbon opportunities to small and medium enterprises and micro-businesses, Anchor Companies and Regionally Important Companies. The creation of sector-led Enterprise Zones also has the potential to create new opportunities to deliver sustainable outcomes, including through the development and use of renewable technologies.

9.28 During the first phase of its award-winning *Arbed* scheme,³⁷ designed to support commitments to reduce climate change, help eradicate fuel poverty and boost economic development and regeneration in Wales, the Welsh Government provided £30 million of funding and leveraged a further £30 million to improve the energy performance of 25,000 Welsh homes in some of the most deprived parts of Wales, which also provided a boost to jobs, skills and regeneration in these areas. With the second phase of *Arbed*, £45 million will be invested over the next 3 years to improve the energy efficiency measures and renewable energy technologies in existing homes in Wales.

9.29 In leading action in the public sector, the first progress report highlighted some particular areas of success. The Welsh Government achieved Carbon Trust Standard Level 1 in 2011, while successfully reducing emissions from the Welsh Government estate by 11% as part of the 10:10 campaign. A new Low Carbon Strategy for the NHS in Wales has been developed, including a new carbon diagnostic tool (CarDio) to enable Local Health Boards and Trusts in Wales to report progress on emission reductions each year.

9.30 Within the Waste sector, through its Towards Zero Waste strategy, the Welsh Government has placed statutory recycling targets on local authorities for minimum levels of reuse, recycling and composting of municipal waste. Recent recycling statistics for Wales show the highest quarterly recycling figures ever recorded in the UK.

9.31 In addition, the Welsh Government's *Energy Wales* programme was launched in March 2012. Its aim is to harness Wales' energy potential in a way that creates a sustainable, low carbon economy. The Welsh Government acknowledges that climate change and energy security are major challenges; is focused on leading the transition to a low carbon future by providing leadership and a stable framework; by maximising the benefits of all energy development and energy efficiency; and by positioning Wales at the forefront of harnessing energy from the sea, and the move to smart living.

9.32 The next Welsh Government Climate Change Strategy Progress Report will be published in the autumn of 2013, with a statement later this year to confirm the 2006–10 average emissions baseline, against which the Welsh Government 3% target is measured.

³⁷ <http://wales.gov.uk/topics/environmentcountryside/energy/efficiency/arbed/?lang=en30> Source: UK

Glossary

ADIs	Approved Driving Instructors
CCC	Committee on Climate Change
CCS	Carbon Capture and Storage
CERT	Carbon Emissions Reductions Target
CESP	Community Energy Saving Programme
CHP	Combined Heat and Power
CfD	Contracts for Difference
CO ₂ e	Carbon Dioxide equivalent
CPC	Certificate of Professional Competence
CRC	Carbon Reduction Commitment Energy Efficiency Scheme
DECC	The Department of Energy and Climate Change
DEC	Display Energy Certificate
Defra	The Department for Environment, Food and Rural Affairs
DSA	Driving Standards Agency
DfT	Department for Transport
ECO	Energy Company Obligation
EEDO	Energy Efficiency Deployment Office
EMR	Electricity Market Reform
EPS	Emissions Performance Standard
EPC	Energy Performance Certificates
EU	European Union
EU ETS	European Union Emissions Trading System
FITs	Feed-in Tariffs
GHG	Greenhouse gas

IPPC	Intergovernmental Panel on Climate Change
kWh	kilowatt hour
kWth	Kilowatt Thermal
GW	Gigawatt
MtCO	Million tonnes of carbon dioxide equivalent
MW	Megawatt
NISC	National Inventory Steering Committee
Ofgem	Office of the Gas and Electricity Markets
OLEV	Office for Low Emissions Vehicles
PIPs	Plugged in Places Programme
RHI	Renewable Heat Incentive
RHPP	Renewable Heat Premium Payments
RO	Renewables Obligation
TWh	Terawatt hour

Annex A: Summary of CCC Recommendations

Power

1. Urgently resolve financial uncertainty for renewable projects by confirming support levels under the Renewables Obligation.
2. Move forward with demonstration of carbon capture and storage (CCS), selecting projects by end-2012 and closing by end-2013; include gas CCS demonstration; develop long-term strategy including commercialisation approach (e.g. support for the next phase of investment following demonstration), storage sites and approach to CO₂ pipeline investment which anticipates future demand.
3. Set a clear carbon objective for the Electricity Market Reform (EMR) (i.e. to achieve a carbon intensity of the order of 50 gCO₂/kWh by 2030 through investment in and development of a low-carbon technology portfolio); make commitments on minimum level of investment in less mature technologies subject to cost conditions being met.
4. Set out detailed implementing arrangements for EMR by the end of 2012; allow renewable projects to be considered for early eligibility for Contracts for Difference under EMR (along with nuclear and CCS); make EMR support for intermittent generation as close to feed-in tariffs as possible.
5. Ensure a major role for the Green Investment Bank in mobilising project finance for offshore wind investment (e.g. to reach around 12 GW by 2020).
6. Engage with EU partners to strengthen the carbon price in the EU ETS.

Buildings

7. Strengthen incentives for loft and cavity wall insulation prior to launch of the Green Deal in autumn 2012.
8. Retain the CRC, but with reduced administrative burden, and redesigned league table to strengthen reputational incentives. Consider scope for rationalisation of policies covering the non-residential sector to one carbon price instrument, in conjunction with league tables and mandatory carbon reporting.
9. Start the non-residential Green Deal no later than January 2013.

Buildings (<i>continued</i>)
<p>10. Announce ambitious standards for private rented regulation in the non-residential sector by the end of 2013.</p> <p>11. Include the residential sector in the Renewable Heat Incentive (RHI) from summer 2013, make eligible for Green Deal finance in conjunction with the RHI, and introduce approaches to address non-financial barriers.</p>
Industry
<p>12. Set out approaches by the end of 2012 (in the forthcoming industry strategy) to increase use of sustainable bioenergy in large industry and to develop and deploy CCS.</p>
Transport
<p>13. Consider options to strengthen incentives for purchase of more efficient vans.</p> <p>14. Reverse budget decision on company car tax for electric vehicles.</p> <p>15. Set out, by summer 2013, an approach to fully roll out Smarter Choices nationwide.</p> <p>16. Include eco-driving as a key element in the practical driving test.</p> <p>17. Enforce the current motorway speed limit.</p>
Agriculture
<p>18. Develop a robust framework for monitoring changes in farming practice based on survey data by the end of 2012.</p> <p>19. Set out by the end of 2012 triggers for introduction of new policies going beyond the current voluntary approach.</p>
Waste
<p>20. Develop specific strategies by the end of 2013 to increase diversion of food, paper and card from landfill.</p>
Data
<p>21. Improve the evidence base on energy efficiency of appliances, district heating, surface transport emissions by mode, agriculture emissions, waste emissions.</p>



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